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DEFENSE MANPOWER COMMISSION STAFF STUDIES
AND SUPPORTING PAPERS

VOLUME III

MILITARY RECRUITMENT AND ACCESSIONS
AND FUTURE OF THE ALL VOLUNTEER FORCE

MAY 1976

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PREFACE

This is Volume III of the published staff studies and supporting papers prepared for the Defense Manpower Commission.

The Defense Manpower Commission was created by a provision of the Defense Appropriation Authorization Act, 1974 (Public Law 93-155, Title VII), which, inter alia, stated:

Sec. 702. It shall be the duty of the Commission to conduct a comprehensive study and investigation of the overall manpower requirements of the Department of Defense on both a short-term and long-term basis with a view to determining what the manpower requirements are currently and will likely be over the next ten years, and how manpower can be more effectively utilized in the Department of Defense.

The Commissioners have submitted two formal reports to the Congress and the President, an Interim Report on May 16, 1975 and the Final Report on April 19, 1976.

In addition, for purposes of public information and to facilitate further research on these subjects, the Commissioners have arranged for this publication of certain studies and working papers prepared by the staff of the Defense Manpower Commission, together with supporting contract studies and a special report prepared for the Commission by the Department of Defense. While some of the published DMC staff papers are in finished form and were presented formally to the Commissioners, others are only draft working papers but still potentially useful to publish. Not published but included in the Commission files are internal working papers, trip reports, miscellaneous data, reference materials, records of DMC hearings and meetings, and administrative papers.

The views expressed in the published DMC staff papers and contract studies are those of the authors or contract research firms, as

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applicable. Publication of such papers in these volumes does NOT necessarily imply approval or endorsement by the Defense Manpower Commission, whose views are as stated in the aforementioned DMC Interim Report and Final Report.

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Bruce Palmer, Jr.
General, USA (Ret.)
Executive Director
Defense Manpower Commission

Washington, D.C.
May, 1976

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- B. DEPARTMENT OF DEFENSE MANPOWER, FY64-FY77: THE COMPONENTS OF CHANGE, prepared by the Department of Defense for the Defense Manpower Commission. (Related especially to Chapters I and IV of DMC Final Report.)
- C. THE INTERNAL MANAGEMENT SYSTEM FOR DEPARTMENT OF DEFENSE MANPOWER, by Norbert R. Kaus, Thomas G. Bolle and Albert Shanefelter. (Related to Chapter III, DMC Final Report.)
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*All papers in Volume V relate to Chapter VIII of the DMC Final Report.

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RECRUITMENT IN THE ARMED FORCES

INTRODUCTION

(To a Series of Six Papers on the Above Subject)

A Staff Paper for
The Defense Manpower Commission

By
Kenneth J. Coffey, Frederick J. Reeg and Audrey J. Page
Recruitment Group
Defense Manpower Commission Staff

September 1975

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RECRUITING IN THE ARMED FORCES
DMC STAFF STUDIES

Introduction

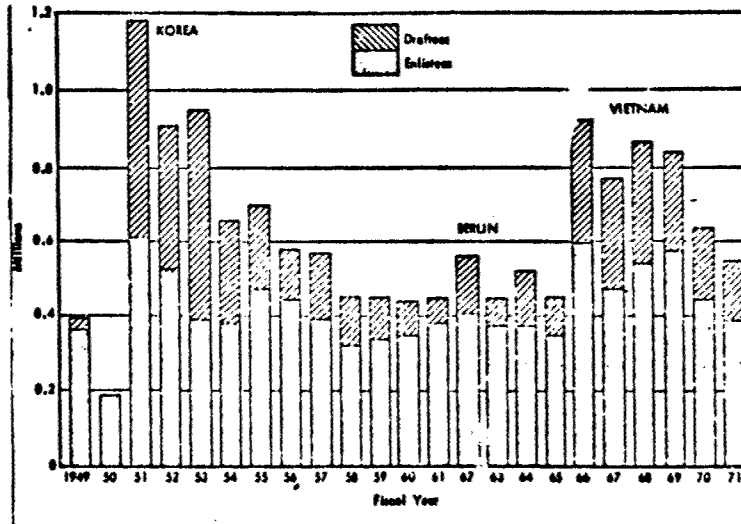
Six research papers have been prepared by the DMC Staff, Recruitment Group, on the subject of recruiting method, and techniques within the armed forces, active and reserve. The papers address recruiting organizational structures and management, levels of personnel, budgets, recruiting tools, personnel policies and recruit processing. All papers combine to cover the broad topic of recruiting operations and policies. These research papers were prepared as a result of the charge of the DMC in Public Law 93-155, Section 702 (6). This section directed the DMC to study and investigate "the methods and techniques used to attract and recruit personnel for the armed forces, and whether such methods and techniques might be improved or new and more effective ones utilized."

HISTORICAL OVERVIEW

The principal features of the All-Volunteer Force (AVF) recruiting programs can be better understood if a historical perspective is established within which the significance of the major changes which occurred in the AVF years can be seen. This is most easily done by comparing the programs of the AVF years (FY 73 - FY 75) with the programs which prevailed when the draft was in full effect.

The most important influence on the structure and operation of the pre-AVF recruiting programs was the draft. As indicated by Figure 1, draftees played a significant role in filling DoD requirements for non-prior-service personnel in the FY 49 - FY 71 period. In addition, many of those who enlisted were "draft motivated", men who volunteered for

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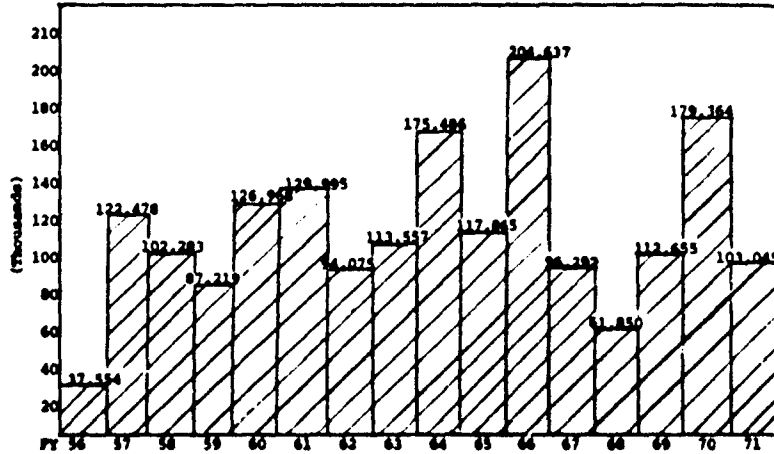
SOURCE: U.S. Congress, Senate, Report of the Senate Armed Services Committee Hearings on Selective Service and Military Compensation, 92d Cong., February 1971, pp. 58-59.

Fig. 1--DoD Active Duty accessions, 1949-1971

service in order to escape the uncertainties of the draft. In addition, while men were never drafted into the National Guard or Reserve, a large proportion of the non-prior-service (n.p.s.) accessions into these programs (see Figure 2) were draft motivated. Indeed, the high degree of change in educational levels, intelligence levels, sex, race and other factors in Guard and Reserve accessions in AVF years is perhaps the most drastic change in Service accessions patterns since the end of the draft.

As the availability of inductees or draft induced enlistees was relatively assured in the pre-AVF years, there were less than vigorous efforts within the recruiting programs to seek and enlist qualified volunteers.

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Source: Selected Manpower Statistics, Department of Defense, OASD (Comptroller) Directorate for Information Operations, May 15, 1974, p. 100.

Fig. 2--DoD Selected Reserve NPS Accessions, 1956-1971

As Rear Admiral William M. A. Greene, Commander of the Navy Recruiting Command, told Congress in 1972:

"We got into a habit in World War II of having the draft, and we didn't fall out of that habit. We got ourselves geared to it. Our attitude was draft. The Navy's recruiting system was completely unresponsive to a realistic look for quality, because we felt they would come to the doors, and they did."^{1/}

The recruiting establishment of the pre-AVF years was a small, comparatively stable body accustomed to performing traditional duties in traditional

^{1/} U.S. Congress, "Hearings before and Special Reports made by Committee on Armed Services to the House of Representatives on Subjects Affecting the Naval and Military Establishments 1972," 92nd Congress, 2d Session, p. 8262.

ways. The unchanging nature of recruiting duties was described by the Central All-Volunteer Force Task Force in this way:

Traditional recruiting methods, with some exceptions, have not significantly changed over the past 100 years. Appeals popular in the 19th century are still in use today....^{1/}

If the nature of recruiting activities had changed little, the magnitude of the DoD-wide effort had changed even less. As Table 1 indicates, although the total DoD recruiting budget nearly doubled from 1961 to 1969, both the total number of recruiters and the total recruiting budget as a percent of the active duty manpower budget were extremely stable despite the substantial enlisted accession variations indicated in Fig. 1 and Fig. 2. With no apparent need for an improvement in volunteer recruiting

Table 1
MAGNITUDE OF DoD RECRUITING, 1961-1969

Fiscal Year	Total DoD Recruiting Expenditures (\$)	Total Recruiters-- All Services	Recruiting Expenditures as % of Active Duty Manpower Budget
1961	68,189,378	7,114	0.0064
1962	65,338,518	7,219	0.0056
1963	63,861,457	7,070	0.0056
1964	64,080,526	6,903	0.0052
1965	72,326,959	7,056	0.0057
1966	90,715,842	7,241	0.0063
1967	96,864,035	7,371	0.0057
1968	102,274,489	7,176	0.0054
1969	125,317,150	6,987	0.0062

SOURCE: S. W. Kemp, Productivity of U.S. Military Recruiting Systems, Study IV, Studies for the President's Commission on an AVF, November 1970.

^{1/} See Broadening the Recruiting Market, prepared by Central All-Volunteer Force Task Force, OASD(M&RA), November 1972, Enclosure 1, p. 1.

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because of the draft, recruiting efforts were correspondingly limited in scope and intensity; in fact, the Rand Corporation submitted that it may have cost more, on an overall average, to draft a man than to recruit him.^{1/}

These generalizations about the recruiting establishment do not mean that recruiting was performed by a central agency representing the Services. To the contrary, each Service maintained its own recruiting arms, each consisting of several independent programs. These programs evolved within each Service without common management guidelines, creating a complex amalgam of overlapping boundaries, staffing patterns, budgets, processing and policy-making machinery.

The efforts of the Services to overcome these problems in the draft-free AVF years of FY 73 - FY 75 are discussed and evaluated in the following research papers:

1. Organizational Structures
2. Numbers of Recruiting Personnel
3. Recruiting Budgets
4. Recruiter Personnel Policies
5. Recruiting Tools
6. Recruit Processing Controls

^{1/} Rand Corporation, "Recruiting, Classification and Assignment in the All-Volunteer Force: Underlying Influences and Emerging Issues," Number R-1357-ARPA, March 1974.

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RECRUITMENT IN THE ARMED FORCES

PAPER #1 -- ORGANIZATIONAL STRUCTURES

A Staff Issue Paper for
the Defense Manpower Commission

By
Kenneth J. Coffey, Frederick J. Reeg and Audrey J. Page
Recruitment Group
Defense Manpower Commission Staff

September 1975

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EXECUTIVE SUMMARY

TITLE: Organizational Structures

BACKGROUND: The numbers and organizational structures of separate recruiting programs vary from one Service to another, and within Services, from one component to another.

- Paper assesses each Service (Regular, Reserve, Guard) for FY 75 in terms of:

- Separate recruiting programs and missions
- Internal organization
- Chains of Command
- Supervision and support

PROBLEM: Discussion used to summarize and compare recruiting programs for all Services. Dramatic differences become obvious.

ALTERNATIVES: Various options relating to improvements in recruiting policies by Services and DoD in support of Total Force Concept.

CONCLUSION: Services have made commendable progress during AVF years in supporting Total Force recruiting program, but new initiatives are needed.

RECOMMENDATION: To fully support Total Force recruiting programs over the next decade, DoD should require the Army, Navy Air Force to consolidate their separate active service recruitment programs; further, that the Army and Air Force should be required to take steps toward achieving consolidated "one stop" recruiting programs.

DoD also should establish common recruiting nomenclature and boundaries. Standards for supervisory levels also should be established.

DoD also should require the Services to determine recruiting support requirements on a Total Force basis; further, that possible duplications of support efforts be documented and, if valid, that consolidation of support functions under Executive Agency concept be adopted.

Finally, DoD should require each Service to appoint or maintain a senior commander to be responsible for all recruiting and training activities; that this responsibility include the active and reserve programs, with the inclusion of the Guard programs as a future goal, subject to study.

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RECRUITMENT IN THE ARMED FORCES
RESEARCH PAPER #1 -- ORGANIZATIONAL STRUCTURES

The organizational structures which have been established to administer the Services' recruiting programs have evolved over time without any central direction or pattern, with the exception of several changes in the AVF years which have moved the Services toward better cooperation and management of recruitment programs. Yet, at the beginning of FY 76, the organizational structures for recruiting within the Services were widely different, in missions, structure and chains of command.

A. The Department of the Army

The U. S. Army Recruiting Command (USAREC) at Fort Sheridan, Illinois, is the premier recruiting organization for the Department of the Army. However, it is only one of nine recruiting programs within the Department, and despite its impressive budget, staffing, research and operations, it is not responsible for several major portions of accession recruiting.

In terms of specific program responsibility, USAREC manages the following recruiting activities:^{1/}

- Regular Army enlisted
- Women's Army Corps enlisted
- Women's Army Corps Direct Commissioning program
- Army Nurse Corps
- OCS, Warrant Officer Flight Program

^{1/} Information furnished by Col. Baddaker, Director, Recruiting Management, USAREC, 7 July 1975.

The following programs are managed by the Office of the Deputy Chief of Staff for Personnel in Washington:^{2/}

West Point cadets

ROTC

Next, the Department of Army in 1971 initiated a Unit of Choice Recruiting or "canvasser" program, in which operational units of the U. S. Army send unit personnel to recruit for Unit of Choice enlistees. Separately funded, this program came under the administrative direction of USAREC in FY 75.

Further, recruitment of medical officers, legal officers and chaplains are the responsibility of their respective staff offices.

Last, of course, the major exceptions to Total Force recruiting by USAREC are the separate recruiting programs for the Army Reserves and the Army National Guard.

In total, then, there are nine separate recruiting organizations within the Department of the Army.

While the West Point, ROTC and specialty officer recruitment programs are small in nature and the "canvasser" program is being phased down, the three major structures, USAREC, Army Reserves and Army National Guard, are of significant magnitude to warrant discussion.

USAREC

Commanded by a Major General, USAREC is under the supervision and

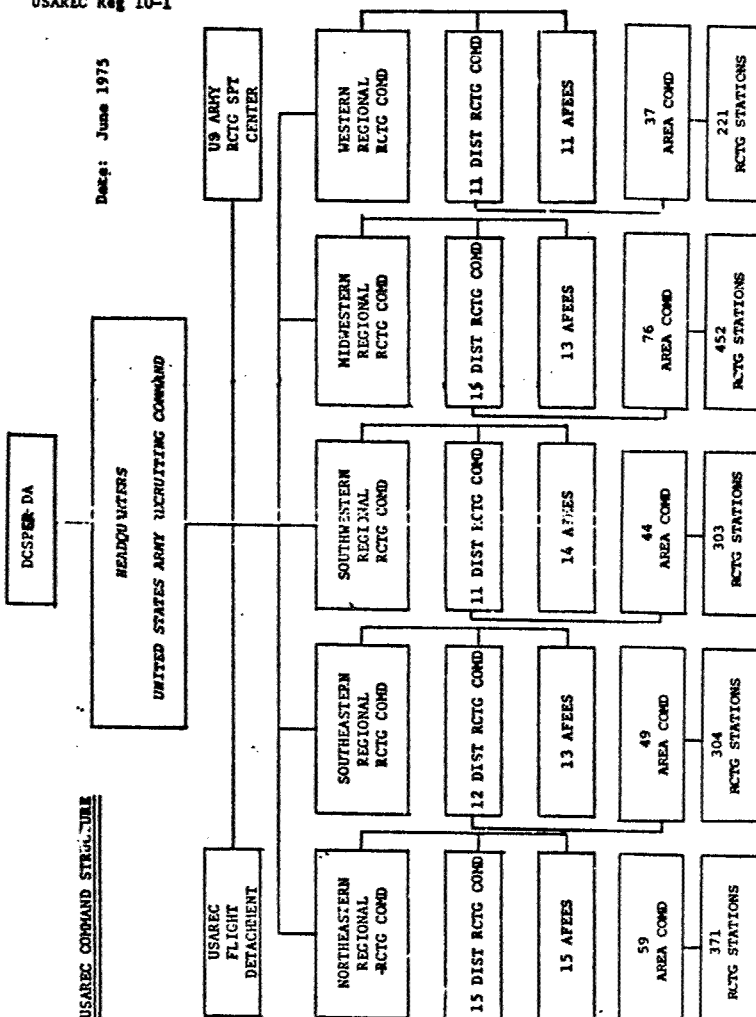
^{1/} Information furnished by Col. Greynolds, DCS/Per, Department of the Army, 7 July 1975.

direction of the Deputy Chief of Staff for Personnel, Department of the Army. USAREC also acts as the responsible agency for the operation of the Armed Forces Entrance and Examining Stations. There are five levels of command within USAREC: Regional Commanders are responsible to the Commanding General, District Commanders are responsible to the Regional Commanders; Area Commanders are responsible to the District Commanders and Recruiting Station Commanders are responsible to the Areas. The following diagram illustrates the chain of command and the number of sites at each level:^{1/} In general terms, the personnel at Areas and Stations generally are considered as production recruiters; those at Districts, Regions and USAREC headquarters are considered as supervisory/management personnel.

(See chart next page)

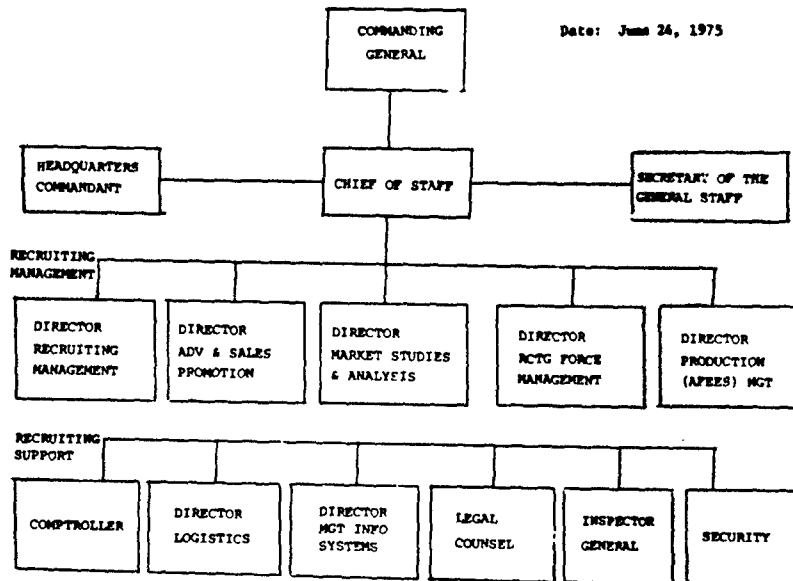
^{1/} USAREC Reg. 10-1; Data on numbers of Area Cds and Rctg. Stations provided by Col. Baddaker, Recruiting Management, USAREC.

Date: June 1975



USAREC Headquarters at Fort Sheridan has all the major functional staff offices of a major command, including five Directorates and six major staff offices. The following chart illustrates the USAREC headquarters organization:^{1/}

HEADQUARTERS, UNITED STATES ARMY RECRUITING COMMAND



^{1/} Information provided to DMC at USAREC briefing, 24 June 1975.

Armed Forces Examining and Entrance Stations (AFEES)

USAREC is the Executive Agent for the operation of the AFEES. There are 66 AFEES, located in major metropolitan areas throughout the United States. There were 74 AFEES sites during the draft era; however, this number was reduced after the end of inductions in 1973. The AFEES commanders are responsible to the Commanding General, USAREC through the five Regional Recruiting Commanders. In addition, there is a major Directorate (Production Management) within USAREC headquarters which is responsible for AFEES policy and direction.

The AFEES are responsible for the mental testing and medical examination of all applicants for enlistment into the active Army, Navy, Air Force, and Marine Corps. They also are responsible for the processing and enlistment of applicants into the respective armed services, for the providing of transportation for accessions to respective Service training centers or duty stations, and, in case of national emergency, for the examination, processing, allocating and induction of Selective Service registrants into the armed services.^{1/}

Although AFEES has the responsibility for mental testing of all applicants for entry into the armed forces, DoD in recent years has allowed the Air Force and the Navy to conduct their own testing programs. The Army and the Air Force Reserve and National Guard also conduct their own mental and physical examinations, although AFEES facilities are utilized on a "space available and convenience" basis.

^{1/} Briefing by Production Management Directorate, USAREC, to DMC staff, 4 Feb. 1975.

Effective 1 January 1976, the AFEES will assume the full responsibility for the ASVAB mental testing of all applicants (except for Army and Air Force Reserve and National Guard enlistees).^{1/} Assistant Secretary of Defense (M&RA) William K. Brehm has also directed that the Services transfer the "necessary resources" to AFEES for the accomplishment of this task. This increase could result in additional AFEES sites and different organization; however, as of 1 Sept. 1975 specific augmentation plans have not been issued.^{2/}

USAREC AVF-era Changes

Several major changes occurred in the USAREC structure during the AVF years. In addition to assuming operational control over the "canvasser" program, USAREC also evolved the Area command (O-3), from what previously had been a Sector Supervisory position for a senior Enlisted Man. During this process, the number of areas was increased from 179 to 256.^{3/}

During this same period, although there is no direct responsibility within the Army civilian Secretariat for USAREC operations and policies, there was a high level of personal interest and involvement by the Secretary of the Army, the Assistant Secretary of the Army (M&RA) and his staff.

^{1/} Information provided by Mr. Don Snull, DASD (Manpower Requirements and Analysis).

^{2/} Assistant Secretary of Defense (M&RA), Memorandum for Assistant Secretaries of the Military Department (M&RA) of June 9, 1975, Subject: "Enlisted Accession Processing".

^{3/} Statement of Major General John Quint Henion, Commanding General, U.S. Army Recruiting Command, "Hearings before and Special Reports made by Committee on Armed Services of the House of Representatives on Subjects Affecting the Naval and Military Establishments 1972, op.cit., p. 8421.

Army National Guard

The Army National Guard began to feel the effects of the impending end of the draft in 1972 when its strength dipped to a low of 94% of the Congressionally authorized strength.^{1/} In response, a recruiting organization began to take shape. Additional Army Guard technicians were authorized to assist each state's Recruiting and Retention Officer. Individual man-days were allocated to each state for the purpose of recruiting. Guardsmen were assigned to numerous active Army installations as counselors to recruit personnel leaving active duty. In 1973, Guardsmen were assigned to 20 active Army recruiting centers to coordinate the recruiting activities of Army National Guard and active Army recruiters.^{2/}

Recruiting is centrally coordinated by the Army National Guard Bureau. However, the individual state governor and adjutant general exercise command over the Guard units and the unit recruiting programs in their state and are responsible for maintaining unit strength. The technicians and the allocation of individual man-days are controlled by the state while the career counselors are controlled by U.S. Army Forces Command (FORSCOM). The liaison Guardsmen at the Recruiting Centers are under the supervision of the center commander.^{3/}

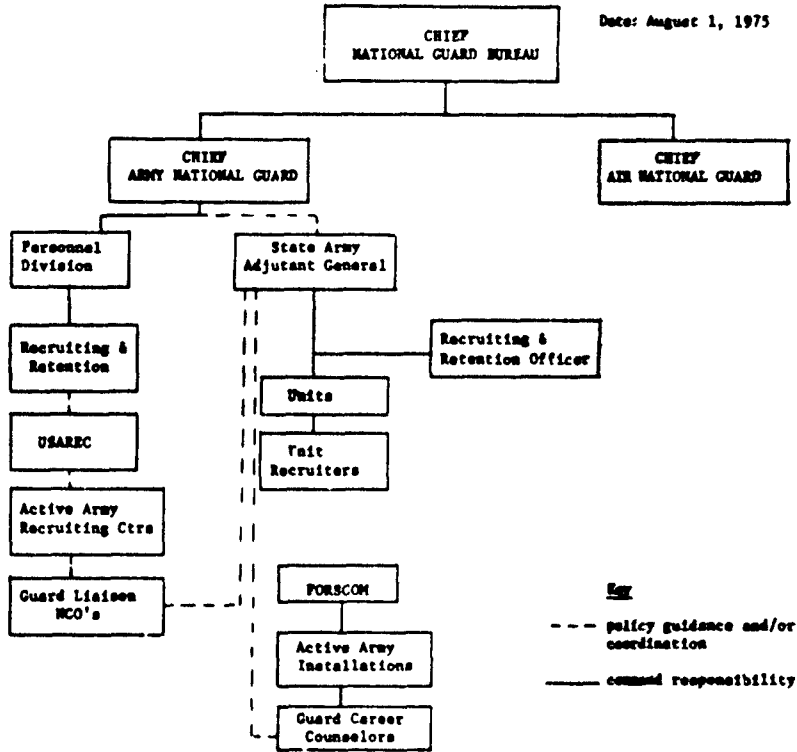
^{1/} Background Paper provided by Mr. E. Willcock, Assist. Pers. Officer, Pers. Div., Army National Guard, August '75.

^{2/} Based on verbal information provided by Mr. E. Willcock, August '75.

^{3/} Circular 135-49, Army National Guard and Army Reserve Recruiting and Retention Program, 12 October '72.

The organization chart for the Army Guard recruiting function is as follows:^{1/}

Date: August 1, 1975



^{1/} Partially derived from Dept. of Army and Air Force National Guard Bureau Organization Chart, 1 August '75.

The Army Reserve

The Army Reserve began to experience the effects of the end of the draft a year before it actually stopped. The waiting lists of men desiring to enlist in the Army Reserve evaporated and since there was no recruiting organization in existence, only 47% of the enlisted accession goal for FY 72 was achieved. The shortfall was very critical in the non-prior service category where only 24.6% of the goal was recruited.

With the experience of the shortfall of FY 72, the Army Reserve began to construct its recruiting organization. Army Reservists on two-year active duty tours were first stationed at active Army installations to recruit personnel leaving active duty. Civilian technician authorizations were next placed at Army General Officers Commands (GOCOMs) and U.S. Army Reserve Commands (ARCOMs) to coordinate Reserve recruiting activities. In FY 73 additional technician authorizations were allocated to Reserve units for the purpose of recruiting, and Army Reservists on two-year active duty tours were placed at active Army District Recruiting Command headquarters as liaison with the active Army recruiting effort. Reservists were also assigned to Ft. Benjamin Harrison to conduct a school for prospective Reserve recruiters. By FY 74, Reservists on active duty tours were stationed at Veterans' Assistance Centers as recruiters and counselors.^{2/}

^{1/} Based on information received from Capt. Ryan, Comptroller Division, Office of the Chief, Army Reserve, August 1975.

^{2/} Summary provided by Colonel Randle, Recruiting and Retention Branch, Personnel Division, Office of the Chief, Army Reserve, August 1975.

The responsibility for maintaining the strength of Army Reserve units rests with the unit commander. To assist the commander, the Chief of the Army Reserve establishes policy and provides guidance on the recruiting program.^{1/} The ARCOM or GOCOM to which the unit belongs and FORSCOM, which has the responsibility for overall supervision of the recruiting program, monitor and man the recruiting activities.^{2/} The recruiting organization within the Army Reserve is illustrated as follows:

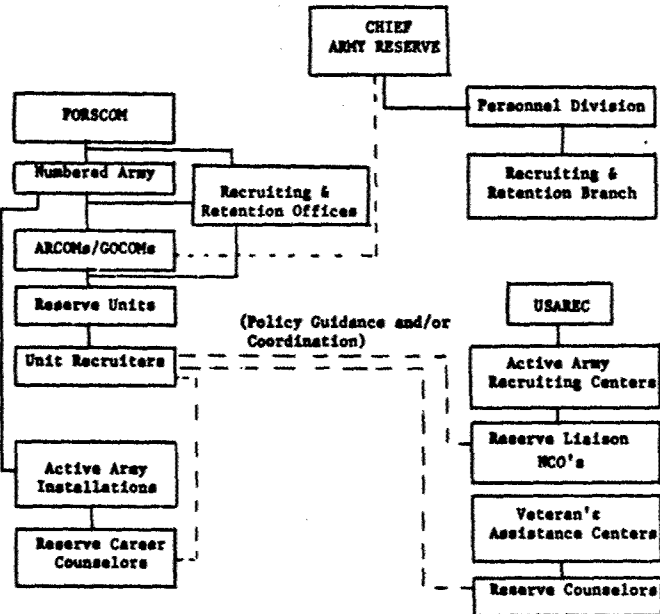
(See next page)

^{1/} The staff office charged with this task is very small.

^{2/} Circular 135-49, Army National Guard and Army Reserve Recruiting and Retention Program, 12 October 1972.

Date: October 1972

Army Reserve Recruiting Organization



Source: Based on information in Circular 135-49, Army National Guard and Army Reserve Recruiting and Retention Program, 12 October 1972.

B. Department of the Navy

The recruiting organizations and structures for the U. S. Navy underwent profound changes during the AVF years. The theme for these changes was centralization.

During the draft era, the Navy operated most of their recruiting programs out of the Bureau of Naval Personnel as coordinated but independent staff programs. In April 1971, however, the Navy Recruiting Command was independently established and given responsibility for regular Navy enlisted recruiting, WAVEs, and most officer programs (OCS, NROTC, Chaplain, legal and aviation). At that time, the recruitment of Naval doctors still was the responsibility of the Bureau of Medicine and Surgery and the recruitment of Naval Academy Midshipmen was the responsibility of the Academy. In addition, enlisted reservists were being recruited by the Chief of Naval Surface Reserve (for surface units) and the Chief of Naval Air Reserve (for air units).

A further consolidation of recruiting activities took place on April 1, 1973 when the recruiting responsibilities for enlisted reservists (both surface and air) was transferred to the Navy Recruiting Command. Then, in April 1974, the command assumed responsibility for Medical Officer recruitment.

As stated by Admiral Greene, the Commander of Naval Recruiting, in 1972:

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"We now have what we call one-stop recruiting. This means the approaches to the youth are made to recruit him for any active or Reserve program, enlisted or officer, rather than having separate groups going after this individual, and possibly competing for him in the old methods for the various programs."

Although Admiral Greene spoke about "one-stop" recruiting, two exceptions remained in effect in FY 76: Naval Academy recruiting, and recruiting of prior-service personnel for the Naval Reserve program.

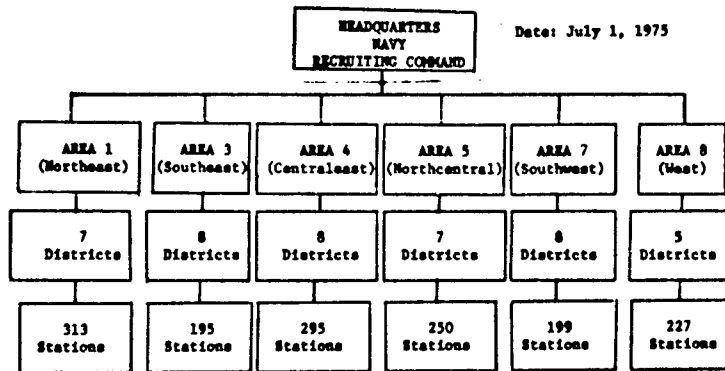
The Commander of the U. S. Navy Recruiting Command (a Vice Admiral billet downgraded to 2-stars in FY 76) is directly responsible to the Chief of Naval Personnel. There are four levels of command within the recruiting structure: in addition to the Headquarters, Navy Recruiting Command, there are six recruiting Areas (down from eight in 1974 and seven in 1975). Subordinate to the Areas are 43 Recruiting Districts (down one from FY 75); subordinate to the Districts are 1,479 Recruiting Stations, located by population density throughout the United States. In addition, the special Naval Academy program is run out of the Academy proper, while the recruitment of prior service personnel for the Reserves is handled by Reserve recruiters assigned to Naval Reserve units, receiving only staff support from the higher Reserve commands.

The structure of the Navy Recruiting Command is diagrammed as follows:^{2/}

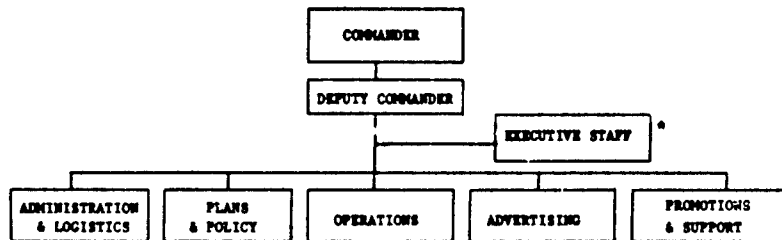
(see next page)

^{1/} Hearings before the House Armed Services Committee, op cit, pp. 8249-8250.

^{2/} Data provided by H. Lipsie, Research Division, Navy Recruiting Command, 8 July 1975.



The Navy Recruiting Command also has a complex of major staff offices, similar to but not as extensive as those of USAREC. The following chart illustrates the Navy Recruiting Command headquarters organization:



* Includes: AIDE
EXECUTIVE ASSISTANT
SPECIAL ASSISTANT FOR PUBLIC AFFAIRS
SPECIAL ASSISTANT FOR FINANCIAL MANAGEMENT
SPECIAL ASSISTANT FOR MINORITY AFFAIRS
SPECIAL ASSISTANT FOR MANAGEMENT SERVICES

C. U. S. Marine Corps

The Marine Corps probably will make a major change in their recruiting organization during FY 76 and beyond. However, the change, which will combine responsibility for recruit training and recruiting under the Commanding Generals of the two Marine Corps Recruit Training Depots (San Diego and Parris Island), is not yet operational. It probably will be implemented during FY 76, at least on a "test basis". In September 1975, the Marine Corps had no formal recruiting command. Rather, with staff direction provided by Headquarters, U. S. Marine Corps in Washington, the operations of the Marine Corps recruiting programs are the responsibility of six Marine Corps District Directors, who are responsible directly to the Commandant for Marine Corps activities in their districts, which includes recruiting, but also includes many other responsibilities. To assist the District Directors, Deputy Directors for Personnel Procurement are assigned.

Within Headquarters, U.S.M.C., staff support for the recruitment activities in the field is provided by the Recruitment Branch (Colonel slot) of the Personnel Management Division, which is responsible to the DCS/Manpower. In practice, however, the Recruitment Branch has attained much of the authority and responsibility of an independent division, reporting directly to the DCS/Manpower or the Commandant. This has been achieved by the appointment of a Brigadier General to a temporary position of Director of Personnel Procurement. In practice, this position has become the Marine Corps' Director of Recruitment. Although operational responsibility for recruiting still rests with the District Directors, the

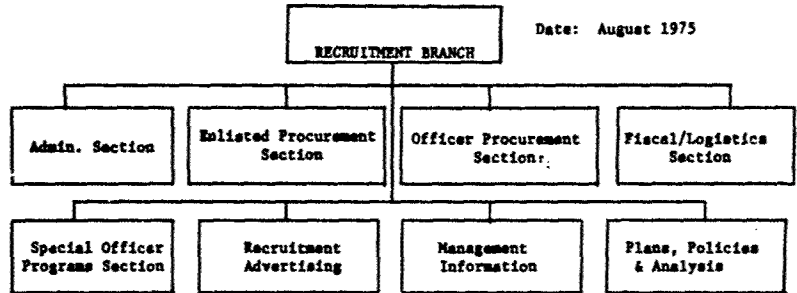
appointment of a General to oversee recruiting activities and the personal interest of the DCS/Manpower and the Commandant in recruitment activities has allowed the Director of Personnel Procurement to strongly influence the actions and activities of the District Directors. This was observed repeatedly by DMC staff personnel in visits to Marine Corps headquarters and field recruiting offices. Further, although the position of Director of Personnel Procurement was "temporary", the first "temporary" has been re-assigned and replaced by another Brigadier General; thus the current arrangement is likely to continue for the immediate future.

In addition to providing more command interest in recruiting during the AVF years, and authorizing the planned FY 76 major reorganization, the Marine Corps in 1973 directed that recruitment for both the active and reserve forces be consolidated, including all officer recruitment and the recruitment of prior service personnel for the Marine Corps Reserves.^{1/}

Although not nearly as large or complex as the command support elements of the other Services, the Marine Corps maintains a reasonable staff support structure in Washington. It is diagramed as follows:^{2/}

^{1/} As part of the Naval Service the Marine Corps also participates and benefits from the Naval Academy program.

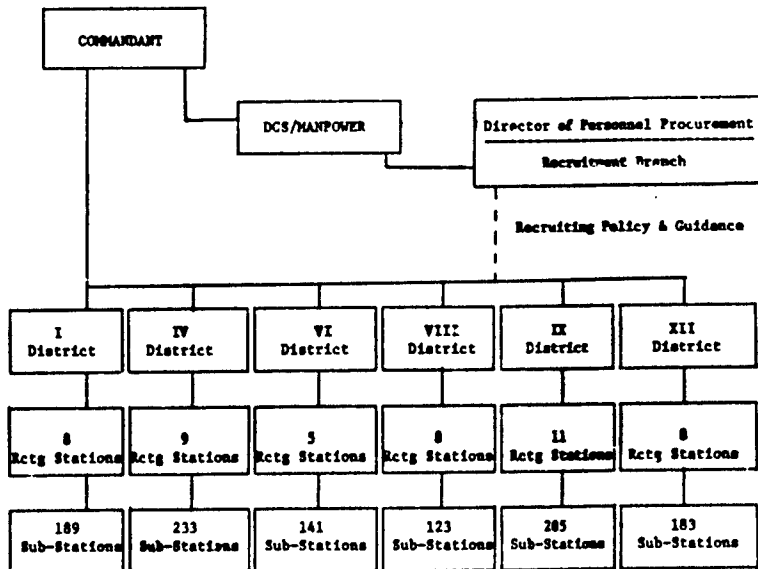
^{2/} Information provided by Major William Gilfillan, Recruitment Branch, Headquarters, USMC.



Like the Navy, the Marine Corps operates with four recruiting levels. The District Directors are responsible to the Commandant (and "listen clear" to the Director of Personnel Procurement); 49 Major Stations are responsible to the Districts; while some 1,093 sub-stations, permanent contact stations or transient recruiting facilities are supervised by the Major Stations.

The organization of Marine Corps recruiting in effect in early FY 76 (although probably being changed) is as follows:^{1/}

^{1/} Data provided by Major William Gilfillan, Recruitment Branch, Headquarters, USMC.

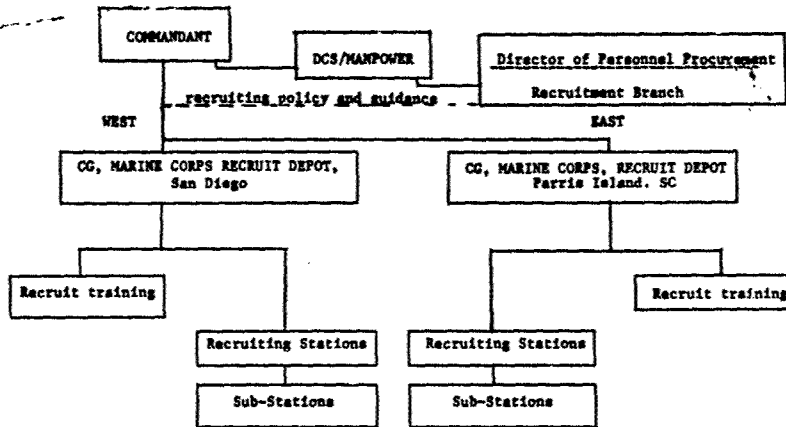


Prompted by the change in Marine Corps leadership (new Commandant, new DCS/Manpower), directions were issued in July 1975 to study and test the combining of recruit training and recruiting activities under the same command. If fully implemented, this will mean that the current Commanding Generals of the Marine Corps Recruit Training Depots (Major Generals) at San Diego and Parris Island will be responsible both for recruiting and recruit training for their sections of the country. They, then, probably will be responsible directly to the Commandant.

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Under the proposed organization structure, the recruiting responsibilities of current Districts I, IV and VI would be transferred to the CG, Farris Island; while the responsibilities of current Districts VIII, IX, and XII would be transferred to the CG, San Diego.

If implemented, the new Marine Corps recruiting structure would appear as follows:^{1/}



^{1/} Information provided by Col. Dorsey, Policy & Plans, DCS/Manpower; Major Gilfillan, Recruitment Branch Headquarters, USMC.

D. U. S. Air Force

Total Force recruiting for the U. S. Air Force has undergone the least degree of change among the four Services during the AVF years. Although a major experiment was conducted to test the concept of combining Active Force with Reserve Force recruiting, the test resulted in a continuation of the status quo; that is, separate recruiting programs for the Active Forces, Reserves, and Air National Guard.

The major active Air Force recruiting organization is the U. S. Air Force Recruiting Service, which is a major component of the Air Training Command. Both commands are located in San Antonio, Texas. The Air Training Command, as its name implies, also is responsible for all basic and technical training within the Air Force.

The Air Force Recruiting Service is responsible for the following functional programs:

Regular Air Force enlisted (including women)

Medical Officer Recruiting

Nurse Recruiting

OTS

The only exceptions to this overall active service responsibility of the Air Force Recruiting Service are the special recruiting programs for Air Force Academy cadets, Air Force ROTC, chaplains and legal officers.^{1/} Special branches within the offices of the DCS/P are responsible for Academy

^{1/} Information provided by LtCol. N. G. Milanovitch, Director of Personnel Plans, Headquarters, USAF.

and AFROTC recruiting, while chaplains and legal officers are recruited by their respective staff offices.

During the AVF years, there was no fundamental change in these responsibilities. The only impact of the AVF on the Air Force recruiting structure was a change in the authorized number of recruiting stations, which were increased in FY 72 by 144,^{1/} and reductions in the supervisory levels of Air Force recruiting which were effected in FY 76. These FY 76 actions resulted in a reduction in the number of Air Force Recruiting Groups from 7 to 5, and the number of Air Force Recruiting Detachments from 45 to 38.^{2/}

The organization of the Air Force Recruiting Service can be diagrammed as follows:^{3/}

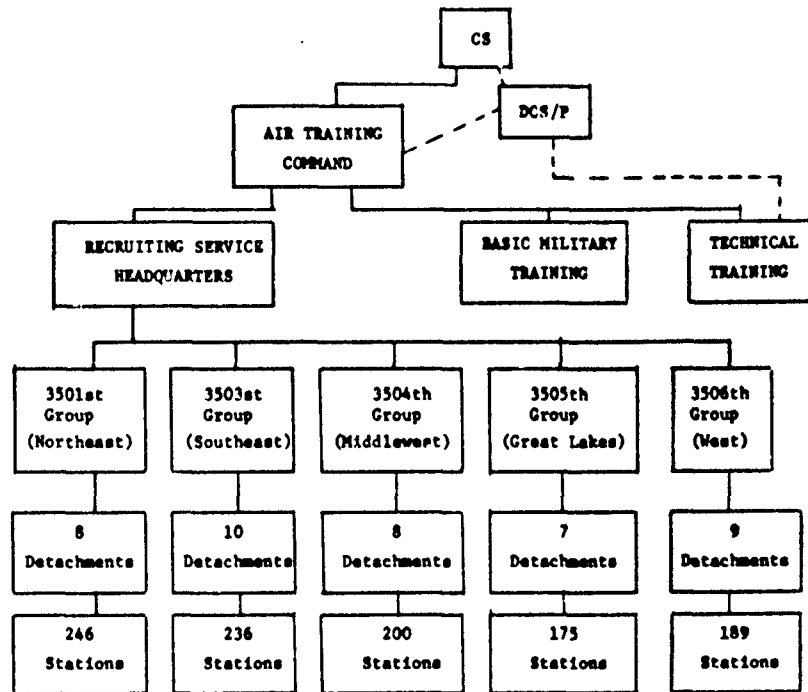
(see following page)

^{1/} Statement of Brigadier General Conrad S. Allman, Commander, U. S. Air Force Recruiting Service, "Hearings before and Special Reports made by Committee on Armed Services of the House of Representatives on Subjects Affecting the Naval and Military Establishments, 1972, op cit., p 8312.

^{2/} Data provided by Col. Womack, Director, Recruiting Operations, U. S. Air Force Recruiting Service.

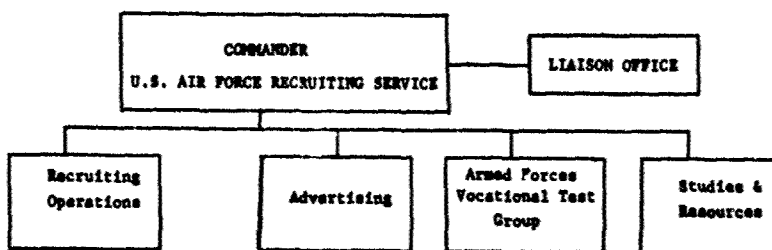
^{3/} LtCol. N. G. Milanovitch, Director of Personnel Plans, Headquarters, USAF.

Date: July 1975



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The Commander of the U. S. Air Force Recruiting Service is a Major General. His command headquarters is divided into four major divisions, as the following chart illustrates:^{1/}



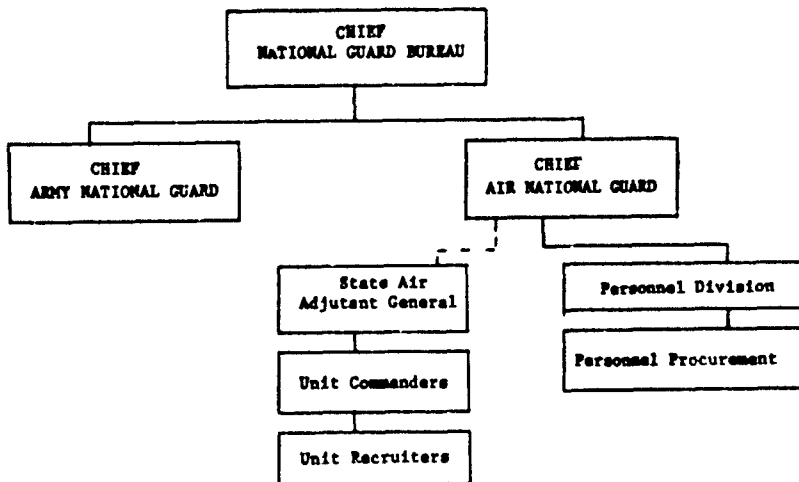
Air National Guard

The Air National Guard is responsible for their own recruiting programs, and, like their counterparts in the Army National Guard and the Reserve components of both the Air Force and Army, the responsibility for recruitment has been placed with unit commanders. To help them accomplish their missions, personnel, budget and other support has been provided. Policy direction and guidance for the recruiting efforts are provided by a small section within the National Guard Bureau, separate from that which provides recruiting policy direction for Army National

^{1/} Chart ATC VA II (1 Dec 74) OPR: ATC/RSE.

Guard units. This unit, the Personnel Procurement Section of the Personnel Division, develops the guidance and policy for Air National Guard recruiting activities. The section also coordinates programs with the active Air Force.

Each state Adjutant General is responsible for maintaining the authorized strength of the units within the state and for the state-wide recruiting function based on policy guidance provided by the Air National Guard Bureau. Several states have designated full-time recruiting and retention personnel at the state headquarters level to coordinate the recruiting activities within that state. The relationship of the National Guard Bureau, the state organization and the staff functions are illustrated as follows:^{1/}



^{1/} Dept of the Army and the Air Force National Guard Bureau Organization Chart, 1 August 1975.

The existing structure of the Air National Guard recruiting function began developing in 1972 as the end of the draft was anticipated. Up to that time each Guard unit had a recruiting and retention NCO whose function was primarily to manage the waiting lists of prospective enlistees. As the end of the draft approached, the waiting lists disappeared and for the first time Air Guard units had to actively recruit new personnel.

During FY 73 various Air Guardsmen were placed on recruiting duty for varying periods of time up to 179 days. As evidenced by a decline in the percentage of enlisted non-prior service recruits entering under this system, a new approach was needed. It was then determined that selected Air Guardsmen should be placed on a one-year, renewable, active duty tour with each flying unit for the sole purpose of recruiting. By FY 74, this was increased and two recruiters were assigned to each of the 91 Air Guard flying units, one recruiter to each of five large active Air Force installations and one to each of 25 geographically separated units for a total of 212 full time recruiters.^{1/} These recruiters were responsible to their unit commander and, through him, to the state Adjutant General.

The Air Force Reserve

Until FY 73 the Air Force Reserve had no personnel performing a recruiting function because of the numbers of draft-motivated men desiring

^{1/} Per Capt. R. Hostetler, Personnel Procurement, Air National Guard Bureau, August 1975.

entry. With the end of the draft, full-time Air Reserve Technicians assigned to Air Reserve units and assisted by part-time reservists were given the responsibility for recruiting and were accountable to their unit commanders. As evidenced by a success rate of only 62.12^{1/} of the FY 74 enlisted accession goal, this structure did not perform adequately.

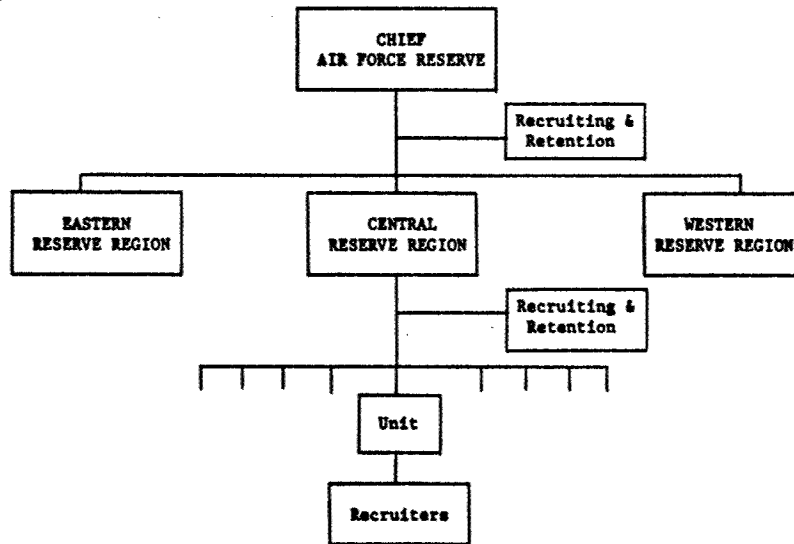
By FY 75 the number of full-time personnel involved with recruiting had doubled and the amount of time being spent on recruiting by part-time reservists had increased by 50%. The recruiting staff was expanded at AF Reserve headquarters and the staff increased at each of the three Reserve region headquarters. Career counselors were assigned to major active Air Force installations to recruit personnel leaving active duty and additional Reserve recruiters were assigned to large metropolitan areas.

The relationship of AF Reserve recruiting functions is shown below:^{2/}

(See next page)

^{1/} Col Richard Hile, Acting Deputy Chief, Personnel Division, Office of AF Reserve, ltr. to AF/DPXS dated 24 July 75.

^{2/} Maj S. Barr, Personnel Division, Office of AF Reserve, August 1975.



While each unit commander is responsible for maintaining the strength of his unit, there are staff offices at all levels of AF Reserve to assist and monitor his status. A small recruiting and retention office exists at AF Reserve headquarters to develop policy guidance, and a staff at each of the three Reserve regions in the U. S. coordinates recruiting activities within that region.

The commander of each region may redistribute funds and recruiting personnel within that region if the need exists. Recruiting personnel may also be shifted between regions if the commanders involved agree. If a particular unit needs additional funding, supplemental funds may be made available from AF Reserve headquarters.^{1/}

^{1/} Maj. S. Barr, Personnel Division, Office of AF Reserve, August 1975.

PROBLEM

The fundamental question that should be answered by the DMC concerning recruiting organizational structures is whether the widely different structures, missions, chains of command and basic recruiting philosophies reflect the optimum in efficient Total Force recruiting programs; or, conversely, whether the present structures, missions, chains of command and basic recruiting philosophies allow for constructive changes which would better reflect the Department of Defense's commitment to the above principle.

CONCLUSION

The authors believe that the Department of Defense and the Services have made commendable progress during the AVF years toward achieving organizational structures which support the Total Force concept and are effective. However, there are several areas in which the authors submit that further improvements can be made. Accordingly, the following alternatives and recommendations are submitted to the DMC for consideration.

ALTERNATIVES

The purpose of this section is to identify and discuss various alternative policies concerning recruiting organizational structures.

A. Scope of Responsibilities in Recruiting Programs

There is a wide divergence within the four Services concerning the scope of responsibility of their major recruiting programs.

For example, here is a comparison of the number of specific recruiting programs which are separately funded and administered:

Department of the Army	9
Department of the Navy	3
U. S. Marine Corps	2
Department of the Air Force	6

While both the Navy and the U. S. Marine Corps have successfully combined Active and non-prior service Reserve recruiting, the Air Force has rejected the concept after a test, and the Army currently is considering the concept. Neither the Air Force nor the Army has seriously considered merging National Guard recruiting activities with those of the Active or Reserve components.

Concerning officer recruitment programs, the Navy and Marine Corps have successfully combined recruiting responsibility for officers (except for Naval Academy) with the activities of their major recruiting programs; at the same time, both the Army and the Air Force maintain separate recruiting programs for ROTC, Service academies and other specialty officer programs.

There are two overriding principles which affect each of the following alternatives. First, there should be significant savings in support/overhead/supervision/management and perhaps in operational recruiters from any policy decision which combines currently separate recruitment programs. Second, the combination of recruitment programs would both remove the responsibility for recruiting further from the prime user of the accessions and would diminish the distinctive identification

of recruiting units, components, or Services.

Alternative 1 would continue present policies without significant change.

The advantage of this alternative is that it would recognize the continuing state of organizational change which has been prompted by the commitment of the country to the AVF concept. It also would retain the prime responsibility for determining the best possible organizational structure with the Service or component which is responsible for recruiting new accessions.

The disadvantages of continuing with the current policies include a degree of duplication and inefficiency which take place when separate recruiting programs - each directed at the same general targets - are maintained.

Further, the overbalancing of structure for active service recruiting activities in the Army and Air Force raises a question concerning the commitment of these Services to Total Force recruiting.

Alternative 2 would combine active and reserve recruiting activities within each Service.

Both the Marine Corps and the Navy have demonstrated that active and reserve recruiting activities can be successfully combined, with resulting efficiencies in supervisory/management personnel, resources, and without apparent loss of emphasis on reserve recruiting priorities.

The disadvantages of this alternative for the Army and the Air Force would be a concern that reserve recruiting might be de-emphasized, either

during the present peacetime recruiting environment, or during a war-time scenario. This concern can be overcome, however, by management policies which ensure continuing priority attention for Reserve recruiting during all contingencies.

Alternative 3 would go one step further and combine the recruitment responsibilities for the Army National Guard and the Air Force National Guard with the Army active-reserve and the Air Force active-reserve recruiting programs.

In addition to the advantages and disadvantages, cited for active-reserve recruiting, the major advantage of "one-stop" Total Force recruiting by each Service would be a resulting increase in the degree of "Service-wide" contact with the target population.

The major disadvantage of "one stop" Total Force recruiting for the Army and Air Force is that the involvement of the Department of Defense in National Guard operational/administrative responsibilities would cause significant political turmoil which could result in over-all harm to the Services and their recruiting programs. Further, the different "character" of the National Guard units, with their State responsibilities in addition to their Total Force commitments, might be diminished in "one stop" recruiting.

Alternative 4 would be the ultimate in "one stop" recruiting - the combination of all current Service recruiting programs into one "Purple Suit" or civilianized recruitment program.

The advantages of such a structure could be the potential cost and manpower savings, particularly in overhead, supervision and support, which would result. The "Purple Suit" concept also would allow the greatest degree of management flexibility in support of a Total Force recruitment program.

The major disadvantages of "Purple Suit" recruiting would be the loss of the distinctive Service identifications and the advantages of competition between Services.

RECOMMENDATION

That the U. S. Navy and the U. S. Marine Corps continue their programs of active-reserve recruiting and through centralized management join the currently independent Naval Academy recruiting and prior-service reserve recruiting programs thereto. That the Navy and Marine Corps continue permanent policies which ensure that appropriate personnel and other resources are committed to the reserve and special recruiting programs in all future contingencies.

That the U. S. Army and U. S. Air Force first adopt the concept of a "one-stop" active recruiting programs by combining the various independent recruiting programs with their major recruiting organizations. Further, that after a reasonable period of experience with "one-stop" active recruiting programs, that the active programs be combined with the Reserve recruiting activities, ensuring that appropriate personnel and other resources are committed to the reserve and special recruiting programs in all future contingencies. Last, that a special Study Group, consisting of State and Federal officials, be established to determine the feasibility of combining National Guard recruiting activities with active-reserve programs in support

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of the Total Force concept.

B. Supervisory Levels

There are major contrasts in the number of supervisory or command echelons in the major recruiting elements, as the following chart illustrates:

	Army		Army NG	Navy	USMC	Air Force	Air Reserve	Air NG
	Army	Reserve						
Overall Management	USAREC	1/	1/	U.S. Navy Recruiting Command	Commandant	U.S. Air Force Recruiting Service	1/	1/
Intermediate Management	Regions	2/	2/	Areas	Dis-	Groups	2/	2/
Operational Management	Districts			Districts	Stations	Detachments		
Supervisory	Areas	Unit Commanders	Unit Commanders				Unit Commanders	Unit Commanders
Operations	Stations	Units	Units	Stations	Sub-Stations	Stations	Units	Units

Of the four major recruiting organizations, only the Army (USAREC) has five levels of command, the remaining have four levels. Further, although their levels have roughly the same responsibilities (with the exception of the Supervisory Level where the Army has established Area Commanders), the organizations have not adopted similar nomenclature, with the Army Region corresponding to the Navy Area, corresponding to the Marine Corps District, corresponding to the Air Force Group.

1/ Although Unit Commanders are primarily responsible for maintaining Unit strength, policy guidance, support and some degree of supervision are provided to Unit recruitment Officers from Overall Management levels at the National Guard Bureau and Reserve higher command headquarters.

2/ Recruiters at Units receive policy guidance, support and some degree of supervision from Intermediate Management levels, consisting of State Adjutant Generals, and Reserve ARCOMs/GOCOMs/Regions.

This lack of uniformity also is apparent in boundaries. For example, the Navy's Area Three roughly corresponds to the Army's Southeastern Regional Recruiting Command; both are commanded by O-6 officers. Yet, the Army's Southeastern Regional Command includes the states of Kentucky, Virginia and West Virginia, and the Navy's Area III does not. In contrast, the Navy Area includes Mississippi and all of Tennessee; the Army Region includes only a portion of Tennessee. This mismatch between Services is apparent at all recruiting levels of supervision, and at many major recruiting sites.

The number of supervisory commanders and the numbers of operating recruiting offices also illustrate a great difference between the four major recruiting programs.

	U.S. Navy USAREC	U.S. Navy Recruiting Command	Air Force Recruiting Service	Marine Corps
Number of Intermediate Management Offices	5	6	5	6
Number of Operational Management Offices	64	43	38	49
Number of Supervisory Management Offices	265	-	-	-
Number of Operating Recruiting Offices	1,551	1,479	1,046	1,254

As this chart illustrates, while the Army has established approximately 22% of their offices for supervision, both the Navy and the Marine Corps utilize approximately 3%, while the Air Force utilizes 4%. Even if the Army abolished their Area Office Commands (265), their percentage

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of supervision would still be the highest, although only slightly (4.4%).

Whereas these comments concerning supervisory levels, nomenclature and boundaries include the Navy and Marine Corps Reserves (because of the Total Force recruiting programs within these Services), the situation for the Army and the Air Force National Guard and Reserve is quite different. With responsibility for recruiting vested in Unit Commanders, there are essentially no formal recruiting supervisory levels within these programs, although policy direction, guidance and some recruiting support are furnished by higher headquarters.

Alternative 1 would continue present policies without significant change.

The major advantage of this alternative would be to retain the management prerogatives of each program during this period of organizational turmoil and transition.

The major disadvantage concerns what may be both an overabundance of supervision (with resulting costs) in the Army's active forces recruiting program and an apparent absence of adequate supervision in the Army's and the Air Force's Guard and Reserve recruiting programs.

Alternative 2 would establish DoD-wide standards, concerning the numbers and relative staffing of supervisory/overhead functions. Reasonable flexibility would be retained by the Services and components within these guidelines.

The advantage of this alternative would be the achievement of a better balance between the various programs in resource allocation, with a resulting stronger commitment to the Total Force concept.

The disadvantage would be the restrictions placed upon each Service to manage their own program in a flexible manner in order to meet the challenges of the times.

Alternative 3 would standardize Service recruiting nomenclature and boundaries.

The advantages of standardization would be reflected in better management control, market research, and allocation of resources.

The disadvantage concerning nomenclature would be the expected confusion that would result during the transition period. The disadvantages concerning the standardization of boundaries would be the removal of each Service's management flexibility which in the past has often been reflected by increasing or decreasing the location and scope of supervisory offices, and the substantial re-programming costs inherent in a massive inter-service boundary readjustment program.

Alternative 4 would establish firm DoD-wide policies concerning the number and relative staffing of supervisory/overhead functions, nomenclature and boundaries.

The advantages of this alternative would be in the efficiencies obtained in the area of management control, research and allocation of resources.

The major disadvantage would be the total removal of management flexibility from the Services and/or components, and the costs inherent in the re-programming.

RECOMMENDATION

That DoD determine standards concerning appropriate supervisory levels for all recruiting programs - regular and reserve; that the Services utilize these standards in budget and management activities; and that OSD monitor and review the Services' efforts.

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That DoD conduct a study of the feasibility and costs of re-programming current recruiting nomenclature and boundaries to common standards. If the study determines that significant efficiencies would result, that OSD require the Services to implement the adoption of common nomenclature and boundaries.

C. Headquarters Support

Another major contrast which deserves discussion concerns the headquarters support elements which are available for the Services' recruiting functions. In this regard, there are two major contrasts. In both the Army and the Air Force, the active recruiting programs have large, sophisticated staff support elements as part of their headquarters, including research and market studies capabilities. In contrast, neither the Air Force Reserve and National Guard nor the Army Reserve or National Guard recruitment programs have any comparable formal staff support elements. In all four programs, there are no identifiable recruiting support functions, except for small 2-3 officer sections. Thus, whatever support, research, studies, etc. are provided for Guard and Reserve recruiting are programmed and funded elsewhere.

Between the four major active forces recruiting programs, there also are contrasts in their headquarters support elements. With one of their four major Divisions devoted to research and market studies, the Air Force has devoted more staff attention to this activity than any of the other three Services. There also is a marked contrast in the Management Information Systems utilized by the four Services.

Alternative 1 would continue present policies without significant change.

The advantage of this alternative is that it would allow each Service and/or component to establish and maintain support elements based on their within-Service evaluation of their particular support requirements.

The disadvantages of the current policies are that they inequitably provide support and research services, particularly to the exclusion of the Army and Air Force National Guard and Reserve recruiting programs. Further, among the four major active service recruiting programs, there is a duplication of support efforts, particularly in certain areas of market research and advertising.

Alternative 2 would require each Service to determine its support requirements on a component-by-component basis.

The advantages of this alternative would be the resulting Service-wide blueprint for more efficient support of the Total Force recruiting concept.

The disadvantage would be the removal of current prerogatives of the Services to establish their own levels of support requirements for the active and reserve components.

Alternative 3 would require OSD to determine the requirements for support elements on a Service-by-Service, component-by-component basis.

The advantage of this alternative would be the resulting blueprint for more efficient support of the Total Force recruiting concept.

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The disadvantage would be the removal of current Service prerogatives to establish their own levels of support for what they consider effective management.

Alternative 4 would require each Service to implement its own or the OSD determined levels of support requirements for all components.

The advantage of this alternative would be the resulting gain in support for the Guard/Reserve programs.

The major disadvantage would be the loss of Service prerogatives to set their own levels of support for what they consider effective management.

Alternative 5 would use the OSD or Service-produced support requirements as guidelines only.

The advantages of this alternative would be the resulting movement toward a Total Force concept.

The major disadvantage would be as for Alternative 4, above.

Alternative 6 would require OSD to eliminate duplication within the Service's support elements by assigning a Service support element to act as Executive Agent.

The advantage of this alternative would be the obvious savings in people and money prompted by the current duplication of efforts.

The major disadvantage would be the removal from individual Services of the specialized research, market analysis, and other support elements which are unique to each Service's operations.

RECOMMENDATION

That each Service be required to determine support requirements for its recruitment programs on a component-by-component basis; that these requirements be subject to OSD review.

That each Service be required to utilize the above support requirements for its recruitment programs as guidelines for Service-wide budgeting, staffing and organization. That Service progress in achieving the requirements be subject to OSD review.

That, in addition to the increasing degree of coordination taking place among Services and OSD, OSD conduct a study of duplication of functions within the Service's recruiting programs; that, if the study determines significant duplication, OSD appoint the Service with the most efficient and Total Force oriented program to serve as Executive Agent for its own and other Services' Total Force recruitment programs.

D. Chains of Command

Another contrast concerns the degree of command responsibility within recruiting programs. For the active Army, the Navy and the Air Force, there are major recruiting commands, which are two-star billets. The Marine Corps utilizes its District Director concept, with recruiting guidance from the "temporary" Director of Personnel Procurement, which has to travel up through the DCS/Manpower to the Commandant, then down through the District Directors to the Officers-in-charge of the Recruiting Stations, who are the key supervisory elements within the Marine Corps recruiting program.

There also is a contrast between the Reserve and National Guard

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programs. In the Navy and Marine Corps, the active recruiting programs have assumed responsibility for reserve recruiting activities, thus relieving the unit commanders of this task. In the Army and Air Force Reserve and National Guards units, the commanders are responsible for recruiting; however, recruiters receive policy guidance, support and some degree of direction from higher headquarters.

There also is a marked contrast between the Services in the command relationship between recruiting and the initial training of recruits. In the Army, the responsibility for training comes under the Training and Doctrine Command, a four-star major command, while USAREC is responsible to the Deputy Chief of Staff, Personnel. Thus, the only formal command relationship between the two exists at the Office of the Chief of Staff. The same situation is true for the U. S. Navy, with the Chief of Naval Education and Training (a three-star billet) responsible for recruit and "A" school training, while the Navy Recruiting Command is responsible to the Chief of Naval Personnel. In the Marine Corps, currently, both the Commanding Generals of the Recruit Training Depots are responsible directly to the Commandant, as are the six District Directors. Under the proposed reorganization, however, the Commanding Generals of the Recruit Training Depots will be responsible both for recruiting and recruit training. At present, only the Air Force has the same major Commander (Air Training Command) responsible both for recruiting and recruit training. Alternative 1 would continue present policies.

The advantages of this alternative are that the present system provides adequate results and there would be no disruptions in current organizational responsibilities.

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The major disadvantages of the present policies are both the differing degrees of top command concern and involvement in the recruiting process and the continuing conflict in some Services between recruit trainers and recruiters over the true quality and value to the service of new accessions.

Alternative 2 would require all Services and components thereof to ensure that recruiting responsibility is assigned to senior commanders with clear access to the military chiefs.

The advantages of this alternative is that it would focus command attention and resources on a continuous basis on recruiting activities and problems.

The major disadvantages would be in the Army and Air Force Guard and Reserve programs where it would remove recruiting responsibility from Unit Commanders -- a system which at present is working well.

Alternative 3 would make the same senior Service commander responsible both for recruiting and recruit training.

The major advantage of this alternative (as demonstrated by the Air Force) is that it makes the same Service Command responsible for the delivery of a trained acceptable product, thus removing the current friction existing in the Army, Navy and Marine Corps between the two elements.

The major disadvantage of this alternative might be the pressures on the recruiting force to sign up more easy-to-train accessions rather than some men and women who might be harder-to-train, but also could make good soldiers, sailors, marines, airmen, etc.

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RECOMMENDATION

That a senior commander in each Service be accorded the priorities and resources and be made responsible for the recruiting activities and cost management within his Service, including the Reserve component; that this responsibility be extended to National Guard recruiting subject to the findings of the special Study Group effort recommended earlier.

That this Service senior commander be responsible for both recruiting and recruit training.

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WORKING PAPER ONLY
NOT OFFICIAL POSITION OF DMC

RECRUITMENT IN THE ARMED FORCES

PAPER #2 -- NUMBERS OF RECRUITING PERSONNEL

A Staff Issue Paper for
the Defense Manpower Commission

By
Kenneth J. Coffey, Frederick J. Reeg and Audrey J. Page
Recruitment Group
Defense Manpower Commission Staff

September 1975

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EXECUTIVE SUMMARY

TITLE: Numbers of Recruiting Personnel

BACKGROUND: Classification and title of personnel vary from one Service to another, and, within Services, from one component to another. For standard, paper considers all personnel assigned to recruiting.

- Adjustment made for AFES personnel. Rather than count all within Army total, military and civilian personnel apportioned among all Services.
- Paper assesses each Service (Regular, Reserve, Guard) for FY 75 in terms of:
 - o Total personnel assigned to recruiting
 - o Ratio of supervisory/management/support to field operations
 - o Total productivity factor for total personnel assigned
 - o Total productivity factor for personnel assigned to field operations level

PROBLEM: Tables used to summarize and compare supervisor to field ratio and productivity factors for all Services. Dramatic differences become obvious.

ALTERNATIVES: Various options relating to improvements in recruiting personnel policies by Services and DoD in support of support of Total Force concept.

CONCLUSION: Services have made commendable progress during AVF in meeting accession requirements but new initiatives needed.

RECOMMENDATION: To assess effectiveness of resources devoted to Total Force recruiting, DoD should fully identify total man-years utilized to produce qualified accessions. Standard productivity measurement system, expressed in terms of specific job-related quality and quantity requirements, should be established. Services should use this system to achieve maximum support for Total Force concept. OSD should review and monitor Services' efforts to achieve this goal.

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RECRUITMENT IN THE ARMED FORCES

RESEARCH PAPER #2 - NUMBERS OF RECRUITING PERSONNEL

The numbers of personnel assigned to recruiting have increased significantly during the AVF years, although the rate of increase has not been as large as that of recruiting expenditures. Whereas the total number of recruiters for all Services held steady for the 1961-1970 decade,^{1/} the decision to adopt an AVF resulted in major increases in FY 72,^{2/} with gradual increases thereafter. During the same period, the National Guard and Reserve initiated formal recruiting programs. (There were no Guard/Reserve personnel assigned to full-time recruiting duty during the draft era.)

There also were corresponding increases in both the active and Guard/Reserve support and administrative personnel levels for the recruiting programs, with the active forces recruiting programs in FY 74 requiring 12,000 personnel for support/administrative functions,^{3/} bringing the total number of personnel involved in recruiting activity during FY 74 to approximately 23,000 for the active programs alone.

The combined Total Force recruiting programs of the four Services during FY 75 utilized 29,175 servicemen and women and civilians. Their efforts produced 706,299 accessions for the armed forces, regular and reserve.

^{1/} Stewart W. Kemp, "Productivity of U.S. Military Recruiting Systems," Studies of the President's Commission on an All-Volunteer Force, Vol. II, November 1970, p. IV-4-3.

^{2/} Testimony of Gen. Robert M. Montague, Special Assistant to the ASD (M&RA), DoD Appropriations Hearings, Subcommittees of the Committee on Appropriations, House of Representatives, 93rd Congress, First Session.

^{3/} Data furnished by U.S. Air Force Recruiting Service in briefing, February 1975.

The growth in personnel assigned to recruiting between Services and components has differed considerably, as the following sections will illustrate. (Note: The numbers used in the following sections were furnished by the individual Services and components at differing points during FY 75 and early FY 76. Each of the Services and components used somewhat different definitions for their various categories of recruiting personnel, i.e., production recruiters, recruiters, canvassers, supervisors, support, etc. For purposes of commonality, all recruiting personnel stationed at the lowest organizational levels within each Service's recruiting program have been considered as field recruiting personnel. All personnel assigned to middle-level and headquarters functions have been considered as management/supervisory personnel.)

While an absolute comparison between Services and components is not possible under the above method (it would take a careful job analysis of each position within each recruiting program), the degree of variation between the Services and the components using the above boundaries is such that a general comparison can be defended.

A. The Department of the Army

BACKGROUND

The United States Army Recruiting Command (USAREC) is the major user of recruiting personnel within the Department of the Army; however, as discussed in earlier sections, the National Guard and the Army Reserves conduct separate recruiting programs which also utilize recruiting personnel. Additional personnel also are utilized by the Unit of Choice Canvasser program, and the special officer recruitment programs (West Point, ROTC, legal, medical and chaplain).

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There was a substantial growth in the size of the total recruiting force in the FY 71 - FY 72 period. The greatest increase was in the number of recruiters. In FY 70, there were 2,969 recruiters; by FY 72, the number had been more than doubled.^{1/} In terms of total USAREC strength, the increases continued through FY 75.

The USAREC personnel were divided into two categories: Managerial and Support and Operational Recruiting. The FY 75 distribution by these categories is:

• MANAGERIAL AND SUPPORT

- HQ USAREC	537
- Regional Recruiting Cnds (5)	816
TOTAL	1,353
- AFES (66)	2,219
- Recruiting Support Center	153
TOTAL	2,372

• OPERATIONAL RECRUITING^{2/}

- District Recruiting Cnds (64)	2,210
- Area Recruiting Cnds (266)	623
- Recruiting Stations (1,650)	5,478
TOTAL	8,281 ^{3/}

GRAND TOTAL 12,006

^{1/} Statement of Major General John Q. Henion, Commanding General, U.S. Army Recruiting Command, Hearings before and Special Reports made by Committee on Armed Services to the House of Representatives on Subjects Affecting the Naval and Military Establishments, 1972, 92nd Congress, 2nd Session, p. 8415.

^{2/} USAREC classifies the personnel at the district hdqts. area recruiting commands, and recruiting stations as field recruiting personnel.

^{3/} Data furnished to DMC at USAREC briefing, 24 June 1975.

In order to gain a more accurate picture of the Regular Army recruitment program staffing requirements, adjustments should be made to the USAREC totals for the Unit of Choice Canvasser program, the Special Officer Recruitment programs, and the proportion of AFEES staffing which handles processing of candidates for the other Services.

Unit of Choice Canvassers

The Unit of Choice Canvasser program, in which operational units of the Regular Army utilize their own personnel for Unit of Choice recruiting activities, was initiated in FY 72 in order to supplement the recruiting activities of the USAREC staff. Up to FY 73, the Unit of Choice program was loosely coordinated with the activities of the USAREC recruiters; however, effective January 1975, USAREC assumed operational responsibility for the Unit of Choice canvassers. The Unit of Choice program reached its peak during FY 74, when 1,572 man-years of recruiting activity was provided by Canvassers.^{1/} During FY 75, however, the funds for Canvassers were curtailed and there was a reduction in utilization (122-339 depending upon month) and the number of man-year positions allocated (870).^{2/} In FY 75, the activities of the USAREC recruiters received approximately 230 man-years of assistance from the Unit of Choice program.

AFEES Staffing Adjustment

The Army, as Executive Agent, provides the civilian labor force for

^{1/} Data provided in Memo prepared for the DMC by Department of the Army, DAPC-PSF-C.

^{2/} Data provided to DMC by USAREC at briefing, 24 June 1975.

the operation of the 66 AFEES. If these civilian positions are pro-rated among the Services, there would be a resulting reduction in the size of the civilian work-force at AFEES which handles Army recruit processing from 1,003 to 751, or a net reduction in the USAREC staff totals of 252 civilian spaces.^{1/}

As the military officers and men from the other Services assigned to the AFEES (but carried by USAREC) also perform non-Army functions, their totals also should be subtracted from the USAREC staffing requirements. During FY 75, there were 306 officers and men from the other Services assigned to AFEES, but carried on the USAREC roles.^{2/}

The net effect, then, of the AFEES adjustment would be to reduce the USAREC staff requirements by 558 spaces.

Special Officer Recruitment Programs

The five special officer recruitment programs, which are funded and operated separately from USAREC, also utilized recruiting personnel during FY 75.

Recruiting Personnel - Special Officer programs
(man-years) - FY 75

West Point	0
ROTC	287
Legal	2.6
Medical	24.5
Chaplain	0
Total	314.1 man-years ^{3/}

^{1/} A full explanation of the pro-rating of AFEES staff among the Services is contained in Section B.

^{2/} Ibid.

^{3/} Data provided by OASD(M&RA) September 1975.

The U. S. Army Recruiting Command (USAREC), the Unit of Choice Canvasser program, the Special Officer recruitment program and AFEEs personnel all are concerned with recruiting for the Regular Army. Recruitment and processing for the Army National Guard and the Army Reserves are handled separately.

Army National Guard

Beginning in FY 72, there have been full-time recruiting personnel in the Army National Guard; however, no figures are available from FY 72. Since FY 73 the Army Guard recruiting structure and the number of man-years being expended on recruiting have risen.

Recruiting Personnel in Man-Year Equivalents^{1/}

	<u>Individual Man-Years</u>	<u>2-Year Tours</u>	<u>Technicians</u>	<u>Total</u>
FY 73	504	53	130	687
74	800	70	130	1,000
75	979	82	78	1,139

Army Reserve

Beginning in FY 72, the Army Reserve assigned personnel full-time to the recruiting function. The number of man-years expended in recruiting increased through FY 74 but showed a slight drop in FY 75.

^{1/} Based on data contained in a background paper provided by Mr. E. Willcock, Assistant Personnel Officer, Personnel Division, Army National Guard, August 1975.

Recruiting Personnel in Man-Year Equivalents ^{1/}

	<u>Individual Man-Years</u>	<u>2-Year Tours</u>	<u>Technicians</u>	<u>Total</u>
FY72	-	32	-	32
FY73	164	135	384	683
FY74	294	155	430	879
FY75	283	146	394	823

Summary of Department of the Army Recruiting Personnel
(FY 1975)

USAREC	9,787
Unit of Choice Canvassers	230
AFEES (pro-rated)	1,661
Special Officer Recruitment	314
Army National Guard	1,139
Army Reserves	<u>832</u>
TOTAL	13,954

EVALUATION

The Army considers the personnel at District headquarters, Area recruiting commands and recruiting stations as "field recruiting" personnel, and the personnel at the five Regional Recruiting Commands and USAREC headquarters as supervisory/management personnel. Utilizing these designations, (with adjustments for AFEES), the ratio of supervisory/management personnel to field operations for Regular Army Recruiting can be determined.

1/ Based on information received from Capt. J. Meyer and Capt. Sling, Personnel and Comptroller Divisions, Office of Chief, Army Reserve, March and August 1975.

Regular Army

Ratio of Supervisory/Management Personnel to Field Operations

	<u>Number of Supervisory/ Management Personnel</u>	<u>Number of Field Operations Recruiters</u>	<u>Ratio</u>
FY 75	3,167	8,281	1:2.6

If Unit of Choice Canvasser are included in the above totals of Production recruiters, the ratio would be:

FY 75	3,167	8,511	2.7
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Army National Guard

The ratio of supervisors to field recruiting personnel in the Army National Guard has shown an improvement from FY 73 to FY 75, primarily due to an increase in the number of man-years being expended by recruiters.

Ratio of Supervisory/Management Personnel to Field Operations^{1/}

	<u>Number of Supervisory/ Management Personnel</u>	<u>Number of Field Personnel</u>	<u>Ratio</u>
FY 75	127	1,012	1:8

^{1/} Based on information contained in an Information Paper, subj: Reserve Component Recruiting dtd 8 August 1975 by LtCol J. Stevens, Operations Branch, Recruiting and Reenlistment Division, Army Military Personnel, August 1975.

NOTE: Reserve and Guard Totals are man-year averages and include officers and enlisted on active duty for recruiting as well as "Technicians" who are officer and enlisted Reservists who hold a full time civilian recruiting position. Totals do not include officers, enlisted or civilians who provide supervision or support as an additional duty.

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Army Reserves

The ratio of supervisors to field recruiting personnel in the Army Reserves also improved from FY 73 to FY 75.

Ratio of Supervisory/Management Personnel to Field Operations^{1/}

	<u>Number of Supervisory/ Management Personnel</u>	<u>Number of Field Personnel</u>	<u>Ratio</u>
FY 75	153	670	1:4.4

Recruits per Accession

The number of accessions for each recruiter in the Army's FY 75 Total Force recruiting program can be calculated by relating the staffing totals for each program to the actual recruiting results.

Army Total Force - Recruits per Total Recruiting
Personnel Assigned - FY 75

<u>Program</u>	<u>Number of total recruiting personnel</u>	<u>Accessions</u>	<u>Number per Recruiting personnel</u>
USAREC (with adjustments for AFES and Unit of Choice Canvassers)	11,992	(209,000 n.p.s.) (8,176 officers) } 217,176 ^{2/}	18.1
Army National Guard	1,139	(33,672 n.p.s.) (55,780 p.s.) } 89,452 ^{3/}	78.5
Army Reserve	823	(18,229 n.p.s.) (38,324 p.s.) } 56,553 ^{4/}	68.7

^{1/} Based on information received from Capt. J. Meyer and Capt. Sling, Personnel and Comptroller Divisions, Office of Chief, Army Reserves, March and August 1975.

^{2/} Regular accession data from "June Results - FY 75 Totals," issued by OASD(M&RA) in July 1975.

^{3/} Reserve n.p.s. and p.s. accession data furnished by Major Byers, OASD(M&RA)

^{4/} Ibid.

The number of accessions per field recruiting force also can be calculated:

Recruits Per Field Recruiting Force - FY 75

<u>Program</u>	<u>Number of field recruiting personnel</u>	<u>Accessions</u>	<u>Number of accessions per person</u>
USAREC (with Unit of Choice and officer programs)	8,825	217,176	24.6
Army National Guard	1,012	89,452	88.4
Army Reserves	670	56,553	84.4

In sum, during FY 75, the Army utilized 13,954 personnel for Total Force recruiting activity. Their efforts produced 363,181 new accessions for a Department-wide ratio of recruiting personnel to accessions of 1 per 26.0.

B. AFES Staffing

Military staffing of the AFES is supported by all Services, with staffing levels proportionate to the Services' projected workload. The Army (USAREC), as Executive Agent, is responsible for civilian staffing at AFES.

The FY 75 authorized staffing of AFES was:^{1/}

	<u>Officers</u>	<u>Enlisted</u>	<u>Total Military</u>	<u>Civilians</u>	<u>Total</u>
Army	159	751	910	1,003	1,913
Navy	29	98	127		127
USMC	13	44	57		57
USAF	<u>27</u>	<u>95</u>	<u>122</u>		<u>122</u>
TOTAL	228	988	1,216*	1,003*	2,219

*MIX IS 54.7% MILITARY: 45.2% CIVILIAN

While the Army, as Executive Agent, is responsible for the civilian staffing of AFES, the 1,003 civilian positions should be pro-rated among the four Services in order to portray each Service's contribution. During FY 75, the Army provided 74.8% of AFES military staffing, the Navy 10.5%, the Marine Corps 4.7% and the Air Force 10%.^{2/} In accordance with this distribution, the civilian staffing level for each Service would be:

	<u>Officers</u>	<u>Enlisted</u>	<u>Civilian</u>	<u>Total</u>
Army	159	751	751	1,661
Navy	29	98	105	232
USMC	13	44	47	104
USAF	<u>27</u>	<u>95</u>	<u>100</u>	<u>222</u>
	228	988	1,003	2,219

^{1/} Data supplied by USAREC at DMC briefing, 24 June 1975.

^{2/} Percentages of military staffing by Service provided by Production Management Directorate, USAREC.

NOTE: The staffing contributions of the Services were last adjusted in June 1970. At the time, there were significant numbers of Selective Service registrants being processed for possible induction into the Army. Accordingly, the Army's share as of that date was very high. This share has not been sustained during the AVF years and an adjustment in military staffing by Service has been requested by the Army, to take effect during FY 1976. This new staffing pattern will allocate the positions in accordance with the following percentages: Army 49%; Navy 18%; Marine Corps 14%; and Air Force 19%.^{1/} The new staffing patterns represents about a 25% reduction for the Army, with proportional increases for the other Services.

C. The U. S. Navy

BACKGROUND

The majority of recruiting activity for the U. S. Navy is conducted by the Navy Recruiting Command. The only exception to this is the special recruiting program for the Naval Academy and the Reserve program to recruit prior service personnel.

The U. S. Navy Recruiting Command for FY 75 was authorized 5,823 positions.

^{1/} Data supplied to DMC by Production Management Directorate, USAREC.

The specific categories of positions were as follows:

U. S. Navy Recruiting Command - Authorized Positions - FY 75

officers	548
enlisted support	1,236
enlisted recruiters	3,484
civilians	<u>555</u>
Total	5,823 ^{1/}

The Navy Recruiting Command personnel force also can be identified by operational level, with the command headquarters and recruiting area staffs comprising the supervisory/management activities and the districts and recruiting offices comprising the field activities (production recruiters).

	<u>Officers</u>	<u>Enlisted Support</u>	<u>Enlisted Recruiters</u>	<u>Civilians</u>	<u>Totals</u>
Command Headquarters	84	113	1	196	394
Area Staffs	72	51	39	12	174
Districts and Offices	392	1,072	3,444	347	<u>5,255</u> ^{2/}
					5,823

For the years prior to the adoption of the AVF concept, naval recruiting personnel totalled about 3,200 (2,600 less than the FY 75 level). However, with the commitment of the Administration to meet accession goals with volunteers, there was a corresponding increase in the size of the Navy recruiting force. The growth was accomplished in FY 71 and FY 72, with the largest increase taking place in enlisted recruiters, whose number

1/ Data supplied in letter of 6 March 1975 from Director, Plans and Policy Department, Navy Recruiting Command; and Lt. Payne, Naval Recruiting Command in telephone conversation of 3 September 1975.

2/ Ibid.

grew from 2,298 in FY 1970 to a high of 3,708 in FY 73 (down to 3,444 in FY 75). During this same period, the number of enlisted support personnel grew from less than 500 in FY 71 to almost 1,100 in FY 75. Although there has been some adjustment in the levels of personnel within categories, the total level of personnel within the Navy Recruiting Command has remained at the 5,800 plus level for the FY 73 - FY 75 period.^{1/}

In addition to authorized recruiting personnel, the Navy Recruiting Command has utilized the services of special canvassers, including a limited number of officers who aided in the recruitment of minority officer candidates, and recent recruits who aided recruiting activities in their local areas for brief two-week periods. This latter program, entitled the Recruiter Assistance Program, is similar to the Army's Unit of Choice Canvassers; however, there are several differences, including the absence in the Navy program of recruiting activities which are directly related to specific units.

During the last two fiscal years, the Navy utilized the following numbers of special canvassers:

	<u>FY 75</u>
Minority Officer Recruiters	10
Recruiter Assistance Program	2,090 ^{2/}

Although the number of personnel in the Recruiter Assistance Program is large, their average period of utilization is two weeks; therefore, when expressed in man-years (about 80), the assistance provided by this

^{1/} Staffing data provided by Navy Recruiting Command, op cit.

^{2/} Data provided by Navy Recruiting Command, op cit.

program is minimal in comparison to the major Navy recruiting effort. Their contributions, however, should be included in the overall totals.

The contributions of the Naval Academy Special Recruiting program and the Reserve prior-service program, as well as an adjustment in the staffing pattern for the Navy's share of the AFEES staff, also should be considered.

	<u>Number of recruiters</u>
Naval Academy Recruiting ^{1/}	none (handled by Reserves and Retired on voluntary basis)
AFEES administrative staff	232 (See Section B)
Reserve prior-service recruiters ^{2/}	548

Summary of U. S. Navy Recruiting Personnel Levels

	<u>FY 75</u>
U. S. Navy Recruiting Command	5,823
Special Canvassers (man-years)	80
Naval Academy Recruiting	none
AFEES Administrative Staff	232
Reserve prior Service	<u>548</u>
	6,683

EVALUATION

With adjustments made for the special canvasser programs, AFEES administrative personnel, and reserve prior-service recruiters, the ratio of supervisory/management personnel in the U. S. Navy Total Force

^{1/} Information provided by LCDr Joyce, Naval Academy staff.

^{2/} Information provided by Naval Reserve Headquarters, New Orleans. Of the 548 total, 48 are classified supervisory/management and 500 are field recruiters for a 1:10.4 ratio.

recruiting program can be calculated.

U. S. Navy

(regular and n.p.s. reserve accessions)

Ratio of Supervisory/Management Personnel to Field Operations

	<u>Number of Supervisory/ Management Personnel</u>	<u>Number of Field Recruiting Personnel</u>	<u>Ratio</u>
FY 75	800	5,335	1:6.7

The number of accessions into the Navy (regular and reserve) per individual assigned to the Navy's recruiting programs also can be calculated by relating the staff totals to the actual recruiting results.

Recruits per Total Recruiting Personnel - FY 75

<u>Program</u>	<u>Personnel level</u>	<u>Accessions^{1/}</u>	<u>Recruits per total personnel</u>
U. S. Navy Recruiting Command (active duty and all non-prior-service reserves)	6,135	active 110,000	19.4
		n.p.s. reserve 3,037	
		officers 6,179	
		119,216	
Reserve prior-service recruiting	548	24,076	43.9

The number of accessions per person assigned to field recruiting operations also can be calculated.

Recruits per Field Recruiting Force - FY 75

<u>Program</u>	<u>Number of Field Recruiting Personnel</u>	<u>Accessions</u>	<u>Recruits per person</u>
U. S. Navy Recruiting Command	5,335	119,216	22.3
Reserve prior-service recruiting	500	24,076	48.2

^{1/} Regular accession data from "June Results - FY 75 Totals" issued by OASD(M&RA) in July 1975; Reserve and p.s. accession data furnished by Major Byers, OASD(M&RA).

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In sum, the Navy utilized 6,683 personnel for Total Force recruiting activities during FY 75. Their combined efforts recruited and processed 143,292 new accessions and prior-service personnel for a Navy-wide ratio of personnel to accessions of 1 to 21.4.

D. U. S. Marine Corps

BACKGROUND

The U.S. Marine Corps recruiting program is the closest to a one-stop Total Force recruiting program within the Department of Defense.

The Marine Corps recruiting force for FY 75 (less Reserve prior-service recruiters) was authorized 3,176 positions. The specific categories of positions were as follows:

U. S. Marine Corps Total Force Recruiting Program

Authorized Positions - FY 75^{1/}

officers	276
enlisted	2,751
civilians	<u>149</u>
Total	3,176

The Marine Corps recruiting personnel also can be divided by operational level, with the headquarters level including the supervisory/management activities of Headquarters, U. S. Marine Corps and the Marine Corps Districts, and the field activities including the Recruiting Stations and sub-stations.

^{1/} Data furnished by Head, Manpower Planning/Programming and Budgeting Branch, Headquarters, USMC.

	<u>Officers</u>	<u>Enlisted</u>	<u>Civilians</u>	<u>Total</u>
Headquarters	30	19	38	87
Field Activities	246	2,732	111	<u>3,089</u>
				3,176 ^{1/}

During FY 75, the Marine Corps kept the authorized recruiting positions at 100% of manning level; however, during FY 74, the numbers of field recruiters (officers and enlisted) were supplemented by 112 personnel, which meant a manning level of about 103%.

As with the other Services' recruiting programs, the big growth in the Marine Corps recruiting staff took place in FY 71 and FY 72. In FY 70, the Marine Corps recruiting force consisted of 246 officers, 2,119 enlisted and 57 civilians (2,422 total).^{2/}

In FY 71, the recruiting force totalled 2,678 and it was increased further in FY 72 to 3,220. Of these, 3,133 were considered as production recruiters. Thus, at the advent of the AVF, the recruiting force of the Marine Corps was increased by about 800 from 2,422 to more than 3,200. Within this overall increase, there was a four-fold increase in the number of career counselors assigned to the AFEES (these are recruiting personnel, considered as production recruiters for the purposes of this paper, who "sell" specific contract options and final enlistments after medical and mental tests are completed).^{3/}

^{1/} Data furnished by Head, Manpower Planning/Programming and Budgeting Branch, Headquarters, USMC.

^{2/} Statement of Col Donald N. McKeon, Military Personnel Procurement Branch, U.S. Marine Corps, Hearing before Committee on Armed Services, op. cit.

^{3/} Data furnished by Head, Manpower Planning/Programming and Budgeting Branch, Headquarters, USMC.

The production recruiting force for the Marine Corps was increased further in FY73 by an additional 200 positions. This level of production recruiters (3,457) was the highest level of personnel devoted to recruiting by the Marine Corps in the AVF era. In FY 1974, the number was reduced by about 200 positions (primarily by reducing the number of career counselors); and in FY 75, the number was reduced further by about 100 positions (at field offices). ^{1/} Thus, while the other Services have generally continued their build-up in recruiting personnel, the Marine Corps has in fact reduced their recruiting personnel level during the last two years.

In order to gain a more accurate understanding of the complete Marine Corps recruiting program, additions to the recruiting staff should be made for AFES administrative personnel, special canvassers, ^{2/} and the Reserve prior-service recruiters.

	<u>FY75</u>
AFES administrative staff (See Section B)	104
Special canvassers	83
Reserve prior-service recruiters ^{3/}	316

Summary of U.S. Marine Corps Recruiting Personnel Levels

	<u>FY75</u>
Regular and n.p.s. Reserve recruiting program	3,176
AFES administrative personnel	104
Canvassers	83
Reserve prior-service recruiters	<u>316</u>
TOTAL	3,679

^{1/} Ibid.

^{2/} The Marines use select recruits on short assignments to help full-time personnel.

^{3/} Data provided by Manpower Planning/Programming and Budgeting Branch, op cit. Of the 316 total, 13 are classified as supervisors/managers and 303 are field personnel, for a 1:23.3 ratio.

EVALUATION

With adjustments for AFEES administrative staff and Reserve prior-service recruiters, the ratio of supervisory/management personnel in the Marine Corps Total Force recruiting program can be calculated.

U. S. Marine Corps

(regular and n.p.s. reserve accessions)

Ratio of Supervisory/Management Personnel to Field Operations

	<u>Number of Supervisory/ Management Personnel</u>	<u>Number of Field Recruiting Personnel</u>	<u>Ratio</u>
FY 75	191	3,172	1:16.6

The number of accessions into the Marine Corps per each individual assigned to the Marine Corps' Total Force recruiting program can be calculated by relating the totals of recruiting personnel to the actual recruiting results.

Recruits per Total Recruiting Personnel - FY 75

<u>Program</u>	<u>Personnel level</u>	<u>Accessions^{1/}</u>	<u>Recruits per person</u>
Regular and Reserve non-prior-service (including AFEES administrative personnel)	3,363	60,000 n.p.s. 7,340 n.p.s. Reserves 2,367 officers 69,707	20.73
Reserve prior-service	316	5,940	18.8

^{1/} Regular accession data from "June Results - FY 75 Totals" issued by OASD(M&RA) in July 1975; Reserve n.p.s. and p.s. accession data furnished by Major Byers, OASD(M&RA).

The number of accessions per production recruiter also can be calculated.

Recruits per Field Recruiting Force - FY 75

<u>Program</u>	<u>Number of Field Recruiting Force</u>	<u>Accessions</u>	<u>Recruits per person</u>
Active/reserve non-prior-service	3,172	69,707	22
Reserve prior-service	316	5,940	19.6

In sum, the Marine Corps utilized 3,679 personnel for Total Force recruiting activities during FY 75. Their combined efforts recruited and processed 75,647 new accessions and prior-service personnel for a Marine Corps-wide average of 21.6 accessions per recruiter.

E. Department of the Air Force

BACKGROUND

The U. S. Air Force Recruiting Service is the major user of recruiting personnel within the Department of the Air Force; however, as discussed in earlier sections, the Air National Guard and the Air Reserves conduct separate recruiting programs. Additional personnel also are utilized by the special officer recruitment programs (Air Force Academy, ROTC, legal officers and chaplains).

During FY 75, the U. S. Air Force Recruiting Service was authorized 4,038 positions. The specific categories of positions were as follows:

<u>FY 75</u>	
<u>U. S. Air Force Recruiting Service</u>	
<u>Authorized Positions</u>	
Officers	371
Enlisted	3,203
Civilians	<u>464</u>
Total	4,038 ^{1/}

The U. S. Air Force Recruiting Service personnel are divided into three operational levels.

<u>U. S. Air Force Recruiting Service</u>					
<u>Distribution of Positions - FY 75</u>					
	<u>Officers</u>	<u>Enlisted</u>	<u>Enlisted</u>	<u>Civilians</u>	<u>Total</u>
		<u>Recruiters</u>	<u>Support</u>		
Recruiting Service Headquarters	57	26	94	73	250
Group Headquarters	95	64	92	65	316
Detachments & Stations	219	2,646	281	326	<u>3,472</u>
					4,038

During FY 75, the Recruiting Service operated with about 95% of their authorized personnel.

^{1/} Data supplied by U.S. Air Force Recruiting Service at DMC staff briefing, January 1975.

The level of Recruiting Service staffing held reasonably level during the AVF years of FY 73 - FY 75;^{1/} however, there was a substantial growth in the size of the recruiting force in FY 71 and FY 72, with growth rates of approximately 18% and 25% in their production recruiters and support categories. In FY 70, the total strength of the U. S. Air Force Recruiting Service (officers, enlisted and civilians) was 3,029 positions, or about 1,000 less than the FY 75 level. The FY 70 level had been maintained for at least the previous five years; in fact, the number of positions authorized for FY 65 was 3,357.

In order to gain a more accurate understanding of the U. S. Air Force active service recruiting programs, additions to the staff requirements of the Recruiting Service should be made for the AFEES staff and for the special officer recruitment programs.

AFEES Staffing
FY 75

Air Force Officers	27
Air Force enlisted	95
Civilian (pro-rated share)	100
Total	222 ^{2/}

Special Officer Recruitment programs

Air Force Academy	0
ROTC	41 (est.)
Legsl Officers	0
Chaplains	0
Total	41 ^{3/}

^{1/} During FY 73 - FY 75, the personnel level of the Recruiting Service grew at a rate of approximately 100 positions per year.

^{2/} See Section B, supra.

^{3/} Information furnished by OASD(M&RA), September 1975.

The U. S. Air Force Recruiting Service, the Special Officer Recruitment programs, and the proportionate share of AFEES staffing in total provide recruitment services for active Air Force; recruitment for the Air National Guard and the Air Force Reserve are handled separately by those organizations.

Air National Guard

Until FY 72, the Air National Guard did not have any full-time recruiters. Beginning in FY 72, it devoted steadily increasing numbers of man-years to the recruiting function through the use of active duty tours for Guardsmen and individual man-years.

Recruiting Personnel in Man-Year Equivalents^{1/}

	<u>Extended Active Duty</u>	<u>Individual Man-days (in man-years)</u>	<u>360 day Tours</u>	<u>Total</u>
FY 73	1	106.2	-	107.2
74	1	187.0	-	188.0
75	1	24.7	209.1	234.8

Air Force Reserve

Since FY 73 the number of AF Reserve recruiters has increased steadily, particularly the category of reservists brought on active duty for one year renewable tours. While the number of recruiting man-years estimated for FY 76 is only slightly higher than for FY 75, there is a dramatic shift in who will be expending those man-years. The man-years used by part-time reservists will be cut more than half

^{1/} LtCol James R. Blackwell, Dep. Chief, Air Personnel Div., Air National Guard, ltr to AFDPXXS dated 23 July 1975.

while the number of full-time recruiting reservists (one-year renewable tours) will sharply increase.

Reserve Personnel in Man-year Equivalents^{1/}

	<u>Air Reserve Technician</u>	<u>360 day Tours</u>	<u>Individual Man-Days (in man-years)</u>	<u>Total</u>
FY 73	61	-	72.4	133.4
74	65	-	134.6	199.6
75	65	55	202.6	322.6

Summary of Department of the Air Force Recruiting Personnel - FY 75

U. S. Air Force Recruiting Service	4,038
Special Officer Recruitment Programs	41
AFRES	222
Air National Guard	235
Air Force Reserve	323
Total	4,859

EVALUATION

The U. S. Air Force Recruiting Service, like its counterparts in the other Services, has designated certain positions at all operational levels as "production recruiters." However, because these designations are not consistent between Services, a simpler definition has been utilized in this paper: 11 personnel at the Detachment and Recruiting Station levels will be considered as field recruiting personnel; all those at Group and command headquarters (and the AFRES staff) will be considered as supervisory/management. Using this distinction between supervisory/management personnel

^{1/} Col Richard Hile, Acting Deputy Chief, Personnel Division, Office of AF Reserve, ltr to AF/DPXKS dated 24 July 1975.

and field recruiting personnel, a ratio can be developed. Separate ratios also can be developed for the Air National Guard and Air Force Reserve recruiting programs.

Regular Air Force

Ratio of Supervisory/Management Personnel to Field Operations

	<u>Number of Supervisory/ Management Personnel</u>	<u>Number of Field Recruit Personnel</u>	<u>Ratio</u>
FY 75	788	3,513	1:4.5

Air Force National Guard

The ratio of supervisors to field operations personnel in the Air Force National Guard remained fairly constant during FY 74 and FY 75.

Ratio of Supervisory/Management Personnel to Field Operations^{1/}

	<u>Number of Supervisory/ Management Personnel</u>	<u>Number of Field Operations Personnel</u>	<u>Ratio</u>
FY 75	26	209	1:8

Air Force Reserve

The ratio of supervisors to field operations personnel in the Air Force Reserve has varied widely from FY 73 through FY 75 due to the establishment of recruiting staffs at regions and Air Force headquarters, and the increase in the number of recruiters.

^{1/} LtCol James R. Blackwell, Deputy Chief, Air Personnel Division, Air National Guard; ltr to AFDPXSS dated 23 July 1975.

NOTE: Reserve and Guard totals are man-years averages and include officers and enlisted on active duty for recruiting as well as "technicians" who are officers and enlisted Reservists who hold a full time civilian recruiting position. Totals do not include officers, enlisted or civilians who provide supervision or support as an additional duty.

Ratio of Supervisory/Management Personnel to Field Operations^{1/}

	<u>Number of Supervisory/ Management Personnel</u>	<u>Number of Field Operations Personnel</u>	<u>Ratio</u>
FY 75	40	283	1:7.1

Recruiters per Accession

The number of accessions for each recruiter in the Department of the Air Force's FY 75 recruitment programs can be calculated by relating the staffing totals to the actual recruiting results.

Air Force Total Force -
Recruits per Total Recruiting Personnel Assigned - FY 75

<u>Program</u>	<u>Personnel level</u>	<u>Accessions</u>	<u>Number per person</u>
U. S. Air Force Recruiting Service (including Special Officer Recruitment)	4,301	(77,000 n.p.s.) (7,957 officers) 84,957 ^{2/}	19.8
Air National Guard	235	(6,446 n.p.s.) (12,818 p.s.) 19,264 ^{3/}	81.9
Air Force Reserve	323	(2,907 n.p.s.) (17,051 p.s.) 19,958 ^{4/}	61.8

^{1/} Ratios computed from data contained in ltr of Col Richard Hile, Acting Deputy Chief, Personnel Division, Office of AF Reserve, to AF/DPXKS dated 24 July 1975.

^{2/} Regular accession data from "June Results - FY 75 Totals," issued by OASD (M&RA) in July 1975.

^{3/} Reserve n.p.s. and p.s. accession data furnished by Major Byers, OASD(M&RA).

^{4/} Ibid.

The number of accession per field recruiter (all personnel at the Detachment level) also can be calculated:

Recruits per Field Recruiting Force - FY 75

<u>Program</u>	<u>Number of Field Recruiting Personnel</u>	<u>Accessions</u>	<u>Accessions per person</u>
U. S. Air Force Recruiting Service (including Special Officer recruitment programs)	3,513	84,957	24.2
Air National Guard	209	19,264	92.2
Air Force Reserve	283	19,958	70.5

In sum, during FY 75, the Air Force utilized 4,059 personnel for Total Force recruiting activities. Their efforts produced 124,179 new accessions for a Department-wide ratio of accessions to recruiting personnel of 25.6 to 1.

DISCUSSION

The following summarizes previously computed headquarters to field ratios and productivity factors within and between the Services.

FY 75 Active Force Comparisons

	<u>HQ to Field Ratio</u>	<u>Accessions per Field Recruiting Personnel</u>	<u>Accession per Total Recruiting Personnel</u>
Army	1:2.6	24.6	18.1
USAF	1:4.5	24.2	19.8
Navy	1:6.7	22.3	19.4
USMC	1:16.6	22.	20.7

Although there are wide variations in the supervisory/support to field ratio due to organizational differences, the bottom line productivity in terms of total personnel assigned to active force recruiting is generally comparable.

FY 75 Reserve and Guard Comparisons

	<u>HQ to Field Ratio</u>	<u>Accessions per Field Recruiting Personnel</u>	<u>Accessions per Total Recruiting Personnel</u>
Army Reserve	1:4.4	84.4	68.7
Army National Guard	1:8.0	88.4	78.5
USAF Reserve	1:7.1	70.5	61.8
Air National Guard	1:8.0	92.2	81.9
Navy Reserve	1:10.4	48.2	43.9
USMC Reserve	1:23.3	19.6	18.8

As with the active forces there are wide variations in the supervisory/support to field ratios. However, wide variations also occur in the productivity factors -- not only in comparing the various Reserve and Guard elements, but also and particularly in comparison to active forces. From the foregoing tables one should not conclude, for example, that Guard recruiting personnel are three to four times more effective than Regular personnel. Rather than great variations in effectiveness, the differences are attributed to a considerable amount of unaccounted for man-years in many Reserve and Guard programs. In these programs, there are significant personnel resources devoted to recruiting on a part-time or additional duty basis, and the man-year costs of these efforts normally are not reflected in recruiting summaries.^{1/}

^{1/} For example, in an interview with Col T. N. Ganas, Director, USAR Personnel Division on June 5, 1975, it was learned there are times when many Army Reserve unit personnel are recruiting in lieu of normal training.

FY 75 Total Force Comparisons

	<u>HQ to Field Ratio</u>	<u>Accessions per Field Recruiting Personnel</u>	<u>Accessions per Total Recruiting Personnel</u>
Total Army	1:3.1	34.6	26.0
Total USAF	1:4.7	31.0	25.6
Total Navy	1:6.9	24.6	21.4
Total USMC	1:16.6	22.3	20.6

Again, total force comparisons are biased by unaccounted for man-years in many Reserve and Guard programs.

PROBLEM

A fundamental question facing the DMC is whether personnel resources devoted to recruiting can be more effectively utilized in support of a Total Force recruiting concept. While both the DMC staff and the OSD staff (in response to data inquiries) were unsuccessful in clearly identifying all personnel resources utilized for Total Force recruiting, further effort is essential to permit establishment of a standard measurement system to assess the effectiveness of recruiting personnel resources vs. required quantitative and qualitative productivity goals.

ALTERNATIVES

Some variations in recruiting effectiveness within and between Services can reasonably be expected. At present, however, with available data it is not possible to accurately assess recruiting personnel resources effectiveness. Alternatives available to the DMC, therefore, are essentially limited to addressing new initiatives which could provide a first step, which would ultimately lead to improved Defense manpower management.

Alternative 1 would involve essentially no change to existing recruiting personnel resource management. Each of the Services would continue to allocate full and part-time personnel needed to attain the required total of officer and enlisted accessions.

The advantage of this alternative is that it provides the greatest decentralization and flexibility for continuing to satisfy Defense manpower needs.

The disadvantage of continuing current practices is that there is no standard effectiveness measure beyond accession attainment. It is possible that unidentified recruiting manpower costs are detracting from overall training and readiness.

Alternative 2 would recommend that OSD and the Services (Regular, Reserve, and Guard) undertake a detailed analysis to identify the actual total man-years being devoted to, and necessary for the quantitative and qualitative Total Force accession attainment.

The advantage of such an analysis is that, through quantification and comparisons, opportunities should be identified which would permit reasoned decisions for changes leading toward an optimum utilization of personnel resources.

There is no disadvantage to this alternative beyond the obvious time and costs essential to the analysis. The findings, however, might be expected to return dividends amounting to many times over the investment.

Alternative 3 would recommend that fixed recruiting force ceilings be established for each element of Total Force recruiting. The ceilings

would be based upon DOD established estimates of the numbers and ratio of supervisory/management support and recruiter personnel required to produce a given number of officer and enlisted accessions.

The advantage of identifying specific force levels, based upon desired accessions, would be the establishment of initial elements needed for a measurement system to monitor and evaluate recruiting personnel effectiveness.

The major disadvantage of this alternative is that in the absence of historical data and analysis the ceilings would probably be imprecise and would not recognize the many variables inherent in recruiting (e.g., applicant qualifications and preference between individual Service, variations between active and reserve components and between officer and enlisted programs, etc.).

CONCLUSIONS

The authors believe that the Department of Defense and the Services have made commendable progress during the AVF years toward achieving Total Force accession needs. However, if OSD and the Services are indeed serious about the Total Force concept and overall Regular, Reserve and Guard effectiveness, then new centrally directed initiatives are essential. Accordingly, the following recommendations are submitted to the DMC for their consideration.

RECOMMENDATIONS

That as a first step to assessing the effectiveness of resources devoted to Total Force recruiting, DoD should fully identify the total cost in Regular, Reserve and Guard man-years utilized to produce qualified officer and enlisted accessions. Utilizing such an analysis, a standard measurement system should ultimately be established within DoD which would accurately assess the effectiveness of recruiting personnel resources vs. desired productivity goals, as expressed in terms of specific job-related quality and quantity requirements.

That the Services utilize this system both in budget preparation and on-going management activities to ensure maximum commitment to the Total Force recruiting concept.

That OSD review and monitor the Services' efforts to achieve these goals.

WORKING PAPER ONLY
NOT OFFICIAL POSITION OF DMC

RECRUITMENT IN THE ARMED FORCES

PAPER #3 -- RECRUITING BUDGETS

A Staff Issue Paper for
the Defense Manpower Commission

By
Kenneth J. Coffey, Frederick J. Reeg and Audrey J. Page
Recruitment Group
Defense Manpower Commission Staff

September 1975

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EXECUTIVE SUMMARY

TITLE: Recruiting Budgets

BACKGROUND: Budget and costing levels and costing definitions vary from one Service to another

- Adjustment made for AFES costs. Rather than count all within Army total, military and civilian costs apportioned among all Services. Adjustments also made for "hidden" recruiting expenses and costs of officer recruitment programs.
- Paper assesses each Service (Regular, Reserve, Guard) for FY 75 and FY 76 in terms of:
 - o Total recruiting costs
 - o Major Budget categories
 - o Costs per Accession comparisons - Active, Guard, Reserves
 - o Costs per Accession comparisons - Total Force Recruiting

PROBLEM: Tables used to summarize and compare recruiting costs and productivity factors for all Services and components. Dramatic differences become obvious.

ALTERNATIVES: Various options relating to improvements in costing/budgeting by Services and DoD in support of Total Force concept.

CONCLUSION: Services have made commendable progress during AVF years in achieving cost effective Total Force recruitment programs, but new initiatives needed.

RECOMMENDATION: To fully support Total Force recruiting program over the next decade, DoD should standardize recruiting budget/costing definitions and procedures. In addition, each Service should establish and maintain common Active, Reserve and National Guard cost-accession standards to be used by the Services as guidelines both in budget preparation and on-going management activities. Finally, the Secretary of Defense should review and monitor the Services' efforts to achieve these goals.

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RECRUITING IN THE ARMED FORCES

RESEARCH PAPER # 3 - RECRUITING BUDGETS

One of the major cost items of attaining and supporting an All-Volunteer Force is the expenditures for recruiting programs, and during the AVF era there has been a marked increase in all recruiting program budgets.

In the pre-AVF years, there was modest growth in recruiting expenditures. In the decade of the 1960s, the total DoD budget for recruiting grew from \$63 million to more than \$125 million.^{1/} However, during this same period, the percentage of DoD funds which were used for recruiting purposes stayed nearly even, ranging from a low of .0052% in 1964 to a high of .0064% in 1961. The 1969 percentage was .0062%.^{2/}

Beginning in FY 71, there was a marked increase in the recruiting budgets. This increase coincided with the decision of the President to attain an AVF. Whereas the total active forces DoD recruiting budget for FY 70 was \$126.6 million, the expenditures by FY 75 had climbed to \$413 million. During this five year period, personnel costs had doubled, advertising expenditures had increased more than twelve-fold, facilities, equipment and supplies had increased more than five-fold, and travel, training and other miscellaneous expenditures had increased almost four-fold.^{3/}

1/ Stewart W. Kemp, "Productivity of U.S. Military Recruiting Systems, Studies of the President's Commission on an All-Volunteer Force, Vol. II, November 1970, p. IV-4-19.

2/ Ibid., p. IV-4-3.

3/ Testimony of Gen. Robert M. Montague, Special Assistant to the ASD (M&RA), DoD Appropriations Hearings, Subcommittees of the Committee on Appropriations, House of Representatives, 93rd Congress, First Session; and "Recruiting Information," summary of recruiting costs proposed by LTC Hurd, OASD (M&RA), March 1974.

At the same time, there were decreases in the costs of the Selective Service System, whose FY 70 budget of more than \$100 million was cut to \$40 million by FY 76.

The FY 76 Recruiting Budget

The Department of Defense expects to spend 474.47 million dollars on recruiting for the active forces during FY 76; in terms of 1970 buying-power, the FY 76 budget request represents a threefold increase over the money spent in FY 70 for recruiting.^{1/} During FY 76 459,231 men and women should be enlisted or appointed for the Active Forces, with an average cost per accession for recruiting/processing of \$1,033. An additional 226,425 prior-service and non-prior-service men and women should be enlisted in the National Guard and Reserves for a recruiting cost of \$77,431,000. In total, then, 685,956 men and women are presently planned to be enlisted or appointed during FY 76 for a Total Force recruiting cost of \$551,899,000. This expenditure represents a cost per accession of \$804.

^{1/} Total DoD recruiting budgets for FY 76 from sum of Service budgets.

A. The Department of the Army

The United States Army Recruiting Command (USAREC) is the major recruiting organization for the Department of the Army; however, as discussed in earlier papers, the National Guard and Reserve conduct separate recruiting programs which are separately funded. There also is separate funding for the Unit of Choice Convasser program and the Special Officer recruitment programs (West Point, ROTC, legal, medical and chaplain).

USAREC

During FY 75, USAREC received \$200,734,000. For FY 76, \$205,803,000 has been requested. ^{1/}

As reflected in the four major budget categories: ^{2/}

<u>Category</u>	<u>FY 75 Budget</u>	<u>FY 76 Budget Request</u>
Advertising	\$43,050,000	\$45,750,000
Military Personnel	\$82,881,000	\$80,618,000
Civilian Personnel	\$11,741,000	\$12,728,000
Support	\$63,062,000	\$66,707,000
TOTALS	\$200,734,000	\$205,803,000

The decision to support the Army with volunteers prompted major increases in USAREC recruiting budgets during the AVF years. The greatest increase was in advertising, which totalled \$3.1 million in FY 70, grew to \$18.6 million in FY 71 and continued to grow steadily to the requested FY 76 level of

^{1/} An additional \$3.4 million is included in the FY 76 USAREC budget request. This money is for DoD institutional advertising. The same amount was requested in FY 75. However, the money was not made available.

^{2/} Data provided by DA, ltr of 3 March 1975.

\$45.75 million. There also was a more than ten-fold increase in Support Costs, with the rates of increase for Military Personnel and Civilian Personnel somewhat less.

In order to gain accurate understanding of the USAREC costs, several adjustments in the above figures must be made. First because USAREC pays the costs of AFEES operations, some of these expenditures should be pro-rated among the Services (see following section on AFEES). Second, there are several "hidden" costs which are not included in the USAREC budget. These include the costs of recruiter training, recruiter PCS, and TDY funds.

Supplements to USAREC Recruiting Budgets

<u>Program</u>	<u>FY 75</u>	<u>FY 76 Estimate</u>
AFEES operations ^{1/}	+\$1,460,000	- \$11,240,000
Recruiter training ^{2/}	\$114,000	\$114,500 (est.)
Recruiter PCS moves ^{3/}	\$7,000,000 (est.)	\$7,000,000 (est.)
Recruiter TDY ^{4/}	\$1,028,000	\$1,028,000
	<hr/>	<hr/>
TOTAL	+\$9,602,000	-\$3,097,500

In addition to the USAREC program, responsibility for Regular Army recruiting also rests with the Unit of Choice Canvasser program (coordinated

^{1/} See Section B. During FY 75, the Army was responsible for approximately 75% of the AFEES expenditures. During FY 76, this percentage will be lowered to 49%.

^{2/} Data furnished by DA, ltr of 3 March 1975.

^{3/} Estimate of PCS moves based on cost estimate per recruiter furnished by U.S. Air Force Recruiting Service.

^{4/} Data furnished by DA, ltr of 3 March 1975.

by USAREC) and the Special Officer recruitment programs (West Point cadets, ROTC, legal and medical officers, and chaplains).

Other Regular Army Recruitment Programs

<u>Program</u>	<u>FY 75</u>	<u>FY 76</u>
Unit of Choice ^{1/} canvassers	\$15,000,000	\$15,000,000 (est.)
Special Officer recruitment programs ^{2/}	\$6,030,000	\$ 6,030,000 (est.)

The total costs of recruiting for the Regular Army can be determined by totalling the costs of USAREC, the Unit of Choice program and the Special Officer Recruitment programs.

Regular Army Recruiting Costs

<u>Program</u>	<u>FY 75</u>	<u>FY 76 Estimate</u>
USAREC	\$200,734,000	\$205,803,000
USAREC Supplements	\$9,602,000	(minus) \$3,097,500
Unit of Choice Canvassers	\$15,000,000	\$15,000,000
Speical Officer Recruitment Programs	\$ 6,030,000	\$ 6,030,000
	<hr/>	<hr/>
TOTALS	\$231,366,000	\$223,736,000

^{1/} Secretary of the Army Callaway, Testimony before a Subcommittee of the Committee on Appropriations, U.S. Senate, 93rd Congress, 2nd Session, p. 13.

^{2/} Data furnished by OASD (M&RA), September 1975.

Army National Guard

The Army Guard budget has increased every year since FY 71 and is projected to rise again in FY 76. The items showing the greatest increase are recruiter salaries and advertising costs. The Army Guard budget, as given below, contains the majority of expenses connected with recruiting and, therefore, provides a valid cost estimate.

National Guard Recruiting Budgets ^{1/}

<u>Category</u>	<u>FY 75</u>	<u>FY 76 Estimate</u>
Advertising	\$3,000,000	\$3,200,000
Civilian/Military Personnel (Technicians)	\$13,800,000	\$15,800,000
Support	\$5,200,000	\$5,100,000
	<hr/>	<hr/>
TOTALS	\$22,000,000	\$24,100,000

Army Reserves

The recruiting costs for the Army Reserve also have increased dramatically since FY 71 when less than \$1,000,000 was expended.

1/ Capt. J. Meyer, U.S. Army Military Personnel Center, memo for Assistant Director for Analysis, Manpower Research and Data Analysis Center, dated 10 February 1975.

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Army Reserve Recruiting Costs ^{1/}

<u>Category</u>	<u>FY 75</u>	<u>FY 76 Estimate</u>
Reserve Personnel	\$2,200,000	\$2,400,000
Technician Pay	\$7,000,000	\$7,700,000
Advertising	\$5,400,000	\$5,600,000
Recruiter Training (includes costs of short-tour recruiters)	\$5,900,000	\$6,100,000
Support (Estimate)	\$3,500,000	\$3,500,000
TOTALS	\$24,000,000	\$25,300,000

Summary of Department of the Army Recruiting Budgets

The cost of the Army Total Force recruiting programs can be determined by adding the costs of the Active and the Guard Reserve programs.

<u>Program</u>	<u>FY 75</u>	<u>FY 76 Estimate</u>
Regular Army USAREC Supplements to USAREC Unit of Choice Canvassers Special Office recruitment	\$231,366,000	\$223,736,000
National Guard	\$22,000,000	\$24,100,000
Army Reserve	\$24,000,000	\$25,300,000
TOTALS	\$277,366,000	\$273,136,000

^{1/} Data on costs other than Support provided by Capt. Ryan, DA, Comptroller Division, August 1975; Support costs (which are paid by Reserve units) estimate based on experiences of active recruiting programs and Air Force Reserve Support expenses.

Costs Per Accession

The cost of individual accessions for each of the DA recruiting programs can be calculated by relating the program recruiting budget to the recruiting accession goals.

FY 75 Results ^{1/}

<u>Program</u>	<u>Budget</u>	<u>Accessions</u>	<u>Cost/Accession</u>
USAREC (including Unit of Choice & Special Officer Programs)	\$231,366,000	(209,000 n.p.s. 217,176 8,176 officers)	\$1,065.22
Army National Guard	\$22,000,000	(33,672 n.p.s.) 89,452 (53,780 p.s.)	\$245.95
Army Reserve	\$24,000,000	(18,229 n.p.s.) 56,353 (38,324 p.s.)	\$424.40

Expected FY 76 Results ^{2/}

<u>Program</u>	<u>Budget</u>	<u>Accessions</u>	<u>Cost/Accession</u>
USAREC	\$223,736,000	(187,000 n.p.s. 194,951 7,951 officers)	\$1,147.36
Army National Guard	\$24,100,00	(31,000 n.p.s.) 126,197 (95,197 p.s.)	\$190.96
Army Reserve	\$25,300,000	(19,200 n.p.s.) 45,600 (26,400 p.s.)	\$554.82

1/ Regular Army recruiting results from "June Results - FY 75 Total," Issued by OASD (M&RA) July 1975; Reserve/NG results provided by Major Byers, OASD (M&RA).

2/ Regular Army accession goals from "June Results - FY 75 Total," Reserve/NG recruiting goals provided by Mr. R. Huggins, OASD (M&RA).

In sum, during FY 75, the Army spent \$277,366,000 for Total Force recruiting activities. This expenditure produced 363,181 new accessions, for a cost per accession of \$763.67. During FY 76, the Army requested \$273,136,000 for Total Force recruiting. This expenditure is expected to produce 366,748 new accessions, at a cost per accession of \$744.85.

B. AFES (Armed Forces Examining and Entrance Stations)

The Army, as Executive Agent, provides the funding for AFES operations, except for the salary payments of other Service personnel which are provided by their respective Services. The AFES appropriation is contained in the USAREC budget. During the last three fiscal years, the AFES budget was: ^{1/}

FY 74 - \$24 million

FY 75 - \$25 million

FY 76 - \$26 million

In order to reflect actual costs to the Services for recruiting and processing enlistees, several adjustments in Service recruiting budgets should be made. First, the operational costs of AFES should be proportionately distributed among the four Services, based on their

^{1/} This amount includes both the actual operating expenses of the 66 AFES, and an estimate of the costs of those personnel elsewhere in USAREC who are primarily responsible for AFES operations. Information provided by Colonel Hougen, Director, Production Management, USAREC, in telephone conversations, 24 August and 4 September, 1975.

use of the AFEES facilities. Second, as the personnel costs of the military personnel assigned to AFEES are paid from non-recruiting accounts, the personnel costs of the military men and women assigned to AFEES should be added to the recruiting costs for all Services; last, as the Army pays the personnel costs of the AFEES civilians, these costs also should be proportionately distributed. Although the actual Congressional appropriations for FY 76 funds has not been completed as of this writing, there should be little variation in the expected funding and expenditures.

Proportional Distribution of AFEES Costs ^{1/}

Operational Costs of AFEES - FY 76

(contained in USAREC budget) Total operating costs - \$26 million.

	<u>Service Workload</u>	<u>Proportional Share of Operating Costs</u>
A. Army	49%	\$12,740,000
B. Navy	18%	\$ 4,600,000
C. USMC	14%	\$ 3,640,000
D. USAF	19%	\$ 4,940,000

^{1/} Data on AFEES operations, budget and proportional workloads furnished by Colonel Hougen, Director, Production Management, USAREC, in telephone conversation of August 24, 1975.

Military Personnel Costs - FY 76

(paid by Services from non-recruiting funds)

average cost of officers - \$14,940 ^{1/}

average cost of enlisted personnel - \$9,293

	<u>Officers</u>	<u>Enlisted</u>	<u>Cost</u>
A. Army	121	583	\$7.22 million
B. Navy	44	214	\$2.64 million
C. USMC	34	166	\$2.15 million
D. USAF	47	266	\$3.17 million

Civilian Personnel Costs - FY 76

(paid by USAREC)

average cost - \$10,097 ^{2/}

number of civilian employees - 1,004

	<u>Service Workload</u>	<u>Proportional Share of Civilian Personnel Costs</u>
A. Army	49%	\$4.94 million
B. Navy	18%	\$1.82 million
C. USMC	14%	\$1.41 million
D. USAF	19%	\$1.92 million

^{1/} The average personnel costs for the AFES military personnel were determined by rates contained in DoD Handbook 7220.9-H, advance notice thereto, of 9 June 1975, as contained in a memo from Joseph P. Welach, DASA. For officers, the annual composite standard rate of an O-2 was used; for enlisted personnel, the annual composite standard rate of an E-5 was used.

^{2/} The average civilian salary of \$10,097 was based on the September 1975 wage scale of a GS 5/5, with an additional 8% to cover fringe benefit costs.

Total AFEES Costs, by Service - FY 76

	<u>Pro-rated Costs</u>	<u>Adjustments</u>
A. Army		
1. Operational Costs (\$26 million budgeted)	\$12.74	-\$13.26
2. Military Personnel	\$ 7.22	\$ 7.22
3. Civilian Personnel	\$ 4.94	-\$ 5.2
TOTAL	\$24.9 million	-\$11.24 million
B. Navy		
1. Operational Costs	\$ 4.68	\$ 4.68
2. Military Personnel	\$ 2.64	\$ 2.64
3. Civilian Personnel	\$ 1.82	\$ 1.82
TOTAL	\$ 9.14	\$ 9.14 million
C. USMC		
1. Operational Costs	\$ 3.64	\$ 3.64
2. Military Personnel	\$ 2.15	\$ 2.15
3. Civilian Personnel	\$ 1.41	\$ 1.41
TOTAL	\$ 7.2	\$ 7.2 million
D. USAF		
1. Operational Costs	\$ 4.94	\$ 4.94
2. Military Personnel	\$ 3.17	\$ 3.17
3. Civilian Personnel	\$ 1.92	\$ 1.92
TOTAL	\$10.03	\$10.03 million

Total Cost of AFEES - FY 76

Army	\$24.9 mill
Navy	\$ 9.14 mill
USMC	\$ 7.2 mill
USAF	\$10.03 mill

\$51,270,000

Cost per Expected Accession

<u>AFEES FY 76 Costs</u>	<u>Expected Accessions</u>	<u>Cost per Accession</u>
\$51,270,000	428,000	\$119.79

Total Cost of AFEES - FY 75

There is to be a major redistribution of workload responsibilities at AFEES in FY 76. Based on a workload analysis, the Army's share of AFEES will decrease from the 74% level of FY 75 to the 49% level of FY 76.

Using the FY 76 calculations, an estimate can be determined for each Service's AFEES "costs" during FY 75.

Estimate of AFEES Costs by Service - FY 75

Total AFEES Costs - \$50,270,000 ^{1/}

<u>Service</u>	<u>Percentage of Workload</u>	<u>Cost Estimate</u>
U.S. Army	74.8%	\$37,600,000
U.S. Navy	10.5%	\$ 5,278,000
U.S.M.C.	4.7%	\$ 2,363,000
U.S. Air Force	10%	\$ 5,027,000

C. The U.S. Navy

The U.S. Navy Recruiting Command is responsible for the only major recruiting program within the U.S. Navy. However, there are two additional separately funded programs; recruiting for the Naval Academy and recruiting by the Reserves for prior-service personnel.

U.S. Navy Recruiting Command

During FY 75, the U.S. Navy Recruiting Command received \$98,555,000. For FY 76, \$104,197,000 has been requested.

The Navy utilizes four major budget categories for its recruiting programs.

<u>Category</u>	<u>FY 75 Budget</u>	<u>FY 76 Budget Request</u>
Advertising (including Reserves)	\$21,979,000	\$21,979,000
Military Personnel	\$45,704,000	\$47,111,000
Civilian Personnel	\$ 5,716,000	\$ 5,788,000
Other	<u>\$25,156,000</u>	<u>\$29,319,000</u>
TOTALS	\$98,555,000	\$104,197,000 ^{2/}

^{1/} FY 75 cost estimate based on FY 76 projected expenses, with adjustment for reduced AFEES FY 75 operational budget.

^{2/} Memo for Chief of Naval Personnel of 6 March 1975 from F. J. Reeg, Director, Plans and Policies, Subject; History of Active Forces Recruiting Budgets.

During the AVF era, the Navy's expenditures for recruiting have increased approximately four-fold from the \$27.8 million of FY 70 to the more than \$104 million of FY 76. The biggest growth years were FY 72 and FY 73, when the recruiting budget increased by \$18 and \$30 million respectively. Since that time, there has been steady slow growth.

As with the recruiting programs in the other Services, the greatest increase has been in advertising, up from \$1.67 million in FY 70 to the almost \$22 million level of FY 76; and civilian personnel expenditures, up from \$1.64 million in FY 70 to the almost \$6 million figure of FY 76.

Although the above budget figures account for the vast majority of Navy recruiting expenses, several additions should be made. First, the pro-rated share of AFEES costs must be added to Navy recruiting costs;^{1/} second, the costs of the Naval Academy recruiting must be added;^{2/} last, the personnel costs of the Reserve prior-service

^{1/} See Section B, Supra.

^{2/} Per LCdr Joyce, Naval Academy, 4 September 1975.

recruiting program must be added^{3/} (Note: unlike other Services, the Navy budgets for recruiter training, recruiter PCS moves, and recruiter TDY expenses at recruiting school as part of their regular budget).

Supplements to U.S. Navy Recruiting Command Budget

	<u>FY 75</u>	<u>FY 76</u>
Naval Academy recruiting	90,000	90,000
AFRES staffing	5,275,000	9,140,000
Reserve prior-service recruiting	5,470,000	5,530,000
Total	<u>\$10,838,000</u>	<u>\$14,673,000</u>

Summary of Navy Total Force Recruiting Expenditures

<u>program</u>	<u>FY 75</u>	<u>FY 76</u>
U.S. Navy Recruiting Command (regular, nps Reserve & officers)	98,555,000	104,197,000
Supplementary Programs	10,838,000	14,673,000
Total	<u>\$109,393,000</u>	<u>\$118,870,000</u>

Costs Per Accession

The cost of individual accessions into the Navy's Total Force program can be calculated by relating the recruiting results (actual and expected) to recruiting funds.

^{3/} Per Mr. G. Bender, Budget Branch, Navy Recruiting Command, Sept. 75.
NOTE: \$4.2 million for advertising is included in the FY 76 request.
\$3.8 million was estimated as the cost of reserve advertising in FY 75.

the pro-rated share of AFES costs must be added to Navy recruiting costs,^{1/} second, the costs of the Naval Academy recruiting must be added;^{2/} last, the personnel costs of the Reserve prior-service recruiting program must be added^{3/} (Note: unlike other Services, the Navy budgets for recruiter training, recruiter PCS moves, and recruiter TDY expenses at recruiting school as part of their regular budget).

<u>Supplements to U.S. Navy Recruiting Command Budget</u>		
	<u>FY 75</u>	<u>FY 76</u>
Naval Academy recruiting	90,000	90,000
AFES staffing	3,275,000	9,140,000
Reserve prior-service recruiting	3,470,000	5,530,000
Total	\$10,838,000	\$14,673,000

Summary of Navy Total Force Recruiting Expenditures

<u>PROGRAM</u>	<u>FY 75</u>	<u>FY 76</u>
U.S. Navy Recruiting Command (regular, Nps reserve & officers)	98,555,000	104,197,000
Supplementary Programs	10,838,000	14,673,000
Total	\$109,393,000	\$118,870,000

^{1/} See Section B, Supra.

^{2/} Per LCdr Joyce, Naval Academy, 4 September 1975.

^{3/} Per Mr. G. Bender, Budget Branch, Navy Recruiting Command, Sept. 75.
NOTE: \$4.2 million for advertising is included in the FY 76 request.
\$3.8 million was estimated as the cost of reserve advertising in FY 75.

FY 75 Results

<u>Program</u>	<u>Budget^{1/}</u>	<u>Accessions^{2/}</u>	<u>Cost Per Accession</u>
U.S. Navy Recruiting \$ 99,193,000 Command (inc. additions for AFES & Naval Academy Recruiting)		119,216 (including 3,037 nps Reserves, 6,179 offi- cers and 110,000 nps active)	\$832.16
Reserve prior-service	10,200,000	24,076	423.59
Totals	\$109,393,000	143,292	

Expected FY 76 Results

<u>Program</u>	<u>Budget^{1/}</u>	<u>Accessions^{3/}</u>	<u>Cost Per Accession</u>
U.S. Navy Recruiting Command	\$107,270,000	118,764 (including 110,000 Regulars, 2,345 nps Reserves, and 6,419 officers)	\$902.95
Reserve prior-service	11,600,000	13,873	836.34
Totals	\$118,870,000	132,637	

In sum, during FY 75, the Navy spent \$109,393,000 for Total Force Recruiting activities. This expenditure produced 143,292 new accessions, for a cost per accession of \$763.38. During FY 76, the Navy requested \$118,870,000 for Total Force recruiting. This expenditure is expected to produce 132,637 new accessions, at a cost per accession of \$896.19.

^{1/} The budget for active and n.p.s. Reserve recruiting has been determined by subtracting the Reserve p.s. estimated funding from the Recruiting Command budget.

^{2/} Active Navy recruiting results from "June Results - FY 75 Total", issued by OASD (M&RA) July 1975; Reserve recruiting results provided by Major Byers, OASD (M&RA).

^{3/} Active Navy accession goals from "June Results - FY 75 Total"; Reserve recruiting goal provided by Mr. R. Huggins, OASD (M&RA).

D. The U.S. Marine Corps

Although there is no formal USMC recruiting command, the Marines carry their recruiting costs in a single account. Accordingly, with the exception of their pro-rated share of AFEES costs, there are no additional cost items which should be added to the USMC figures in order to obtain a more complete view of USMC recruiting expenses.

During FY 75, the U.S. Marine Corps recruiting program was budgeted for \$53,026,000. For FY 76, the Marines have requested \$56,724,000. In terms of the four major budget categories:^{1/}

<u>Category</u>	<u>FY 75 Budget</u>	<u>FY 76 Budget request</u>
Advertising (including reserves)	\$10,479,000	\$13,785,000
Military Personnel	29,153,000	28,232,000
Civilian Personnel	1,330,000	1,356,000
Other	12,064,000	13,351,000
Totals	\$ 53,026,000	\$56,724,000

Included in the above totals are separately budgeted accounts for the USMC Reserve prior service recruiting program, which totaled \$3,753,000 in FY 75 and should cost \$3,831,000 in FY 76.

As with other Services, the largest single increase in USMC recruiting costs in the AVF era was for advertising, up from \$876,000 in FY 70.

^{1/} Data furnished by Head, Manpower Planning/Programming and Budgeting Branch, Headquarters, USMC.

As the Marines have included funding for recruiter/training, PCS moves, TDY and Reserve non-prior service (n.p.s.) recruiting in the above totals, the only addition which should be made is that of their pro-rated share of AFEES costs. For FY 75, this totals an estimated \$2,363,000; for FY 76, the cost should be \$7,200,000.^{1/}

Summary of USMC Total Force Recruiting Budgets

<u>Program</u>	<u>FY 75</u>	<u>FY 76 est.</u>
Regular, n.p.s. Reserves ^{2/}	\$49,273,000	51,344,000
Prior service Reserve	3,753,000	3,831,000
AFEES	2,363,000	7,200,000
Total	\$55,389,000	\$63,924,000

Costs per Accession

The costs of individual accessions into the Marine Corps' Total Force program can be calculated by relating results (actual and expected) to recruiting funds.

FY 75 Results

<u>Program</u>	<u>Budget</u>	<u>Accessions</u>	<u>Cost per Accession</u>				
Active USMC and n.p.s. Reserves (including AFEES)	\$51,636,000	<table border="1"> <tr> <td>60,000 nps</td> </tr> <tr> <td>7,340 nps Reserves</td> </tr> <tr> <td>2,367 officers</td> </tr> <tr> <td>69,707</td> </tr> </table>	60,000 nps	7,340 nps Reserves	2,367 officers	69,707	\$740.76
60,000 nps							
7,340 nps Reserves							
2,367 officers							
69,707							
Prior-service Reserves	\$ 3,753,000	5,940	\$631.82				

^{1/} See Section B, supra.

^{2/} The budget for active and n.p.s. Reserve recruiting has been determined by subtracting the Reserve prior-service recruiting program expenditures from the USMC total.

Expected FY 76 Results

<u>Program</u>	<u>Budget</u>	<u>Accessions</u> ^{1/}	<u>Cost per Accession</u>
Active USMC and n.p.s. Reserves (including AFEES)	\$58,544,000	32,000 n.p.s. 5,790 n.p.s. Reserves 2,175 officers 39,965	\$975.73
Prior-Service Reserves	3,831,000	5,300	722.83

In sum, during FY 75, the USMC spent \$55,389,000 for Total Force recruiting activities. This expenditure produced 75,647 new accessions, for a cost per accession of \$732.17. During FY 76, the USMC has requested \$62,375,000 for Total Force recruiting. This expenditure is expected to produce 65,265 new accessions, at a cost per accession of \$955.65.

^{1/} Active duty and Reserve n.p.s. accession goal from "June Results - FY 75 Total", op cit.; Reserve recruiting goal provided by Mr. R. Huggins, OASD(M&RA).

E. The Department of the Air Force

The U.S. Air Force Recruiting Service is the major recruiting organization for the U.S. Air Force; however, as discussed in earlier papers, the National Guard and Reserves conduct separate recruiting programs which are separately funded. There also is separate funding for several Special Officer recruiting programs (AF Academy, ROTC, legal officers and chaplains).

U.S. Air Force Recruiting Service

During FY 75, the U.S. Air Force Recruiting Services received \$69,772,000. For FY 76, \$70,000,000 has been requested.

As reflected in the four major budget categories:

<u>Category</u>	<u>FY 75 Budget</u> ^{1/}	<u>FY 76 Budget Request</u> ^{2/}
Advertising (including printing)	\$18,606,000	\$15,600,000
Military Personnel	37,870,000	38,200,000
Civilian Personnel	4,308,000	4,100,000
Support	8,988,000	12,100,000
Total	\$69,772,000	\$70,000,000

As with the other Services, the greatest increase in Air Force recruiting costs has been for advertising, which has grown from the \$470,000 level of 1970. However, unlike the other Services, the money appropriated for Air Force advertising during the AVF years has been reduced in recent years.^{3/}

^{1/} Data furnished in letter of 4 February 1975 by Chief, Personnel Systems Plans Branch, Directorate of Personnel Plans, Headquarters, U.S. Air Force.

^{2/} Data furnished via telephone on 2 September 1975 by Chief, Personnel Systems Plans Branch, Directorate of Personnel Plans, Headquarters, USAF.

^{3/} In FY 74, the Air Force received \$20 million for advertising, or \$4.4 million more than the FY 76 level.

In order to gain a complete understanding of the Air Force Active Force recruiting costs, several adjustments in the above figures should be made. First, because USAREC pays the costs of AFES operations, some of these expenditures should be pro-rated among the Services. Second, there are several "hidden costs" which are not included in the Recruiting Service budget; last, there are the costs of the Special Officer recruiting programs.

Supplements to U.S. Air Force Recruiting Service Budget

<u>PROGRAM</u>	<u>FY 75</u>	<u>FY 76-est.</u>
AFES staffing ^{1/}	\$5,027,000	\$10,300,000
Recruiter training ^{2/}	250,000	250,000
Recruiter PCS ^{2/}	2,874,000	2,874,000
Recruiter TDY to training course ^{2/}	300,000	300,000
Special Officer recruitment ^{3/}	1,394,000	1,394,000
Totals	\$ 9,845,000	\$14,918,000

National Guard Recruiting Costs

The recruiting program of the Air National Guard is separately funded, and during FY 76 , the recruiting expenditures for the Guard are expected to be \$4.7 million (during FY 75, \$5.0 million was appropriated).

^{1/} See Section B, supra.

^{2/} Data furnished in letter of 4 February, op. cit.

^{3/} Data furnished by OASD(M&RA) September 1975.

The allocation of these funds is as follows:

	<u>FY 75</u>	<u>FY 76 est.</u>
Advertising	\$1.3 million	1.7 million
Military Personnel	3.2 "	2.9 "
Support	.5	.1
	<hr/> \$5.0 million	<hr/> \$4.7 million ^{1/}

Since these figures only included the three budget items managed by the Air Guard Bureau; reserve personnel pay, advertising and recruiter training; a very conservative view is presented of Air Guard recruiting costs. All other recruiting support expenses such as recruiter travel and transportation expenses, telephones, supplies, etc. are included in the budgets of the individual units and are not broken out by specific use. However, these costs can be estimated at approximately \$1 million, bringing the total Air National Guard recruiting costs for FY 75 to \$6.0 million and FY 76 to \$5.7 million dollars.

The greatest amount of money appropriated for Air National Guard recruiting activities was in FY 74, when \$5.9 million was spent. This was an increase of 59-fold from the \$100,000 appropriated for recruiting in FY 71.

^{1/} Lt. Col. James R. Blackwell, Dep Chief, Air Personnel Div., Air Nat. Guard;ltr, to AFDPXKS dated 23 July 1975.

Air Force Reserve Recruiting Costs

The recruiting program of the Air Reserve also is separately funded. During FY 76, the recruiting expenditures are expected to be \$6.9 million (\$6.4 million was appropriated during FY 75). Allocation of these funds is as follows:

	<u>FY 75</u>	<u>FY 76 est</u>
Advertising	\$1.1 million	\$.9 million
Military Personnel	4.0 million	4.1 million
Civilian Personnel	.9 million	1.0 million
Support	.4 million	.9 million
Total	<u>\$ 6.4 million</u>	<u>\$6.9 million</u> ^{1/}

Unlike the Air National Guard the budget for the Air Force Reserve recruiting program includes the majority of expenses incurred in recruiting. Like the National Guard recruiting program, there has been a significant growth in Air Force Reserve recruiting expenditures, from the FY 71 level of \$1.0 million to the \$6.9 million level of FY 76.

^{1/} Costs based on data in Col. Hile's letter, dated 24 July 1975, op. cit.

Summary of Air Force Total Force Recruiting Budget

<u>Program</u>	<u>F. Y. 75</u>	<u>F. Y. 76 Est.</u>
U. S. Air Force Recruiting Service	\$69,772,000	\$70,000,000
APEES Staffing, "Hidden Recruiting Costs, and Special Officer Recruitment Program	9,845,000	14,918,000
Air National Guard	6,000,000	5,700,000
Air Force Reserve	<u>6,400,000</u>	<u>6,900,000</u>
TOTALS	\$92,017,000	\$97,518,000

Costs Per Accession

The cost of individual accessions for each of the Department of the Air Force recruiting programs can be calculated by relating the program recruiting costs to the recruiting accessions. (See next page.)

FY 75 Results^{1/}

<u>Program</u>	<u>Budget</u>	<u>Accessions</u>	<u>Cost Per Accession</u>
Active Air Force ^{2/}	\$79.62M	84,957 (77,000 nps 7,957 officers)	\$936.70
Air Force Reserve	6.4M	19,958 (2,907 nps 17,051 ps)	320.64
Air Force NG	6.0M	19,264 (6,446 nps 12,818 ps)	311.53

Expected FY 76 Results^{3/}

Active Air Force	\$84.92M	85,831 (79,000 nps 6,831 officers)	\$988.59
Air Force Reserve	6.9M	17,798 (3,215 nps 14,583 ps)	387.64
Air Force NG	5.7M	17,657 (5,412 nps 12,245 ps)	322.76

In sum, during FY 75, the Air Force spent \$92,017,000 for Total Force recruiting activities. This expenditure produced 124,179 new accessions, for a cost per accession of \$741. During FY 76, the Air Force has requested \$97,518,000 for Total Force recruiting. This expenditure is expected to produce 121,306 new accessions, at a cost per accession of \$803.94.

^{1/} Active Air Force recruiting results from "June Results - FY 75 Total", Issued by OASD (M&RA) July 1975; Reserve NG recruiting results provided by Major Byers, OASD (M&RA).

^{2/} Includes funding for U. S. Air Force Recruiting Service, AFES staffing, "hidden" recruiting expenses, and the Special Officer Recruitment programs.

^{3/} Active Air Force accession goals from "June Results - FY 75 Total", Issued by OASD (M&RA) July 1975; Reserve/NG recruiting goals provided by Mr. R. Huggins, OASD (M&RA).

PROBLEM

The fundamental question that should be answered by the DMC concerning the budgeting of recruiting activities is whether the differing costs per accession for the various programs reflect the optimum in Total Force recruiting programs; or, conversely, whether the present budgeting systems and costs per accession allow for constructive changes which would better reflect the Department of Defense's commitment to the above principle.

ALTERNATIVES

The purpose of this section is to identify and discuss various alternative policies concerning the budgeting of recruiting activities.

A fundamental difficulty in analyzing the budget/cost data which has been provided by DOD and the Services is the lack of absolute uniformity on inclusions, exclusions and definitions. While every attempt has been made by the Services to provide comparable data, there are areas, such as Support Costs in the Guard/Reserve programs, where the differences between Services and components is such that different ground rules must have been used. Further, and again particularly for the Guard/Reserve programs, there is a large gray area caused by the efforts of non-recruiters to help in the recruitment programs. For example, Guard and Reserve units have participated in recruitment programs as regular drill periods and there is a mixed record concerning the accountability of these efforts.

The above reservations notwithstanding, the DMC staff believes that the data in this research paper is of such completeness that general comparisons between Services and programs are reasonable.

RECRUITING COST COMPARISONS

The costs of Total Force recruiting within each Service varied considerably in FY 1975.

Service Total Forces Recruiting Costs - FY 75

<u>Service</u>	<u>FY 75 Total Force Costs</u>	<u>Accessions</u>	<u>Cost per Accession</u>
U.S. Army	\$277,000,000	363,181	\$763.67
U.S. Navy	109,393,000	143,292	763.38
U.S. Marine Corps	55,389,000	75,647	732.17
U.S. Air Force	<u>92,017,000</u>	<u>124,179</u>	<u>741.00</u>
TOTALS	\$533,799,000	706,299	\$755.77

Expected Service Total Force Recruiting Costs - FY 76

<u>Service</u>	<u>Expected FY Costs</u>	<u>Expected Accessions</u>	<u>Cost per Accession</u>
U.S. Army	\$273,136,000	366,798	\$744.85
U.S. Navy	118,870,000	132,637	896.19
U.S. Marine Corps	62,375,000	65,265	955.65
U.S. Air Force	<u>97,518,000</u>	<u>121,306</u>	<u>803.94</u>
TOTALS	551,899,000	685,956	\$804.56

As noted in the charts, the Total Force recruiting costs for the four Services were surprisingly equal on a cost-per-accession basis in FY 75. This equality should not continue in FY 76, however, with the Marine Corps' cost per accession increasing by the greatest degree, due both to an increase in recruiting costs and a corollary decrease in accession goals.

As the costs for advertising in each of the Service recruiting programs have increased the most during the AVF years, a comparison of the costs per accession for the Service's advertising programs in FY 75 and FY 76 is of interest.

Total Force Advertising Costs per Accession per Service - FY 75

<u>Service</u>	<u>Advertising Budget</u>	<u>Accessions</u>	<u>Costs per Accession</u>
U.S. Army	\$51,450,000	363,181	\$141.66
U.S. Navy	21,979,000	143,292	153.38
U.S. Marine Corps	10,479,000	75,647	138.52
U.S. Air Force	<u>21,006,000</u>	<u>124,179</u>	<u>169.00</u>
TOTALS	\$104,914,000	706,299	\$148.54

The expected advertising expenditures in FY 76 should reflect the following costs per accession.

Total Force Expected Advertising Costs per Accession per Service - FY 76

<u>Service</u>	<u>Expected Advertising Budget</u>	<u>Expected Accessions</u>	<u>Costs per Accession</u>
U.S. Army	\$ 54,550,000	366,748	\$148.76
U.S. Navy	21,979,000	132,637	165.75
U.S. Marine Corps	13,785,000	65,265	211.10
U.S. Air Force	<u>18,200,000</u>	<u>121,306</u>	<u>150.04</u>
TOTALS	\$108,514,000	685,956	\$158.20

As noted in the above charts, there should be an insignificant increase in advertising expenditures in FY 76 over the FY 75 costs. However, whereas the Air Force was the "highest spender" on a cost-per-accession basis in FY 75, a reduction in the Air Force budget, together with an increase in the Marine Corps fund request for FY 76, should place the U.S.M.C. in the position of spending the highest advertising dollar per acquisition in FY 76.

The differences in Service costs per accession change somewhat when the costs per accession of the major Active recruiting programs are compared (including the recruitment of n.p.s. Reserves in the Navy and Marine Corps programs).

Service Active Forces Recruiting Costs - FY 75

<u>Service</u>	<u>FY 75 Active Forces Costs</u>	<u>Accessions</u>	<u>Cost Per Accession</u>
U. S. Army	\$231,366,000	217,176	\$1,065.22
U. S. Navy	99,193,000	119,216	832.16
U. S. Marine Corps	51,636,000	69,707	740.76
U. S. Air Force	79,620,000	84,957	936.70
Totals	\$459,452,000	491,056	\$ 935.65

These same cost/accession differences are expected to continue in FY 76.

Expected Active Forces Recruiting Costs - FY 76

<u>Service</u>	<u>Expected FY 76 Costs</u>	<u>Accessions</u>	<u>Cost Per Accession</u>
U. S. Army	\$223,736,000	194,951	\$1,147.36
U. S. Navy	107,270,000	118,764	902.95
U. S. Marine Corps	58,544,000	59,965	975.73
U. S. Air Force	84,918,000	85,551	988.59
Totals	\$474,468,000	459,231	\$1,033.24

Because of the differences in their recruiting responsibilities, the six Guard/Reserve recruiting programs cannot be compared; however, the Army and Air Force Guard and Reserve programs can be compared, as can the Navy and Marine Corps prior-service recruitment programs. Even in these comparisons, however, the absolute costs are not reflected, due to the unknown costs of recruiting activities by Guard-Reserve non-recruiting personnel.

Army & Air Force National Guard & Reserve Recruiting Cost Comparison - FY 75

<u>Component</u>	<u>Budget</u>	<u>Accessions</u>	<u>Cost Per Accession</u>
Army National Guard	\$22,000,000	89,452	\$245.95
Army Reserve	24,000,000	56,553	424.40
Air National Guard	6,000,000	19,264	311.53
Air Force Reserve	<u>6,400,000</u>	<u>19,958</u>	<u>320.64</u>
Totals	\$58,400,000	185,227	\$315.33

Army & Air Force National Guard & Reserve Recruiting Cost Comparison - FY 76

<u>Component</u>	<u>Expected Budget</u>	<u>Expected Accessions</u>	<u>Cost Per Accession</u>
Army National Guard	\$24,100,000	126,197	\$190.96
Army Reserve	25,300,000	45,600	554.82
Air National Guard	5,700,000	17,657	387.64
Air Force Reserve	<u>6,900,000</u>	<u>17,778</u>	<u>387.64</u>
Totals	\$62,000,000	207,232	\$299.22

Navy & Marine Corps Reserve Prior-Service Recruiting Program Comparison - FY 75

<u>Program</u>	<u>Budget</u>	<u>Accessions</u>	<u>Cost Per Accession</u>
Navy Prior-Service Reserve	\$10,200,000	24,076	\$423.59
Marine Corps Prior-Service Reserve	<u>3,753,000</u>	<u>5,940</u>	<u>636.10</u>
Totals	\$13,953,000	30,016	\$465.10

Navy & Marine Corps Reserve Prior-Service Recruiting Program Comparison - FY 76

<u>Program</u>	<u>Expected Budget</u>	<u>Expected Accessions</u>	<u>Cost Per Accession</u>
Navy Prior-Service Reserve	\$11,600,000	13,873	\$ 836.34
Marine Corps Prior-Service Reserve	<u>3,831,000</u>	<u>5,300</u>	<u>722.83</u>
Totals	\$15,431,000	19,173	\$604.96

6-3

As noted in the charts concerning Reserve/National Guard recruiting, the Army National Guard is spending considerably less money for recruiting than the other Reserve programs and the Active Service programs. This will be particularly evident during FY 76, when there is a large increase in expected accessions (from 89,452 to 126,197) without a corresponding increase in requested funding.

In light of the above comparisons and other data contained in this research paper, the following Alternatives could be considered by the DMC for recommendation to Congress and the President:

Alternative 1 would continue current costing/budgeting practices without change. The advantage of this Alternative is that it would continue to allow each Service to determine their own budget requirements based on their own experience and expected needs. Further, as recruiting funds are part of total Service personnel management, the Services have flexibility in adjusting recruiting expenditures.

The disadvantages of this Alternative is that there is no formal process for ensuring a reasonable distribution of limited recruiting funds among all Services and the Guard and Reserve components thereof.

Alternative 2 would require the establishment, maintenance and utilization of cost/budget definitions which are common to all parts of the Total Force recruitment programs.

The advantage of this Alternative is that information vital to management of the Total Force would be available in a form which was usable and understandable to OSD and Service leaders, Congress and the public.

The disadvantage of determining and then adopting common cost/budget definitions would be the administrative turmoil resulting from a transition period.

Alternative 3 would require each Service to establish Service-wide standards for recruiting accession costs and to use these standards in a Service-wide determination of budget requests.

The advantage of this Alternative is that it would require all Services to program recruiting budget expenses on a Total Force basis.

The major disadvantage would be the loss of management prerogatives within the currently separate recruiting programs.

Alternative 4 would require OSD to establish DOD-wide standards for recruiting accession costs and to use these standards in a DOD-wide determination of budget requests.

The major advantage of this Alternative is that it would require the Department of Defense to ensure that all Services and components thereof programmed recruiting budgets on a Total Force basis.

The major disadvantage of DOD-wide costing standards is that the system could not recognize the greater difficulties and expenses in some recruiting programs (example: combat arms, highly technical skills, etc.) and the changing degrees of difficulties in these programs over time.

Alternative 5 would require the Services to establish Service-wide standards for recruiting accession costs, or OSD to establish DOD-wide standards for recruiting accession costs, and then to use these standards as guidelines only, both in budget preparation and in on-going management activities.

The advantage of this Alternative would be the increased emphasis placed on Total Force recruiting without undue removals of Service and component management prerogatives.

The major disadvantage of this Alternative would be the partial loss of management prerogatives within the separate programs and the increased difficulty in managing changing program requirements.

CONCLUSION

The authors believe that the Department of Defense has made commendable progress toward achieving a Total Force recruiting program which is effective. However, there are several areas in which the authors submit that further improvements could be made. Accordingly, the following recommendations are submitted to the DMC for their consideration.

RECOMMENDATIONS

That OSD establish, maintain and utilize cost/budget definitions which are common to all parts of the Total Force recruiting programs.

That each Service establish and maintain common Active, Reserve and National Guard standards for recruiting accession costs.

That these Service-wide common standards be used as guidelines both in budget preparation and on-going management activities.

That the Secretary of Defense review and monitor the Services' efforts to achieve these goals.

WORKING PAPER
NOT AN OFFICIAL POSITION OF THE DMC

RECRUITMENT IN THE ARMED FORCES

PAPER #4 - RECRUITER PERSONNEL POLICIES

A Staff Issue Paper for
the Defense Manpower Commission

By
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October 1975

A-4

EXECUTIVE SUMMARY

ISSUE: Recruiter Personnel Policies

BACKGROUND: Reviews general composition of the recruiter force during draft years and cites quantitative and qualitative changes in force with transition to AVF.

- Focuses on the various criteria and procedures used by each of the Services in the areas of recruiter screening, selection, training, assignments, and professionalism.

PROBLEM: Whether increased efficiencies or improvements in existing practices might be identified to enhance the professionalism and effectiveness of the recruiting forces.

ALTERNATIVES: Identifies various options available in areas of:

- Selection and screening criteria
- Priority accorded recruiting for personnel assignments
- Recruiter training
- A career recruiter force

CONCLUSION: Services (particularly Regular Forces) should be commended for significant improvements in developing a professional force of relatively young superior recruiters. Army National Guard and Reserve appears to be lagging somewhat.

RECOMMENDATIONS: Proposes steps to further enhance Service recruiter personnel policies, particularly in bringing Army Guard and Reserve up to Regular Force standards.

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RECRUITMENT IN THE ARMED FORCES
RESEARCH PAPER #4 - RECRUITER PERSONNEL POLICIES

Except for two brief periods, legislative authority existed from September 1940 until July 1973 for conscription of men into the armed forces. ^{1/} Because of the draft, recruiting efforts were limited in scope and intensity, and most recruiting stations ran an order-taking business - signing up those who applied, but not working very hard to find qualified candidates. ^{2/}

While induction authority contained in Section 17(c) of the Military Selective Service Act expired on July 1, 1973, inductions were progressively reduced during the period prior to the AVF years and they ceased in January of 1973. ^{3/} As the pressure of the draft diminished, the Services found it increasingly difficult to enlist the necessary number of volunteers, and major changes were required in military recruiting.

^{1/} History of the Selective Service System can be found in the Director's Semiannual Reports which supplement basic information in Selective Service System, Outline of Historical Background of Selective Service, Washington, D. C., Government Printing Office, 1956.

^{2/} Statement of Roger T. Kelley, Assistant Secretary of Defense for Manpower and Reserve Affairs, July 29, 1971. Hearings before the Special Subcommittee on Recruiting and Retention of Military Personnel, House of Representatives, Committee on Armed Services, 92nd Congress, 2nd Session, p. 8080.

^{3/} Inductions declined from 206,774 in FY70 to 35,678 in FY73. From "Selected Manpower Statistics", OASD (Comptroller), Directorate of Information Operations and Control, May 1975.

Previous research papers in this recruiting series addressed AVF-era changes in organizations, numbers of personnel assigned to recruiting, and total recruiting budgets. This paper will consider changes which have occurred in recruiter personnel policies as the result of recruiting changing from a screening and processing operation for walk-in traffic to a marketing effort for the AVF.

BACKGROUND^{1/}

Prior to the transition toward an AVF, many senior NCO's and officers of the Regular Force completing their terms of service were assigned to Recruiting Services for their "twilight tours". During the draft years military recruiting was not a particularly demanding military assignment. Although recruiting quotas were established, they were generally quantitative and there was no drive for the highest available quality. Inductions provided the surge to keep Regular Force military requirements filled. Without significant pressures and demands, there were many volunteers for recruiting duty. Assignment was often viewed as a reward for long and dedicated service. Also indicative of the low pressure environment were the Reserve and Guard. They maintained no recruiting force since they had long waiting lists of volunteers who sought entry in lieu of induction into the Regular Service.

^{1/} Details of recruiter screening, selection, training and assignment were gathered during DMC staff visits to all Regular, Reserve and Guard recruiting headquarters and offices during the periods January - April 1975 and September - October 1975.

Also, because of the war in Vietnam, priorities were accorded to many essential programs other than recruiting (since the draft could be counted upon to provide the necessary accessions). Essentially then, in 1970 the Recruiting Services had a low priority for resource allocations, were undermanned, and had a significant percentage of older personnel assigned.^{1/}

In 1970, there were approximately 7,000 total recruiters for all Regular Services. As previously noted, the Reserves and Guard had no full time recruiting personnel. As of the end of FY 1975 the size of the recruiting forces had grown significantly. The combined Total Force recruiting programs during FY 75 utilized 29,092 servicemen and women and civilians. Of this total almost 12,000 personnel were assigned to managerial, support and administrative functions. The remaining majority of the personnel assigned (over 17,000) comprised the key element of the forces -- the "production" recruiters.

Complementing the expanded force size was the increased priority accorded recruiting for manning with quality personnel.^{2/} With respect to personnel assignments, priority was accorded to maintaining the Regular recruiting force strength at the authorized level. Also the key managerial and supervisory positions (from commanders, to staff positions, to district/area/zone supervisors) were filled with officers and senior NCO's who had been top performers in previous assignments. While no special criteria

^{1/} See statement of Lieutenant General George I. Forsythe, U.S. Army, Special Assistant for Modern Volunteer Army, "Hearings Before the Special Subcommittee on Recruiting and Retention", op. cit., pp. 8136-8137.

^{2/} Ibid., p. 8136. The Recruiting Command was placed among the top priorities in the Army. As another example (in Z-Gram 109) the CNO established recruiting as the Navy's top priority.

were set for the administrative, clerical and support positions at the various headquarters echelons, field recruiting stations, or the Armed Forces Examining and Entrance Stations, the "halo" effect of priority manning resulted in average to above average personnel being assigned.

The criteria for assignment as a "production" recruiter became more rigid as major changes occurred in the production recruiter force during the AVF years. Since this group represents the key element to success of any recruiting effort, emphasis was placed on assigning younger personnel who not only had superior military performance records, but also were judged to have an ability to better communicate with the young people they would be expected to enlist. The FY 75 recruiter selection criteria for Regular Services reflects the move to build a quality recruiting force.

RECRUITER SELECTION CRITERIA^{1/}

	<u>ARMY</u>	<u>USAF</u>	<u>NAVY</u>	<u>USMC</u>
Volunteer Status	Vol.	Vol.	Vol.	Vol/Non Vol.
Age	21-35	-	-	21-40
Grade Male	E4-7	E4-9	E5-9	E4-8
Female	E3-7	E4-9	E4-9	E4-8
Time in Service (Min.)	21 mos.	36 mos.	24 mos.	24 mos.
GT/GCT Score	110	-	-	95
Education	H.S. Grad	-	-	H.S. Grad

A. RECRUITMENT AND SCREENING. Volunteers for recruiting duty currently are solicited throughout the Active Forces, and the personnel headquarters of

^{1/} From U.S. Army Recruiting Command Briefing for the DMC, Fort Sheridan, IL on June 24, 1975.

the Services offer guaranteed recruiting assignments to superior NCO's in order to attract additional volunteers. As a result, all Services, except the Marine Corps, have been able to man their "production" recruiter forces with volunteers. The Marines have had to assign varying numbers of non-volunteers to meet their needs. Whether volunteers or involuntary assignees, all Services utilize established criteria and guidance from Recruiting Headquarters in screening potential candidates. The screenings are conducted by local level commanders or expert recruiter selection teams. The screening process for Regular Forces includes an interview plus an evaluation of such factors as maturity, motivation, appearance, performance in present position, oral expression, financial status, potential personal hardships or family health problems, civilian or military offenses, reliability, physical condition and attitude. The Air Force also interviews a married candidate's ^{1/}wife. The Navy supplements screening with the PF-16 Sales Aptitude Test. DMC staff interviews with Reserve and Guard representatives also indicated local level screening, but in several instances the details and scope of procedures were less precise.

B. SELECTION. Personnel records and screening documentation are centrally processed for final selection within the Regular Forces. For the Army final selection is accomplished by the Military Personnel Center; the Air Force by an Air Training Command selection board; the Navy by the Bureau of Naval Personnel; the Marine Corps by Personnel Division, Headquarters, USMC. Service Recruiting Commands interface to varying degrees during the selection ^{2/}process in order to ensure the maintenance of best available quality standards.

^{1/} The Army also considered using PF-16 but decided not to after the Army Research Institute questioned its validity. ARI is presently working on a separate aptitude test for recruiters.

^{2/} For example LTC W. Gilfillan, III, Head USMC Enlisted Recruitment Section stated the Recruitment Branch made a final go/no-go decision on each recruiter candidate (September 19, 1975).

Selection in the Guard and Reserve are less centralized and vary from branch to branch. For example, unit recruiters for the Army Guard and Air Force Reserve are selected by unit commanders. Civilian GS 9-11 Army Guard recruiter candidates are centrally screened at the state level by the Civilian Personnel Office. Air Guard recruiters are selected at the unit level and then nominated to the state Adjutant General who approves and nominates to the National Guard Bureau. Army Reserve GS 7-9 recruiting candidates are selected by the local Civilian Personnel Office.

C. RECRUITER TRAINING. The Regular Services have refined and improved their recruiter training over the last several years. Each now operates a formal course of instruction which must be successfully completed prior to assignment of an enlisted candidate to a recruiter position.^{1/} The following summarizes selected information on existing recruiter schools for the Regular Services:

	LOCATION	LENGTH	CLASS CAPACITY	AVERAGE ATTRITION
ARMY	FT. HARRISON, IN	4 wk	50 (per wk)	12%
USAF	LACKLAND AFB, TX	6 wk	72	25%
NAVY	NTC ORLANDO, FL	5 wk	75 (each)	5%
	NTC SAN DIEGO, CA			
USMC	MCRD SAN DIEGO, CA	7 wk	160	22%

Major emphasis is placed on sales training, personal communication skills, advertising and public relations. Time is also allotted for applicant screening methods, programs and incentives, recruit processing, administration and recruiting operations. To varying degrees each Service utilizes role playing

^{1/} The Services also conduct separate recruiting officer management courses for officers and selected NCO's assigned to supervisory positions.

situations for practical training in techniques. The recruiter schools provide a major screen to insure trained and qualified personnel are assigned to the recruiting forces. Personnel lost through attrition are returned to their previous units or reassigned to duty other than recruiting. The Air Force Reserve and Air Guard also utilize the recruiting school at Lackland AFB. The curriculum is modified to recognize different programs, but emphasis remains on sales training and public relations. Successful completion of the Recruiting Course is a prerequisite to receiving active duty orders to recruiting duty. Reserve attrition averages 25% and Air Guard 18%. The Army Guard and Reserve are less formal in their recruiter training. The Army Guard might utilize a 15 hour course conducted by the state Adjutant General, a special two week course at Ft. Harrison, or a recruiter correspondence course. The Army Reserve utilizes a 15 hour course conducted by a mobile training team, or a one or two week special course at Ft. Harrison. Training is not mandatory prior to assignment as a recruiter and there is no attrition among the various Army Reserve and Army Guard training programs.

D. RECRUITER ASSIGNMENTS. Most recruiters receive assignments to general locations of their choice. The basic length of assignment in the Regular Force is three years.^{1/} All have provisions for earlier termination of tour for such reasons as physical problems, hardship, low productivity, disciplinary or indebtedness problems, or malpractice. Each Service also has provisions for longer assignments. The Army will extend a recruiter indefinitely if neither he nor his commander request transfer.

^{1/} The Marine Corps recently lengthened the basic tour to 40 months due to a shortage in the necessary number of qualified replacements.

The Air Force uses a similar indefinite tour contingent upon an annual review of performance. The Navy will extend up to 400 superior performers (upon their request) for one additional year; half this number are eligible for a second year's extension. The Marines will extend a recruiter to four years (upon request) and in special cases a man might remain for a fifth year.

Except for the Army's civilian GS 7/9/11 positions, which are permanent appointments, the Army and Air Force Reserve and Guard military recruiting tour durations are less stable. The Army Guard has no data on the 7,840 unit recruiter tour lengths but an approximate estimate is 60% turnover per year. The Army Reserve estimates a 20% turnover each year. Air Reserve recruiters receive active duty orders for one year and there are provisions for annual extensions. However, annual turnover rates are not available. Of the 212 authorized Air Guard billets, 96 persons have been continuously assigned to recruiting since the force was established in 1972 (annual turnover not immediately available but estimate about 20%). Most losses of Reserve and Guard recruiters are the result of more attractive civilian job opportunities.

E. CAREER RECRUITING SPECIALTY. Only the Navy has a career specialty for recruiters. Designated Navy Counselors (NC), these personnel alternate between recruiting duty (ashore) and fleet units, where they devote their time to career counseling and retention.^{1/} Although not

^{1/} The Navy recruiting force has an allowance of 615 NC's which is designed to provide for a professional recruiting cadre. As of September 8, 1975 there were 380 assigned (approximately 12% of the total recruiter force).

having a designated special career field, the Army and Air Force essentially foster a group of career recruiters through their indefinite extension policies. Civilian technicians, plus provisions for successive extensions of military recruiters, also fosters a cadre of professionals within the Reserve and Guard although no career specialty is designated.

PROBLEM

The fundamental question that should be answered by the DMC concerning recruiter standards, screening, selection, training and assignments is whether increased efficiencies or improvements in existing practices might be identified which would enhance the effectiveness and professionalism of the recruiter forces.

ALTERNATIVES

The purpose of this section is to identify and discuss various alternatives which might improve recruiter personnel policies.

Alternative 1 would establish standards for assignment to recruiting duty, Regular, Reserve or National Guard. These standards could be stated in terms of minimum (or a minimum-maximum range) years of service, educational levels, GCT scores, approval of screening boards, etc. The advantage of this alternative would be the extension of the current uniformly high standards for Regular Force recruiting personnel to the Reserve and National Guard recruiting forces. The adoption of this alternative would support the Total Force concept.

The disadvantage of this alternative would be the loss of certain management prerogatives.

Alternative 2 involves adjusting the priority accorded recruiting, particularly in the area of personnel policies. With the advent of the AVF, all Services upgraded recruiting and have maintained it among their several

top programs for priority manning with personnel who have exhibited superior performance in prior assignments. While recognized as an internal Service management option, this Alternative would urge maintenance of recruiting among the top priorities.

The advantage of maintaining a high priority, as proposed in this Alternative, recognizes the essential need for successful mission accomplishment -- required accessions are a key element in the success of an AVF.

The disadvantage of according priority to recruiting is that it could have a negative impact upon manning of operational units. However, as key recruiting positions amount to approximately 1% (or less) of a Regular Service's total strength, and the population from which personnel are selected is larger by at least a factor of ten (or more) than authorized recruiter strength, the impact on operational units of assigning high quality personnel to recruiting is minimal.

Alternative 3 would propose formalizing and centralizing the screening and selection policies for Reserve and Guard recruiters to parallel the Regular Services. Screening and selections are presently divided among thousands of individual units, local and state Civilian Personnel Offices, and State Adjutant Generals. Only the Air National Guard has a centralized final selection point.

The advantage of formalizing the screening policies would be to more clearly focus on initial personal involvement by local commanders. Centralized selection would also permit expert review and comparisons of relative qualifications such as maturity, motivation, appearance, performance, oral expression and attitude. Such standardization would also preclude current practices where many lower echelon Reserve, Guard and civilian personnel

with no recruiting experience and only a minimum understanding of recruiting as a marketing operation are screening and selecting recruiters.

The major disadvantage of formalizing and centralizing the recruiter screening and selection process would be an increase in the details and time currently devoted to selecting Reserve and Guard recruiters. However, again based upon recent Regular Services and ANG experiences, this disadvantage should be offset by improved qualifications of selected recruiter candidates.

Alternative 4 would recommend that the Army Reserve and Guard modify policies to require successful completion of a recruiter school (such as Ft. Benjamin Harrison) as a prerequisite to assignment to recruiting duty. As a minimum this should apply to the 118 Counselor/Liaison NCO's and 430 GS 7-9 Recruiting Technicians of the Reserve plus the 90 Liaison NCO's and 78 GS 9-11 Technicians of the Guard.

The advantage of this alternative is that in addition to providing valuable professional training, it provides a functional means to screen for qualifications and ability prior to an individual being locked into a recruiting position.

The major disadvantage is the increased cost in TDY funds. However, much of this might be offset by reductions in the current mobile training effort and state AG training courses. Also offsetting would be unquantifiable savings in recruiter efficiency accruing from enhanced professionalism.

Alternative 5 would propose establishing a single joint DOD recruiter school to replace the individual Service schools. Since the current schools all emphasize sales training, personal communications skills and public relations, the existing schools are to a great extent duplicative.

The advantage of this Alternative involves savings associated with maintaining one school vs. the current five -- albeit the single school would have to be considerably larger and staffed to handle the total military recruiter flow, which amounts to an average total for Regulars alone of over 500 assigned at any given time. It would also be easier to insure that top quality training was received by all Total Force recruiters.

The disadvantage is that each Service devotes considerable time to parochial subjects other than sales training (e.g., qualifications for various officer and enlisted programs, options, incentives, organization, public relations support programs, operations and management, etc.) Additionally, the sales training is tailored to many programs which are unique to individual Services.

As a result, even if a single joint curriculum might be devised for recruiter training, the Services probably could justify the need for specialized training in a number of other key areas.

Alternative 6 would propose establishment of a career specialty for recruiters in each of the Services.

The advantage of this Alternative is that it would provide within the recruiting forces a cadre of career professionals.

The disadvantage is that in addition to compensatory reductions in other specialties and the costs associated with establishment and management of any new specialty, it could lead to instances of stagnated performance. Service personnel managers cited cases where recruiters performed superbly for periods of time but then reached a plateau or perhaps

"burned out". With a career specialty, the recruiting force would eventually "age" and might detract from the current emphasis of assigning relatively younger personnel who have an ability to better communicate with the young people they would be trying to enlist.

CONCLUSION

After a careful review of current recruiter screening, selection, training and assignment, the DMC staff concludes that the Services (particularly Regular Forces) have made significant improvements in their policies since the inception of the AVF. They should be commended for taking the initiative in rapidly developing a professional force of relatively young superior recruiters. On the other hand, the policies and practices of the Army National Guard and Reserve concerning recruiters have not kept pace with the Regular Forces. In order to enhance the developing professionalism within the recruiting forces, the following recommendations are submitted to the DMC for their consideration.

RECOMMENDATIONS

1. That the currently-high standards of the Active Forces for assignment to "production" recruiting duty be maintained; that similar standards be established and maintained for all National Guard and Reserve "production" recruiters.
2. That assignment to key supervisory and "production" recruiting duty be established and maintained by the Regular, National Guard and Reserve elements on a priority basis; that assignment to administrative and recruiting support positions be established and maintained on a lower priority basis.

3. That the current Active Forces "production" recruiter screening and selection policies and practices be maintained by the Active Forces and established and maintained by the National Guard and Reserve.

4. That the current Active Forces requirement that all "production" recruiters successfully complete Recruiter's School prior to field assignment be maintained by the Active Forces, and established and maintained by the National Guard and Reserve.

5. That each Service retain its own Recruiting School; that each Service school be used for Regular, National Guard and Reserve personnel.

6. That the current Navy program of establishing a career field for recruiters be monitored and evaluated by OSD with a view toward extending the concept, if successful, to the other Services, Active, National Guard and Reserve.

WORKING PAPER
NOT AN OFFICIAL POSITION OF THE DMC

RECRUITMENT IN THE ARMED FORCES

PAPER #5 - RECRUITING TOOLS

A Staff Issue Paper for
the Defense Manpower Commission

By
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Recruitment Group
Defense Manpower Commission Staff

October 1975

A-5

EXECUTIVE SUMMARY

ISSUE: Recruiting Tools

BACKGROUND: Reviews change in military recruiting from a processing operation for walk-in traffic to a marketing effort. In identifying the sales process and associated tools, the paper discusses the available market, advertising, promotions, enlistment guarantees and options, and recruiter efforts and techniques.

PROBLEM: In transitioning to an AVF, all Services have embarked upon greatly expanded advertising and promotion programs, and enlistment options. The question is whether increased efficiencies or improvements might be realized in these programs.

ALTERNATIVES: Identifies various options available in areas of:

- Recruiter techniques
- Advertising and promotions
- Enlistment options, guarantees and incentives

CONCLUSION: Recruiting success has been accompanied by significant increases in recruiting costs. Value of tools (e.g., advertising, promotions, enlistment options) is endorsed, however, unanswered question remains, "How much is enough?"

RECOMMENDATIONS: Proposes initiatives which would better identify all available tools, require post-expenditure justification of many unmeasured efforts, and contribute to efficiencies and increased recruiting effectiveness.

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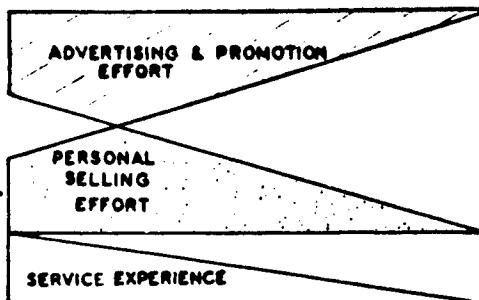
RECRUITMENT IN THE ARMED FORCES
RESEARCH PAPER #5 - RECRUITING TOOLS

BACKGROUND

With the advent of the AVF, military recruiting changed from a screening and processing operation for walk-in-traffic to a marketing effort. The basic marketing effort as it applies to recruiting can be graphically illustrated as follows:^{1/}

7 STEPS TO A RECRUITMENT SALE

1. AWARENESS
2. UNDERSTANDING
3. INTEREST
4. PREFERENCE
5. MAKE PROPOSAL
6. GET DECISION
7. KEEP "CUSTOMER" SOLD



The product being sold is service in a particular military branch, regular or reserve. The price is measured in terms of a youth committing some period of his life. This paper will address the various aids and tools available to recruiters in making the "sale". Specifically it will look at the available market, recruiter efforts and techniques, advertising, promotions, guarantees and options -- an overview of recruiting up to the point of processing by recruiters at the Armed Forces Examining and Entrance

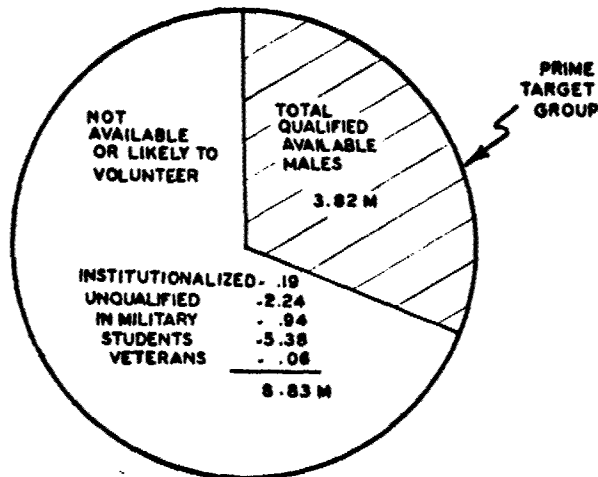
^{1/} From D'Arcy-MacManus and Masius Advertising Agency presentation to the DMC during public hearings in New York on August 18, 1975.

Stations. (For a discussion of processing by recruiters and AFEES, see Research Paper #6, "Recruit Processing Controls.")

I. THE MARKET

The primary market for male non-prior-service enlisted volunteers (which amounts to over three quarters of total accession needs) is generally viewed as the 17-22 age group. The total number in this group varies from year to year, however, the following chart illustrates the annual average over the 1975-79 period.^{1/} The primary target group changes as the older

**TOTAL MALE CANDIDATES, AGES 17-22
(12.65 MILLION)**



move out and new 17 year olds enter it. In general terms, with minimum standards the sustainability of the AVF will require that about one

^{1/} Statistics derived from Binkin, Martin and John D. Johnston, the Brookings Institution, "All-Volunteer Armed Forces: Progress, Problems, and Prospects", Report prepared for the Committee on Armed Services, U.S. Senate, 93rd Congress, 1st Session, June 1, 1973.

out of every three persons in the prime target group will have to be enlisted at some point in the six years between their 17th and 23rd birthdays.^{1/} With current higher qualification standards, which restrict accessions from the Mental Group IV category, an Army analysis projects that the Services will have to enlist almost one out of every two.^{2/} In either case, recruiters face a major challenge.

The procedures and techniques employed by recruiters have changed significantly as operations have shifted from processing walk-in traffic (composed of those who had decided to enlist in lieu of induction) to actively seeking out and selling candidates, many of whom have no immediate interest in military service. Without pressure of the draft, most youth experience little or no urgency to make a commitment to enlist. Recruiters have to actively canvass local communities to identify candidates, make contacts, develop prospects and interest applicants. Recruiters employ varying techniques. In general, however, with the current "sales" approach, demands on their time and efforts have greatly increased. Recruiters speak at high schools and "rap" with groups of youth throughout the community -- They visit teachers, counselors, coaches and others to cultivate a rapport with youth influencers -- They attend football, basketball, drag racing, and other sporting events to develop prospects -- They become involved in Little League, Scouting, church, civic and other community activities. All these efforts, plus other public relations activities, are in addition to keeping current on enlistment programs, maintaining prospect lists, seeking to make contacts, counseling individual prospects (and in some cases parents) on options available, conducting moral, attitude and

^{1/} Binkin & Johnston, p. 42. The question of "AVF sustainability" will be addressed in depth in a separate research paper.

^{2/} Provided in briefings to the DMC staff during visit to U.S. Army Recruiting Command, Ft. Sheridan, IL, March 1975.

occasionally aptitude screening of applicants. Also, to some extent, (depending upon the level of administrative support) many recruiters maintain records, submit reports, and contribute to the preparation of applicant processing forms. They also attend recruiting meetings, receive training, and in some cases supervise subordinates.

The extent of each recruiter's effort might vary depending upon such variables as his professional knowledge, personal sales ability, and attitudes and availability of qualified applicants in his local area. In an attempt to quantify the average effort required to attain accessions in 1975, two of the Services provided the following estimates: ^{1/}

RECRUITING CONTACTS TO ENLISTMENT RELATIONSHIP

	<u>ARMY</u>	<u>USAF</u>
Attempts to contact (telephone/ personal)	4,157	5,349
Contacts made	1,299	1,000
Serious applicants	100	100
Passed basic eligibility, dependency and moral screen	Not indi- cated	89
Passed mental test	87	53
Passed physical test	72	43
Enlisted after advanced counseling and qualification/job match	54	24

The contacts indicated in the above table generally include repeated contacts with the same prospect. Also, the same prospect is frequently contacted by more than one Service. The basic conclusion that can be

^{1/}Provided by Major Nielsen, Market Studies and Analysis, U.S. Army Recruiting Command, February 7, 1975 and Colonel Binford, Deputy Commander, U.S. Air Force Recruiting Service, September 24, 1975. The data is approximate and varies significantly by location. It should not be construed as a measure of effectiveness.

reached from the foregoing is that recruiters devote considerable time and effort to produce the required numbers of volunteer accessions. This conclusion is based primarily on research and observation of Active Forces recruiting programs. The activities of Reserve and National Guard recruiters are less defined, although DMC observations and interviews indicated that a lower level of activities are undertaken by National Guard and Reserve recruiters.

II. TOOLS AND TECHNIQUES

There are four broad categories of tools and techniques which will be discussed: advertising, promotions, guarantees and options, and recruiter's sales efforts. Within the overall marketing process, these four categories have varied purposes, as the following chart illustrates:

	Advertising	Promotions	Guarantees & Options	Recruiter's Sales Effort
Awareness	X	X		
Understanding	X	X		
Interest	X	X	X	
Preference			X	X
Commitment			X	X

A. Advertising. In FY1970, the advertising expenditures for all Services were about \$7 million. By FY 1975 this figure had grown to approximately \$100 million for Regular, Reserve and Guard.^{1/} This growth was justified for the purpose of increasing awareness to the military as an employment option, improving understanding and interest in order to attract youth to

^{1/} Budget figures provided during DMC staff visits to all Recruiting Headquarters during the period September 17 to October 2, 1975.

the military,^{1/} and improving attitudes toward the Services. In conducting their review of Active Services recruiting activities, the GAO reviewed about 70 studies that have been made on attitude since 1970.^{2/} These studies showed that the attitudes of youth toward the military as a whole or individual Services in particular have not changed to any significant degree. Many factors beyond advertising impact upon attitude, and what is left unanswered is whether advertising might have offset an otherwise change for the worse in attitude.

During recent years, each of the Services employed an advertising agency (Army and Army Reserve - N.W. Ayer; Air Force and Air Force Reserve - D'Arcy - Mac Manus and Masius; Navy - Grey; Marine Corps - J. Walter Thompson; Army and Air National Guard - W.B. Doner).^{3/} In conjunction with their ad agencies, each of the Service's recruiting advertising departments/sections conducts a broad market communications program. Efforts range from preparation and placement of printed ads in magazines, newspapers, journals, and other periodicals, to direct mail, billboards and transit cards; to preparation of films and recordings for public service use; to printing of brochures and other recruiting pamphlets; to displays and exhibits; to production of small handouts

^{1/} For example, the Marine Corps cited an analysis which prompted their entry into paid printed media. In early 1974 a survey of 18 geographic areas disclosed 23% awareness of USMC public service advertising with only a small fraction having a true perception of the Corps. Within 3 months of commencing paid printed media, a survey of the same 18 areas indicated they had moved up into 2nd place among the Services with 34% awareness and a similar increase in understanding. Source: Major Rowe, USMC, Head Recruitment Advertising Section, September 19, 1975.

^{2/} GAO Report to the Congress, "Overview of Military Recruiting Activities," (Draft) FPCD-75-171, August 1975, p. 39.

^{3/} The Navy also has employed a minority ad agency. Commencing in 1972, it was Vanguard and in 1973, it changed to John Small. Also, the Navy recently announced the decision to shift its major account from Grey to Ted Bates.

and giveaways. In addition to having a national advertising program, each Service allocates a portion of its budget through field commanders for local advertising.

1. Printed Media. All Services, active and reserve, advertise in a variety of magazines and periodicals. All utilize management information systems which track individual ads, magazines, circulation, cost, and leads generated. Based upon collected data, decisions are made to drop/change magazines and ad format in an attempt to improve efficiency of leads generated versus cost per lead.

Market research conducted by each of the Services indicates that training opportunities, travel, education, pay, personal challenge, etc., are factors which interest youth. Accordingly, all Services use similar themes to appeal to these interests. Two or more Services frequently advertise in the same issue of a magazine. The only significant difference is the projection of an image which characterizes the specific Service.

There is direct competition between the Services. If unrestrained, such competition is wasteful. On the other hand, Service uniqueness and image hold a measure of appeal, and some competition has value. It leads to improvement of the product, which results in a more satisfied customer -- a key element in an AVF.

As a first step toward needed constraint and control, the Joint Advertising Directors of Recruiting (JADOR) was organized in 1973. ^{1/}

^{1/} Information provided by Service Advertising Directors and Dr. Al Martin, Special Assistant to the Assistant Secretary of Defense (Manpower & Reserve Affairs), October 7, 1975.

Each of the Services, active and reserve, is represented. Their objective is to share advertising knowledge and improve coordination between the Services. Several significant accomplishments are joint purchase of all magazine space to save on rates, joint purchase of mailing lists, and direction of a 13-week, \$1 million paid radio advertising test (commencing September 8, 1975).

2. Direct Mail. Each of the Services, active and reserve, mails letters and recruiting literature to potential prospects. Direct mail better focuses on the target market than general circulation media ads. Mailing lists have been purchased individually by the Services (e.g., high school seniors, new driver registration lists, segments of work force, etc.) from commercial list compilers. The Armed Forces Vocational Testing Group also compiles a listing of high school students taking the Armed Services Vocational Aptitude Battery. On the local level, recruiters, with varying success, compile lists of voters, Selective Service registrants, sports teams, clubs, and other local groups.

There has been considerable duplication in the direct mail effort. Mailouts are often similar and a high school senior (the primary target list) probably receives a half dozen or more pieces of literature from the Services. In an effort to economize and consolidate, JADOR recently has coordinated a joint purchase of names and will test a single cooperative mailout containing literature of all Services.

3. Telephone Information. Each of the Services, active and reserve, in their advertising programs includes a toll free telephone number which an interested person can call for information. The Navy has the most sophisticated

system with their phone lines manned 24 hours a day by experienced recruiters. Annual operating cost is about \$348,000 a year and justified on the basis of firsthand knowledge of programs with an expert "personalized touch" on each inquiry. ^{1/} National toll free information centers are operated by other Services as an integral part of their advertising response/lead fulfillment system. Manned by civilians, and using a taped answering service during the night, annual costs cited by Service directors of advertising were only a small fraction of what the Navy spends (e.g., Marine Corps estimates \$18,000 annually).^{2/}

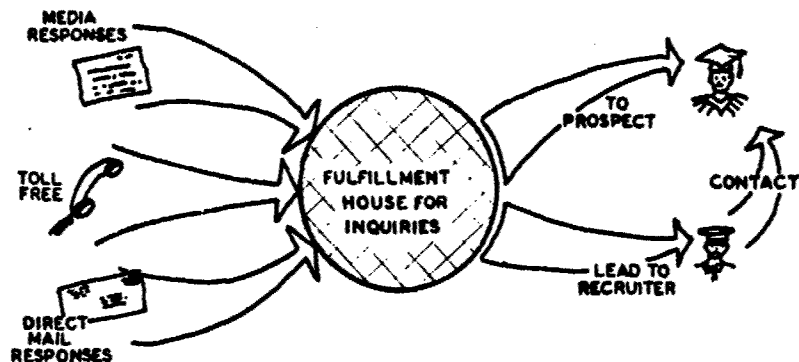
4. Lead Generation, Fulfillment, Conversion. Advertising in the various media generates interest to the point where many persons seek additional information from one or several Services. While many of those interested contact a local recruiter, others utilize coupons or return postcards contained in printed ads or direct mail pieces. Still others use the toll free phone number to request additional information. Each Service, active and reserve, employs a civilian lead fulfillment company as part of its total advertising effort. The following illustrates a simple flow chart.

(See next page)

^{1/} Information provided by Capt. H. C. Atwood, Director, Navy Recruiting Advertising Department, September 18, 1975.

^{2/} Information provided by MAJ Rowe, USMC, and other Service Directors of Advertising during DMC staff visits, September 19 - October 2, 1975.

RESPONSE/LEAD FLOW



For each Service responses go to a centralized location (fulfillment company). Summarizing the data provided by all Service directors of advertising, over one million responses/leads were received in CY1974. Using a computerized system, actionable leads are identified and requested information is mailed to requester. ^{1/} A prospect card is concurrently mailed to the recruiting station nearest the requester's address. The tracking of leads converted to enlistments currently is one of the weak links in measuring the lead system effectiveness. Several of the Services are attempting to get a measure on conversions. For example, in the Navy, list summaries are mailed each month by geographic area to recruiter managers for monitoring and tracking of

^{1/} In general, responses are compiled and purified. An example of purification is the Navy system: apparent false inquiries (e.g., Mickey Mouse, Henry Kissinger, Napoleon Bonaparte, etc.) are eliminated. Persons indicating an age below/above recruit eligibility are segregated for special interest mailout. The resulting purified list is best estimate of actionable leads on valid prospects.

lead utilization and conversions by recruiters. The Marine Corps is utilizing tear-off, mail backs on their prospect cards (returned by recruiters to managers) so that basic measurement of effectiveness is on-going.

5. Radio/T.V. Public Service Advertising (PSA). Except for several brief paid radio tests, the Services, active and reserve, have depended upon free PSA time donated by radio/T.V. stations.^{1/} No one is certain how much free PSA time is being received. There are approximately 8,000 radio and over 700 T.V. stations. Since there are only limited samplings of broadcasts, most Services hesitated to provide the DMC staff with a total estimated value. The recent GAO Report estimated a total of \$50 million, but noted the figure was unreliable.^{2/} Except for the Army, none of the Services strongly endorsed the value of paid radio/T.V. during DMC staff interviews. There was uncertainty about the current joint radio test, but each believed it "necessary" to offset any advantage the Army "might" obtain from their radio test earlier this year. Service representatives also stated their belief that most free PSA time will be lost if one or all of the Services institute a regular paid program.

The Services' avoidance of paid electronic media advertising was originally based upon what they interpreted as a prohibition by Congress.^{3/}

^{1/} Tests were conducted by the Army in 1971 and the Spring of 1975. A 13-week joint test, managed by JADOR, commenced on September 8, 1975.

^{2/} GAO Report. op. cit., p. 43.

^{3/} Attributed to a statement to the House of Representatives by Congressman Hebert on August 9, 1972, where he indicated that he would oppose use of funds for T.V. advertising. The Congressman added: "The airways belong to all the people and their use for bona fide public service should not be subjugated to the money hungry minions of the broadcast networks."

More recently, it would appear Congressional attitudes changed. In acting on the 1974 Defense Appropriations, Congress recommended use of all effective methods of advertising, including an equitable allocation between the broadcasting and printed media.^{1/} However, because of DOD uncertainty on the cost effectiveness of an electronic media effort, they have hesitated to embark on such a program, limiting their effort to recent brief tests.^{2/} In a 1976 report, DOD was admonished by the House Appropriations Committee:^{3/}

The Committee expects that the Department of Defense will not continue to ignore Congressional recommendations that all advertising media be used in the most cost-effective manner within the funds provided. The electronic media have almost been ignored...

6. Advertising Research. Each of the Services conducts market and advertising research, although the degree of research is higher in the active forces than in the reserve programs. Some is conducted within Service recruiting staffs, some by individual advertising agencies, and some by civilian research corporations. Until recently, there was little coordination of research between the Services. The GAO Report on advertising indicated that they had identified more than 70 studies, made at an estimated cost of \$4 million over a four-year period, most of which were duplicative.^{4/}

In an effort to eliminate much of the duplication, OSD(M&RA) took an initial step in the Spring of 1975 to consolidate much of the market research.^{5/}

^{1/} See Senate Report, No. 93-617, p. 101, and House Report, No. 93-662, p. 32.

^{2/} An electronic media paid advertising program could become costly. Funding of such a program would require reductions in other elements of market communications. The DMC staff endorses the DOD hesitancy to embark on a paid electronic media effort pending an analysis of tests to better understand cost effectiveness of such a program.

^{3/} Committee on Appropriations Report on Department of Defense Appropriations Bill, 1976, House of Representatives, Report No. 94-517, p. 40.

^{4/} GAO Report, op. cit., p. 41.

^{5/} Information provided by Dr. Al Martin, OSD(M&RA), during interview, op. cit.

At that time, the Services provided each other with a summary listing of all recruiting research, and representatives commenced periodic joint meetings to exchange data. In addition, OSD has recently commenced contracting for several market studies. Agreed to by Service representatives, the OSD initiated studies should reduce duplications.

B. Promotions

In addition to advertising, another form of market communications is recruiting promotions. Budgeting is not standard within DOD and costs are frequently difficult to identify. ^{1/} Promotions include such activities as military bands, performance teams, exhibits, tours and visits to military installations, liaison and activities with educators, youth and influence groups, and civilian VIP's (e.g., race car drivers, professional athletes, etc.). All these activities are sponsored or participated in with one purpose in mind -- to maximize contact with the market in order to enhance awareness, understanding, and interest in the military.

Many activities (e.g., bands, performance teams, and racing events) produce large crowds of spectators. Additionally, such activities result in local newspaper articles, radio and T.V. appearances of participants, and special media interviews. ^{2/}

^{1/} For example, the Navy categorizes promotions under "Recruiting Support"; the Air Force Exhibit Center devotes about 75% of its effort to recruiting, but is not included in their recruiting budget; promotions for National Guard recruiting are frequently funded through state budgets; unit performance teams used in support of recruiting by all Services are normally funded at the local level.

^{2/} For example, the Navy reports 129 band performances attracted live audience of 142,495 (majority high schools), 68 T.V. programs (7,715,800 audience), 126 radio programs (12,035,772 audience), and 115 newspaper articles (6,529,042 circulation). Provided by Capt. Mary A. Gore, USN, Director, Recruiting Support Department, Navy Recruiting Command, September 30, 1975.

While the DMC staff believes awareness is enhanced by these many recruiting support events promoted and participated in by the Services, the impact they may have on the "bottom line" -- i.e., ultimate accessions into the armed forces -- is not clear.

C. Enlistment Incentives and Options

During the draft years, there were few enlistment incentives or guarantees used to attract volunteers. Following induction or enlistment, accessions were assigned to satisfy Service needs. With the advent of the AVF, each of the Services, particularly Regular forces, instituted an expanding number of special guarantee options to attract volunteers. These enlistment incentives have grown to be numerous but generally can be classified within the following broad categories for the Active Forces:

Army

- Enlistment bonuses for combat arms and certain other specialties
- Specialized training guarantees
- Area/station/unit of choice

Navy

- Specialty training and career field guarantees
- Coast of choice
- Enlistment bonus for certain specialties

Marine Corps

- Enlistment bonuses for combat arms and certain other specialties
- Specialty training guarantees
- Ground/aviation occupational option

Air Force

- Specialty training guarantees
- Location of choice

The Reserve and Guard also emphasized options; however, the options available for National Guard and Reserve units are considerably less than the active forces.^{1/} Nevertheless, as waiting lists diminished and disappeared, the Reserve and Guard became actively involved in recruiting and publicizing their unique image -- military service and local community prestige. Specifically, they emphasize minimum active duty away from home followed by part-time employment and pay during drill periods, and the availability of specialized skill training which can enhance civilian employment opportunities. In some states, the Guard can offer such additional benefits as state-provided tuition assistance, death gratuities, auto license tag discounts, and tax benefits.

A major option, which all Regular Service recruiters emphasized as a definite attraction to the military, is the G.I. Bill.^{2/} All attitude surveys of youth have indicated that the opportunities for military skill training, coupled with further civilian educational opportunities, are the principal attractions of active military service.^{3/} It is probable therefore, that the proposed discontinuance of the G.I. Bill could have a significant adverse impact upon Regular Service recruiting.

PROBLEM

In transitioning to an AVF environment, the Services have embarked upon numerous and varied options to support their "marketing" effort.

^{1/} Most National Guard/Reserve officers interviewed by the DMC staff said that a lack of special monetary incentives was the reason for the sharp fall-off in non-prior-service enlistments during the AVF years.

^{2/} Reserve/Guard recruiters cite the absence of G.I. Bill benefits as one of the major reasons for their relative inability to recruit n.p.s. accessions.

^{3/} For expanded details on the appeal of education and training see separate DMC staff paper, "Education Overview".

Greatly expanded advertising and promotion programs, plus an increasing number of enlistment options, bonuses, and guarantees, have all contributed to providing recruiters with a wide range of tools which assist in attracting volunteers.

The fundamental question that should now be answered by the DMC is whether increased efficiencies or improvements might be realized in the provision of recruiting tools used to "market" military service.

ALTERNATIVES

The purpose of this section is to identify and discuss various alternatives which might improve recruiting efficiency.

A. Recruiter Techniques

In a sales process market communications generate awareness, understanding and interest. The recruiter is of greatest value in reinforcing interest and personally influencing preference to secure a commitment. Recruiters, however, have become increasingly involved in public relations, community organizations, and promotional events. This involvement has grown over recent years, but there appears to be little planning or direction on the effective utilization of recruiter time.

Alternative 1 would continue current methods of operations. Recruiters would participate in community affairs and promotional activities as needed to support their individual techniques for attaining accessions.

The advantage of this Alternative is that it permits maximum flexibility to recruiters in the accomplishment of their task.

The disadvantage is that it would perpetuate inefficient recruiter operations in those cases where recruiters have no clear measure of activity effectiveness.

Alternative 2 would reduce the current emphasis on all recruiters becoming involved in community affairs and promotional activities. It would assign these functions to a single individual for certain geographic locations.

The advantage of this alternative is that it would reduce demands on recruiters and free them to devote more of their time to contacting and counseling individual prospects, and securing enlistments.

The disadvantage is that it might make certain recruiters less effective since they would no longer be personally involved in utilizing certain tools which generate awareness and interest in the military.

Alternative 3 would recommend that the Services not only more clearly define the value and effectiveness of various public affairs and promotional activities, but further provide guidance and direction on the optimum utilization of recruiter time.

The advantage of this alternative is that it should refine techniques and lead to greater recruiter efficiency.

There appears to be no significant disadvantage of this alternative other than the added effort required to conduct the needed analysis.

B. Advertising and Promotions

Over the last five years, advertising budgets have grown from \$7 million to about \$100 million. The latter figure would be even higher if all promotion expenses were added. Advertising and promotions provide a method of market communications to improve awareness, understanding, and interest. However, there is no standardized budgeting process which combines and clearly identifies all programs utilized for market communications. As recommended in Research Paper #3 of this series ("Recruiting Budgets") common Service-wide standards are needed. Few persons would question the value of market communications in a sales effort. However, "How much is enough?" is frequently asked and seldom answered. Further, current DoD contracting practices are cumbersome, requiring long lead times for changes in advertising agencies, images or directions, and causing an inability to quickly relate accessions needs to national advertising efforts.

Alternative 1 would recommend a continued funding for the Total Force program at the requested rate for market communications (advertising and promotion.).

The advantage of this alternative is that it would support the thesis of some advertising/marketing proponents -- i.e., "the objective is to be effective, not measure effectiveness".

The disadvantage is that it would lead to a continuing inflation of advertising and promotion cost as new initiatives are added to the current already-expanded effort.

Alternative 2 would direct the Services, active and reserve, to implement a GAO-proposed test of advertising. ^{1/} Based on studies made by the University of Pennsylvania's Wharton School of Finance, the approach

^{1/} GAO Report op. cit., p. 45.

would be to increase and decrease advertising only in certain isolated market segments, then analyze and compare results to other similar market segments.

The advantage of this approach is that a much needed initiative in measuring advertising effectiveness would be instituted.

The disadvantages are that such tests would be costly and have questionable validity. The Services are not selling a traditional product such as beer, refrigerators or automobiles -- they are marketing a way-of-life at the price of "X" years. To even attempt such a test requires other variables such as entrance standards, recruiter proficiency, accession quotas, pay and enlistment guarantees, economy and employment opportunities, etc., be standard between test areas and held constant over an extended period of time. The recruiting measures of effectiveness are accessions and successful performance. These are affected by not only the above variables, but also by peer/parent/counselor influence, a potential applicant's personal needs and available options, and the individual drive and initiative by a recruiter to make quota. Advertising is a tool for recruiters. It is reasonable to assume that almost all volunteers are convinced to make the major decision to enlist by more than the minimum message and information contained in advertising.

Alternative 3 would propose incremental reductions in Total Force requested market communications budgets.

The obvious advantage is the dollar savings involved. In the absence of cost effectiveness measure for market communications, it forces trade-offs and efficiencies. As noted herein, there is considerable duplication among Service advertising programs, and some budget cuts can be compensated for by increasing joint efforts. The efforts of JADOR in consolidating printed media placement require-

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ments to obtain reduced rates, the joint direct mail and joint radio test are good examples. Notwithstanding the DMC staff's recognition of the unique appeal of each of the Services and the value of restrained competition, there appears to be considerable room for further economies in "institutional joint military ads", reductions in head-to-head competitive placements in the same issue of magazines, and improved coordination and direction of market research. Budget cuts should also prompt a review of current program efforts, including critical reappraisals of memento giveaway programs, the contribution of the varied and wide ranging promotional activities, along with the size, quality and proliferation of brochures. The Navy might also reassess its toll free telephone information center to confirm that their higher costs are supported by the realization of commensurate advantage in effectiveness.

The disadvantage of budget cuts is that in the absence of effectiveness measures successful program elements might be reduced or eliminated. However, readjustments and trade-offs should be possible. Additionally, if cuts are not incremental and gradual, they could have an adverse impact upon the awareness, understanding, and interest which is generated by market communications.

Alternative 4 would require DoD to establish extraordinary procedures for advertising procurement, designed to foster bids from a greater variety of advertising firms and to greatly enhance the ability of the active Service and the Reserve and Guard components to amend advertising programs with a minimum of management red-tape. Such extraordinary procedures would allow advertising to be better related to specific current accession needs.

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The advantage of this alternative would be the greater flexibility achieved in the advertising programs, with a concurrent ability to better measure the effectiveness of advertising.

The disadvantage would be the loss of continuity which occurs with long-term advertising agencies and long-lead-time advertising campaigns. Another disadvantage would be the possible loss of professionalism in the advertising campaigns caused by too-quick changes in advertising efforts.

C. Enlistment Options, Guarantees and Incentives

To attract active-Service volunteers, OSD and the Services have implemented an ever-increasing number of enlistment guarantees, bonuses and other options. There is no indication, however, that specific effectiveness measures exist for the varied options. While the DMC staff does not question their values as recruiting tools, there appears to be considerable room for savings with increased management through adjustments.

Alternative 1 would recommend a continuation of all existing enlistment options, selectively adding additional options which market research indicates would attract volunteers (particularly for the Guard and Reserve).

The advantage of this alternative is that it should maintain, or even enhance the appeal of military service.

The disadvantage is that the costs and assignment complexities^{1/} associated with most of these options would continue at the existing

^{1/} DMC staff interviews with personnel managers indicated value in some assignment options. For example, the Army's guaranteed European assignment has significantly contributed to meeting overseas needs and personnel stability by reducing the use of CONUS units as "fillers" for overseas assignments. On the other hand many assignments to specific geographic areas or fleets for some guaranteed minimum period have severely limited reassignment flexibility as needs change and units/ships must be relocated.

(or higher) level with little understanding of the relative effectiveness of each. To fund enlistment bonuses alone, DOD originally requested \$75.5 million for FY 76 (up from \$43 million expended in FY 74 and \$65.9 million in FY 75).

Alternative 2 would eliminate enlistment options which generated add-on budget costs (e.g., bonuses, additional travel to guaranteed locations, etc.)

The advantage of this alternative is that it would produce savings in defense expenditures.

The disadvantage is that such elimination would erase many recruiting tools which contribute in varying degrees to attracting the desired quantity and quality of volunteers.

Alternative 3 would propose adjusting the various enlistment options depending upon changes in the market and the attending need to attract volunteers. As the economy declined in late 1974, the first half of 1975 recruiting became easier. Rather than economize through reductions in certain costly options, the Services restricted enlistments by raising their quality standards.

The advantage of adjusting enlistment options depending upon market conditions would be to provide savings when recruitment became easier due to some other influence on enlistments.

The disadvantage of this Alternative would be the added management burden and continual confusion at the local levels.

D. Education Assistance

Closely related to enlistment guarantees and options is educational assistance. Educational opportunities for military personnel, particularly post-high school programs which include certificate level vocational/technical programs and degree programs from associate to graduate levels, have been identified by surveys as being a major factor in attracting quality accessions.^{1/} Funding has come from the G.I. Bill and the DoD Three-Quarters Tuition Assistance programs. Elimination of the G. I. Bill (specifically educational benefits) could have a significant adverse impact upon the Regular Services' ability to attract volunteers, particularly with concurrent limitations on the Three-Quarters Tuition Assistance program.

Alternative 1 would make no change to current plans -- i.e., elimination of G.I. Bill and restrictions on budget levels for the DoD Tuition Assistance program.

The advantage of this Alternative is that it provides significant dollar savings. Elimination of G.I. benefits greatly reduces the Veterans Administration's budget and the DoD budget is restrained with a limit on tuition assistance.

The disadvantage of this alternative is that it could undermine the success of the AVF by eliminating/restricting educational opportunities which attract quality volunteers. In a broader context this will provide some incremental decrease in the educational level/abilities within the military, which will be further translated to education in society throughout the nation.

^{1/} See separate DMC staff paper, "Education Overview."

Alternative 2 would establish a replacement educational assistance program, funded by DoD, for all entering accessions.

The advantage of this alternative is that it would contribute to recruiting and retaining quality men and women in the AVF.

The disadvantage is that budget reductions realized with elimination of the G.I. Bill would to a great extent be offset by institution of an alternative scholarship program.

Alternative 3 would establish a replacement educational assistance program, funded by DoD, but provided to new accessions on a selected basis for recruits with critical skills, for recruits willing to serve in the combat arms, for recruits with high school diplomas, etc.

The advantage of this alternative is that it would add an effective management tool to the recruiting programs which could be used selectively to encourage quality men and women to volunteer for Service.

The disadvantage of this alternative would be the additional costs of any new educational program, albeit that a selected educational assistance program would be less expensive than the current universal G.I. Bill program.

Alternative 4 would extend Regular Forces educational benefits to the National Guard and Reserve programs.

The advantage of this alternative is that the National Guard and Reserve recruiting programs for quality non-prior-service personnel would be greatly improved.

The disadvantage would be the cost factors.

CONCLUSION

In moving toward a marketing operation with the advent of the AVF the Services embarked upon many new initiatives which provided needed tools for their effort. All indications point to recruiting success. This success has been accompanied by significant increases in recruiting costs.

The DMC staff endorses the value of advertising, promotions, and selected enlistment options, guarantees, and incentives. However, an unanswered question which remains is, "How much is enough?" It would appear that in an attempt to answer that question, while improving recruiting cost effectiveness, certain steps should be taken by DOD. Accordingly, the following recommendations are submitted to the DMC for their consideration.

RECOMMENDATIONS

1. Recruiter Techniques

That Active, Reserve, and Guard recruiting programs more clearly define the value and effectiveness of various public affairs and promotional activities in order to provide better guidance and direction on the optimum utilization of recruiter's time.

2. Advertising and Promotions

That standard budgeting procedures be adopted for all Total Force components which would group together and identify all advertising, promotions and other related activities which are used for market communications.

That OSD direct the Services, active and reserve, to conduct programmed advertising tests to measure effectiveness.

That incremental reductions be made in Regular, Reserve, and National Guard advertising budgets to prompt efficiencies and intra-Service trade-offs.

That OSD increase efforts for all Total Force components to restrain competition and to reduce duplication in such areas as printed media placement, direct mail campaigns, and market research.

That DoD establish extraordinary procedures for advertising procurement, designed to reduce red tape and procurement lead-times.

3. Enlistment Options, Guarantees and Incentives

That added enlistment incentives and options be provided for the National Guard and Reserve programs with a view toward achieving a higher level of non-prior-service accessions.

That all active and reserve guarantees and incentives be reviewed and periodically adjusted depending upon changes in the market and the then-current needs to attract volunteers.

That a DoD-funded Educational Assistance program be established to replace the G.I. Bill; that the program be utilized as a recruiting management tool, with benefits granted only on a selective basis in order to meet critical skill needs or attract high quality recruits.

That Regular Forces educational benefits be extended to the National Guard and Reserve programs.

WORKING PAPER
NOT AN OFFICIAL POSITION OF THE DMC

RECRUITMENT IN THE ARMED FORCES

PAPER # 6 -- RECRUIT PROCESSING CONTROLS

A Staff Issue Paper for
The Defense Manpower Commission

By
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Recruitment Group
Defense Manpower Commission Staff

October 1975

A-6

EXECUTIVE SUMMARY

ISSUE: Recruit Processing Controls

BACKGROUND: - Irregularities (indicated from collected Service statistics and DMC staff interviews) exist in areas of testing, medical and moral screening, education level, and misrepresentation.

- * Approach is to identify a number of irregularities.

- Service procedures to identify, report, investigate and control irregularities currently are not uniform.

PROBLEM: Evidence indicates irregularities exist but extent not clearly defined -- Has impact on manpower costs, overall quality within Services, and possibly attitude and morale. There are many broad issues involved where irregularities are but a symptomatic part.

ALTERNATIVES: Identifies causes and effects -- The "system" which generates pressures on recruiters and might prompt irregularities.

- Range of alternatives broken down into broad categories with preferred options.

- * Requirements, quota and competition
- * Recruiting process itself (testing, medical, etc.)
- * Recruiting policies and practices
- * Procedures for controlling irregularities

Identifies both the broad and narrow areas.

CONCLUSION: Services have made progress and unemployment has reduced pressures on recruiters to attain required accessions. Current objective should be to eliminate procedures and future pressures which might lead to errors, questionable judgments and situations which prompt irregularities.

RECOMMENDATIONS: Summarizes recommendations which would assist in developing a "system" for reducing pressures on recruiters in an effort to deter or eliminate irregularities. Recommendations are grouped according to those which relate to broader issues and will require further consideration and those which are narrower and relate solely to malpractice.

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RECRUITMENT IN THE ARMED FORCES

RESEARCH PAPER #6 - RECRUIT PROCESSING CONTROLS

As draft pressure diminished during 1972, military recruiters were forced to compete with private industry in seeking out and enlisting qualified young men and women. Their task was made difficult by a rising economy, lingering anti-military attitudes from our Vietnam involvement, and a general lack of experience or expertise in "selling" military service in a competitive market place. Recruiters came under great pressures since they believed their careers depended upon making monthly quotas. Errors and irregularities in recruit processing occurred and repeated allegations were made about improprieties in the activities of recruiters. As a recent GAO study indicates, the allegations have ranged "from mild assistance or help given to the recruit to out-and-out forging of documents such as high school diplomas."^{1/} In response to these allegations, and when problems were identified, the Services took necessary corrective action. It is obvious that neither OSD nor the Services want or will condone irregularities in recruit processing. Allegations of irregularities and improprieties focus on recruiter integrity. While it is true that some recruiters have been disciplined and/or relieved for cause it is unfair to malign the integrity of military recruiters. As noted in the companion Research Paper #4 (Recruiter Personnel Policies), superior personnel are being assigned to the recruiting forces. They have met the challenge posed by the All-Volunteer Force (AVF) in a most commendable manner.

^{1/} General Accounting Office, "Opportunities for Improving the Effectiveness and Efficiency of Recruiting Operations" (Draft), August 1975, p. 5.

To improve recruit processing control and further guard against recurrence of irregularities in recruitment, long term continuing principles, not subject to changes caused by short term variations in the market, are needed. With this objective in mind, the DMC staff initially reviewed the overall recruit processing function. Two issue areas emerged which justified a more detailed review. First was the standards and selection of recruits, which will be addressed in a separate paper. The second issue area involved irregularities within the recruiting process itself. This paper will address specific processing problems, with the primary objective being to make recommendations to eliminate procedures and future pressures which might lead to errors, questionable judgments and situations which might prompt irregularities.

In general, irregularities occur in areas such as mental testing, and medical, drug or moral screening. Irregularities and malpractice also take the form of deception or misrepresentation in order to secure an enlistment. It should be recognized that a clear determination of the scope of the problem becomes difficult when considering the element of intent, as this is an obvious gray area due to the often unclear boundaries between malpractice, judgment and errors. Additionally, it should be recognized that irregularities are not unique to the All-Volunteer Force. They existed prior to 1973.^{1/} However, for purposes of this paper, the recent AVF years will be focused upon.

^{1/} Ginsberg, Eli, James K. Anderson, Sol W. Ginsburg, and John L. Harms, "The Lost Division." New York, Columbia University Press, 1959.

I. BACKGROUND

Determining the existence and extent of processing irregularities required assessment of a number of potential indicators. Among these indicators were: deviations in test scores (mental group or reading level classification derived from testing of a recruit at point of entry compared to testing and classification at some later point during term of service); identification of disqualifying medical conditions which existed prior to entry; discharges due to fraudulent enlistments based upon post-enlistment discovery of disqualifying drug involvement and/or police record; improperly recorded education levels; and complaints by recruits that unfulfilled promises or deceptions were employed in order to secure their enlistment. Each of these potential indicators will be addressed separately. It should be emphasized here, in addressing recruit processing problems, that many of the indicators are but a symptom originating from broader problems and issues in the defense manpower area. This paper will identify such broad areas as requirements, testing and enlistment standards, utilization, compensation, and the management of the recruiting function in addition to the narrower problems of irregularities and malpractice. In order to be properly addressed, Recruit Processing Controls cannot be considered in isolation from the broader problems mentioned above.

A. TESTING^{1/}

The Armed Forces Qualification Test (AFQT) was first implemented in 1950 as the principal mental test used to determine eligibility

^{1/} Evolution of testing summarized from Karpinos, Bernard D., "Male Chargeable Enlistees: Evaluation by Mental Categories (1953-1973)" and "AFQT: Historical Data (1958-1972)", Human Resources Research Organization Reports CR-ED-75-2 and ED-75-12 of January and June 1975; and supplemented by DMC staff interviews.

for military service. The AFQT evolved from experience gained with selection for the military during and immediately after World War II. It provided what was considered to be the best available method for assessing an examinee's mental ability to effectively acquire a military skill. An AFQT score equivalent to 10 percentile of the standard population was established by law as the minimum qualifying score for military service.^{1/}

As of December 1972 final testing of all accessions for the regular Army, Navy, Air Force and Marine Corps was being conducted at the Armed Forces Examining and Entrance Stations (AFES) utilizing the AFQT, which provided standard classification of accessions into broad mental group (MG) categories.

AFQT Percentile	MG	General Description
93-99	I	Superior
65-92	II	Above Average
31-64	III	Average
10-30	IV	Below Average-Marginally Qualified
0-9	V	Not Qualified

At the same time, additional aptitude tests were being used by the Services for supplementary screening and classification purposes, and many Reserve and Guard applicants were being tested separately.

^{1/} Selection Service Act prohibited inducting applicants scoring 0-9 on the AFQT. Although induction authority expired the same limitation continues to be used by the Services for volunteers.

As of December 1972 there was at least some measure of standardization with all accessions for the regular armed forces being administered, as a minimum, the AFQT at the AFES.

In January 1973 this measure of standardization changed. The Office of the Secretary of Defense approved a Navy request to substitute their Short Basic Test Battery for the AFQT for testing all new accessions.^{1/} Inter-Service standardization was further diluted and testing decentralized when in October 1973 the Air Force and in July 1974 the Marine Corps were authorized by OSD to administer the Armed Services Vocational Aptitude Battery in lieu of the AFQT. Also in the first year of the All-Volunteer Force (May 1973) the Army was authorized to shift to a new test in lieu of the AFQT. In summary, major changes took place during the AVF years which authorized use of varied new screening and classification tests, with the further authorization for some recruiters to administer entrance tests.

To better focus upon, understand, and analyze problems in testing, the DMC conducted a series of visits to recruiting and training activities of all the Services, plus a number of AFES. Key personnel were interviewed and statistics collected.

For the purpose of this paper the staff collected summary statistics and conducted personal interviews. The results were essentially consistent with the recently conducted GAO study, in that while results varied as to degree at least some evidence was found of irregularities:

^{1/} Assistant Secretary of Defense (M&RA) memo for Assistant Chief for Plans and Programs, Department of the Navy (SUPERS) of December 7, 1972, Subject: "Use of Navy Short Basic Test Battery - Conversion Table to AFQT."

in all Services.^{1/} These irregularities were identified during FY74 and the first half of FY75 through retesting of recruits after they reported to basic training. The Marine Corps retested almost all its recruits and the Navy retested approximately half. Both groups showed increases and decreases in scores upon retest but an overall increase in Mental Group (MG) IV.^{2/} According to tests at the point of entry the Navy reported approximately 3-4% and the Marines reported about 8% of accessions being MGIV. Retesting indicated 15-20% of Navy and about 35% of Marine accessions were MGIV. At the request of GAO the Army and Air Force also conducted limited spot retesting at basic training stations -- the Army over 500 recruits and the Air Force 85.^{3/} Again data showed both increases and decreases. Using a standard change of 20 points as being significant, the Army had 21 cases in their sample and the Air Force had 7. In all 28 cases where scores changed more than 20 points, the change was downward.

There are a number of factors which could contribute to deviations in test scores attained at point of entry compared to scores subsequently attained during recruit training. In some instances different tests were administered. Also there might have been variations in testing conditions and the cultural shock of recruit training could have adversely affected performance. It has also been offered that since many recruits

^{1/} GAO Report, op. cit.

^{2/} Data provided by Headquarters, Marine Corps, Manpower Division and Headquarters, Navy Recruiting Command.

^{3/} GAO Report, op. cit.

already had specific training guarantees, they lacked the motivation to put forth their best effort.

B. MEDICAL SCREENING

All applicants for enlistment in the regular forces are given a physical examination at the AFES. Additionally, some reserve/guard applicants are examined at AFES; however, provisions also exist for this group to be examined by physicians elsewhere. Wherever the examinations are conducted, uniform physical standards for enlistment of applicants are prescribed by OSD and contained in the individual military Service regulations. Initial medical screening leads to disqualification of many applicants at the point of recruitment. In addition, medical problems surface after entry into service. A number of these problems are attributed to conditions which existed prior to service (EPTS) and might have been identified during initial screening.

There are certain factors which influence the acceptance of applicants with various medical conditions in such a way that they appear to involve processing irregularities. Many DOD medical standards are objective and easily quantifiable (e.g., height, weight, blood pressure, etc.). Other physical standards, however, require subjective judgments to determine the extent of an applicant's medical condition as well as to interpret descriptive phrases contained in the physical standards (e.g., "if severe", "if disfiguring", "unless mild", "severe symptoms", etc.). The judgment is necessarily biased and influenced by the training and experience of the examining physician, as well as the availability of complete medical information. Accordingly, the presence of a "disqualifying" condition is not absolute, but may vary from AFES to AFES, and from

AFES to other medical examination facilities. In all cases the AFES physician works with the medical history information provided by the applicant during enlistment. If certain historical medical information is not disclosed, physicians are frequently unable to detect potential problems.

There are three situations which contribute to attrition for medical conditions that existed prior to service (EPTS). First, an AFES physician works within the organizational framework of the recruiting force and is subject to some influence by that force to help "make quota". As such, physicians may lean toward favoring the applicant, giving him the benefit of the doubt. Second, data suggest that physical standards used for "retainability" at recruit training facilities vary widely. To illustrate this, for the first quarter of FY 1975 the EPTS discharge rates were: Air Force: 0.5 percent, Marine Corps: 2.0 percent, Army: 2.2 percent, Navy: 2.3 percent.^{1/} Even within Services the EPTS rate varies markedly from one training activity to another.^{2/} The reason for this wide disparity has not been studied in detail; however, recognizing that uniform standards exist it is reasonable to assume that an enlistee with stamina, determination, and motivation who is provided good leadership can overcome many obstacles, including temporary or minor physical symptoms.

^{1/} Army background paper USARCPH-M of December 24, 1974, Subject: "Discharge of Enlistees with Medical Conditions that Existed Prior to Service Entry (EPTS/EPTE)," pg. 4.

^{2/} Ibid., Inclosure 4.

Enlistees who lack some of the foregoing qualities often seek escape which could be a medical discharge under the EPTS definition. On an average, one out of every 50 recruits was discharged in FY 1974 for an EPTS condition.^{1/} The numbers of individuals who have an EPTS condition but who have stamina, determination, motivation and leadership and are not discharged are unknown.

The final situation impacting upon EPTS attrition involves deception by the potential recruit, with or without his recruiter's assistance. Some volunteers eager and motivated to enlist do not disclose potentially disqualifying conditions during medical screening (e.g., orthopedic, bronchial). During "board reviews" prior to discharge for an EPTS condition, personnel at the training activities visited stated that some recruits alleged that recruiters were aware of their potentially disqualifying medical or emotional problems but advised them not to disclose the information during their medical screening process. Personnel at training activities further stated that for the most part cases are expeditiously processed for medical or administrative discharge without bothering to go through the more demanding process of verifying irregularities which may have permitted the recruit to get by the screen.

C. DRUG AND CRIMINAL INVOLVEMENT SCREENING

Drug and criminal involvement can be categorized under the heading of moral screening. Such screening is generally accomplished by

^{1/} "Discharge of Enlistees with Medical Conditions that Existed Prior to Service Entry," Op. Cit., Inclosure 2.

individual Service recruiters rather than by APRES. Screening is accomplished through review of juvenile and police records, information provided by relatives, teachers, employers or friends, plus statements made by the individual applicant. The amount and degree of drug and criminal involvement require the making of a judgment within Service policy guidance by the recruiting force. This judgment is often complicated or clouded by restrictions within many municipalities on obtaining any or all information contained in juvenile or police records. For example there are currently scores of municipalities within at least 32 states which have restrictions on disclosure of juvenile record information,^{1/} and this number could significantly increase with interpretations applied to the new Freedom of Information and Privacy Acts (Public Laws 93-579 and 93-502). The net result is that the completeness of moral screening in most cases depends on the personal initiative and completeness of individual recruiter investigations and interviews, plus disclosures made by the applicants themselves. Each applicant signs a statement attesting to his prior drug or criminal involvement. If further involvement is subsequently disclosed through National Agency checks, personal admission, or other means, the enlistee can be discharged by reason of fraudulent enlistment. In addition to prior arrests and convictions, Services have documented cases

^{1/} Information provided by Cdr John Carbone, USN, Asst. Director, Enlisted Programs, Navy Recruiting Command, July 7, 1975.

where applicants have been enlisted who had been offered military service by civil authorities in lieu of prosecution, restraint or parole resulting from criminal acts. Such enlistments are prohibited by current Service policy.

As with EPTS medical cases, personnel interviewed at training activities stated that recruits alleged that recruiters advised them not to disclose prior drug or criminal involvement. Most allegations are impossible to prove or disprove since they involve conflicting statements by the recruit and recruiter on what was said and done.

D. EDUCATION LEVELS

Years of education have generally been viewed as a quality and performance indicator in potential recruits. This is particularly true when comparing military performance of high school graduates (HSG) versus non-high school graduates (non HSG). Recruit attrition analyses available in all Services indicate that, all other factors being equal, a HSG has a higher probability of success during recruit training.

Mental capability, as measured by entrance test scores, and expressed as a Mental Group I - IV ranking, is not necessarily related to years of education. Interviews with Recruiting personnel indicated that increasing numbers of HSG are failing the military entrance test and many could be classified functional illiterates. However, notwithstanding variations in test scores, the Services have been viewing high school graduation as a desirable factor independent of entrance

test score. They view the graduate as a person who chose to remain and function within the disciplined, organizational education system in lieu of opting to drop out. They believe similar motivation will assist the individual to succeed in military service. All Services target the high school graduate market for primary input, and in the last year the Army and Marine Corps have followed the Navy and Air Force lead in restricting entrance of MG IV's to those who have completed high school.

OSD has also focused on HSG as a key quality indicator for accessions. In addition the FY 1974 Congressionally approved appropriations for the Services established the requirement that as a minimum 55 per cent of all accessions had to be HSG^{1/} (in effect until July 1974). The emphasis on HSG, particularly minimum quotas, placed pressures on recruiters. The Services' decision to restrict MG IV accessions to those scoring above 19 on the AFQT, and then only if a MG IV applicant was a HSG, reduced the market by approximately 12 percent^{2/} and further increased pressures on recruiters to attain quotas. There are indications that such pressures fostered recruit processing irregularities. Cases identified by both the DMC staff and GAO study ranged from reporting errors in the number of HSG to cases of forged high school diplomas.

^{1/} Section 718, DOD Appropriations Act 1974.

^{2/} USAREC pamphlet 601-1, Handbook Military Available Inventory FY74, dated August 1973.

E. UNFULFILLED PROMISES

With the advent of the AVF the Services made major changes in their recruitment programs. In order to compete with private industry the Services became "sales" oriented, they embarked upon major paid advertising campaigns, and they initiated programs to guarantee a wide range of training and duty options to new accessions. The changes were designed to increase awareness and enhance the attractiveness of military service. Such phrases as "Get a little more in the Navy", "Today's Army wants to join you", and "Take a 16 month vacation in Europe" were but a few of the alluring promises made to potential recruits.

The specific guarantees offered individual recruits by recruiters similarly have prompted questions of ethical practices. Much of the concern was clearly identified by Senator Eagleton during Senate debate which ultimately led to Public Law 93-155 establishing this Commission.^{1/} In spite of two years having passed since then, allegations of unfulfilled recruiter promises persist. For example, in 1974, Army statistics indicate that the number of reported cases alleging recruiter "false promise" ranked second only to cases alleging "concealment of police record."^{2/} Records maintained by the Services, however, indicate few complaints of unfulfilled promises are ultimately attributed to recruiter

^{1/} Congressional Record-Senate, September 19, 1973, pp. S 17714-17722.

^{2/} USAREC Briefing June 24, 1975, op. cit.

malpractice. To guard against these cases the Services put all guarantees in writing, with both recruiters and applicants signing the documents. Interviews with Service recruiters indicate a belief that many applicants hear only what they wish to hear. This leads to misunderstanding and subsequent claims of false promises. On the other hand, with the hard sales training being provided recruiters, along with pressures of quota, it is realistic to assume that there is an element of truth in many of the complaints and allegations made each year by new recruits which might be attributable to exaggerations and hard-sell tactics.

Another area of concern among recruits is that recruiters do not tell them the complete truth. On various field visits, the DMC staff talked with groups of recruits, some of whom said that their recruiters had not told them about pertinent Service policies concerning dependent travel and care, or overseas assignments, or what happened if the recruit failed his guaranteed school assignment, etc. While much of this can be attributed to "selective hearing", the repetition of such complaints lends support to the conclusion that recruiters are failing to inform potential recruits of all aspects of Service life.

F. SERVICES PROCEDURES FOR HANDLING OF ALLEGED RECRUITING MALPRACTICE CASES.

In response to a DMC inquiry the Services provided details of their existing procedures for the handling and control of alleged recruiting

malpractice cases.^{1/} Cases originate from reports from various unit commanders and training activities, complaints of individual service members, applicants, families or friends, Congressional inquiries on behalf of constituents, and findings of inspection visits to military installations. Allegations are generally forwarded to the Service Commander of Recruiting. In the case of the Marine Corps cases are submitted to the Commandant, with the Deputy Chief of Staff for Manpower having cognizance and the Recruitment Branch acting as the functional agency for disposition.

Except for a select few serious and unusual cases, which might be investigated by a designated Service investigative organization, all allegations are normally forwarded for investigation to the field recruiting organization where the alleged malpractice occurred. Results of investigations are subsequently returned to Recruiting Headquarters with findings, report of corrective or disciplinary action, if appropriate, and recommendations. The Commanders of Recruiting review investigations and monitor results of their current systems. A review of individual Service procedures in effect as of June 20, 1975 indicates, however, lack of uniformity and formality in what should be a standard and mandatory system for reporting and controlling these allegations. Also, it became clear from interviews during visits to recruit training activities that there were cases where allegations were never verified or reported. For the most part such cases involve recruits being

^{1/} Attachments to Assistant Secretary of Defense (Manpower and Reserve Affairs) memorandum for the Defense Manpower Commission of June 20, 1975.

discharged due to test failures, medical problems, lack of motivation, misconduct or unsuitability. While many of the men and women being processed for discharge cite recruiter assistance or other irregular processing procedures, training centers often opt to expeditiously process many of these cases for administrative discharge rather than go through what is viewed as a costly, burdensome and demanding process of documenting and reporting all recruit allegations.

II. PROBLEM

There is evidence that irregularities in recruit processing have existed over the years. All of the Services and OSD have recognized the problems and made efforts to correct them. They neither want nor will condone irregularities in processing. Their major effort, however, has been after the fact to remedy identified problems. What are needed are standardized controls based on long term continuing principles, not subject to changes caused by short term variations in the market. The fundamental question facing the DMC is what policy changes, practices and procedures might be adopted within DOD to improve the control over recruit processing.

III. ALTERNATIVES

The purpose of this section is to identify and discuss the various alternatives which might be implemented by DOD in order to achieve a better recruiting system in which irregularities are eliminated or deterred by "system" checks and balances. OSD and the Services have been implementing changes which have gone a long way toward reducing recruit processing problems. The policies recommended by the staff expand on the

DOD efforts and should be considered as long term continuing principles, not subject to changes caused by short term variations in the market. In assessing various alternatives available to control, reduce and hopefully eliminate the recruiting processing problems the staff looked at probable causes as well as effects. As irregularities generally can be attributed to the "system",^{1/} the following discussion of the recruiting system will be broken down into broad categories, as follows:

- Requirements, quotas and competition.
- The recruiting process itself (including testing, medical, education level, drugs and moral screens).
- Policies and practices associated with the recruiting process (including priorities, guarantees, information and advertising).
- Service procedures for handling malpractice allegations.

A. REQUIREMENTS, QUOTA AND COMPETITION

1. Recruitment Accession Requirements

Recruiting objectives originate from a determination of accessions required to meet man-year averages and end strength. Although Services manage manpower budgets utilizing authorized man-year averages, many managers interviewed gave an impression that the Services are particularly committed to attainment of authorized end strength. As stated in the DMC Interim Report, the Commission believes that there is a fear

^{1/} Many elements of the "system" being identified are broad and overlap areas well beyond the issue being addressed in this paper (e.g., requirements, testing and enlistment standards, utilization, compensation, etc.) While they are germane to this issue they will also be addressed in subsequent papers related to these broader issue areas.

within the Department of Defense that if end strength is not attained the Congress will cut future requests by the numbers not achieved.^{1/} Essential to any of the following alternatives, then, is de-emphasis of end strength and associated dollars -- at least as they impact on the quota of volunteers to be recruited during the last month of the fiscal year. In practice, this could result in small shortfalls, which should be acceptable to both Congress and National Defense planners.^{2/}

In evaluation of solutions to this problem area, the DMC should consider the following alternatives, which are not only related to the recruit processing irregularities issue but are also a part of the broader area of manpower management, requirements, and utilization:

ALTERNATIVE 1 would continue present policies and procedures without significant change.

ALTERNATIVE 2 would view volunteer accession needs to meet strength requirements mainly in terms of quantity. The quality of new accessions, measured by indicators such as percent of HSC and proportion of MG I-IV, would be maximized, based upon what the market would bear. This alternative of making numbers while seeking the highest quality attainable is but a slight change from the practices currently being utilized

^{1/} DMC Interim Report to the President and the Congress, May 16, 1975, pp. 57-58.

^{2/} The possibility of shortfalls persisting or becoming large will be addressed by the Commission when it considers the issue of "Standby Manpower Measures."

within DOD.^{1/} The advantage of this alternative is that it helps maintain authorized strength levels. There are two significant disadvantages. First, quality of accessions is dictated by what the market will bear rather than what is required. Second, it has a tendency to keep constant maximum pressure on the recruiting force. It is this latter point -- constant pressure on recruiters to maximize accession quality -- that tempts irregularities or malpractice.

ALTERNATIVE 3 is for Services to quantify, and periodically update, total accession needs in terms of broad qualifications that are acceptable and can be effectively utilized. A gross assessment of required qualifications is well within the state of the art. The major deviation from current DOD practices is that firm long term qualitative requirements would be established. Accessions would be dictated by Service needs, rather than market availability. Frequent adjustments to accession quality standards would be eliminated along with unnecessary pressures on recruiters to attain the highest possible quality available.

RECOMMENDATION. (to be considered with broader issue areas): Alternative 3 which would establish accession needs in terms of relatively constant broad qualifications that are acceptable and can be effectively utilized by the Services.

^{1/} For example, comparing Army and USMC non-prior-service male accessions of May 1974 with May 1975 (when the economy helped recruiting), one sees a marked difference in quality indicators.

	ACCESSIONS 74/75	PERCENT HSG 74/75	PERCENT MGIV 74/75
ARMY	11,655/12,985	48%/73%	20.1%/6.2%
USMC	2,300/3,136	64%/87%	6.7%/1.1%

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2. Quotas

Recruiting practice becomes operative as a result of manpower requirements which are translated into quantitative and qualitative quotas. Whether quotas are apportioned by geographic area or levied on individual recruiters, they generate pressure. Recruiting was described as "the only military organization where all of us get a report card every week."^{1/} Another indicator of quota pressure can be found in reviewing causes for recruiters being relieved and transferred prior to tour completion. For example, during CY 1974 the Army removed 646 recruiters for "lack of sales ability." The total among other Services was fewer (close to 400); however, cause for being relieved could similarly be related to quota attainment.^{2/} As in almost any marketing business, reinforcing the pressures of a quota system are competition systems. Designed as motivators for superior performance, all measure productivity. In the area of military recruiting each of the Services has its own competition system. Such systems become double edged swords. In addition to providing a means for identifying superior performers worthy of special recognition and awards, inherent in the system is an overall evaluation which equally identifies poor productivity. Since few Americans enjoy being classified as "losers", or even "below average", one must question to what extent recruiters might be tempted to view the end as justifying the means for quota attainment.

^{1/} DMC staff interview with VADM E. H. Tidd, USN, Commander Navy Recruiting Command, March 7, 1975.

^{2/} Causes cited were "lack of ability", "low production", "unable to absorb training", "failure to maintain standards/duty performance", "non-productivity". Op Cit, ASD(M&RA) memo of June 20, 1975.

Pressures on military recruiters generated by a quota, with success measured by comparative production, certainly are not limited to individual Service systems. The Office of the Secretary of Defense also places considerable emphasis on Service comparison of monthly attainment in terms of recruiting quotas, quantitative results, percent of accessions who were high school graduates, and proportions of accessions by Mental Group category. Since inception of the AVF the comparative monthly results, although only a snapshot, are frequently reported by various news media as indicators of AVF success/failure. Just as with individual recruiters, attainment of quotas might have some impact on Service accession policies, practices and management.

While quotas per se are not the only reasons for recruit processing irregularities, the pressures of quotas could generate problems. Further, even among top professional recruiters, quotas which are impossible to attain because of being based on inaccurate market research, or the simple unwillingness of enough people to respond to the challenges of military service, also could prompt processing irregularities. Only when quotas completely reflect actual market potential will they serve as totally positive recruiter incentives. The key factor in allocating quotas is the number of "military available" (MA) prospects by geographic location.^{1/} Summary data contained in the MA Handbook is essentially derived from 1970 Census data. It is frequently referred to as the QMA (qualified military available) Handbook. In the most recent edition a projection was made of males who would fall within the 17-21 age bracket

^{1/} Most recent data is compiled in USAREC pamphlet 601-1, Handbook Military Available Inventory FY74, dated August 1973.

in CY 1973. Adjustments were applied for estimated migrational shifts from county to county. Also, adjustments to reduce the MA were applied by county based upon prior experience in Selective Service rejection rates. Mental group estimates were further derived by applying AFSS test experience to total MA population by county. Factors such as the number of 17-21 year olds employed, in college, planning to attend college, or already enlisted are not identified. As the Handbook itself states: "The current QMA concept, although useful in many ways, does not portray the true market potential of qualified military available."^{1/} With an increasingly mobile population and variations in employment, quality of school systems, local attitudes and propensity to enlist, existing quotas and resource allocations are imprecise at best. The result is unequal pressure on recruiters from one area to another. Success or failure (with attending damage to a recruiter's career) could easily be the result of unreliable QMA data rather than recruiting ability and effort.

In evaluating solutions to this problem area, the DMC should consider the following alternatives, which are also related to the broader area of recruiting management:

ALTERNATIVE 1 would continue present policies and procedures without significant change.

ALTERNATIVE 2 would eliminate the current apportionment of quotas by geographic area. Accessions would be managed at the national level with requirements being viewed as recruitment ceilings to remain

^{1/} Q.M.A. Handbook, op. cit., p. 5.

within authorized manpower budgets. The theoretical advantage of such a system would be to reduce pressures on recruiters having disproportionately high quotas versus actual QMA. The major disadvantage is that it could lead to an even lesser than optimum utilization of resources which are currently apportioned, in part, based on QMA data. Additionally, such a system would tend to accept mediocre to poor effort unless some alternate measurement system for production was implemented.

ALTERNATIVE 3 involves refinement of the existing quota system. It would require a major effort to improve and frequently update demographic data to better identify the QMA. Allocations of quotas would be broadly based by geographic areas, and the current practice (intentional/unintentional) of equating quotas to individual production would be avoided. The advantages of improved QMA data are obvious. It would permit a significant improvement in resource utilization while reducing unequal pressures on recruiters. However, the development of more refined QMA data would cost the Services in both dollars and manpower. At this time neither the accuracy of more refined data, nor the costs involved can be determined.^{1/}

^{1/} All Services, to varying degrees, are attempting to more clearly identify and refine data upon which quotas are based.

ALTERNATIVE 4 also involves refinement of the existing quota system. It would recognize the many varied sensitivities in developing valid QMA data in addition to attempting to adjust for such variables as attitude and propensity to enlist, local management effectiveness, and recruiter experience and proficiency. Under this alternative, rather than quotas being apportioned by a headquarters, the field managers, advised of total requirements, would establish targets for their organizations. Self-established goals are very attractive in that field managers should be aware of local conditions and better qualified to apportion the recruiting effort and compensate for inaccuracies cited above. Minor adjustments/limits could be managed at the headquarters level. Experience over time would provide a practical basis for improved resource allocation. This major change toward participatory management, while alien to historic procedures within the military command structure, offers an attractive alternative to existing inequities and pressures.

RECOMMENDATION (to also be considered within the broader area of recruiting management): Alternative 4, where field managers would establish their organizations' goals within total Service requirements.

3. Competition Among Recruiters

Directly related to the current quota system is competition, which generates pressure to attain assigned quotas. As noted earlier, competition systems can produce penalties even though designed for rewards. One alternative is to completely eliminate competition systems. The major disadvantage is that elimination removes much of the incentive for superior performance.

In evaluating solutions to this problem area, the DMC should consider the following alternatives, which are also a part of the broader areas of recruiting management and special pays:

ALTERNATIVE 1 would continue the present systems and procedures without significant change.

ALTERNATIVE 2 would modify the existing competition systems to better recognize recruiter "net effectiveness". As previously noted, considerable publicity and emphasis are accorded monthly quotas and attainment. Recruiting success is generally measured in terms of accessions at the point of entry. However, the DOD objective is, in fact, successful performance throughout an enlistment. Therefore, measures of recruiting effectiveness should go beyond quantity and apparent quality at point of entry. The measurement system should assess liabilities for attrition and unsuccessful recruit performance, as well as grant credits for clearly superior recruit performance. ^{1/} While immediate accession information is required for manpower budget managers, evaluation of actual recruiting effectiveness should be based upon a measurement at some later point in the recruit's term of service. In addition to reducing immediate quota attainment pressures on recruiters, shifting the effectiveness

^{1/} This would be in addition to other performance factors which might be used to measure a recruiter's self improvement, utilization of resources, driving safety, etc.

measure to some later point in time should enhance overall quality. ^{1/} The 180-day point, or completion of training, might be a reasonable point to measure recruiting effectiveness. Existing management information systems would have to be adapted to such a system, and there could be some degree of dollar and manpower costs involved. However, with the extensive management information systems currently in use these costs should be small.

ALTERNATIVE 3 would propose a monetary bonus or commission system. ^{2/} It should be implemented in conjunction with the previous alternative in that the commission would be based upon a recruit's successful completion of some portion of service rather than a count at point of entry. This should eliminate "head hunting" connotations. In addition to improved effectiveness, significant monetary savings could be realized. Recruiters are presently paid up to \$150 per month Special Duty Assignment (SDA) proficiency pay. ^{3/} This alternative would replace SDA pay with commissions. Assuming a recruiter

^{1/} Current recruit quality measures are in terms of education level and test scores. "Net effectiveness" would focus greater attention on the desired values of attitude and motivation, which are critical to true AVF success.

^{2/} This is distinctly different from a "bounty" system prohibited by law (USC Title 10, Sec 514(a)) which states, "No bounty may be paid to induce any person to enlist in an armed force. A clothing allowance or enlistment bonus authorized by law is not a bounty for the purpose of this subsection." The proposed system would pay the recruiter, not the recruit. This is a major departure from existing compensation policy. Further evaluation on the impact of other elements of pay and allowances is essential prior to implementing such a commission system.

^{3/} Actually, SDA pay is not dependent upon proficiency. In 1974 it was raised from a standard \$50 per recruiter per month to where it is now based on recruiter tenure: \$50 for 1-6 months recruiting duty; \$100 for 7-18 months; \$150 beyond 18 months. This increase is contained in ASD (M&RA) memorandum for the Assistant Secretaries of the Military Departments (M&RA) of 25 June 1974; Subject: "Special Duty Assignment (Proficiency) Pay for Recruiters".

serves three years on recruiting duty he will receive a total of \$4,200 in SDA pay, regardless of whether his performance is superior, average or marginal. Assuming average productivity of three accessions per month at perhaps an average commission of \$25 per successful recruit, the recruiter would realize a \$2,700 total in periodic bonuses. Reductions in current attrition rates, with associated savings, might also be expected with recruiters being motivated by "net effectiveness" rather than accessions at point of entry. This commission system, in lieu of SDA Pay, would not result in a monetary penalty on recruiters. In the average case illustrated the \$2,700 is still 50 percent greater than the amount that same recruiter would have received in SDA pay up until June 1974. Superior performers would receive considerably more; below average, considerably less. The requested FY 76 budget for active forces SDA pay is \$24.8M. In addition to significantly reducing the SDA budget, the commission incentive system places emphasis where it should be -- on proficiency. With the dollar as a motivator it is not unlikely that one could eventually expect reductions in the size of recruiting forces.

RECOMMENDATION (to be considered with broader issues of recruiting management and special pays): That both Alternative 2, which would measure recruiting productivity in terms of "net effectiveness," and Alternative 3, which would replace current Special Duty Assignment pay with a commission, be adopted.

B. THE RECRUITING PROCESS

Driven by requirements, quotas and current competition, the

recruiting process is the point where most of the actual irregularities occur, with the various filters/screens (e.g., testing, education level, medical, drug and moral) becoming ineffective through error, judgment, and deception by recruit or recruiter.

1. Mental Testing

The testing program of the Services could have tempted irregularities or malpractice through a series of specific "system" opportunities. Among these were (opportunities varied between Services and periods of time):

- that test booklets were available to recruiters
- that test booklets were available through non-recruiting sources
- that commercial test study guides were available
- that recruiters were allowed in testing areas, or were charged with giving or grading the tests
- that recruiters had access to test answer sheets
- that testers were responsible to recruiting officials
- that there were no System-wide requirements for testers to positively identify test-takers
- that there were only one or two versions of the tests; that the test versions were not scrambled
- that the test versions were not changed often enough
- that there was no centralized record of pass/fail scores

And, as documented by one Service, the varieties of irregularities in testing included the providing of assistance to recruits by recruiters

in the areas of pre-test reviews, test assistance, answer changing, extra time on test, a substitute test taker, and the providing of answers on "crib" sheets. A potential recruit could also obtain a "crib" sheet or arrange for a substitute test taker without the knowledge of a recruiter.

In evaluating solutions to this problem area, the DMC should consider the following alternatives, which are related in some cases to the broader issues of testing and enlistment standards:

ALTERNATIVE 1 would continue present policies and procedures without significant change.

ALTERNATIVE 2 would eliminate comprehensive mental testing of applicants at the point of entry. Qualification of applicants for service would be determined by other means, such as the existing education level, medical and moral screens, aside from a mental test. Testing would subsequently be conducted at basic training to identify those qualified to be assigned to fill advanced or technical training requirements. The advantage of this alternative is that it could broaden the market by eliminating the mental test obstacle and shift emphasis from written entrance tests to recruit performance. The major disadvantage focuses mainly on cost. This alternative would incur added expenses since recruiting would be more "open-ended" with capability to cope with training and ultimate utilization being determined after significant investment had already been made in all applicants.

ALTERNATIVE 3 would involve a vigorous effort to reduce test compromise and associated irregularities through frequent test changes and implementation of other controls. Options include scrambled test series.^{1/} Ideally, computerized scrambling, administration and scoring might be an ultimate goal. Concurrently, test security could be tightened by reducing the number of those authorized access. Improved positive identification and verification methods for applicants would also be implemented. A standardized DOD policy to eliminate or greatly reduce retests could be instituted, supported by a computerized crosscheck capability utilizing a central master historical index of name/SSN of all tested by any Service. Effective up-grading of security measures, as proposed, would involve increased costs and manpower, and confidence in the absolute effectiveness of the measures would be uncertain.

ALTERNATIVE 4 would require return to a single standard test and separation of the testing and recruiting functions.

Note: Beginning October 1975, all non-prior Service accessions will be given the Armed Services Vocational Aptitude Battery (ASVAB). Effective on January 1, 1976, the AFEEES will be given the responsibility to centrally manage entrance test administration.^{2/}

^{1/} As implemented by the USMC in January 1975.

^{2/} Assistant Secretary of Defense (M&RA), Memorandum for Assistant Secretaries of the Military Departments (M&RA) of June 9, 1975, Subject: "Enlisted Accession Processing"; on July 3, 1975, Mr. Don Srull, DASD (Manpower Requirements & Analysis), advised new testing procedures would apply to all regular Service accessions, plus Navy and Marine Corps reservists. Army and Air Force reservists and Guard personnel were not bound by the new procedure. The DMC staff recommends all non-prior service accessions of the total force be subject to uniform entrance procedures and standards.

The adoption of this alternative would eliminate the potential conflict of interest which could result when qualification tests are administered by the same individual or members of the same Service recruiting force who are also under pressure to enlist applicants to meet accession quotas. As an example of facing the problem of irregularities, on January 1, 1975, the Navy commenced testing all applicants with their Basic Test Battery (BTB), now administered by professional Navy testers/classifiers within the recruiting organization rather than recruiters. A sample of 1,811 January recruits were subsequently re-tested by professional testers/classifiers (using the BTB) at recruit training centers. Results indicated that average test scores at recruit training were comparable with those given at the point of entry.^{1/}

While the separation of testing responsibility from that of "bag-carrying" recruiters is a generally acceptable action, the Army, Air Force and Marine Corps have had separate testers for some time (still responsible to recruiting officers), and, in varying degrees, test compromising has continued. As a result, some recruiters and training center officers and NCO's interviewed by the DMC staff supported the complete separation of the testing function from the Services by civilianizing the testers, or the contracting for the function with a recognized professional testing organization.

^{1/} Statistics provided by Navy Recruit Training Command, Orlando, Florida, March 19, 1975. The results of this test sharply contrasted to results in the previous months when recruiters were administering the STBT and professional testers subsequently retested with BTB.

The advantages of utilizing trained testers rather than recruiters are two-fold. First, more professional testing control is provided; and second, the possibility of "undue" pressure on the tester is greatly reduced. The practical disadvantages of this proposal on the recruiting system would be, in the absence of an effective recruiter pre-screen, the problem of having to send men to AFES for testing, as well as paying the costs thereof.

The advantages and disadvantages of civilianizing or contracting the testing function are less clear. However, there is reason to believe that the possibility of conflict of interest would be further limited with civilians rather than Service personnel. The Air Force is currently conducting a pilot program with civilian testers.

RECOMMENDATION (to be considered also with issues of testing and enlistment standards): Alternative 4 would provide a single test for all Regular, Reserve and Guard accessions to be administered by joint testing teams, civilians, or contractor personnel independent of the recruiting force. Also recommended are portions of Alternative 3 which would provide for positive identification and central record of testees, scrambled test versions, and periodic test changes.

2. Educational Quotas

Quotas for HSC and Mental Group IV individuals have been commonplace in recent years within Service recruiting programs. These quotas or goals have created pressures on recruiters. Irregularities or malpractice caused by pressures could take the form of the recruiter deliberately noting a high school graduation when none in fact existed.

(Concerning GED high school equivalent certificates, the recruiter might accept a non-authorized source for the GED, or note a GED certificate when none existed.) These cases have been possible because the administrative procedures of the Services up until July 1975 had not required written verification of high school graduation; instead, verbal assurances or copies of high school diplomas had sufficed.^{1/} The same potentials for problems have existed in the procedures for processing GED applicants, with the variety of acceptable GED standards among Services and the judgments which must be made concerning the validity of the GED only complicating the situation and creating greater opportunity for irregularities to occur.

In evaluating solutions to this problem area, the DMC should consider the following alternatives, which are related also to the issue of enlistment standards:

ALTERNATIVE 1 would continue present policies and procedures without significant change.

ALTERNATIVE 2 would eliminate quotas for HSG. This is particularly true for establishing a minimum number requirement. An advantage is the reduction of a pressure on recruiters. Countering this advantage would be the deemphasis of a desirable qualification which could be related to successful performance.

ALTERNATIVE 3 would eliminate GED high school equivalent applicants from being counted as HSG. In an effort to standardize

^{1/} DD 1966, Block 43, requires this verification, effective July 1, 1975.

procedures between Services, OSD directed that only state-certified GED should be counted as HSG.^{1/} Actually, there are wide variations in standards established from state to state for certification. A man classified as a HSG in one state may not be eligible to qualify in another state due to variations in standards established for scores, age, residency, etc. Additionally, what does GED indicate? Merely that the person can pass a written examination, but that is what the military entrance test measures. A GED certificate has little relationship to the desired quality of not being a drop-out.^{2/} The advantage of not equating GED with a high school diploma would not only purify the HSG qualitative measure, but would also remove an area where processing irregularities occur.

RECOMMENDATION (to be considered also with issue of enlistment standards): Alternative 3, which would eliminate a GED certificate being equated to a diploma when identifying accessions who are high school graduates.

3. Physical Screening

Opportunities for processing irregularities in the area of physical screening exist because of the inability of the AFES medical staff to fully examine

^{1/} ASD(M&RA) memo for Assistant Secretaries of the Military Departments (M&RA) of May 3, 1974, Subject: "Standardization of Reporting GED Equivalency Under Section 718, DOD Appropriations Act, FY 1974." Prior to this direction Navy and Air Force were counting individuals who met Service-established standards.

^{2/} A review of Army and Navy recruit attrition statistics indicates that GED have a higher loss rate than HSG with diploma.

potential applicants and because of the weakness in the recruiting system concerning the furnishing by potential recruits of medical history information. For example, during the draft era, a large percentage of the potential inductees who were medically disqualified were rejected because of past medical problems which were brought to light by their submission of DD Form 93 -- Medical History. The same form is required of potential enlistees, so the medical rejection rates for both groups should be reasonably equal. Yet, in testimony before the House Armed Services Committee, the Army revealed that the medical rejection rates in FY 71 were 5.3% for potential enlistees and 40.7% for potential inductees. ^{1/} As expressed to the DMC staff by various recruiting and Selective Service officials, this contrast illustrates questionable conduct by both groups.

In evaluating solutions to this problem area, the DMC should consider the following alternatives:

ALTERNATIVE 1 would continue present policies and procedures without significant change.

ALTERNATIVE 2 would increase medical screening resources at AFES, or would augment AFES through the use of established military medical units, VA hospitals, or contracted private physicians and medical facilities. There is a limit on military resources,

^{1/} Statement of Maj. Gen. John Quint Henion, Commanding General, U.S. Army Recruiting Command, "Hearings before and Special Reports made by Committee on Armed Services of the House of Representatives on Subjects Affecting the Naval and Military Establishments 1972," 92nd Congress, 2nd Session, p. 8419.

particularly in terms of varied specialists and associated testing capabilities which would have to be available in each AFES. There are also practical restrictions on budget and availability of civilian augmentation. In essence, by the very nature of the subjective complexity of much of the physical screening process, it would appear that only marginal returns would be realized from significant increases of medical resources at all of the present 66 AFES sites.

ALTERNATIVE 3 would demand more of applicants. Greater emphasis would be placed on securing a complete and accurate medical history (DD Form 93). Listing of prior medical conditions would be mandatory and if there was a question that any such condition might be disqualifying it would require a statement of current status from a family or private physician.^{1/} Standard DOD policy would be promulgated which would reaffirm and emphasize that the recruiter and/or recruit would be subject to disciplinary action in cases of fraud. This tightening of existing procedures is a no-cost option which could reduce EPTS cases, although there would be an increase in the administrative burden placed on recruiters.

RECOMMENDATION: Alternative 3, which would demand complete medical history from applicants with supporting medical documents.

4. Drug and Criminal Involvement (Moral) Screening.

Policy under law varies considerably from location to location with respect to possession and use of drugs. Inconsistency in criminal

^{1/} Practice recently instituted for processing applicants by Army and Navy.

involvement screening is further complicated by varying rules and regulations on juvenile/police record access. In addition, the mobility of the population, where an applicant may have lived in many locales, makes it very difficult for recruiters to gain complete background information if the applicant does not personally disclose all information.

In evaluating solutions to this problem area, the DMC should consider the following alternatives, which are also related to the issue of enlistment standards:

ALTERNATIVE 1 would eliminate entrance screening for drug/criminal involvement at point of entry. Screening would subsequently be accomplished during recruit training, based on performance, attitude and information disclosed by the National Agency Check. It might be expected that those currently being attrited with a screen would continue to be attrited if the screen were removed. Additionally, many of those currently being rejected would then be accepted and could expect to be attrited at some later point. Therefore, while adoption of this alternative would eliminate the cause of many processing irregularities it would be costly in terms of recruit attrition and increased expense.

ALTERNATIVE 2 would strengthen existing practices. The first step would be to place an increased burden of disclosure upon applicants. Current efforts by recruiters to secure juvenile/police record information would continue. However, instead of an applicant's signed statement on prior involvement, regulations could require execution of an oath, with subsequent prosecution in cases where it was found

full disclosure had not been made. Moral screening is a problem which places considerable responsibility on the recruiting force to make judgments in a complex area. OSD should establish and clarify a uniform armed forces policy concerning degree of drug use acceptability, regardless of the variations in existing penalties under law from location to location. Next, legislative action should be initiated by the Congress which would require disclosure to recruiters of information on police records when applicants sign a statement authorizing such disclosure. Finally, OSD should clearly establish uniform minimum standards for applicant/recruiter responsibilities in the moral screening process.

RECOMMENDATION (to be considered with issue of enlistment standards):
Alternative 2, which would clarify and strengthen the moral screening standards and process.^{1/}

C. POLICIES AND PRACTICES ASSOCIATED WITH THE RECRUITING PROCESS

Closely associated with applicant processing are a number of related practices and policies which have also prompted irregularities and problems. These generally fall within the areas of exaggerated advertising, unauthorized or deceptive recruiter promises, and incomplete, confusing or conflicting information provided to new recruits. As previously indicated, the Services have attempted to guard against these charges by requiring guarantees to be in writing.^{2/} Problems, however, persist because this area generally involves interpretation and perceptions which could easily vary from individual to individual. As one sign in a Navy recruiting office said, "I know that you believe you

^{1/} While this recommendation would be advantageous to DOD it may require individuals to accept a breach of their individual privacy as condition for enlistment.

^{2/} Supra, Section III E.

understand what you think I said, but I'm not sure you realize that what you heard is not what I meant." A definitive solution is far reaching and complex. It requires a dedicated effort to enhance truthful, complete, yet simplified two-way communications. Available options are varied and in some cases mutually reinforcing.

In evaluating solutions to this problem area, the DMC should consider the following alternatives:

ALTERNATIVE 1 would continue present policies and procedures without significant change.

ALTERNATIVE 2 would require greater emphasis on insuring a thorough explanation of all options plus better understanding by applicants. A check list, verified by a supervisor, could be provided by a recruiter to each applicant, listing every option for which the applicant is eligible and qualified.^{1/} Existing forms and documents used for applicant processing should be checked for completeness, simplicity, and readability.^{2/} Implications of future medical and training failures, as well as possible changes in service requirements which might affect an applicant's guarantees, should be provided in writing and fully explained. A minimum period of one day (or more) should be established from the time a recruiter offers all options in writing until the applicant attests to fully understanding all options. As a further safeguard, parents, guardian or advisor could also be requested to attest to options and

^{1/} Visits to recruiting stations by DMC staff members indicated that recruiters frequently are selective in information provided to applicants. Selectiveness appeared to be prompted by the recruiter's attempt to emphasize existing service program priorities.

^{2/} An OSD joint service AFEES Task Force recently undertook this task.

guarantees offered. Services would be bound to honor every guarantee unless just cause could be proven. In the latter case recruits would continue to be offered alternate options including discharge, should they so desire. The additional time and effort which might be required to implement the increased initial information phase of this alternative would appear to be greatly outweighed by better informed and satisfied recruits.

ALTERNATIVE 3 would establish procedures to provide for impartial third party mediation when allegations of unfulfilled promises arise. For advertising used to attract applicants, a joint Services or civilian panel (perhaps within the Federal Trade Commission) could be charged with review to ensure unimpeachable truth and ethics of advertising. For individual cases of claimed unfulfilled promises, not corrected to the satisfaction of the Service and recruit, an ombudsman could adjudicate charges. The advantage of this option is that it would provide volunteers with impartial judges to address their complaints. A major disadvantage is that it would establish a system which might easily become overburdened with unfounded complaints originated by any recruit experiencing dissatisfaction with his contract of service.

ALTERNATIVE 4 would eliminate guarantees at Service entry point or reduce such guarantees to simple limited options (e.g., the promise of simply advanced training rather than specifying a definite skill area). The advantage of this alternative is that it greatly reduces the range of guarantees which prompt allegations of unfulfilled promises. This alternative holds many implications for utilization and training. The major disadvantage from a recruiting point of view is that without specific

guarantees many potential applicants might not be interested in pursuing the option of military service. An All-Volunteer Force essentially operates in a "buyers" market where various guarantees are probably needed to attract quality youth.

RECOMMENDATION: Alternative 2, which would provide for improved information and understanding of options available to applicants. Also Alternative 3 in order to provide impartial review for contractual differences between recruits and the Services.

D. SERVICE PROCEDURES FOR HANDLING MALPRACTICE ALLEGATIONS

As previously discussed, a review of individual Service procedures in effect as of June 20, 1975 indicated there was a lack of uniformity in the systems used for identifying, reporting, investigating, and controlling cases of irregularities or alleged recruiting malpractice.^{1/} If malpractice is to be deterred or the probability of recurring cases reduced or eliminated, then it appears essential that certain mandatory procedures be followed.

In evaluating solutions to this problem area, the DMC should consider the following Alternatives:

ALTERNATIVE 1 would continue present policies and procedures without significant change.

^{1/} Supra, Section III F.

ALTERNATIVE 2 would extend the current Service systems in order to ensure that all recruits being processed for administrative discharges are queried concerning alleged irregularities or malpractice by their recruiters. The majority of these discharges are due to lack of aptitude or motivation, immaturity, character or behavior disorders, medical problems, misconduct or unsuitability -- precisely the types of persons that should not have been recruited. Current procedures should be continued to discharge undesirable or unsuitable recruits in an expeditious manner. However, to properly identify processing irregularities which may have led to the recruitment of this group, all discharges should be questioned. This questioning can be conducted during normal screening by aptitude or other review boards, or by the officer or NCO requesting the discharge action. In all cases, a simple form should be completed, which either makes an allegation of an irregularity or states the absence thereof. In cases where allegations are made a procedure similar to that used by the Air Force involving a sworn statement by the recruit which sets forth details of his allegation against a recruiter would be required. The discharge authorities then would forward the forms, sworn statement, if any, plus any other pertinent documents to the Service Recruiting Commander or investigatory authority. There would be some added burden in administrative processing, but this alternative has the essential advantage of properly identifying alleged irregularities or malpractice which currently in many cases are ignored.

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ALTERNATIVE 3 involves the investigation into allegations themselves, which are currently conducted in most cases by the recruiting commands. While an impartial third party, such as the Service investigatory agency, might be desirable, in many cases, recruiters are the only military personnel available in the location where an investigation is required. Regardless of who conducted the investigation, this alternative would place greater emphasis upon both formal and informal investigations. Commanders would appoint investigators who were impartial, unprejudiced, and had no preconceived conviction as to the truth or falsity of the matters at issue. This alternative might require increased time of selected personnel within the recruiting organization or from investigatory agencies.

RECOMMENDATION: Alternative 2 and 3, which would strengthen existing service systems for the reporting, investigation and control of alleged irregularities or malpractice cases.

IV. CONCLUSIONS

The Services have assigned quality career personnel to their recruiting forces. Almost all have above average to superior records of prior service. In addition, the Services have continuously attempted to improve recruiter screening and training techniques. There have been, however, continuing cases of recruit processing irregularities, notwithstanding commendable efforts by DOD to eliminate problems which they have identified. To the extent that problems still exist, the staff believes that criticism should be directed mainly to weaknesses

in the "system" and associated policies, rather than focusing on recruiters themselves. The objective must be to eliminate procedures and pressures which lead to errors, questionable judgments and other situations which prompt allegations of recruiting malpractice. Many of these procedures and pressures stem from broader problems and issues in the defense manpower area. Others can be categorized solely within the narrower issue of recruit processing irregularities.

V. SUMMARY OF RECOMMENDATIONS

The staff recognizes that considerable effort has been made by OSD and the Services to reduce recruiting irregularities and malpractice. Alternatives are available to permit continued movement toward improvement. The staff recommends that as nearly as possible, an improved standard "system" for reducing and controlling pressures on recruitment be identified as objectives for the management of recruiting programs over the next decade. While the Services have taken many commendable actions which have reduced irregularities in the recruiting process, there is no assurance that these positive changes will remain in effect under different manpower supply-demand equations. Accordingly, the DMC staff believes it essential that firm policy principles be established so that in future years processing irregularities and malpractices can be eliminated or kept to an acceptable minimum level, regardless of the pressures and demands upon the Services recruiting forces. The key principles which the DMC staff recommends as guidelines for

manpower recruiting programs over the 1976-1985 period (summary of specific recommendations made in earlier pages) fall into two major categories:

A. Recommendations involving problems and issues in the broader areas of defense manpower (e.g., requirements, testing and enlistment standards, utilization, compensation, management of recruiting, etc.). While germane to this issue, they will require additional consideration within the context of broader problems.

B. Recommendations involving limited actions confined to the recruiting processing irregularities issue.

A. BROADER AREAS

1. That accession requirements be defined in terms of relatively constant and broad qualitative measures that are acceptable and can be effectively utilized, rather than maximizing quality within what the market will bear.
2. That end strength and associated dollars be de-emphasized, at least to the extent that they impact on the quota of volunteers, which Services presently perceive must be recruited during that last month of the fiscal year to avoid cuts in future requests.
3. That quota systems be used which better equalize pressure on recruiters by considering local market and management variables. Field managers should actively participate in the quota formulation process.
4. That recruiters be measured and rewarded on the basis of "net effectiveness," with credits for quality recruits

and lengths of enlistments, and debits for recruit losses and poor performance, and with rewards to include pay for proficiency rather than tenure.

5. That the recruiting programs utilize a single test for all military accessions.
 6. That the test be administered for Active personnel, Reserves and Guardsmen by joint Service testing teams, civilians, or contractor personnel at AFES.
 7. That all Services conduct regular re-testing programs at recruit training facilities in order to validate the reliability of current tests and procedures.
 8. That Service education requirements for accessions be expressed only in terms of diploma high school graduates, not including GED's.
 9. That DOD establish and maintain a uniform policy on disqualification for drug usage.
 10. That DOD establish and maintain uniform minimum standards and interpretation of moral/police disqualifications.
- B. NARROWER (Limited to recruit processing irregularities):
1. That scrambled versions of the test be utilized, and the test format be changed at regular intervals.
 2. That test-takers be required to furnish positive identification and a central record of testees be maintained.
 3. That recruiters continue to obtain written verification of high school graduations and insure placement in recruit files.

4. That potential recruits be required to furnish complete and documented medical history, validated by parents or a physician.
5. That potential recruits be required to submit sworn statements regarding drug usage and police records.
6. That recruiters be required to furnish a potential recruit with a written check-list of all enlistment options for which the recruit qualifies.
7. That recruiters be required to explain and certify the explanation of basic or technical training failure or changes in Service skill requirements.
8. That potential recruits be required to delay signing enlistment contracts for at least 24 hours after presentation of enlistment options.
9. That all Service advertising be reviewed by a special joint Services or civilian panel for the purpose of insuring the absence of misleading information.
10. That disinterested third parties or Service ombudemen investigate and decide contractual differences between recruits and Services.
11. That as part of overall recruiting management, an improved control system be utilized by all Services to insure identification, mandatory reporting, thorough and impartial investigation, and corrective actions of irregularities in order to deter or eliminate the probability of recurrence.

As discussed earlier, the Services have taken actions to adopt a number of these principles and the DMC staff believes that further constructive changes will take place in coming months. However, as the future manpower supply/demand situation cannot be predicted with accuracy, the DMC staff submits that the formalization of the above principles for Service recruiting programs in future years would be in the best interests of the Services and the Nation.

WORKING PAPER
NOT AN OFFICIAL POSITION OF THE DMC

JOB SELECTION STANDARDS IN THE ARMED FORCES

A Staff Issue Paper
for the
Defense Manpower Commission

by
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Recruitment Group
with assistance from
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April 1976

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EXECUTIVE SUMMARY

- INTRODUCTION:** Highlights the concern which led the DMC to examine the formal screening process in the Armed Forces to identify methods for increasing the efficiency of selection and assignment procedures.
- BACKGROUND:** Reviews the major features of the traditional selection process, its relationship to the mission of the Armed Forces, and the consequences of imperfect screening -- attrition among recruits assigned to Service occupations.
- THE PROBLEM:** Discusses the annual costs associated with attrition in DOD and highlights the cause of inefficiencies inherent to traditional screening procedures.
- Selection tests have not been designed to provide the most accurate possible prediction of performance in Service jobs.
 - Traditional selection standards for occupations do not serve to distribute recruits across Service occupations with maximum efficiency.
 - The inability of the Services to evaluate screening procedures in the past has precluded the development of improved standards.
- ALTERNATIVES:** Presents alternatives to existing selection tests and selection standards that would increase the efficiency of the formal screening process.
- Guidelines for improving Service selection tests.
 - A specific method for evaluating the selection process that determines alternative standards for Service jobs according to a least cost approach.
- CONCLUSIONS:** The Armed Forces can significantly increase the efficiency of the screening process, thus saving as much as \$100 million annually, by improving selection tests and conducting a systematic evaluation of selection standards.
- RECOMMENDATIONS:** The Services should take steps to:
- Develop better selection tests according to study guidelines.
 - Develop alternative standards based on a comprehensive evaluation of the screening process similar to the DMC analysis.

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The personnel research community of the Armed Forces should be provided with the direction, time, and the necessary manpower and money resources to effect changes in testing, classification, selection, and assignment practices according to study guidelines.

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JOB SELECTION STANDARDS IN THE ARMED FORCES

I. INTRODUCTION

The selection process currently employed by the Armed Forces guides the recruitment of enlistment applicants for assignment across the many Service occupations in which new recruits are needed each year. That more than one out of every four DOD accessions is involuntarily discharged prior to completing the initial enlistment term gives testimony that the potential exists for significantly improving the efficiency of the screening process.

Improvements can be realized in two ways: First, selection tests can be redesigned to provide more accurate prediction of recruit performance in Service assignments. Second, the selection standards currently employed by the Services can be judiciously altered to increase the efficiency with which applicants are selected for occupational assignments. Both approaches promise to reduce inefficiencies inherent in the existing selection process.

In this study we propose a method for evaluating selection standards for occupations that would permit the DOD to reduce budget expenditures associated with first-term attrition by approximately \$100 million annually. The method is illustrated in the analysis of a representative selection and assignment problem for four Army occupations in CY73. By-products of the systematic evaluation of selection standards in the Armed Forces according to the guidelines developed here are to show how the Services may be able to sustain manpower requirements in the face of an abnormally small supply of applicants, that occupational selection standards can and should be adjusted according to varying conditions of supply and demand, that basic enlistment selection standards

should not be used for this purpose but instead should be fixed overtime, that enlistment bonuses and other inducements to increase supply can be evaluated to determine their cost-effectiveness, and that the promotion of social objectives in the DOD (e.g., equal opportunity programs) can be evaluated to show how they can be achieved most efficiently.

II. BACKGROUND

Enlistment selection standards refer to the rules the Services employ to screen out people believed to be unsuitable for enlistment from the pool of all people who apply for enlistment. During the selection process, applicants are examined first to identify the enlistment-eligible individuals. A second and more complicated screening is performed to select people for occupational assignments. Many of the people eligible for enlistment find they are not eligible for assignment to particular occupations. Occupational selection standards are the rules the Services employ to screen out individuals believed to be unsuitable for assignment to specific occupations from the pool of all enlistment-eligible people. Except when otherwise qualified the term "selection standards" refers to Service-imposed rules governing the screening of enlistment-eligible people for occupational assignments.

For ease of exposition, the issue of selection standards will generally be addressed without referring to a specific military Service by name. There is sufficient commonality in the use and impact of selection standards across the four Services to do so without loss of clarity or appropriateness.

A. General Features of the Selection/Assignment Process

In fiscal year 1974 more than 560,000 young men and women applied for enlistment to one or more of the military Services. An estimated

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24.9% or approximately 140,000 applicants were found to be ineligible for enlistment based upon Armed Forces mental and physical enlistment selection standards. The remaining 420,000 enlistment-eligible applicants were screened further to determine their eligibility for assignment to specific Service occupations. Active duty enlistments totaled 391,000 non-prior-Service people during the same year. ^{1/}

Comparison of the FY74 figures for enlistment-eligible applicants and non-prior-Service (NPS) accessions indicates that most of the enlistment-eligibles, some 90% to 95%, were accepted for enlistment and subsequent assignment to occupations for which the Services determined they were eligible. The other 5% to 10% were not enlisted for any one of several reasons, among them (1) no immediate openings existed for them in any of the jobs for which the existing selection standards made them eligible, and (2) they chose to refuse the enlistment offer after learning that selection standards made them ineligible for assignment to the occupations they preferred.

Each of the 391,000 accessions was administered pencil-and-paper tests to determine individual aptitudes in certain broad categories of work, e.g., administrative, electronic and mechanical kinds of work. The various broad aptitudes a person possesses are measured as numerical test scores. The people who achieve high scores on tests administered by the Services are assumed to possess relatively strong aptitudes for learning and performing corresponding types of work.

Service occupations are grouped according to the type or types of aptitude thought to be essential for satisfactory job performance.

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The selection standards for occupations requiring a similar aptitude are expressed in terms of minimum acceptable numerical scores which must be attained on the relevant aptitude test. The highest selection standard (a very high test score established as the minimum acceptable score) is normally reserved for those occupations in the group considered to require a comparatively high degree of the relevant aptitude for performing the job satisfactorily. Less restrictive selection standards (a lower minimum acceptable test score) are reserved for occupations demanding the essential aptitude in lesser degrees.

The test scores attained by the FY74 enlistees enabled the Services to evaluate each individual's eligibility for the full range of Service occupations. Every individual was offered the opportunity to enlist in the Service subject to his or her eligibility for assignment to at least one occupation in which a requirement (vacancy) was projected.

From the viewpoint of the Service, recruiters attracted, tested and classified many applicants, thus enabling them to select enough people for enlistment and job assignment to fill the requisite quota (a specific number of vacancies) existing in each of the many different kinds of Service occupations. The selection and assignment process is seen from this perspective as the activity in which many different occupations compete simultaneously for a limited number of available people. Selection standards determine how recruiters choose among variously qualified applicants for enlistment to fill vacancies in jobs which require varying degrees and kinds of abilities.

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B. Selection Standards and the Military Mission

Service manpower requirements form the basis for determining the numbers of applicants who must be selected for enlistment and assignment to each occupation during the course of a year. Broad national security objectives are assumed to dictate the types and degrees of military capabilities each Service maintains over time. These capabilities are translated into requirements for both manpower and hardware. An overall manpower requirement reflects the numbers of people with different skills that the Service must employ to maintain a requisite range of military capabilities. In each Service occupation there is some minimum number of fully-qualified, reliable people who must be available at all times to provide their skills in case of national emergency or military necessity. Personnel turnover in each occupation is continuous, and the normal projected losses of skilled people create the vacancies which drive the recruitment of new people.

For example, if the minimum required number of torpedomen is 100, and 25 of the 100 fully-qualified, reliable torpedomen on active duty today are projected to leave the Service next year, then sufficient numbers of new people must be recruited in the current year to fill the anticipated vacancies. The recruitment of new torpedomen must begin early to provide sufficient time for the basic military training and advanced occupational training needed to prepare the new people for the job. Recruitment and training schedules are devised so that newly-trained torpedomen will be delivered to the job at the same time the vacancies actually occur.

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The question of how many applicants to recruit for the torpedoman occupation always arises because experience has shown that many of the enlistment-eligible applicants are not well-suited to the demanding work associated with this job for any of a number of reasons, among them (1) the lack of a certain essential aptitude (e.g., mechanical ability), and (2) psychological reasons. Thus, if 25 applicants are randomly selected for enlistment and assignment to the occupation, perhaps only 10 will actually succeed in training and subsequently perform satisfactorily on the job. In the absence of a job-specific selection standard, the corresponding retention rate of 40% (10 out of 25) means that 63 people must be recruited, if selected randomly, in order to insure that 25 able and ready torpedomen will be available at the time they are needed. The use of a selection standard disqualifies from initial assignment consideration many of the applicants possessing little aptitude for learning the job skills taught in the torpedoman training program. In practical terms, the identification of relatively high aptitude applicants makes it possible instead to enlist and assign as few as 40 people to the occupation. Within this group, only 15 may be expected to prove unsuitable, with 25 remaining (a 62% retention rate) to fully satisfy next year's requirements for new fully-qualified and reliable torpedomen.

Selection standards operate in the manner illustrated above for each of the hundreds of occupations which continuously require the entry of new people. Selection standards permit the Service to fill all occupational vacancies projected for the future by recruiting fewer people overall than would be necessary if no selection standards were employed. The expense associated with the enlistment of new people declines directly in proportion

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to reductions in the numbers of people who must be accessed. Therefore, the use of selection standards reduces the costs associated with continuously maintaining the minimum numbers of skilled personnel required in each occupation, and in the force overall. They serve the purpose of enabling the Service to meet national security commitments at a reduced cost.

C. The Selection Standards Issue

During the working hours of a typical weekday in FY74, between 2,000 and 3,000 young people entered the recruiting offices of the Armed Forces, located in towns and cities throughout the Nation, to apply for enlistment.^{2/} Informed of the broad opportunities available to them, each applicant agreed to take one or more Service tests to establish basic enlistment eligibility and also to determine his (or her) eligibility for assignment to any one of the many different occupations in which vacancies were projected. Very few applicants found they were eligible for assignment to all possible occupations. Most discovered that the range of their job choices was limited to a greater or lesser extent depending upon the aptitude test scores they achieved. During the typical day, military recruiters enlisted 1,600 applicants, and occupational selection standards guided the distribution of the new enlistees across the many occupations competing for high caliber people.^{3/}

Were any people assigned to the "wrong" occupations, and if so, would a different set of selection standards have reduced the extent of mal-assignment? From the viewpoints of both the Service and the individual, the "wrong" job includes any of the occupations in which the individual will

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perform unsatisfactorily if so assigned. The assignment of some people to the wrong jobs evidently occurs in the Armed Forces today, as indicated by recent attrition rates for the DOD. It is estimated that one out of every four enlistees will be discharged from the Service prior to completing the initial active duty obligation.^{4/} While not all discharges are the result of assigning people to the wrong jobs, it will be shown that overall attrition can be reduced by altering the selection standards which guide occupational assignments.

III. THE PROBLEM

The aggregate profile of recruit retention and attrition over time reflects the efficiency with which Service screening procedures guide the distribution of people across Service occupations to sustain manpower requirements in each job. Recent discharge statistics for the DOD show that more than 25 out of every 100 recruits are involuntarily discharged (attrite) prior to completing the initial enlistment term. The average cost per attrition, \$7,688, is the amount that a recruit typically accrues in salary payments prior to being discharged involuntarily. In FY75, 461,000 applicants were selected for enlistment and assignment to Service occupations across the DOD. If the historical pattern of attrition prevails, 343,000 or 74.3% of the original accessions total will survive (will remain to complete the initial term of enlistment), and 118,000 or 25.7% of the total will be involuntarily discharged.^{5/}

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We conservatively estimate the total cost associated with the enlistment of 1,118,000 people who are expected to attrite at \$907,184,000, a figure that includes only direct salary payments.^{6/} A similar computation made for the 343,000 accessions in FY75 expected to survive through the first term shows that a total of \$7,278,460,000 will be paid to them by the end of their obligation. Out of a gross payroll expenditure of \$8.1 billion that will eventually accrue to the 461,000 people enlisting in FY75, some 11.1% of the total will be paid to people who would not have been permitted to enlist if errorless selection and assignment had been possible. The \$907 million specifically associated with attrition is the staggering price the DOD pays for no apparent benefit in return. Equally dismaying, this will be a recurring cost as many hundreds of thousands of people are enlisted each year in the future.

In general, inefficiencies in the selection process can be addressed from two perspectives. First, Service selection tests do not afford the means for discriminating between potential survivors and failures in each job as accurately as is possible. Second, the existing selection standards are not designed to distribute recruits across occupations in a manner that minimizes attrition or the costs of attrition overall. As a consequence, attrition among first-term enlisted personnel today occurs on a much larger scale than would obtain with improved selection tests and a more efficient set of selection standards. Both aspects of the problem are discussed at length in another study prepared by the DMC staff.* The major points are presented below, followed by a discussion of the practical manifestations of an inefficient selection and assignment process.

* See the DMC staff study, "A General Critique of the Recruit Screening Process in the Armed Forces" by James W. Abellera.

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A. Selection Tests

Pencil-and-paper tests have been an integral part of the Services' formal selection process for more than fifty years. Enlistment applicants today are usually required to take a battery of tests that enable recruiters to determine a person's eligibility for assignment to each of the many different Service occupations. These are called aptitude tests because they are said to discriminate among people who are endowed in varying degree with particular work-related abilities. The rationale for using aptitude test scores as the basis for determining assignment eligibility is that people who possess an aptitude for learning and applying a particular skill are likely to perform satisfactorily in jobs that require the skill.

The complicated process by which aptitude tests are developed in the Armed Forces cannot be easily comprehended by the non-technical layman. A review of this process reveals, however, that conventional aptitude tests have been carefully designed to predict the score which each person is capable of achieving in formal training for Service occupations. The training score is in large part the composite of test scores the student-recruit attains on multiple-choice type examinations administered in job training programs. Training scores have been made the criterion that aptitude tests are presently designed to predict.

The flaw in this approach is that the Services need tests that will accurately predict survival, satisfactory performance throughout the full course of the job. Yet today's tests may not perform this function in the most effective manner possible insofar as performance in the classroom

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environment of a highly-structured training program is not the same as performance on the job. This is clearly evidenced by the pattern of involuntary discharges among new recruits. Of the 25.7% of all accessions who attrite prior to completing the initial term of enlistment, 18.0% are discharged in the field after completing training successfully, while only 7.7% are discharged earlier while engaged in formal training programs.

By using training scores rather than job survival as the criterion for developing tests, the resulting tests measure what is relevant and important for training success but not necessarily for satisfactory performance on the job. For example, selection tests give little weight to applicant motivations and interests, because performance in the training environment is largely a function of innate aptitude. Non-aptitudinal factors often play a greater role on the job than in the training environment; thus, conventional tests may predict training success fairly well but not job survival.

Institutional emphasis on the accurate prediction of performance in training has in part been the result of Congressional pressures to minimize the costs of formal training in the Armed Forces. The military personnel research community concentrated their efforts over time on the prediction of training performance in response to these pressures and also because far greater success was achieved in the measurement of job-related aptitude than job-related motivations and attitudes. The emphasis was formally manifested in the choice of training performance as the prediction criterion for designing tests. Progressively better aptitude tests were developed resulting in reduced attrition in Service training programs.

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At the same time, other research was conducted to evaluate the relevance of occupational training to the actual demands of the job. Job task analysis, the most widely known and certainly among the most effective of the various techniques used by researchers, pointed the way for the systematic evaluation of individual job training programs. These efforts have culminated in the restructuring of the training programs themselves so as to provide new curricula and modes of instruction that will make training demands more representative of the real demands on the job, suggesting that earlier measures of training performance were not ideal or necessarily adequate measures of job performance.*

In the traditional scheme, test researchers assumed the responsibility for designing tests to predict training success, but not job survival. Training researchers assumed the responsibility for increasing the relevance of training to job performance, but not the relevant design of selection tests. The evolution of segmented responsibility between the two types of research unfortunately precluded sustained efforts to design selection tests to predict survival throughout the enlistment term in individual occupations.

Ironically, the greatest payoff to using a job survival test criterion could well lie in the detection of flaws in training programs. As specific applicant attributes can be identified that generally contribute to successful performance in training for a particular occupation but failure

* It is useful to consider what the future portends as training is made significantly more relevant to performance on the job. It is likely that training scores will eventually measure non-aptitudinal characteristics to a greater extent than they do today. Selection tests keyed to training scores will therefore require modification in order to maintain a reasonable degree of accuracy in predicting training performance, implying greater emphasis on non-aptitudinal factors.

on the job, researchers can draw management attention to features of the training program that can be strengthened to effect greater accuracy in student screening. Similarly, applicant attributes shown to contribute frequently to training failure but rarely to failure on the job will indicate another type of flaw in the training program, i.e., an unnecessarily difficult or irrelevant element of the training curriculum.

Congressional concern over the costs of formal training in the military is only one facet of the broader federal concern about the growing costs of military manpower in general. Money economies resulting from improvements in the prediction of training success will not be persuasive if major costs are merely shifted from the training environment to the post-training phase of the enlistment term where the bulk of attrition occurs, the consequence of screening applicants for training success but not for job survival. In the context of future budgetary pressures, it may well become necessary for each Service to demonstrate that the formal screening process operates to test, select, and assign individuals in a manner that minimizes the total costs of maintaining the numbers of first-term people required in all occupations to support the defense mission. The minimization of training expenditures alone may no longer be an adequate objective for selection test research and development.

B. Cutting Scores

An enlistment selection standard is generally expressed as a combination of various measures such as some minimum level of educational achievement and/or AFQT score. An occupational selection standard is often called

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cutting score, the minimum score that an applicant must attain on a particular aptitude test in order to be considered eligible for assignment to an occupation. Each of the Services changes its respective enlistment standards from time to time in order to insure that only applicants of the highest caliber available are accepted for enlistment. Enlistment standards are raised when there is an abundance of applicants and lowered when the supply falls short of demand. In contrast, occupational selection standards are hardly ever changed. The effect of varying enlistment standards while holding selection standards for jobs constant has been to increase the average aptitude test score of recruits above the cutting scores for most occupations when enlistment standards were raised, and to lower average recruit aptitude in most occupations to the cutting score minimum when enlistment standards were reduced. This caused attrition rates to increase or decrease slightly in Service occupations. Thus, variations in enlistment selection standards induce changes in the average aptitude of recruits assigned to Service occupations even when cutting scores for jobs are held constant.

Many of the cutting scores which define eligibility for assignment to Service occupations were originally established during and immediately following WW II when the Services expanded the use of aptitude tests for assignment screening. Cutting scores were established so that especially well-qualified people would generally be assigned to the most difficult jobs, average people would generally be assigned to jobs of average difficulty, and below average people would only be eligible for assignment

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to the least difficult jobs. This insured that the supply of applicants available in a typical year would match Service recruiting needs. In years that supply exceeded expectations, the Services were able to recruit and assign many people whose aptitude test scores exceeded the minimum standards for the respective occupations. In the years that supply fell short of expectations, the Services supplemented the supply of voluntary applicants with inductees. That is, the Armed Forces increased the total applicant supply with inductees to whatever size was necessary to provide enough people with the requisite qualifications to meet selection standards in all of the occupations demanding new recruits. In this sense, the traditional cutting scores dictated how large the applicant pool would have to be.

Occupational selection standards were held constant over the years because this afforded stability in job training programs and in field occupations. To lower the standard for an occupation meant that lower quality people would be assigned to training, and attrition in training and later in the field would increase, a prospect that training program managers and field supervisors resisted. To raise the standard meant that recruiters would somehow have to find additional applicants capable of qualifying according to the higher standard, or else "rob" other occupations of the high quality recruits who would normally be assigned elsewhere. Therefore, there was strong incentive to retain the traditional standards that afforded program stability.

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The traditional cutting scores for jobs maintained today enable the Services to sustain occupational demands for new recruits, and enlistment selection standards are changed from time to time to capitalize whenever possible on surpluses of well qualified applicants. Cutting scores determine the level of attrition experienced in each Service occupation and in the first-term force overall, yet the selection and assignment process has never been evaluated to determine if changes to traditional standards would serve to sustain occupational manpower requirements at a reduced attrition cost. The Services remain committed to the existing standards because they have proved adequate in the past and because their inability to evaluate the screening process has precluded the determination of alternative selection standards for occupations.

C. Major Manifestations of the Problem

Selection standards in the Armed Forces are expressed in terms of applicant scores achieved on Service aptitude tests. The tests are not absolutely relevant to the occupations for which they are supposed to predict performance, nor are they as relevant as they could be. Because they are designed to predict only a narrow measure of performance (training scores) and do not formally take account of applicant motivations and interests as factors determining survival in each occupation, the tests do not discriminate between potential survivors and non-survivors in each occupation in the most accurate possible manner.

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Occupational selection standards used today were originally developed as the answer to problems that grew out of the expanded use of Service aptitude tests for screening enlistment-eligible applicants for occupational assignments more than twenty years ago. The Services have generally avoided lowering occupational cutting scores over the years because of strong resistance from training program managers and supervisors in the field. The raising of cutting scores has been opposed by Service personnel system planners and policy makers who recognize that recruiters may not be able to find the additional applicants needed to meet the higher standards of eligibility. Thus the selection and assignment process has remained largely unchanged over the years.

Occupational selection standards determine attrition rates among first-term recruits in every Service occupation and in the first-term force overall. The payroll cost associated with first-term attrition in the DOD amounts to almost \$1 billion per year. This figure could be reduced by judiciously altering cutting scores for Service occupations. However, no extensive evaluation of occupational selection standards has been made to identify the set of cutting scores that would minimize overall attrition and the associated budget costs.

Allegations that Service selection tests and selection standards discriminate unfairly against minority groups defined by socio-economic characteristics cannot be answered until the Armed Forces demonstrate that the tests and standards they use support the Service mission more efficiently than any other screening procedures. The current selection tests cannot

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be defended against charges of bias because aptitude tests have not been shown to predict job survival with maximum possible accuracy. The process by which these tests are developed gives weight to the argument that alternative tests could be constructed to discriminate more effectively on the basis of success or failure in occupational assignments. The casual logic by which cutting scores for Service jobs were established and maintained over the years makes this aspect of today's selection process vulnerable also.

The Services' commitment to hold selection standards for occupational assignments constant left enlistment selection standards as the only screening mechanism for making adjustments from year to year according to varying conditions of supply and demand. There is no reason to believe that this approach will adequately resolve supply deficiencies in the uncertain recruiting environment of the future. The key to sustaining military manpower requirements could some day rest on the choice of alternative cutting scores for occupations, but the Services have thus far shown little interest in developing this type of recruiting flexibility.

At the heart of the selection standards problem is the failure of the Services to conduct a comprehensive, systematic evaluation of today's selection standards to determine how well or how badly they compare to alternative standards that could be adopted. There is no reason to believe that the cutting scores currently employed by the Armed Forces generate the "least cost" level of attrition, do not discriminate unfairly with respect to socio-economic characteristics of applicants, are adequate to

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deal with adverse conditions of applicant supply relative to demand, insure maximum internal force stability, or assist Service recruiters to reconcile applicant supply with competing occupational demands for new recruits in the most efficient manner possible. The single criterion by which the Services choose to evaluate their formal screening process is that it works. True manpower requirements in each occupation are satisfied insofar as the requisite numbers of people assigned to each occupation survive to fill vacancies caused by the normal separation of fully qualified and reliable people. That many recruits are involuntarily discharged along the way is a reality that is tolerated as long as enough remain to support the mission. That the judicious choice of alternative cutting scores and the use of more relevant selection tests together might serve to support the true manpower needs of the Services equally well or better while minimizing selection errors remains little more than optimistic speculation as long as the Armed Forces lack the means and method to properly evaluate the efficiency of their formal selection procedures.

IV. ALTERNATIVES

A single rule is used here to identify alternatives to the aptitude tests employed by the Armed Forces today. Each alternative has been selected for discussion because it shows promise in providing more accurate prediction of performance than current tests permit.

A. Improving Current Tests

In general there are three approaches to improving the predictive accuracy of any selection instrument (test). These can be best understood by considering how any pencil-and-paper test is constructed. The object of the prediction, the outcome or behavior, is chosen first. A large number of items are then written up (constructed) because they appear to be related to this performance criterion. A statistical technique is employed to identify those items in the large item pool that have the greatest statistical correlation to the performance criterion. This is done by administering a long test made up of all items in the pool to a large group of individuals. The performance of each individual is later measured, and a particular group of items is identified which successful performers answered correctly most often and unsuccessful performers tended to answer incorrectly. The items in this group become the final selection instrument.

The three approaches to improving a test are: (1) choose a prediction criterion that more closely corresponds to the behavior, or performance, that the test will actually be used to predict. It is misleading to say that a test is designed to predict one kind of performance, e.g. training scores, when in practice the test is used to predict another. If the design criterion is different from the operational criterion, then it is very likely that a better test can be developed by designing (validating) it in terms of the performance it is subsequently employed to predict; (2) incorporate into each test all measures of individual characteristics and attributes apparently relevant to the appropriate performance criterion. If, for instance, a test is to be administered a priori to predict an individual's success or

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failure in swimming 40 yards across a pool, the test should include questions regarding the person's fear of the water, fear of depths, etc. in addition to questions regarding endurance, strength, and other physical attributes.

(3) Among the many sophisticated statistical techniques available for creating and validating selection instruments, choose the technique that will produce a test which yields the maximum possible predictive accuracy. All three approaches are discussed in detail in the DMC staff study titled, "The Recruit Screening Process in the Armed Forces" and are summarized in the following prescriptions:

1. Selection tests should be designed to predict job survival rather than performance in training.
2. The content of selection tests should be expanded to include measures of individual motivation and interests as well as aptitude insofar as the additional factors can be shown to improve the capacity of tests to predict survival in Service assignments.
3. Test researchers should employ statistical techniques in validating selection tests that will afford maximum predictive accuracy.
4. Selection tests should be developed on a job by job basis -- one test to predict survival in one job.

Each of the above proposals offers the potential for improved accuracy in predicting survival in Service occupations.

B. Alternatives to Existing Selection Standards

Specific selection standards for occupations that would support Service manpower requirements better than do the existing standards cannot be developed

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without conducting a systematic evaluation of the formal screening process. Service researchers in the past have endeavored to develop various analytical approaches to the evaluation problem. Each attempt has adequately addressed some important features of the selection process, but not all. They establish the guidelines for designing an analytical approach of sufficient scope to evaluate and compare the efficiency of traditional selection standards and alternative standards.*

In the next section we describe the Army selection and assignment process in CY73 as it operated to sustain manpower requirements in four Army occupations. Various statistics are developed to illustrate the resulting efficiency of the process. In the following section we conduct a limited evaluation of selection standards to show how the selection and assignment process could have been altered to sustain Army manpower requirements in these occupations at a significantly reduced cost of attrition overall. In the last section the broad implications of expanding the approach to evaluate the selection and assignment process across all occupations in all Services are discussed, including the prospect of reducing DOD budget expenditures associated with attrition by more than \$100 million annually.

* See the DMC staff study, "The Recruit Screening Process in the Armed Forces," op. cit.

1. The results of selection and assignment in an Army example

Summarized below are the results of the selection and assignment process as it actually operated to distribute 35,330 applicants across four Army occupations in CY73. A more detailed discussion of the example is provided in Appendix A. The available supply of 52,000 total applicants was characterized as follows:

Mental Categories of Applicants:

<u>I</u>	<u>II</u>	<u>III</u>	<u>IV (HS)</u>	<u>IV (NHS)</u>	<u>Total Supply</u>
624	7,246	20,732	4,015	19,383	52,000

Source: MARDAC

The demand for recruits, expressed as the numbers of survivors needed to fill projected vacancies (true manpower requirements) in each of the occupations, is displayed below:

<u>OCCUPATION:</u>	<u>TRUE MANPOWER REQUIREMENTS:</u>
Infantrymen	12,176
Drivers (vehicle operators)	2,552
Mechanics	4,914
Supply clerks	4,201
All four occupations totalled	<u>23,843</u>

Source: MARDAC (processed by GE TEMPO)

The selection and assignment process, guided by the traditional selection standards for these occupations, served to allocate recruits across the four Army jobs in the following manner:

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<u>Mental Category</u>	<u>Infantryman</u>	<u>Driver</u>	<u>Mechanic</u>	<u>Supply Clerk</u>	<u>Denied enlistment</u>	<u>Total Assigned</u>
I	450	77	74	23	0	624
II	4,462	743	1,411	630	0	7,246
III	10,848	2,215	4,111	3,558	0	20,732
IV (HS)	1,540	363	890	1,222	0	4,015
<u>IV (NHS)</u>	<u>1,238</u>	<u>260</u>	<u>627</u>	<u>588</u>	<u>16,670</u>	<u>2,713</u>
Total Assigned	18,538	3,658	7,113	6,021	0	35,330

Source: MARDAC (data processed by GE TEMPO)

Thirty-five thousand, three hundred and thirty recruits from all mental categories were distributed across all four jobs, leaving 16,670 mental category IV non-high school graduates who were denied enlistment.

The result of this allocation is displayed below. The expected number of survivors (and attritions) was computed by applying the historical survival rates for each type of applicant in each job to the numbers from each category who were actually assigned to the various jobs.

It is important to note that survival rates listed in Column 2 vary significantly from one applicant category to another in most of the occupations. The driver occupation is the exception, where the rates for all but mental category IV high school graduates are in the same range.

Survival rates for each type of applicant within each occupation were produced in a joint data analysis effort which involved the DOD (OSD, M&RA(MARDAC)), General Electric Tempo (DMC contract on Enlisted Turnover), and the DMC staff.^{2/}

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	Total Assigned	times	Survival* Rate	Expected # of Survivors	TRUE MANPOWER REQUIREMENTS	Expected # of Attritions
<u>Infantrymen</u>						
I	450		.80	360		90
II	4,462		.71	3,182		1,280
III	10,848		.63	6,841		4,007
IV (HS)	1,540		.77	1,189		351
IV (NHS)	1,238		.49	604		634
TOTAL	18,538		.66	12,176	12,176	6,362
<u>Drivers</u>						
I	77		.71	55		22
II	743		.73	546		197
III	2,215		.67	1,495		720
IV (HS)	363		.78	283		80
IV (NHS)	260		.67	173		87
TOTAL	3,658		.70	2,552	2,552	1,106
<u>Mechanics</u>						
I	74		.82	61		13
II	1,411		.72	1,019		392
III	4,111		.69	2,819		1,292
IV (HS)	890		.78	694		196
IV (NHS)	627		.51	321		306
TOTAL	7,113		.69	4,914	4,914	2,199
<u>Supply Clerks</u>						
I	23		.83	19		4
II	630		.78	489		141
III	3,558		.67	2,388		1,170
IV (HS)	1,222		.82	1,006		216
IV (NHS)	588		.51	299		289
TOTAL	6,021		.70	4,201	4,201	1,820

Source: MARDAC (data processed by GE TEMPO)

* Because attrition rates are rounded to two significant digits, the product of columns 1 and 2 may not equal column 3 exactly.

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We also computed the total salary expenditure associated with the production of 23,843 survivors and 11,487 attritions, \$506.0 million and \$108.0 million, or \$613.9 million overall. These figures are shown below in the statistics summarizing the selection process as it actually operated in CY73 to sustain the true manpower requirements in these four Army occupations.

SUPPLY = 52,000 applicants eligible for selection
 less 16,670 denied enlistment (surplus)
RECRUITED = 35,330 applicants enlisted and assigned
 less 11,487 attritions (involuntarily discharged)
SURVIVORS = 23,843 remaining to completion of term
DEMAND = 23,843 fully qualified and reliable people

SURVIVOR COST = \$506 M salary payments accruing to survivors
 plus \$108 M salary payments accruing to attritions
TOTAL COST = \$614 M salary payments accruing to all applicants
 selected

2. A limited evaluation of selection standards

The selection and assignment process for the Army example discussed above was evaluated to determine what alternative standards would sustain the true manpower requirements in all four occupations at the minimum total cost. We employed an analytical technique called linear programming to perform the evaluation. The analysis is discussed further in Appendix B.

The evaluation showed that applicants could have been selected and assigned in an alternative manner, as indicated below.

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Recruiting Quotas for Occupations*

<u>Mental Category</u>	<u>Infantrymen</u>	<u>Drivers</u>	<u>Mechanics</u>	<u>Supply Clerks</u>	<u>Total</u>
I	624(450)	0(77)	0(74)	0(23)	624(624)
II	1,848(4,462)	0(743)	0(1,411)	5,398(630)	7,246(7,246)
III	11,520(10,848)	2,042(2,215)	7,170(4,111)	0(3,558)	20,732(20,732)
IV (HS)	4,015(1,540)	0(363)	0(890)	0(1,222)	4,015(4,015)
IV (WHS)	<u>0(1,238)</u>	<u>1,777(260)</u>	<u>0(627)</u>	<u>0(588)</u>	<u>1,777(2,713)</u>
Total	18,007(18,538)	3,819(3,658)	7,170(7,113)	5,398(6,021)	34,394(35,330)

We applied the historical survival rates to determine how many survivors and attritions would be produced by the least cost allocation, presented in the next table. The reader will note that the requisite number of survivors would be produced in each occupation.

(see table next page)

* For purposes of comparison we have also indicated in parentheses the recruiting quotas that were associated with the traditional allocation.

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	Total Assigned	times	Survival* Rate	Expected # of Survivors	TRUE MANTONER REQUIREMENTS	Expected # of Attritions
<u>Infantrymen</u>						
I	624		.80	497		127
II	1,848		.71	1,317		531
III	11,520		.63	7,264		4,256
IV (HS)	4,015		.77	3,098		917
IV (NHS)	0		.49	0		0
TOTAL	18,007		.67	12,176	12,176	5,381
<u>Drivers</u>						
I	0		.71	0		0
II	0		.73	0		0
III	2,042		.67	1,377		665
IV (HS)	0		.78	0		0
IV (NHS)	1,777		.67	1,175		602
TOTAL	3,819		.67	2,552	2,552	1,267
<u>Mechanics</u>						
I	0		.82	0		0
II	0		.72	0		0
III	7,170		.69	4,914		2,256
IV (HS)	0		.78	0		0
IV (NHS)	0		.51	0		0
TOTAL	7,170		.69	4,914	4,914	2,256
<u>Supply Clerks</u>						
I	0		.83	0		0
II	5,398		.78	4,201		1,197
III	0		.67	0		0
IV (HS)	0		.82	0		0
IV (NHS)	0		.51	0		0
TOTAL	5,398		.79	4,201	4,201	1,197
<u>All Four Occupations</u>						
I	624		.80	497		127
II	7,246		.76	5,518		1,728
III	20,732		.66	13,555		7,177
IV (HS)	4,015		.77	1,175		917
IV (NHS)	1,777		.66	0		602
TOTAL	34,394		.69	23,843	23,843	10,551

* Because attrition rates are rounded to two significant digits, the product of columns 1 and 2 may not equal column 3 exactly.

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The most significant impact of assigning applicants according to the alternative selection standards is the considerable reduction in total salary costs owing to the reduction in the sum of all salary payments accruing to attritions. Salary payments accruing to survivors would amount to the same figure as with the traditional standards, \$505,948,000, because an equal number of survivors would be produced. But the total attrition costs would be significantly lower, as indicated in the following table comparing the total costs of attrition for the traditional strategy and the least cost strategy.

Comparison of Attrition Costs

Occupation:	<u>Least Cost Strategy</u>	<u>Traditional Strategy</u>
<u>Infantrymen</u>		
expected # of attritions:	5,831	6,362
total cost, @ \$10,003 per attrition:	\$58.3M	\$63.6M
<u>Driver</u>		
expected # of attritions:	1,267	1,106
Total cost, @ \$9,792 per attrition:	\$12.4M	\$10.8M
<u>Mechanic</u>		
expected # of attritions:	2,256	2,199
Total cost, @ \$7,042 per attrition:	\$15.9M	\$15.5M
<u>Supply Clerk</u>		
expected # of attritions:	1,197	1,820
Total cost, @ \$9,902 per attrition:	\$11.9M	\$18.0M
<u>All Four Occupations</u>		
expected # of attritions total:	10,551	11,487
Total Attrition Costs*:	\$98.5M	\$108.0M

* The unrounded figures are \$98,473,403 and \$107,976, 030 respectively.

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It is noteworthy that the traditional strategy allocates some applicants from each mental category to every job while the least cost strategy produces a much narrower applicant mix in all but the Infantryman occupation. The reason for this is that it is simply cheaper, in terms of attrition costs, to assign people in the manner prescribed. For instance, the least cost allocation dictates the assignment of 1,777 people who are Mental Category IV non-high school graduates to become drivers, and none are assigned to the other three occupations. The prescription is not based on some a priori belief that these recruits are good for little else except driving Army vehicles. Rather, this is the most efficient way to use this type of person when there are enough people available in higher categories to satisfy the true manpower requirements in the other occupations.

Under less favorable supply conditions it could very well become desirable to assign Cat. IV (NHS) applicants to become infantrymen or supply clerks or mechanics. This could easily happen if the supply of applicants in higher categories declined significantly, by perhaps 25 or 30 percent. The linear programming technique would show how a larger number of Cat. IV (NHS) applicants could be enlisted and assigned across the four occupations so as to sustain requirements. This would also be a least cost strategy, although the total attrition cost would increase because in each job the attrition rate for Cat. IV (NHS) people is greater than for other applicants. Generally speaking, the linear programming technique can be used to show how reductions in the supply of well qualified applicants can be offset by the enlistment of larger numbers of less

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well-qualified people, assuming enough of the latter are available.* The trade-off is in attrition costs, because the assignment of people with a lower likelihood of survival implies higher attrition and attrition costs.

3. Implications for the Armed Forces

The efficiency of the least cost strategy relative to the traditional strategy is measured by the amount that attrition costs can be reduced, \$9.5M (\$98.5 million vs. \$108.0 million). This represents an 8.8% reduction (\$9.5M divided by \$108.0M) in those salary costs specifically incurred by imperfections in the screening process. Greater efficiency is also evident in the smaller number of applicants who must be enlisted overall to sustain requirements, 34,394 compared to 35,330, and also in the expected total number of attritions for the two strategies, 10,551 compared to 11,487. These figures illustrate three important points. First, the least cost allocation strategy defines a unique set of selection standards and recruiting quotas that affords a significant reduction in attrition costs. Second, it shows how to reduce the number of mistakes made in assigning people to the wrong occupations. Third, by reducing the extent of malassignment, the least cost strategy provides a means for satisfying true manpower requirements in every occupation with a smaller total number of accessions.

These are major points as they apply to the larger problem of selecting and assigning three or four hundred thousand applicants across hundreds of military occupations each year. Earlier in the study, \$907 million was the figure cited as a conservative estimate of the total

* For any given set of occupational manpower requirements, some supply level exists below which it is impossible to sustain requirements.

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attrition cost associated with the enlistment of 461,000 people in FY75. A least cost strategy enabling the Services to reduce this overall figure by 8.6% would save almost \$80,000,000 for the FY75 accessions group alone. Of course, it is too late to alter selection standards for accessions in prior years, but the potential for realizing yearly savings of this magnitude will remain as long as the Services continue to access young men and women. Equally important is the realization that alternative selection standards can be developed that would sustain manpower requirements in all Service occupations at the lowest possible total cost in periods of deficient supply as well as abundant supply.

The least cost approach to determining selection standards gives personnel planners and decision makers a basis for addressing other important issues. One example is the evaluation of enlistment bonus cost-effectiveness. In the limited Army problem described above, suppose that the manpower requirement for the driver occupation suddenly increased by 1000 (3,552 survivors needed). Assume that the payment of a \$500 bonus would attract an additional 1,428 applicants in Mental Categories I, II, and III, just enough to yield the extra 1000 survivors.* The alternative would be simply to select from the applicants remaining in the pool 1,492 additional Cat. IV (NHS) for enlistment and assignment to the occupation, the number needed to produce 1000 survivors. The linear programming technique was applied to show which alternative would sustain the higher demand for drivers at lowest possible total cost. The results showed that the least

* This assumes a 70% survival rate, the average for the three categories.

cost solution would be to increase the numbers of Cat IV (NHS) at an increase in total cost of \$8.9 million. The bonus proposal was shown to increase the total cost by \$11.8 million, clearly the more expensive solution to the problem. While this is actually a trivial example, it illustrates the type of problem that can be structured and resolved by using a least cost approach for determining selection standards.

Questions regarding the socio-economic mix of recruits can also be explored. Suppose for example that the pursuit of equal opportunity objectives required that Black accessions (or women, or high school dropouts, or any other accessions group) be distributed equally across all Service occupations. The linear programming technique can be altered to show how these objectives can be satisfied at the lowest possible total cost consistent with sustaining all true manpower requirements.

Comparison of the allocation constrained by equal opportunity objectives with the unconstrained alternative strategy would reveal the specific cost of sustaining these goals. It would permit the DDD to identify budget expenditures specifically associated with the promotion of social rather than military objectives.

The least cost approach implies that the Services would be able to adjust selection standards on a quarterly, monthly, or even weekly basis in response to varying conditions of supply and demand. The Services would also be able to use the technique to show for a given set of occupational demands how much attrition costs would increase if it became necessary to recruit from an unusually small applicant pool. Also, it is possible to determine what applicant pool size would be minimally sufficient to sustain manpower requirements.

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Selection standards are a fact of life in the Armed Forces. Some form of screening is necessary and desirable so long as more people apply for enlistment than there are vacancies to be filled. The existing selection standards succeed in supporting manpower requirements in all Service occupations, but they do not serve to distribute applicants across occupations in the most efficient manner possible. The results of a limited analysis of the Army selection and assignment process in CY73 show that attrition costs can be reduced significantly by the adoption of alternative standards defined by a least cost allocation strategy. We estimate that the application of this evaluative method to encompass all occupations for each of the four Services would enable the DOD to reduce annual attrition costs by 10% to 15%, or approximately \$100 million annually.

Use of variable selection standards for jobs will be enhanced by the establishment of basic enlistment selection standards at a level low enough to make the largest possible proportion of the total applicant pool eligible for enlistment. This would insure that some applicants would not be excluded from enlistment consideration unnecessarily; only those with the greatest potential for job survival would be selected, however, based on selection standards indicated by a least-cost allocation strategy. The gross adjustments yielded by variations in basic enlistment standards would be neither necessary nor desirable once it became possible to allocate applicants across Service jobs according to explicit supply, demand, and cost considerations on a job-by-job basis.

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V. CONCLUSIONS

Selection tests and selection standards currently employed by the Armed Forces to screen applicants for enlistment and assignment have proved adequate in supporting occupational manpower requirements in the past. However, the selection process now generates almost \$1 billion in attrition costs each year, the result of assigning many people to the wrong jobs and enlisting people who should never have been permitted to enter active duty.

There is considerable potential for increasing the efficiency of the selection and assignment process. Selection tests can be redesigned to predict job performance more accurately, and the formal screening process can be evaluated to determine what selection standards will serve to satisfy occupational demands for new people at a reduced total attrition cost. The latter approach affords many important advantages to the Services, highlighted by the prospect of reducing the total annual cost of attrition in the DOD by approximately \$100 million.

Other advantages to this approach include the capabilities for:

- (1) determining how Service manpower requirements may be sustained efficiently in the face of deficient as well as abundant applicant supply;
- (2) establishing selection and assignment (allocation) strategies that would enable the Services to satisfy social objectives with maximum efficiency; and
- (3) evaluating the cost effectiveness of alternative policies and programs for sustaining manpower requirements.

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VI. RECOMMENDATIONS

The following recommendations should guide the DOD and the individual Services in their efforts to make the selection and assignment process more efficient in the future:

1. The Services should initiate efforts to develop selection tests which afford the maximum possible accuracy in predicting occupational survival -- success and failure throughout the full term of enlistment.
2. Selection tests should be broadened to include all possible measures of non-aptitudinal factors such as applicant motivations and interests that have demonstrated relevance to the survival criterion of performance.
3. Alternative statistical techniques for constructing and validating selection tests should be evaluated to identify the technique that affords maximum accuracy in predicting the survival criterion of performance.
4. The Services should examine the feasibility of expanding their selection test batteries so as to provide greater accuracy in predicting recruit performance in specific occupations rather than occupational clusters.
5. The selection and assignment process for each Service should be systematically evaluated by use of a least cost analytical method to identify alternatives to the existing selection standards that will serve to sustain manpower demands in each occupation at reduced attrition costs overall.

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6. The efficiency of the Service screening process should be evaluated on a continuing basis to determine how occupational selection standards can be adjusted periodically to accommodate varying conditions of supply and demand.

7. Enlistment selection standards should not be used as the mechanism for making supply and demand adjustments, but rather should be fixed at the lowest possible level to bring the largest possible proportion of the applicant pool under consideration for selection and assignment.

8. The pursuit of social objectives should be evaluated to determine how they can be achieved most efficiently and what costs are incurred as a result.

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APPENDIX A: Selection and Assignment for Four Army Occupations

An analytical method that would enable the Services to evaluate existing selection standards for occupations must: (1) determine a set of occupational cutting scores that will sustain true manpower requirements in each job; (2) be flexible enough to deal with many occupational demands simultaneously; (3) take account of varying conditions of supply and demand in determining selection standards that will support Service manpower requirements in periods of deficient supply as well as abundant supply; (4) show how selection standards can be determined to reduce the pressure on Service recruiters to attract and recruit more applicants than may actually be available; and (5) define the choice of the "best" selection standards in terms of a measurable criterion of efficiency.

The analysis described by these characteristics would be similar to the Navy's CAPER analysis, except that it must include the capability to define cutting scores for many occupations simultaneously rather than only one at a time, and it should define the true manpower requirements in each occupation as the number of survivors needed rather than the number of training graduates. It should incorporate historical attrition rates for various types of applicants, defined by selection test scores, to relate the numbers of people assigned to every occupation to the expected number of survivors. It should choose cutting scores for jobs by comparing the numbers and kinds of applicants who are available for enlistment and assignment to the true manpower requirements for every occupation competing for recruits. The analysis should enable researchers to evaluate alternative selection standards according to at least one measure of efficiency

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to identify a unique set of job standards that would support the Service mission more efficiently than any other set.

The types of information required to perform the requisite evaluation of selection standards are illustrated in the Army example below. These are actual historical statistics for four Army occupations taken from DOD computerized personnel files. They give a detailed accounting of the supply and demand conditions that existed for these occupations during the 12 month period from January through December 1973. Statistics portraying demand conditions are presented first, where the true manpower requirements represent the number of vacancies for fully qualified and reliable people that were projected at that time in each occupation to support the Army mission.

<u>OCCUPATION:</u>	<u>TRUE MANPOWER REQUIREMENTS:</u>
Infantrymen	12,176
Drivers (vehicle operators)	2,552
Mechanics	4,914
Supply clerks	4,201
All four occupations totalled	<u>23,843</u>

Source: MARDAC (data processed by GE TEMPO)

In CY73 more than 248,000 young men and women applied for Army enlistment, including inductees. Of these, an estimated 62,000 were disqualified for enlistment based upon physical and mental examinations (mental category V applicants are barred from enlistment by law). All of the remaining 186,000 applicants were theoretically available for assignment to all Army occupations, but it is assumed that the 134,000

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who were actually enlisted and assigned to occupations other than the four studied here were not available for assignment to these jobs. Thus there were 52,000 enlistment-eligible applicants available for assignment to become infantrymen, drivers, mechanics, or supply clerks. This was the total applicant supply for these jobs. Analysis of Army personnel records shows that 35,330 people were actually assigned across the four occupations in CY73 leaving 16,670 enlistment-eligible applicants who were denied enlistment in these or any other Army occupations. Accurate information is not available to characterize the latter group by mental category or education, but it will be assumed that they were all mental category IV non-high school graduates, for these are the applicants whom the Army is most likely to deny enlistment when the supply of qualified people exceeds the demand for new recruits.

Information is available to characterize the group that was actually assigned to these occupations, as indicated below.

<u>Mental Category</u>	<u># enlisted and assigned across the four occupations</u>	<u># denied enlistment</u>	<u>Total Supply</u>
I	624	-	624
II	7,246	-	7,246
III	20,732	-	20,732
IV (HS)	4,015	-	4,015
<u>IV (NHS)</u>	<u>2,713</u>	<u>16,670</u>	<u>19,383</u>
TOTAL	35,330	16,670	52,000

Source: MARDAC (data processed by GE TEMPO)

It should be recognized that the selection standards determining eligibility for assignment to the four military occupational specialties

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(MOS) are formally defined by the scores applicants achieved on Army aptitude tests rather than by mental category (scores achieved on the AFQT). Reliable aptitude test score information for these people was not available, so it is not possible to characterize the numbers and kinds of applicants available in terms of aptitude. However, mental category is highly correlated with scores achieved on every Service aptitude test, and it is assumed that mental category is generally indicative of the scores applicants achieved on the Army aptitude tests used to select people for assignment to the respective MOS. This means that most Cat. I (mental category I) applicants achieved high scores on Army aptitude tests, most Cat. II's achieved middle-high aptitude scores, most of the Cat. III's achieved average aptitude scores, and most of the Cat. IV applicants achieved middle-low aptitude scores. Since the traditional cutting score for each of the MOS studied here was actually low enough to qualify any applicant with at least middle-low aptitude, the distribution of people who were assigned to these MOS by mental category is presumed to represent the actual range of aptitude levels within this group fairly well.^{8/} Thus we can say that the aptitude test score typically achieved by Cat. IV people was approximately equal to the traditional cutting score for each of the four jobs. Therefore the selection standard for all four occupations can be expressed roughly at the level of mental category IV, and each mental category will be considered as a relative aptitude grouping in characterizing the supply of applicants for selection and assignment purposes.

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Another type of information essential to the analysis of selection standards is the historical rates of attrition (involuntary discharge) for the various kinds of applicants traditionally assigned to each occupation. Discharge data for the first half of CY 1974 furnished by the DOD were analyzed to estimate attrition rates during that period. The results of the analysis indicate the proportions of each applicant group expected to be discharged prior to completing the average enlistment term, as follows (proportions expected to survive are indicated in parentheses):*

<u>Mental Category</u>	<u>Infantryman</u>	<u>Driver</u>	<u>Mechanic</u>	<u>Supply Clerk</u>
I	.20 (.80)	.29 (.71)	.18 (.82)	.17 (.83)
II	.29 (.71)	.27 (.73)	.28 (.72)	.22 (.78)
III	.37 (.63)	.33 (.67)	.31 (.69)	.33 (.67)
IV (HS)	.23 (.77)	.22 (.78)	.22 (.78)	.18 (.82)
IV (NHS)	.51 (.49)	.33 (.67)	.49 (.51)	.49 (.51)

Source: MARDAC (data processed by GE TEMPO)

These statistics show that the probabilities of successful performance (and failure) for each type of applicant varied in the different assignments. For instance, Cat. I's tended to be more successful than other applicants in most of the occupations but were most successful when assigned as mechanics. Cat. IV's (NHS) tended to be least successful in general, but they were more likely to survive when assigned as drivers than in any of the other jobs.

* The average enlistment term for Army accessions for the second half of CY73 was slightly below 36 months; thus three years was used for these calculations.

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The sustainability of true manpower requirements is jointly determined by the numbers from each group who are assigned to an occupation and the attrition rates indicating the proportion of the total that will remain through the enlistment term. DOD statistics show that the use of traditional cutting scores in CY73 served to distribute the supply of applicants, characterized by mental category, across the Army occupations in the following manner:

<u>Mental Category</u>	<u>Infantryman</u>	<u>Driver</u>	<u>Mechanic</u>	<u>Supply Clerk</u>	<u>Denied enlistment</u>	<u>Total Assigned</u>
I	450	77	74	23	0	624
II	4,462	743	1,411	630	0	7,246
III	10,848	2,215	4,111	3,558	0	20,732
IV (HS)	1,540	363	890	1,222	0	4,015
<u>IV (NHS)</u>	<u>1,238</u>	<u>260</u>	<u>627</u>	<u>588</u>	<u>16,670</u>	<u>2,713</u>
Total Assigned	18,538	3,658	7,113	6,021	0	35,330

Source: MARDAC (data processed by GE TEMPO)

These figures show that the selection standard for each occupation was low enough to enable Cat. IV applicants to qualify for assignment, but many applicants in higher mental categories were also assigned to each job. Army recruiters determined how the higher mental categories would be assigned across the various MOS, and the above data show the results of their allocation decisions.

With the information already presented it can be shown that this allocation of available applicants, guided by the existing selection standards and recruiter judgment, indeed served to support the true manpower requirements in each occupation. This is done by multiplying

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the survival rates for each type of applicant times the number assigned to each occupation. The total expected number of attritions is also displayed.*

(See table on next page.)

* The overall survival rates for people actually assigned to the four MOS is computed by dividing the total number expected to survive by the total number of people assigned in each job. For example, the overall survival rate of 66% for people assigned to become Infantrymen is computed by dividing 12,176 by 18,538.

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	Total Assigned	times	Survival* Rate	Expected # of Survivors	TRUE MANPOWER REQUIREMENTS	Expected # of Attritions
<u>Infantrymen</u>						
I	450		.80	360		90
II	4,462		.71	3,182		1,280
III	10,848		.63	6,841		4,007
IV (HS)	1,540		.77	1,189		351
IV (NHS)	1,238		.49	604		634
TOTAL	18,538		.66	12,176	12,176	6,362
<u>Drivers</u>						
I	77		.71	55		22
II	743		.73	546		197
III	2,215		.67	1,495		720
IV(HS)	363		.78	283		80
IV(NHS)	260		.67	173		87
TOTAL	3,658		.70	2,552	2,552	1,106
<u>Mechanics</u>						
I	74		.82	61		13
II	1,411		.72	1,019		392
III	4,111		.69	2,819		1,292
IV (HS)	890		.78	694		196
IV (NHS)	627		.51	321		306
TOTAL	7,113		.69	4,914	4,914	2,199
<u>Supply Clerks</u>						
I	23		.83	19		4
II	630		.78	489		141
III	3,558		.67	2,388		1,170
IV (HS)	1,222		.82	1,006		216
IV (NHS)	588		.51	299		289
TOTAL	6,021		.70	4,201	4,201	1,820

* Because attrition rates are rounded to two significant digits, the product of columns 1 and 2 may not equal column 3 exactly.

Source: MARDAC (data processed by GE TEMPO)

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The total salary expenditures associated with this allocation of applicants, \$613,924,000 (rounded to nearest thousand), are the sum of all salaries paid to survivors over the full enlistment term, \$505,948,000, plus all salaries paid to people in these occupations who are discharged \$107,976,000. The first figure was computed by multiplying the total number of survivors times the salary paid to the typical survivor throughout the average initial enlistment term of approximately 36 months. Over this period the average recruit accrues a total of \$21,220 in basic pay, basic subsistence allowance, and basic quarters allowance payments (the BAS and BAQ payments are assumed to represent the value of meals and quarters provided by the Government when such allowances are not paid directly to the person) after taking account of average promotion rates and longevity increases. This dollar figure is based on official pay rates in effect as of 30 October 1975, and it approximates the present discounted value of salary payments made to a person enlisting in CY73 who will complete his enlistment term in CY76.

The second figure, \$107,976,000, is computed by estimating for each job the average salary payments accruing to the typical person who is discharged. This is a more tedious calculation because the total salary accrued varies with the time a person remains on active duty before he is involuntarily discharged. The cost of a typical attrition was computed for each job by dividing the sum of all salary payments accrued by all people who attrited by the total number of attritions. The estimated average costs (unrounded) are displayed below as well as the number of attritions expected in each occupation and the product of the two figures.

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	<u>Infantrymen</u>	<u>Drivers</u>	<u>Mechanics</u>	<u>Supply Clerks</u>	<u>All Four Occupations</u>
Average cost per attrition:	\$10,003	\$9,792	\$7,042	\$9,902	-
Expected # of attritions:	6,362	1,106	2,199	1,820	11,487
Total attrition cost: (in millions)	\$63.6M	\$10.8M	\$15.5M	\$18.0M	\$108.0M

Comparing the total salary costs associated with the Army's allocation of available applicants to satisfy true manpower requirements in these four occupations with the total costs of attrition alone shows that approximately 17% of the total (\$107,976,000 divided by \$613,924,000) accrues to people who are discharged involuntarily. From another perspective, total salary costs are 21% greater (\$107,273,000 divided by \$505,948,000) than the minimum expenditure needed to sustain the true manpower requirements in these occupations.

The results of the selection and assignment process in CY73 can be summarized for the four Army occupations as follows:

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SUPPLY - 52,000 applicants eligible for selection
less 16,670 denied enlistment (surplus)

RECRUITED - 35,330 applicants enlisted and assigned
less 11,487 attritions (involuntarily discharged)

SURVIVORS - 23,843 remaining to completion of term

DEMAND - 23,843 fully qualified and reliable people

SURVIVOR COST - \$506 M salary payments accruing to survivors
plus \$108 M salary payments accruing to attritions

TOTAL COST - \$614 M salary payments accruing to all applicants
selected

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APPENDIX B: The Least Cost Method

Evaluation of the selection process for the four Army occupations yields alternative selection standards that could sustain the true manpower requirement in each job at the minimum total cost. The selection and assignment process can be generally viewed as an allocation problem. That is, cutting scores fundamentally determine how many of each kind of applicant will be allocated to different jobs in such a way that true occupational manpower requirements will be satisfied. The cutting scores established over the years for the four Army occupations represent a particular allocation strategy. Cutting scores that would distribute applicants in a different manner across the occupations would represent another unique allocation strategy.

If we arbitrarily choose to evaluate all possible combinations of selection standards in terms of attrition costs, then we can restate the problem as the search for the particular allocation strategy that supports occupational demands at the lowest possible attrition cost. This type of allocation problem can be solved by using a mathematical technique called linear programming. Practically speaking, the technique takes occupational manpower demands, survival rates and supply characteristics as inviolable restrictions. If the average cost of an attrition in each occupation is also specified, the technique computes the total attrition costs associated with all unique allocation

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strategies that do not violate the stated restrictions. By iteration one possible strategy is compared with another to eventually identify the particular allocation strategy that generates the lowest total attrition cost. The nature of the mathematical procedure assures that this least cost strategy allocates applicants across occupations in a manner that satisfies all supply and demand restrictions. In other words, the assignment of available applicants according to many different strategies is simulated mathematically to first identify the particular strategies that produce the required numbers of survivors in each job, and second to identify the one among these that generates the lowest possible total attrition costs.^{10/}

In the case of the Army problem of selecting people for enlistment and assignment to four occupations in CY73, application of the linear programming technique shows what the least cost allocation strategy would be, displayed below.

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	Total Assigned	times	Survival* Rate	Expected # of Survivors	TRUE MANPOWER REQUIREMENTS	Expected # of Attritions
<u>Infantrymen</u>						
I	624		.80	497		127
II	1,848		.71	1,317		531
III	11,520		.63	7,264		4,256
IV (HS)	4,015		.77	3,098		917
IV (NHS)	0		.49	0		0
TOTAL	18,007		.67	12,176	12,176	5,831
<u>Drivers</u>						
I	0		.71	0		0
II	0		.73	0		0
III	2,042		.67	1,377		665
IV (HS)	0		.78	0		0
IV (NHS)	1,777		.67	1,175		602
TOTAL	3,819		.67	2,552	2,552	1,267
<u>Mechanics</u>						
I	0		.82	0		0
II	0		.72	0		0
III	7,170		.69	4,194		2,256
IV (HS)	0		.78	0		0
IV (NHS)	0		.51	0		0
TOTAL	7,170		.69	4,914	4,914	2,256
<u>Supply Clerks</u>						
I	0		.83	0		0
II	5,398		.78	4,201		1,197
III	0		.67	0		0
IV (HS)	0		.82	0		0
IV (NHS)	0		.51	0		0
TOTAL	5,398		.79	4,201	4,201	1,197
<u>All Four Occupations</u>						
I	624		.80	497		127
II	7,246		.76	5,518		1,728
III	20,732		.66	13,555		7,177
IV (HS)	4,015		.77	1,175		917
IV (NHS)	1,777		.66	0		602
TOTAL	34,394		.69	23,843	23,843	10,551

* Because attrition rates are rounded to two significant digits, the product of columns 1 and 2 may not equal column 3 exactly.

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This allocation strategy is feasible insofar as the true manpower requirements in all four jobs would be sustained by assigning the available applicants in the manner indicated. The new set of selection standards implied by the least cost strategy are stated not as cutting scores but rather as specific numbers from each category of applicants who must be assigned to each job as shown in the following table:

Recruiting Quotas for Occupations

<u>Mental Category</u>	<u>Infantrymen</u>	<u>Drivers</u>	<u>Mechanics</u>	<u>Supply Clerks</u>	<u>Total</u>
I	624	0	0	0	624
II	1,848	0	0	5,398	7,246
III	11,520	2,042	7,170	0	20,732
IV (HS)	4,015	0	0	0	4,015
IV (NHS)	0	1,777	0	0	1,777
Total	18,007	3,819	7,170	5,398	34,394

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Footnotes and References

1. Data on total DOD applicants for enlistment in FY74 furnished by MARDAC (DOD) at the request of the DMC. Rejection rate for applicants taken from MARDAC publication on Manpower Research Studies, Applicants for Enlistment, (MR76-2) July 1975. Accessions figure for FY74 extracted from the Selected Manpower Statistics report, OASD (Comptroller) May 1975.
2. FY74 applicant total divided by working days in FY74.
3. FY74 accessions total divided by working days in FY74.
4. Aggregate rate of involuntary discharge estimated from retention and loss data for first six months of CY74 furnished by MARDAC and analyzed by GE Tempo (report on Enlisted Turnover) under contract with the DMC.
5. Ibid. Analysis of cost data is discussed in the DMC staff study, "The Recruit Screening Process," by James W. Abellera.
6. Ibid.
7. Ibid., survival rates for selected Army occupations by mental category prepared under contract.
8. The cutting scores for each of these occupations is 90 on the respective Army aptitude tests, each with a mean of 100 and a standard deviation of 20. The specific test that actually corresponds to each occupation is: Infantrymen - Infantry aptitude subtest; Mechanic - Motor Maintenance aptitude subtest; Driver - Motor Maintenance aptitude subtest; and Supply Clerk - Clerical aptitude subtest.
9. The average enlistment term for this period is cited as 2.9 years in Briefing Charts, prepared by OASD (M&RA), May 1975.
10. The use of the linear programming technique in analyzing and solving the selection and assignment problem in the Armed Forces is discussed in greater detail in the The Value of Personnel Classification Information, by Abellera, Mullins, and Earles, AFHRL-TR-75-2, July 1975. The study reports the initial results of work sponsored by the Air Force personnel research community. It is testimony that basic research in the personnel area can contribute significantly to the efficient management of manpower resources in the Armed Forces.

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WORKING PAPER
NOT AN OFFICIAL POSITION OF THE DMC

THE RECRUIT SCREENING PROCESS IN THE ARMED FORCES

A Staff Issue Paper
for the
Defense Manpower Commission

by
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EXECUTIVE SUMMARY

- BACKGROUND:** Reviews the major features of the recruit screening process since World War II
- Development and use of aptitude tests and the AFQT
 - The establishment of selection standards that determine enlistment and job assignment eligibility
- PROBLEM:** Identifies the magnitude and the costs of attrition resulting from screening errors across the DOD
- 25% of all recruits are discharged involuntarily during initial term of enlistment
 - Cost of almost \$1 Billion per year
- Questions whether existing selection tests designed to predict training performance can predict performance on the job with the greatest possible accuracy
- Finds that existing job selection standards have not been designed to minimize attrition, attrition costs, or any other tangible criterion of general allocative efficiency
- ALTERNATIVES:** Selection tests can be revised in the future so as to provide maximum accuracy in predicting successful performance in specific occupations throughout the full term of enlistment.
- The Services should take steps to evaluate and alter existing job selection standards in a manner that will insure minimum attrition or attrition costs subject to prevailing conditions of supply and demand.
- CONCLUSIONS:** Opportunities exist for making the recruit screening process more efficient.
- Failure to institute changes in the recruit screening process through improved tests and standards will adversely affect the prospects for sustaining military manpower needs in future years.
- RECOMMENDATIONS:** The Services should task their in-house personnel research organizations to (1) evaluate existing selection tests to determine their accuracy in predicting survival over the full enlistment term in each occupation; (2) perform comparative analyses to assess the capabilities of alternative statistical techniques for designing and validating selection instruments relative to multiple linear regression; (3) develop prototype tests which assure maximum accuracy predicting survival in Service occupations rather than occupational clusters;

(4) develop software that will permit recruiting organizations to reference unique test scores for every Service occupation in assessing an applicant's job assignment alternatives; and
(5) prepare planning documents that establish schedules for introducing survival-referenced tests, scoring procedures, and corresponding occupational selection standards in the operational (recruiting) environment.

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[A General Critique of the Recruit Screening Process in the Armed Forces]

I. INTRODUCTION

The formal recruit screening process of the Armed Forces is a complicated activity in which thousands of applicants for enlistment each day are tested, classified, and selected for enlistment and assignment to specific military occupations. The Services exercise control over the process through the use of selection tests and selection standards. Tests and standards operate jointly to determine the types of applicants who are accepted for enlistment and the particular occupations to which they are subsequently assigned.

Approximately one of every four recruits DoD-wide fails to satisfactorily complete the initial term of service at a total cost of almost one billion dollars annually. In the simplest terms, this is caused by the enlistment of some people who should not have been accepted and the erroneous assignment of other recruits to the wrong occupations.

In this study we evaluate the selection process to assess its strengths and weaknesses. Our purpose is to identify opportunities for making constructive changes, with the focus on improving existing selection tests and occupational selection standards.

The critique begins by reviewing the evolution of the tests and standards the Services use today and the various problems that have evolved as a consequence. Thus we can infer how improved selection tests could be developed in the future. A review of research conducted by the Services in recent years suggests the broad outline of a method for systematically altering occupational selection standards to reduce assignment errors.*

* This method is developed and illustrated in detail in the DMC staff study "Job Selection Standards in the Armed Forces," by James W. Abellera.

Our investigation indicates that the formal screening process has functioned effectively and fairly efficiently in the past. Opportunities clearly exist for making it an even more efficient process in the future, however.

The personnel research community of the Armed Forces faces an undertaking of considerable scope and duration. The efforts and initiatives of the in-house research functions will determine the course of change and therefore how rapidly substantive improvements in the selection process can be realized.

II. THE SCREENING PROCESS IN AN HISTORICAL PERSPECTIVE

For ease of exposition, the recruit screening process will generally be discussed without referring to a specific military Service by name. There is sufficient commonality in screening practices and consequences across the four Services to do so without loss of clarity or appropriateness.

A. Selection Testing

Service aptitude tests provide useful information about enlistment applicants not obtainable from other sources. The validity, or relevance, of aptitude tests should be measured in terms of the relationship between test scores and the likelihood of satisfactory job performance. Since the most comprehensive indication of job performance is success or failure on the job, we would expect a relevant test to predict success or failure fairly well. A general review of developments in selection testing since World War II raises the question of relevance. Today's aptitude tests are designed to predict performance in training rather than job performance in a broader context. Thus, today's tests may not be as relevant as they could be.

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1. The evolution of selection testing

In the years during and following World War II each of the Services developed and used its own screening tests. Aptitude tests were employed as a means for selecting among enlistment-eligible applicants for assignment to particular occupations. This required the administration of a battery of Service aptitude tests either before or, if not, then immediately after enlistment, to establish eligibility for specific occupational assignments.

Eligibility for assignment to jobs involving, for instance, mechanical work, was determined by the score a person achieved on a test purportedly predictive of mechanical aptitude. Thus the qualification of individuals for assignments to all occupations in which mechanical work predominated was governed by the score attained on the mechanical aptitude test. Similarly, other occupations characterized by another common and essential type of work such as clerical activities, were grouped together in occupational "clusters" corresponding to the common aptitude required. This practice continues today, although the various aptitude tests have been periodically refined over the years.

In 1948, the Services began the joint development of the Armed Forces Qualification Test (AFQT). Made operational in 1950, the AFQT remained for more than 20 years the only common test administered by all four Services. The AFQT was designed to predict suitability for general military service. In content, it contains four types of items: word knowledge, arithmetic reasoning, spatial perceptions, and knowledge of tool functions.^{1/} AFQT scores are traditionally grouped into five categories,

*The term "item" refers to a test question and the range of possible responses, normally in a multiple-choice format, with only one correct response.

category I through category V, from highest to lowest. These are often called mental categories because the AFQT score provides a relative measure of the general mental ability possessed by an individual. Since its inception, people achieving a percentile score below 10 on the AFQT (mental category V) have been judged unsuitable for enlistment.^{2/} Tests for measuring broad work-related aptitudes were used by the Services to further screen applicants who tested in the lower range of acceptable AFQT scores, mental category IV, to determine enlistment eligibility.^{3/}

In January 1976, all four Services began using the Armed Services Vocational Aptitude Battery (ASVAB) of tests to measure applicant aptitudes.^{4/} This test battery also features item components of the AFQT so that classification according to mental category can continue without resorting to the administration of a separate, additional test. As with predecessor tests, ASVAB test scores measure aptitudes for general classes of work rather than for specific occupations. In this sense each occupation is made to "fit" one of the various aptitude tests, based on (1) the sure knowledge that the applicable test will at least predict job performance better than any of the other aptitude tests used for their respective occupational clusters, and (2) the hope that the test will predict job performance tolerably well.

If the actual relevance between test results and job performance must be expressed merely as a hope, it is because no single test is designed to predict job performance in a single occupation. There are two reasons for this. First, aptitude tests are by careful design intended to provide prediction for several or many occupations simultaneously.

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Second, actual performance on the job is not the criterion that existing aptitude tests predict. To understand how Service testing for occupational assignments could have attained its current status without ever focusing directly on the prediction of actual job performance, we must review the aptitude test development process in the Armed Forces.

2. How Service aptitude tests have been developed.

Over the past 35 years the Services have made progressively more sophisticated use of pencil-and-paper tests. The classification of enlistees according to mental category contributed in a unique way to this growth. In the early 1930's, the Services found that although the lowest mental group, mental category V applicants, were made legally ineligible for enlistment, many mental category IV people, the next lowest group, were enlisting and subsequently failing to perform satisfactorily in formal training programs. Seeking a means for distinguishing between potentially successful and unsuccessful mental category IV applicants, the Services used aptitude tests to identify those enlistment candidates with low mental ability who nevertheless showed potential for satisfactorily performing at least one of the broad categories of work characterizing some Service occupations.^{5/}

The use of aptitude tests afforded some confidence that low mental ability people achieving high test scores would be endowed with the desired aptitude to a greater extent than the low scorers and therefore would be more likely to succeed in jobs presumed to require the aptitude. In this manner the basic eligibility of mental category IV people for enlistment could be defined to exclude those who failed to show adequate aptitude for any of the general classes of Service jobs.

This thinking extended to the selection of people in higher mental categories as well, although formalized in the articulation of specific

occupational selection standards rather than in basic restrictions on enlistment eligibility. Here the aptitude selection concept had the same practical meaning. That is, people who seemed to have little aptitude for a certain kind of work were not assigned to that work.

The continuing development of these tests borrowed heavily from both the accumulated expertise of the military psychological research community and the experts of the civilian academic community, where this subject was almost the exclusive domain of research psychologists. A typical aptitude test was designed by first recognizing that, for example, familiarity with common tool shapes and tool functions suggested some experience and predisposition for mechanical activities. Questions dealing with tool shapes, tool functions, and other mechanical matters were selected for use in a test used to measure mechanical aptitude. Test questions to measure other kinds of aptitude were identified in the same intuitive and common sense manner, so as to have the highest possible face validity.* Job descriptions were examined to narrow the choice of potentially relevant items.

The next and perhaps the most important step in the test development process involved the use of technical school training scores for validating the tests, or instruments.^{6/} Training scores were the numerical ratings that summarized the relative performance of individuals in the academic environment of advanced formal training for Service occupations. The typical training score consisted largely and sometimes exclusively of a student's performance on the major pencil-and-paper examination administered

* The term "face validity" is used by test psychologists to characterize a test question which is assumed to correspond to a particular attribute because success in answering the question appears obviously related to the attribute.

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at the end of the technical training course. The training score, representing a measurable criterion of relative performance, albeit academic performance, was recorded and statistically correlated with the aptitude scores achieved by recruits on the appropriate instrument.

This enabled researchers to identify items correlating most highly with the training score criterion. Among 500 possibly relevant items, the 30 items for which the subjects' right and wrong answers were most strongly associated (statistically correlated) with subsequent high and low training scores were selected and incorporated into the aptitude test. This gave statistical assurance that the scores achieved by individuals on this aptitude test would more accurately predict the training scores later achieved than any other possible combination of available test items.

In examining the implications of this approach, it is important to realize that the development and validation of Service aptitude tests in terms of maximum accuracy in predicting a job-related measure of performance such as a training score enjoyed wide acceptance for both practical and theoretical reasons. Current as well as historical training score information for a large population of subjects was readily available, a key consideration in a large-scale statistical research. This enabled researchers to utilize the growing statistical capabilities of high-speed computers.

It afforded another advantage in that training score results could be clustered to correspond to the conceptual clustering of occupations. This was done by assuming that a training score of 80, for instance, in one occupational training program had the same meaning as a score of 80 achieved by enlistees assigned to occupational training programs for

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other occupations represented in the common aptitude cluster of jobs. The scores achieved by people assigned to each of the occupational training programs were then analyzed as a single group, as though they received the same training. An aptitude test could then be constructed to provide maximum accuracy in predicting performance for the cluster although not for any specific occupation within the cluster. In addition, the correlation was computed between training scores and the results of another aptitude test not apparently relevant to the occupation to determine if the alternative aptitude test could produce more accurate predictions of the training scores. When this was done, some jobs were occasionally found to have been initially placed in the wrong (less appropriate) occupational cluster and were subsequently added to a different cluster where use of the alternative aptitude test assured a relative maximum in predictive accuracy.

Probably the most important aspect of this approach was the inherent rationality of using a test measuring aptitude, a person's facility in learning a particular type of knowledge or skill, to predict the person's subsequent success in actually acquiring the knowledge or skill in a formal training program. This placed Service aptitude testing on solid theoretical and empirical ground. Service tests could be made to predict training performance and predict it as accurately as the state of the statistical art and computer technology would allow at that time. There was intuitive symmetry in the notion

of using the results of an initial test to predict the results of a later test, a common and accepted analytical practice in the field of test psychology.

3. Deficiencies in aptitude tests today.

The procedures for developing aptitude tests have not changed markedly over the years, excepting the introduction of the statistical technique called regression analysis in constructing and validating predictive instruments. Few training programs today rely exclusively on pencil-and-paper examinations to measure training performance. The progressive growth of performance testing, self-paced instruction, hands-on demonstration in job training programs, and the evaluation of training through occupational task analysis have contributed to improvements in the relevance of training to Service jobs. As a consequence, the training score, the composite of several forms of evaluation, no longer measures only academic performance. However, formal training programs for most occupations continue to emphasize academic activities, and measures of performance reflecting classroom skills in large degree remain the dominant component of training scores.

While successful performance in the academic environment of occupational training appears to be a necessary prerequisite for successful performance on the job, predicting the former is not the same as predicting the latter. As will be seen, tests constructed to predict training success do not necessarily provide the most accurate possible predictions of job success.

The singular aspect of true job performance that Service aptitude tests measure is one important concern. In general it can be said that only individuals who are both truly willing and truly able to perform satisfactorily on the job will actually succeed. People who are not willing, or are not able, or are neither willing nor able will fail in the job. The same is true for success and failure in training, but relative to performance on the job, training success is generally determined less by motivational factors and more by aptitudinal factors and academic skills. Formal training programs are highly structured environments where enlistees have little latitude for acting independently. Instead they spend their time continuously learning and preparing for classroom exercises and examinations under the close supervision of experienced training instructors. Graduates, those who successfully complete formal occupational training, may very well be able to handle the tasks of the job in the field as evidenced by their survival through formal training, but their interests and motivations also ultimately determine which among them will perform successfully in the job over time. Those who are able but not willing eventually fail.

If it is generally true that strong motivation can be substituted to some extent for ability, then there must be some people who fail in formal training for want of the specific abilities required in the classroom but whose aptitude and willingness together would carry them through the job successfully were they to survive through training. But because the selection of applicants for assignment to an occupation is determined by judgments about the aptitude level required to assure success in formal training only, such people are normally excluded from assignment consideration.

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We can realistically presume that classroom occupational training imperfectly prepares the enlistee for subsequent on-the-job performance. It follows that for some individuals success in training will not assure satisfactory job performance, nor does failure in training necessarily imply for others that they would be unable to perform satisfactorily on the job if given the opportunity to progress beyond the academic environment to the field. No meaningful information about the on-the-job performance of training (academic) failures is available because few if any are permitted to remain in that occupation. But success in training followed by failure in the field is a commonplace event in virtually all Service occupations. Evidently it is unreasonable to assume outright that performance in training, a form of imperfect screening as well as a skill development and learning process, is an adequate proxy for job performance. The effect of selecting people for success in training may be to deliver some training graduates to the job who will not perform satisfactorily.

The problem is compounded in the extent to which the demands on the abilities of people in training actually exceed or fall short of the real demands of the job. This can happen when formal occupational training cannot be designed to perfectly match the degree of proficiency required in the occupation. Perfect matching is easy to conceive of but difficult to practice. Virtually every formal training program devised by man will fail to achieve absolute parity with the ensuing demands of the job. When the standards of minimum acceptable performance in training exceed what is required in the field, over-able people are graduated and some

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minimally able but nonetheless acceptable people are eliminated in training.* When the job is really more demanding than the training, some people lacking the requisite abilities are graduated (certified as able) only to fail on the job later. In either case an aptitude test specifically designed to predict actual performance on the job with maximum accuracy will yield different results than an aptitude test referenced on training scores.

Perhaps the greatest shortcoming of using training scores as the prediction criterion rather than on-the-job performance is realized when the demands of an occupational training program vary somewhat in the types of abilities, rather than the degree of proficiency, required for satisfactory performance in the job. While the training curriculum emphasizes the acquisition of a certain set of skills and knowledge, the emphasis on the job may be quite different. Applicants are selected for assignment to the occupation because they are shown to possess the kinds of abilities sufficient to perform satisfactorily in training but not necessarily sufficient for successful performance on the job. In this situation some applicants are barred from assignment to an occupation, not because they would be unable to learn and perform the tasks of the job, but rather because they could not acquire the skills emphasized in training. On the other hand there are some people assigned to the occupation who succeed in training, as their aptitude test score indicated they could, but fail on the job.

* One example is a particular formal training program which, to accommodate the method of instruction, demands considerable student facility in reading and extensive test-taking. The corresponding aptitude test likely measures this ability either directly or indirectly. If the job does not really require these skills to any significant degree, then graduates will be over-qualified for the job and others will be unnecessarily eliminated from training.

The brief discussion of Service procedures for developing aptitude tests reveals the numerous ways in which the design of aptitude tests unnecessarily creates the potential for misclassifying people for occupational assignments. This potential is realized insofar as (1) selection tests measure aptitudes to the exclusion of applicant motivations and interests relevant to success in the job, (2) aptitude tests are constructed to maximize accurate prediction of aggregate training performance for an occupational cluster rather than for each of the component occupations, (3) training demands deviate from the actual demands of the job in terms of degree of proficiency required, and (4) training demands deviate from the demands of the job in terms of the types of skills and knowledge required for proficiency. The broad effect is degraded accuracy in predicting on-the-job performance, success or failure, of applicants available for assignment to Service occupations.

It is important to realize, however, that errorless long-range prediction of individual human behavior is not for mortals. Aggregate human behavior can be somewhat predictable, but only within limits. The practical considerations which limit the accuracy of job performance prediction with any conceivable Service selection test are: (1) the demands of an occupation often change over time, making both the selection tests and the corresponding training program less relevant until each can be revised accordingly, (2) Many Service occupations are composed of numerous sub-occupations, each perceptibly different from the others in terms of the skills and knowledge essential for adequate performance; thus no single selection test can

provide maximum accuracy of prediction for each and every sub-occupation

(3) In the Armed Forces, a person's occupation and the degree it matches his or her abilities and interests are only among many important factors that conspire to determine success or failure in the field; even a perfect alignment of the person to the characteristics of the work cannot assure successful performance.

Subject to these limitations it will never be possible to go beyond predictions that, among applicants who achieve a high score on the best possible selection test, a larger proportion will succeed on the job than the proportion successful among those who achieve a lower test score. Even so, recognizing that some potential for errors is built in by the test development process itself, we can characterize the two major forms in which these deficiencies manifest themselves operationally. At the recruiting level, among the people who achieve scores on existing aptitude tests that make them eligible for assignment to an occupation, the proportion who will later succeed in training and on the job is not as high as it could be. At the training level, the proportion of training graduates who will go on to succeed on the job is not as high as it could be. As Service selection tests are made more relevant (predict job performance more accurately), more of those applicants who are truly capable of successful performance in each occupation, and fewer truly incapable people, will be selected for enlistment and assignment.

B. Cutting Scores: The Choice of Selection Standards

A selection standard is a cutting score in the parlance of test and measurement theory. Cutting scores operate to determine eligibility both for enlistment and for assignment to every Service occupation. Selection

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tests and cutting scores together comprise the formal selection process by which recruits are selected from the pool of applicants and distributed across the various Service occupations which compete for new people. It is a dynamic process insofar as (1) the supply, the numbers and kinds of applicants available, vary widely from year to year and month to month within each year, and (2) the demand, the numbers of new people required in every occupation, is constantly fluctuating over time.

Over the years the Service held cutting scores for most occupations constant. However, standards determining basic enlistment eligibility were raised and lowered frequently.^{7/} This ambivalence derived from the Service's desire to maintain internal stability in the face of constantly varying conditions of supply and demand. The Service held occupational cutting scores constant in order to stabilize training programs and occupational manning levels. But to capture the highest possible caliber of people, the Service varied standards for enlistment eligibility in response to long-term increases and decreases in the supply (the numbers and kinds) of applicants making themselves available for enlistment.

In the AVF recruiting environment, it is questionable that this will afford the most efficient or effective means for reconciling the dual objectives of continuing internal stability and maximum recruit quality. The approach was predestined by the Service view that uniformity in the caliber of people continuously assigned to each occupation is the key to long-run stability in the force overall. The manipulation of the

rules governing enlistment eligibility remained, by default, as the only effective means for adjusting to varying conditions of aggregate supply and demand. To understand how this approach gained acceptance, it is useful to examine how the cutting scores used today for Service jobs were originally developed.

1. The evolution of cutting scores for occupations.

The use of cutting scores to determine assignment eligibility paralleled the evolution of pencil-and-paper tests, and for good reason. As it became feasible to discriminate among enlistment applicants on the basis of aptitude test scores, the need to establish appropriate cutting scores immediately arose. The use of aptitude tests for screening mental category IV applicants in particular to determine enlistment eligibility suggested a fairly straightforward solution, i.e., choose a cutting score on each aptitude test that generally corresponds to the test scores attained on the same test by higher mental category people. Mental category IV applicants who demonstrated they possessed at least one aptitude in a degree commensurate with average and above average applicants (mental categories III and above) were accepted for enlistment and assigned to an occupation in which the demonstrated aptitude was thought to be essential for successful performance. In that occupation it was assumed that a mental category IV individual, by virtue of a particular relevant aptitude, would be capable of at least average performance relative to higher mental category recruits. This casual but quite practical approach to establishing cutting scores might have worked well in a recruiting environment where applicants for enlistment were supplemented with inductions to meet accessions goals. However, the

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choice of the right cutting score for occupational assignment eligibility was confounded by the application of the standard to all enlistment applicants regardless of mental category. This presented the Service with a pair of dilemmas, the resolution for which established the cutting scores for Service jobs that remain largely unchanged to this day.

2. Difficulties in choosing the best cutting scores.

After first determining how occupations should be clustered according to the type of aptitude required, it became evident that the numbers of people needed to satisfy aggregate accessions requirements for each cluster of jobs exceeded the number of all applicants who achieved high scores on the relevant aptitude test. Some occupations would therefore have to accept some enlistees who demonstrated only average aptitude on the test. To resolve the dilemma, the occupations in each cluster were subjectively evaluated and then rank-ordered within the cluster according to the relative demands for the required aptitude. In general, occupations thought to be most difficult were ranked highest and the least difficult lowest. The most difficult occupations were awarded the highest cutting score, and lower scores were awarded to occupations of lesser difficulty. Care was taken to insure that cutting scores were distributed throughout the cluster in a manner that assured enough applicants with average or above average aptitude would be available to fill each occupation's normal requirement for new people.

The second dilemma was related to the first. While each test was designed to measure a unique aptitude, many applicants who attained high scores on one test were found to score equally high on one or several other tests. Likewise, many people attaining an average score on one test were likely to achieve comparable scores on the other aptitude tests. This across-aptitude layering was in part caused by substantial overlap in the characteristics of each test. For instance, all of the tests indirectly involved some reading ability and proficiency in test-taking. People with well developed reading and test-taking skills tended to achieve higher scores on all tests. General mental ability contributed to the layering problem in the same manner. Also some of the same items were used on two or more different tests because of their apparent relevance to the various aptitudes measured. Finally, some of the layering occurred naturally insofar as certain people actually possessed two or more unique aptitudes in equal degree.

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Across-aptitude layering meant that occupations in different clusters would often be competing for exactly the same people. If an applicant's test score was high enough to qualify him for entry into a job with the highest cutting score within an occupational cluster (as well as all jobs in the cluster with lower cutting scores), he also likely achieved high scores on other aptitude tests, thereby making him qualified for entry into occupations in other clusters.

3. How the dilemmas were resolved.

Service researchers succeeded in reducing the layering problem somewhat by constructing the aptitude tests in ways that minimized the extent of overlap, but much of the layering persisted. The practical solution adopted was to "let the chips fall where they may." Service recruiters were simply charged with the broad and exclusive responsibility for somehow insuring that the right numbers of people of the right types (qualified according to cutting score) were recruited and assigned to each occupation. As applicants were tested and classified according to eligibility for assignment to an array of occupations the recruiters themselves determined how best to distribute the multi-job qualified people to meet the competing demands, or quotas, for new people in each occupation. In practice this sometimes meant that low scoring people eligible for only one job or a narrow array of jobs were the first to be assigned, and the more broadly qualified people were assigned in ways that enabled recruiters to meet whatever job quotas remained unfilled.

This largely unstructured allocation procedure provided a brute force solution to the layering problem. The Service was effectively saying to its recruiters, "we tell you what the final result will be," in terms of occupational cutting scores and quotas "and it's up to you recruiters to figure out how to get there." The recruiting organizations in the Armed Forces, having no choice in the matter, performed this very difficult function admirably over the years, and several major factors contributed to this success. In the pre-All Volunteer Force (AVF) environment, access to the national draft-eligible manpower pool insured that if brute force allocation proved insufficient at times, more young men could be inducted to eliminate shortfalls (unfilled vacancies in specific occupations). Years of institutional recruiting experience also made it possible to estimate the numbers and kinds of people who typically applied for enlistment during the various months and seasons of the year. The Service timed its schedule of job quotas to roughly correspond to the historical pattern of "feast and famine" periods occurring within the year. The largest quotas for high test score applicants were timed to coincide with those months in which the numbers of well-qualified applicants typically peaked. Low demands were tailored to coincide in time with low supply.^{8/}

In addition, experience taught Service recruiters how best to juggle the supply of variously qualified applicants to somehow fit within the complex framework of competing job demands, the set of cutting scores and quotas continuously delivered up by the Service. Experience showed,

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for example, that certain occupational quotas were always especially difficult to fill, so recruiters dedicated their time and their wiles to recruiting people for these jobs when quotas were received from Service manpower and personnel planners higher up. Multi-job qualified applicants who were eligible for assignment to satisfy a difficult job quota were channeled to this job insofar as applicant preferences and recruiter persuasion made possible. Recruiting emphasis for different job quotas declined according to the relative ease with which a given job quota could be filled by eligible applicants, based upon past experience.

Thus Service recruiters have been forced to play the role of coordinator, selecting among enlistment-eligible applicants for assignment to an assortment of jobs for which some applicants have multiple qualifications others do not. They perform the important and occasionally impossible function of reconciling accessions supply and demand, made even more difficult in the AVF environment where the supply of applicants is not subject to direct control.

The dilemma of allocating people with varying degrees of aptitude within a cluster of occupations was solved by establishing cutting scores for each job corresponding to judgments about the degrees of aptitude needed in the job relative to other jobs in the cluster. The dilemma of allocating recruits across clusters of occupations competing for multiply qualified people was passed on to Service recruiters for resolution. Recruiters adopted whatever assignment tactics were best suited at a given time for simultaneously satisfying all job quotas, subject to the established cutting scores.

4. The rationale for holding occupational standards constant Cutting scores have remained generally unchanged over the years, in part because occupational training programs and the occupations themselves have slowly adapted to the characteristics of the people assigned to them. The method of instruction, the curriculum, and the length of every formal training program have all been determined to some extent by the types of people who historically entered the program. The arbitrary lowering of cutting scores meant that the training program would have to be altered to accommodate new and different types of people, creating undesirable turbulence during the readjustment phase. The number of occupational training programs adversely affected would, of course, increase directly with the number of different cutting scores adjusted downward. There was no support for this type of change in the Service training community.

In the field, on-the-job training (OJT) methods, work methods, and technical documentation were all influenced somewhat by the characteristics of the typical graduate from occupational training, in turn determined by the training program and the types of people assigned to occupational training. Lowering the cutting score for any reason meant that different and perhaps less capable training graduates would be delivered to the field to fill job vacancies, and job supervisors would not endorse this.

On the other hand, the upward adjustment of cutting scores has been enthusiastically supported by both the training community and job supervisors in the field. Although the training programs and the work itself would likely require revision of some sort, it would be justified by the prospect of new and better (more able) people assigned to training and to

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the field. From a statistical viewpoint the parochial interests of the training manager and job supervisor are best served by setting the cutting score as high as possible in order to minimize attrition. Since the percentage of people with high aptitude test scores who fail in training or later on the job is typically lower than the percentage for people attaining lesser aptitude scores, it is understandable that trainers and supervisors in each Service occupation continually press Service personnel managers to authorize a higher cutting score for their occupation.

The personnel managers who are responsible for the articulation of cutting scores also recognize the plight of the Service recruiters who must bear the ultimate burden of recruiting people who meet more selective occupational standards. A new and higher cutting score for one occupation can be accommodated only by drawing from people also qualified for and otherwise normally assigned to other occupations, or by finding and recruiting additional applicants who qualify according to the new selection standard. If it is assumed that in the AVF environment recruiting efforts consistently exhaust the supply of potential applicants existing in the national market then the recruiter must steal the needed people from other occupations. It is not surprising that Service personnel managers infrequently move to raise cutting scores, and almost never lower them.

The prevailing Service view is that the existing system of cutting scores operates adequately to fill occupational vacancies, a continuing process that serves to support Service manpower requirements dictated by broad national security objectives. Today's cutting scores, the common sense solution of twenty years ago to problems posed by the development

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and use of aptitude tests for occupational assignment, affords considerable stability to Service training programs and operational activities. The desire to sustain that stability has manifested itself over the years in the petrification of selection standards.

The Armed Forces pay a considerable cost for achieving stability in this way, in part borne by the Service recruiters who must each day guide a limited number of enlistment-eligible applicants through a conflicting maze of cutting scores to somehow reconcile their particular test scores and job preferences with an enormous, ever-changing assortment of occupational vacancies. As the numbers and kinds of applicants vary annually over a period of years recruiters perform the function of insulating the stable functioning of Service training programs and occupations from the instabilities of the applicant pool. In very lean recruiting years the task is indeed difficult if not impossible, and recruiters carry the sole responsibility for whatever shortfalls occur. Another cost associated with this process derives from the impact of cutting scores on enlistee attrition. This cost is not so easily discerned as in the recruiting activity, but the magnitude is great.

III. INHERENT PROBLEMS

A. Cutting Scores and the Costs of Attrition

1. Recruit attrition

Separation and discharge occur in the Armed Forces continually. People who voluntarily separate from active duty are those choosing to leave whom the Service discharges absolutely without prejudice, either formal (documentary) or informal. The typical case is the enlisted person who satisfactorily completes the full term of initial obligated active duty service and elects not to reenlist for a second enlistment term.

People who are involuntarily discharged from active duty are those determined by the Service to be unacceptable for continued active duty service. Although such cases include people who must leave as a result of medical problems or other personal hardships, the typical involuntary discharge is the direct result of past unsatisfactory performance or expected unsatisfactory performance in the future.

In military service, individual performance is measured as a composite of many factors which characterize behavior both on and off the job.* Performance standards on the job are often more exacting in some respects than in similar civilian occupations (timeliness, reliability, consistency, and so on). Lack of motivation or interest in learning or doing work on the job is a determining factor as well as the individual's abilities to learn or accomplish job tasks. Degree of conformity to general standards of military dress, appearance, demeanor, and discipline are also relevant. Evidence of moral irresponsibility is a measure of performance, even when manifested only in off-duty hours. These factors combine to determine how well a person performs while on active duty. The decision to discharge a serviceman or woman involuntarily is based on the judgment of responsible Service authorities that the individual has failed or can be reasonably expected to fail to perform satisfactorily in terms of one or more of these factors.

*This is so because Service people may be asked to do far more in time of war than normally required in peacetime, and certain characteristics of performance off the job in peacetime can be predictive of how the individual will perform under the more demanding circumstances of armed conflict or national emergency.

2. Patterns of attrition over time

Involuntary discharges can and do occur at all times during the course of the initial enlistment term. Some enlistees are discharged during the first weeks of service while engaged in basic military training. Some people are later discharged while engaged in advanced formal training for their occupations. Among all those who successfully complete both basic and advanced formal training, there are also people who are discharged in the field. The remaining people, those who graduate from all phases of training and later perform satisfactorily throughout the balance of their initial terms of obligated service, are the true survivors. Presumably it is these people whom the Service counts on to perform the duties of their respective jobs in support of the Service mission.

It is enlightening to study the characteristic pattern of involuntary discharges in the DOD as they occur throughout the course of the initial enlistment term. Within a typical population of newly-enlisted people (recruits), aggregate statistics for recent DOD discharges show that some 5.1% may be expected to attrite (be discharged involuntarily) during the first two months of the enlistment term, during which recruits receive basic military training. An additional 2.6% of the original population is normally discharged from the third through the sixth month of service, the period in which most recruits receive advanced training for specific occupations. Formal training is usually completed within the first six months of service, so attritions that occur anytime from the seventh month of service through the end of the enlistment term, approximately 18.0% of the initial population, are generally people working on the job at the time they are discharged.^{9/}

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From the beginning to the end of the initial enlistment obligation it may be expected that 25.7% of the original population will be involuntarily discharged, leaving 74.3% who are the true survivors. It can be confidently assumed that all people who remain on active duty to the end of the term are fully qualified and reliable, the type of enlisted people the Service would need to adequately perform its military function in time of war. It is doubtful that any of the people involuntarily discharged contribute materially to the Service mission during the time they are on active duty. All those discharged while in training (anytime during the first six months of service) do not even make it to first day on the job in the field. People who complete training satisfactorily but are discharged while on the job can be viewed as undesirables who escaped early identification. In this sense all forms of training, as well as the screening which recruiters perform, are the principle components of a continuous screening process that culminates in the most intensive possible form of evaluation -- observation on the job.

That some people make it to the field to be eliminated there testifies to the imperfections in the early stages of the screening process. Much of the information that is necessary for determining a person's suitability cannot be obtained with a pencil-and-paper aptitude test, or even with a close evaluation in a highly structured training environment. For many people the necessary information for determining suitability can only be revealed in the actual working environment. Months or even years of continuous observation are often required before a definitive evaluation can be made. The real test, of course, is the

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individual's actual performance in the most demanding of circumstances, wartime. Wars can never be simulated in full detail and intensity, but it must be supposed that any person who is closely scrutinized by career professionals during the full period of obligated service and completes the term satisfactorily is both fully qualified and reliable. For the others it must be asked, would the Services have permitted any of them to enlist had the recruiters known that they would all be discharged involuntarily at some time prior to completing their initial enlistment term? Presumably not. Even if some were fully qualified to perform on the job, reliability would be lacking insofar as the Service could not count on them to be available at all times during the course of their enlistment term.

In the broadest sense, the selection process is defined as the continuous evaluation of people, beginning at the recruiter's door and ending at the completion of the initial enlistment term. Satisfactory performance in an occupation translates into survival through all of the various phases of selection: at the point of enlistment, in basic military training, in advanced occupational training, and on the job throughout the remainder of the term. Therefore it may seem unfair to say that all attrition is the result of imperfections in the first phase of the selection process, the determination of assignment eligibility. It has been shown, for example, that irrelevant training can cause attrition. But, it is abstractly possible to identify those people among all enlistment applicants who will survive in an occupation, even if the training component of the selection process operates imperfectly. If we

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consider each occupation as an obstacle course of events sequenced in time, the task of a selection system is to discriminate between applicants who will complete the obstacle course, however it is structured, and applicants who will fail to complete the course. Some of the obstacles might be ill-conceived or poorly placed, but it is still true that the survivors and the failures could both be exactly identified by use of a theoretically perfect test and corresponding standard.

3. Attrition costs

The aggregate profile of retention and attrition over time among DOD first-term enlisted people reflects the degree to which selection tests and cutting scores have imperfectly predicted true performance in occupational assignments. Overall, 743 people out of every 1000 recruits who enter Service occupations survive. In FY 1975, 461,000 applicants were selected for enlistment and assignment to Service occupations across the DOD. If the historical pattern prevails, 343,000 of the original accessions total) will survive and 118,000 will be involuntarily discharged.^{10/}

We can say that the recruitment of 461,000 enlistments in FY 75 will yield 343,000 survivors, the kind of people the Armed Forces will really be depending on. In the course of producing that many survivors, imperfections in the occupational assignment process caused the erroneous selection of thousands of people destined to fail. It is not difficult to develop a conservative estimate of the dollar expense associated with the enlistment of 118,000 people destined to fail, whom we assume the Service would have excluded from enlistment had perfect prediction and

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errorless assignment made their identification possible. Salary (pay) rates in effect as of October 30, 1975, enable us to approximate the present discounted value of all monies expended to pay people who enlisted in FY 75 and were or will be discharged during the first term. ^{ii/} People who remained in service only one month before involuntary discharge accrued a total of approximately \$505 on average; people who remained for two months accrued a total of \$1,010 in salary payments, and so on. The characteristic pattern of retention and attrition of first-termers in the DOD indicates the numbers of people who remain for only one month, for two months, and so on before discharge. By matching the numbers of people remaining through various months of service to the estimated salary payments accrued during each period, the total dollar amount of salary costs paid out to people involuntarily discharged during the first term of service is estimated to be \$907,184,000.

A similar computation made for the 343,000 FY 75 accessions who will survive through the first term shows that a total of approximately \$7,278,460,000 will be paid out to them by the end of their obligation. It is noteworthy that, of the gross payroll expenditure of \$8,185,644,000 incurred by the enlistment of 461,000 people in FY 75, some 11.1% of the total accrues to people who should never have entered active duty military service in the first place and who presumably would not have been enlisted if errorless selection and assignment had been possible. The amount involved, \$907 million, by itself a staggering price to pay for no apparent benefit in return, bears further examination. The computation of payroll expenditures here ignores the costs of providing "fringe benefits" such as medical treatment, product discounts (use of the commissary and base exchange), and other forms of non-money compensation. Non-recurring money

expenditures and payments to individuals for special purposes are excluded, such as: enlistment bonus payments; proficiency pay in certain occupations; travel costs; the costs of providing training; and direct and indirect costs associated with recruiting. Thus the computed figure is a conservative estimate of the costs generated specifically by the selection of people in FY 75 for enlistment and assignment to occupations in which they are found to perform unsatisfactorily. The financing of attrition from a given accessions group is spread out over a period of years since expenditures occur while people are on active duty, which for some people extends over several years. The total price, however, is the accumulation of month-by-month outlays to people who sooner or later are discharged from the Service involuntarily.

B. Manifestations of the Problem in Practical Terms

Inherent in today's screening process are inefficiencies in selecting and assigning applicants for enlistment. However, the process is inefficient only in comparison to the use of alternative selection tests and cutting scores which would (1) satisfy true occupational manpower requirements equally well, and (2) also reduce the unfortunate consequences of imperfect selection and assignment.

1. Attrition is more expensive than it has to be

Little need be said in amplifying the previous discussion of the dollar costs associated with involuntary discharges. The use of selection tests which measure aptitude to the exclusion of other relevant factors and are designed to predict training performance rather than occupational performance in a broader context reduces accuracy in predicting what an

applicant's performance in an occupation will be. As a result of this loss of accuracy some people achieve tests scores making them eligible for assignments to occupations they will not succeed in, where a more relevant test would reduce errors of this type.

Existing cutting scores which guide the allocation of applicants across Service occupations were not established for the purpose of minimizing attrition in the AVF recruiting environment. It is possible to alter today's cutting scores in an infinite variety of ways, by lowering them for some occupations and raising them for others; there are many different sets of cutting scores that would generate a lower level of aggregate attrition while continuing to satisfy true manpower requirements for all Service occupations. No sustained effort has been made by the Armed Forces to identify the unique set of cutting scores that leads to the lowest possible level of attrition obtainable with the use of existing selection tests. A "least cost" set of occupational cutting scores could be identified through research and then implemented.* Until this is done the selection and assignment process will continue to operate inefficiently. The Armed Forces will continue to finance an unnecessarily high level of attrition that could be reduced perhaps by as much as \$100 million to \$200 million each year by using a "least cost" set of cutting scores.

One must also consider the consequences of attrition from the viewpoint of the young men and women who apply for enlistment, are tested, selected, and assigned to Service occupations and are then involuntarily discharged in training or on the job. The circumstances surrounding the discharge may not be understood by prospective civilian employers. These

* See the DMC staff study, "Selection Standards in the Armed Forces," by James W. Abellera.

people are marked by the Service as non-survivors, and the negative certification can significantly affect their employment opportunities and earning potential long after discharge. If asked whether they would choose to enlist if they knew they would not make it to the end of their enlistment term, it is likely that most would prefer not to enlist.

The tragic cases are the failures who would have succeeded had they been initially assigned to the "right" occupation. Their failure is pre-ordained by the inefficient functioning of the selection and assignment process; but, instead, these people carry with them the stigma of failing in general military service. Even the salary they are paid while on active duty and the training they receive does not adequately compensate them for the loss of their time and, more significantly, the diminution of their reliability in the eyes of prospective civilian employers.

2. The consequences for socio-economic representation

Service selection tests are, by specific design, discriminatory with respect to expected performance. People who, according to test scores, show they possess the requisite aptitude to perform certain types of work successfully are normally considered eligible for assignments to corresponding occupations. However, Service aptitude tests also indirectly measure skills in reading and test taking. Therefore, people who lack these skills tend to achieve relatively lower aptitude test scores than others of equal aptitude who possess them. Reading ability and skill in test taking is largely the product of an individual's educational experience. Thus it can be expected that differences in the quality as well as the quantity of prior education received will affect an individual's relative performance on Service aptitude tests.

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An applicant's socio-economic characteristics give some indication as to his or her probable job performance as evidenced by the scores attained on Service selection tests. Black (Negro) applicants tend to achieve lower scores on average than non-Blacks, and non-high school graduates tend to achieve lower scores on average than graduates. The effect of test score differences associated with socio-economic group membership is to exclude a larger proportion of one group than another from selection for enlistment and assignment. This can be seen in the table below which compares the percentages of applicants for enlistment in FY 74 who were Black and non-high school graduates with the corresponding percentages among DOD accessions (NPS enlistments for all four Services) in the same year. ^{12/}

	<u>I Black</u>	<u>I Non-HS Graduates</u>
Applicant pool in FY 74 (561,000 total)	23	47
DOD NPS accessions in FY 74 (391,000 total)	21	37

It appears that enlistment and occupational selection standards together, expressed in terms of scores achieved on Service selection tests, conspired to preclude a disproportionate number of Black and non-high school graduate applicants from enlisting in the Armed Forces during FY 74.

Are Service selection tests unnecessarily discriminatory with respect to socio-economic status? The answer would be straightforward if tests predicted success and failure in occupational assignments absolutely perfectly. People permitted to enlist would all be successful, and people excluded would be denied enlistment because they could not

succeed or because all vacancies were filled at that time. Instead, today's Service tests are not absolutely relevant nor are they as relevant as they could be insofar as aptitude tests (imperfectly) predict training performance rather than survival in the occupation, and they measure work-related aptitudes but not motivational attributes which are also relevant to recruit survival.

It cannot be shown that Service aptitude tests are unnecessarily discriminatory, nor can they be acquitted of this charge, until the relevance of each test has been established in terms of its accuracy in predicting survival, success throughout the full term of service, in the occupational assignments for which they are employed as a selection instrument. Only when it can be demonstrated that these tests specifically predict job performance in the broadest sense of the term with greater accuracy than any other possible tests will it be possible to address allegations that Service tests discriminate with respect to socio-economic status to a greater extent than the requirement to support the Service mission justifies. In the meantime Service tests must remain suspect.

3. Internal instability

It is ironic that although cutting scores for most Service jobs have been held constant over the years to maintain internal stability, this policy has had destabilizing consequences. The Service attempts to maintain a requisite overall manning level in each occupation composed of both first-term people and career people (personnel serving in a second

or subsequent enlistment term). As retirements and separations occur, the number of career people desired in the occupation is maintained generally by inducing people who survive their initial term of service in the job to enlist for a second term of service.

From year to year, the proportion of all survivors completing their initial enlistment term who apply for reenlistment remains relatively constant because they tend to be the same kinds of people. The selection process, from the recruiter's door to the end of the first term, assures uniformity. Thus the number of survivors who apply for reenlistment in a given year is largely predestined by selection and assignment procedures which remain unchanged over time.

The dictates of the Service mission and the separation and retirement of career people taken together translate into the number of first-term reenlistments needed each year, a figure that often does not coincide with the numbers of survivors who apply for reenlistment. When the numbers applying for reenlistment exceeds the number desired, some are simply denied reenlistment in the occupation. When the opposite occurs, the Service acts to close the gap either by offering special inducements such as money bonuses to the available survivors to increase the proportion choosing to reenlist, or survivors from other occupations are reenlisted and given the training necessary to qualify them in the skills of the new job.

Uniformity in the reenlistment behavior of survivors, in part the result of stationary cutting scores, deprives the Service of the flexibility to manipulate the characteristics of accessions groups in each job

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from year to year to yield reenlistment rates later that correspond more closely to career manning requirements. The consequence is chronic instability in the flow of survivors from the first term into the career component of Service occupations. The Service pays a price for this instability by financing the additional training needed to qualify survivors from other occupations in the new job and by providing the money bonuses needed to boost the reenlistment rate of survivors in the job to higher levels.

4. When there are not enough applicants

From one perspective it might seem that selection standards make it easier for Service recruiters to decide how to choose among enlistment applicants and distribute them across Service occupations. If so, then the recruiter's task has been made diabolically easy by the proliferation of new conditions surrounding enlistment and job assignments observed in the past four years. In an extreme example the evaluation of an applicant today begins by determining his basic enlistment and occupational assignment eligibility followed by the applicant's stated preferences for specific occupations, the unit he wishes to be assigned to, the geographic location of the assignment, the length of the enlistment term, and the timing of his entry into basic training. If these considerations can all be reconciled with an existing or projected vacancy, and if all other conditions jointly specified by the applicant and the Service are met, the recruiter proceeds to enlist the applicant.

This characterizes the always complicated and often confusing process by which applicants today are selected for enlistment and assignment.

Success in satisfying an applicant's preferences with regard to type of work, location, unit, timing, and term of service increases the likelihood that the recruit will survive in the occupation to which he is assigned. This attention to applicants' preferences may also induce some enlistment-aged youth to apply for enlistment who otherwise would not. But each condition reduces a recruiter's flexibility in finding a slot that simultaneously meets the needs of both the Service and the recruit. And all of these considerations are superimposed on the rigid selection standards that fundamentally determine eligibility for enlistment and job assignment.

It is possible that the Service demand for recruits could some day exceed the supply significantly. This could happen even while the total number of applicants continues to exceed the number of projected vacancies, as in the past. The broad effect of applying a multiplicity of conditions on the enlistment of each applicant is to implicitly reduce the total supply. This could be made to happen merely by changing the enlistment standard to exclude all but mental category I applicants from enlistment eligibility. Or it could evolve gradually as a host of conditions operated to preclude a progressively larger number of people from enlistment or assignment consideration.

This process is not irreversible. Conditions for enlistment, including cutting scores for occupations, can be altered in ways that increase the effective size of the applicant pool by making more of the applicants in the pool eligible for a broader range of job assignments. The Service cannot control the preferences of applicants, but the Service does determine both enlistment and occupational selection standards. It is these

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standards that make it possible to adjust the effective size of the applicant pool to accommodate all occupational demands for new people in a given period.

The scenario in which the effective supply of applicants would most likely fall short of demand is one in which uncontrollable factors such as the civilian employment situation, the average level of civilian wages, and/or the attitudes of youth toward the military conspired to reduce the total number of applicants at some period in time well below the level normally experienced by the Armed Forces. The Service would be faced with several immediate alternatives, among them: (1) lower the enlistment selection standards; (2) eliminate some or all applicant preferences as conditions of enlistment; (3) alter selection standards to make more applicants eligible for a broader range of the occupational assignments in which vacancies occur; (4) accept the recruiting shortfalls that occurred.

Even if the Service de-emphasized applicant preferences and lowered enlistment selection standards, it is conceivable that in certain scenarios of deficient supply these two steps would not be sufficient to increase the effective size of the applicant pool adequately. Adjustments to cutting scores for jobs would be the only other expedient available to the Service for closing the remaining gap. To retain rigid cutting scores for jobs and thus incur shortfalls would degrade the mission capabilities of the Armed Forces, but the reluctance of the Armed Forces in the past to adjust occupational selection standards makes it questionable that they would change this time-honored policy even in the face of serious consequences. Yet the policy could become the key to sustaining Service manpower requirements in the AVF recruiting environment of the uncertain future.

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3. The problem of evaluating selection standards

The use of selection standards in the Armed Forces is a fact of life. They contribute to the military mission in that the total numbers of fully-qualified and reliable people continually required in each occupation are sustained by a formal selection and assignment process that has performed adequately in selecting enough of the right kinds of applicants to fill all occupational vacancies. But are the Armed Forces employing the best possible selection standards? The foregoing discussion testifies to the many different kinds of consequences that follow from the use of any given set of selection standards. Since there is an almost infinite number of alternative sets of cutting scores for Service occupations that would satisfy manpower requirements equally well, the task of evaluating all possible sets relative to each other seems hardly possible even when there is agreement about which yardstick to use for measuring "goodness". For instance, the set of selection standards that is best for maintaining some desired level of socio-economic representation among accessions may be very costly in terms of attrition. A different set of selection standards that minimizes instabilities in the flow of first term survivors to the career force may dictate an unacceptable pattern of socio-economic representation.

A more fundamental obstacle in evaluating today's standards is the legacy of the Service policy to hold occupational standards constant over the years. No historical data exist to indicate how many low aptitude recruits would survive when assigned to Service occupations that have

traditionally excluded all but high aptitude recruits. Thus it is impossible to determine a priori how the lowering of cutting scores would impact on the production of fully-qualified and reliable people in these occupations. It could be that the same proportion of lower aptitude people would survive as high aptitude people assigned to some of the jobs, but there is no way to reliably estimate what the proportion will be beforehand. Similarly, the reenlistment rates for low aptitude survivors can not be reliably estimated in these jobs.

These barriers do not make the evaluation of existing selection standards impossible, but they do limit the scope of any serious examination. Primarily for these reasons the Armed Forces have not performed a systematic evaluation of occupational selection standards to determine the "goodness" of those employed today relative to such explicit evaluative measures as maximum stability or minimized attrition.

IV. METHODS OF IMPROVING SELECTION TESTS

A. Choose a Better Criterion of Job Performance

Better selection tests can be developed by the Armed Forces by using a prediction criterion that has greater relevance to Service objectives. The selection process is used to recruit people who will survive in assignments to Service occupations. Survival means satisfactory performance throughout the entire first term of enlistment. Today's tests predict likely performance in formal occupational training, an important but limited aspect of the broader concept of job survival which is crucial to the Service mission. Instead of selecting items which appear to be relevant to training performance, the

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choice of items that make up the final instrument should be keyed to those items that specifically predict survival in job assignments with maximum accuracy.

This proposal is easily stated but more difficult to implement. Each of the Services today administer their own selection tests to applicants to measure four or more different work-related aptitudes. Each Service test would require redesign and revalidation in terms of a new criterion measure. Survival data for recruits assigned to every Service occupation must be developed to build the basic criterion measures for each test. The selection of appropriate items would proceed by relating actual survival data to the right and wrong answers individuals gave to the questions contained in the existing item pool. A new and somewhat different subset of items would likely emerge for use in predicting job survival instead of training scores.

The ASVAB provides an adequate vehicle for introducing more relevant tests. The ASVAB in its present configuration is composed of hundreds of items, and a particular aptitude test score achieved by an applicant is normally computed mechanically by referencing right and wrong answers to the particular questions contained within the ASVAB that have been shown to collectively predict training scores for certain jobs most accurately. Other ASVAB items are referenced in computing an individual's test scores for other kinds of aptitude. The ASVAB thus contains a large pool of diverse items, and the mechanical scoring procedure itself effectively determines which of the items are used to compute applicant scores for the various aptitude tests. The choice of which items to reference in calculating scores for each kind of aptitude test can be altered by simply revising the scoring procedures. The

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validation of all items contained in the ASVAB relative to the survival criterion for each of the occupational clusters will reveal which items should be specifically referenced to insure maximum accuracy in predicting the new performance criterion. It would be a simple matter to revise the ASVAB scoring procedures to change the mix of items to be scored according to the results of the validation. The ASVAB would be retained in its entirety, new scoring procedures would be developed, and the result would be improved prediction of recruit survival in assignments to Service occupations.

The degree of improved prediction would be limited by the number and variety of relevant items already contained within the existing ASVAB instrument, and because these were originally selected for use in developing the traditional Service aptitude measures, the best possible predictions would continue to be based on aptitudinal considerations rather than applicant motivations and interests as well. These efforts might therefore produce the best possible aptitude selection tests for predicting job performance, but not necessarily the most accurate of all possible selection tests for this purpose.

B. Improve the Relevant Content of Service Selection Tests

The predictive accuracy of Service selection tests can be improved by incorporating measures of attributes other than work-related aptitude into selection instruments. The broadening of the information base from which job performance predictions are made could be effected in two ways. First, the pencil-and-paper tests could be expanded to include items dealing with applicant motivations and interests that can be shown to be relevant in

predicting job survival accurately. This would involve the validation and use of new and different items that reveal attitudes towards various kinds of work and working environments, individual aspirations and goals, and so on.

This is not a new concept; efforts are now underway in the Armed Forces to develop non-aptitudinal items that could some day be formally incorporated into Service selection tests. The VOICE for example is specifically designed to assess the vocational interests of enlistment applicants. This instrument contains a large variety of non-aptitudinal items that show promise in making the prediction of performance in Service occupations more accurate.^{13/}

The second way that additional relevant information could be developed departs from the traditional techniques for producing test scores. The pencil-and-paper test evaluation could be supplemented with performance scores achieved on psychomotor tests. Each applicant would spend a few minutes seated at a console before a video display (cathode-ray tube). His test scores would reflect his precision, quickness, consistency, and decisiveness in responding to visual "instructions" with correct hand and foot movements on a control stick and foot pedals attached to the console.

There is some evidence that an individual's performance in this type of activity directly measures not only certain obvious physical characteristics but also indirectly a number of psychological characteristics such as emotional stability and self-confidence.^{14/} This type of behavioral research has been conducted by the Armed Services on a limited scale since World War II. Psychomotor evaluations shown to be relevant to the job survival criterion could be added to aptitude test results to comprise a composite score used to predict future performance more accurately.

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Other forms of additional information include more obvious characteristics such as applicant height, weight, age, employment status, marital status, etc. These could be formally incorporated into the scoring procedure to produce more accurate predictions for occupational assignments where a relationship between job survival and one or more of these characteristics is established. The Services are now moving toward the use of measures of various physical characteristics to refine the selection of individuals for assignment to specific occupations. Efforts of this type will lead to more accurate assessments of individual applicants if the Services provide empirical evidence that the additional measures are actually relevant to survival in occupational assignments.

C. Employ More Efficient Statistical Techniques in Designing and Validating Tests

At the heart of the process by which selection tests are designed lies the sophisticated statistical technique that researchers employ to determine which items will be incorporated into the final instrument and how right and wrong answers for each item should enter into the computation of test scores.

The Armed Forces today employ the basic statistical technique known as multiple linear regression (MLR). The state of the art has progressed greatly since the Services began using MLR more than 15 years ago. The list of alternative prediction techniques that have gained acceptance in the civilian community since then has grown and now includes generalized non-linear regression, logit analysis, probit analysis, tobit analysis, pattern recognition techniques, and generalized maximum likelihood estimation. The characteristics of any particular prediction problem determine which technique is best suited for

developing a maximally accurate prediction test. Two characteristics of the Service prediction problem suggest that MLR may no longer be the best possible technique for designing selection tests.

The most appropriate criterion of job performance is survival. This measure of performance provides for only two possibilities, that a recruit survives or does not survive to complete his full term of obligated service in the assigned job. In general, MLR is not as well suited to predicting a dichotomous criterion (one for which there are only two possible outcomes) as is logit, probit, or tobit analysis. These latter techniques are specifically designed to provide the most accurate possible prediction for situations where the criterion of performance is dichotomous.

Another important characteristic of the Service prediction problem is the complexity of interrelationships among the measurable and unmeasurable factors that conspire to determine future performance. Statistical techniques must be employed to unravel this Gordian knot by isolating test items that represent each of the relevant factors most appropriately. The statistical process by which items are identified at present by use of the MLR technique can be more easily described in terms of an analogue in navigation. Consider the navigator of a ship afloat somewhere in the middle of the North Atlantic Ocean who must determine the 10 ports closest in distance to the ship. His navigation map is constructed to portray distances to all ports accurately only if measurements are made by allowing for the earth's curvature. The navigator can do this by recognizing that the distance to each port must be

measured on the flat map along an arc rather than a straight line. If he uses a ruler to make straight-line measurements he will incorrectly estimate how far away each port is, and depending on how the map is constructed, his measurements with the ruler may lead him to choose some ports that are really further away than some of the ports he rejects.

Test researchers use statistical techniques to identify among all possible items those which are "closest" to the performance criterion. The traditional technique, multiple linear regression, measures "closeness" in straight-line fashion just as the navigator of the analogy might measure distances with a straight ruler in choosing the nearest ports. Other statistical prediction techniques are available today which attempt to make explicit account of underlying curvature before choosing items which appear to be "closest" or most relevant to the performance criterion. Because item selection determines the predictive accuracy of the test instrument, there is merit in evaluating these techniques as alternatives to MLR. They include generalized non-linear prediction techniques and certain pattern recognition techniques.

The Armed Forces are currently investigating some new statistical approaches for designing aptitude tests and other prediction devices, among them the Automatic Interaction Detection technique (AID) and non-linear maximum likelihood estimation. The latter procedure is now undergoing experimental evaluation to determine its capacity to discriminate accurately between eventual survivors and non-survivors among cadet accessions to the United States Air Force Academy.^{15/} In this experiment incoming cadets have been characterized in terms of individual motivations, interests, and previous

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scholastic achievements, and this information profile forms the basis for predicting subsequent performance. Preliminary results give promise that this technique can be used to improve accuracy in identifying the potential survivors within the pool of all cadet accessions. A similar experiment has recently been initiated to determine how accurately the technique can discriminate between eventual survivors and failures among Air Force recruits engaged in basic military training.

D. Develop Selection Tests to Predict Performance in each Service Occupation

The conceptual clustering of Service occupations according to a common aptitude has provided a practical means for matching individual aptitude tests up with specific occupations to screen applicants for assignment purposes. With no more than ten different kinds of aptitude tests available, the Service was compelled to use each aptitude measure as the formal selection device for as many as thirty or forty different occupations. Clustering became the solution to the problem of too few aptitude tests for too many occupations.

Alternatively, a unique aptitude test could be designed to predict recruit performance in every unique job. This "one job, one test" approach would make possible more accurate prediction for every occupation. Equal or greater accuracy would obtain in all cases because the aptitude test would be especially designed for a particular occupation in particular. As it is now, each aptitude test cannot be tailored to a specific occupation so long as it is also used as the selection measure for many other occupations. The design of existing tests is the compromise of individually different tests that would predict performance more accurately if each were used to predict performance in one job alone, the job for which it is specifically designed.

It is true that the evaluation of each applicant for assignment purposes in the past has been made manageable by limiting the number of different aptitude scores that a recruiter must reference to determine assignment eligibility for the full range of Service occupations. The clustering approach has simplified assignment screening procedures considerably in that, to determine an applicant's eligibility for assignment to each of the various jobs contained within a given cluster, the recruiter needs only to compare the applicant's score attained on a particular aptitude test to the selection standard corresponding to each job in the cluster. The score the applicant attains on a different aptitude test is used to determine his eligibility for assignments to all occupations represented within another cluster. This has enabled the recruiter to establish an applicant's assignment eligibility for all Service occupations by referencing a small number of test scores. If instead the evaluation of every applicant included scores from hundreds of tests, one for each of the several hundred different Service occupations, recruiters would have to spend most of their time checking test scores against selection standards just to find out which assignments an applicant would be eligible for.

The advent of computer links to recruiting offices located throughout the United States removes the procedural barriers to the "one job, one test" alternative. The computer network employed by the Army today has the inherent capability to automatically compare each job standard with the score attained by an applicant on the uniquely suited test and then perform the same comparisons for several hundred other jobs, all in a matter of

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seconds.* With the automated scoring procedures employed for the ASVAB, it would not be difficult to generate hundreds of different scores for each applicant by programming the scoring machine to reference a particular subset of items contained within the ASVAB to produce one kind of test score, another item subset for another kind of score, and so on. Each of the item subsets would be defined by the validation of all ASVAB items against the respective performance criterion for a unique Service occupation.

The other Services have plans for introducing computer capabilities into recruiting offices over the next few years. The Air Force looks forward to making their system operational in 1976. The application of computer technology at the level of the recruiter in the field opens the door to innovations in traditional screening procedures. More accurate prediction of job performance is now possible because selection tests can be designed for specific occupations rather than for job clusters. The "one job, one test" alternative offers one means for increasing the efficiency with which applicants are selected for enlistment and assignment to Service occupations.

Consideration must be given to the problem of establishing the cutting score for each job appropriate to each new test. Where the traditional cutting score for an occupation has been expressed in terms of the scores applicants attain on one of the traditional aptitude tests, scores attained on a new test have different meaning because the test is basically different, albeit more accurate in predicting performance for that occupation. The major dilemmas that confronted the Services more than twenty years ago

*This capability has not yet been fully exploited by the Army, however.

when the traditional cutting scores were first established reappear in vastly more complicated detail. The feasibility of replacing existing selection tests with new and better, but nonetheless different tests is questionable so long as the Armed Forces lack the means and method for determining which cutting scores will best serve to support the mission. Without some method by which the appropriateness of cutting scores can be evaluated, it is difficult if not impossible to justify making significant changes of any kind to a traditional selection process that has worked in the past.

V. SERVICE EFFORTS TO DEVELOP METHODS FOR IMPROVING SELECTION STANDARDS

It is impossible to establish specific selection standards for occupations that would support Service manpower requirements better than do the existing standards without conducting a systematic evaluation of the formal screening process. Service researchers in the past have endeavored to develop various analytical approaches to the evaluation problem. Each attempt has adequately addressed some important features of the selection process, but not all.

A. The CAPER Analysis^{16/}

This Navy effort showed how a selection standard can be established for any one occupation to satisfy a given occupational manpower requirement at the lowest possible training cost. To perform the analysis, five types of information must be available. They are:

- (1) The number of different categories of people (applicants) who are available for assignment to the occupation, where applicant scores on one aptitude test define the categories considered;
- (2) the number of

applicants who achieved each of the various possible tests scores; (3) the historical attrition rate for each category of applicants over the course of the training program; (4) the average cost associated with an attrition; (5) the total number of graduates (training survivors) required to fill job vacancies in the field at the end of the training program.

The analysis proceeds by initially choosing the highest cutting score possible. The number of applicants in the pool who meet this standard is multiplied by the attrition rate for this group. The arithmetic product, the expected number of training failures, is multiplied by the average attrition cost to calculate the total cost of attrition. The expected number of training survivors is compared to the required number of graduates. If the total requirement for graduates exceeds the expected number of training survivors from this group, then the selection standard is reduced to the next highest score, and the same computations are performed to determine if the additional applicants made eligible by the lower cutting score will be sufficient to close the gap between the expected and required numbers of graduates. The analysis continues by successive iteration to lower the cutting score until the total number of applicants made eligible, corrected within each category for expected attrition, becomes large enough to satisfy the graduate requirement. The cutting score indicated in the final iteration represents the "optimal" selection standard, and the sum of attrition costs computed for each category of applicants made eligible for assignment to the occupation is reported. This procedure defines the selection standard that serves to fill all vacancies in the occupation at the lowest possible training cost.*

* The analysis proceeds in the manner described when attrition rates for categories of people with successively lower aptitude test scores are known to increase at each step. The procedure for determining the least cost standard is somewhat different when this is not the case.

The CAPER analytical approach has many merits. The cutting score is tailored to insure that the supply of variously qualified applicants will meet the occupational demand for trained people. The procedure requires the characterization of the applicant pool in numbers and kinds of people available. By implication, the cutting score must be reevaluated as supply characteristics and/or manpower requirements change over time. This says that the selection standard which is best (least cost) at one time may not be suitable in a later period. For example, if the applicant pool diminishes, then CAPER can be employed to determine by how much the cutting score should be lowered to sustain the Service requirement. If, on the other hand, the number of graduates required decreases, then CAPER shows how high the cutting score can be raised to equalize the expected and needed survivors at the lowest possible attrition cost.

The fatal flaw inherent in the CAPER approach is the restriction that the cutting score can be determined for only one occupation at a time. The approach lacks the scope needed to evaluate cutting scores for several or many occupations simultaneously. This capability is crucial because many occupations compete for available applicants and the supply cannot be adjusted to meet the particular demand of one occupation without regard to the impact on all other occupational demands. A cutting score that minimizes the attrition cost in one occupation deprives another occupation of higher caliber recruits who would manifest lower attrition rates and attrition costs there if so assigned. CAPER deals

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only with the narrow problem of choosing one least cost cutting score at a time, when the real problem in evaluating selection standards involves the determination of the cutting scores for every Service occupation that collectively satisfy all occupational demands for recruits at a minimum aggregate attrition cost.

B. Person-Job Match

To take advantage of computer capabilities soon to become available to recruiters in the field, the Air Force is approaching the completion of an R&D effort that automatically determines how many and which kinds of applicants who are available at any given time should be enlisted and assigned across Service occupations. The computerized selection/assignment procedure requires five kinds of information. They are: (1) the numbers and kinds of applicants who are eligible for enlistment; (2) the number of applicants who wish to be assigned to each of the occupations; (3) which among the interested applicants are eligible for assignment to each occupation according to existing job selection standards; (4) recruiting quotas existing for each occupation; and (5) the characteristics of people who are believed to be the best kinds to have in each occupation.

The last type of information is needed because the Air Force historically has enjoyed a surplus of applicants who meet enlistment and occupational selection standards. With more eligible people than there

are vacancies, the Air Force problem has been to distribute the "most highly qualified" of the eligible applicants to each of the occupations competing for people with high aptitude test scores. The distribution procedure in the past has operated informally; the recruiters themselves have determined how to assign applicants with test scores that qualify them for many different Air Force occupations. They judged which occupations would benefit most from the assignment of recruits whose aptitude test scores exceeded the established cutting scores.

The new Air Force selection/assignment procedure, called person-job match, will automate the distribution of applicants across jobs by comparing each applicant's characteristics against a computerized yardstick of various characteristics ranked from most to least desirable for each occupation. These yardsticks have been developed by polling supervisors and training managers to find out what characteristics typically distinguish poor performers from average performers and average from good performers in specific occupations. The yardstick for each occupation is a composite of characteristics ranging from aptitude test scores and educational attainment to the sex and age of a recruit. When made operational, the recruiter will record all of these characteristics on the computer terminal in his office, and the applicant will automatically be measured against the composite yardstick created for each occupation as well as the formal enlistment and occupational selection standards. Among the various jobs for which an applicant is found to be eligible, he will be assigned to the job in which his particular characteristics are most desired, the applicant's assignment preferences permitting. This insures that recruits with superior abilities are matched to the occupations that can make the greatest use of this windfall of performance potential.

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The person-job match procedure reflects the recognition that existing selection standards by themselves may not lead to the best possible distribution of recruits when many are especially well qualified. The procedure offers a means to refine the selection and assignment process to capitalize on applicant talent in ways that the traditional screening process does not. Two purposes are served by overlaying the subjective judgments of supervisors and training managers on the existing selection standards. First, the incorporation of additional information about each applicant relative to each occupation affords a more desirable match on average between the recruit and the job, and the likely result is reduced attrition in some occupations. Second, in retaining the traditional occupational cutting scores, the Air Force retains all of the important features of a selection and assignment process that has worked in the past and is expected to work in the future. The use of subjective yardsticks is a refinement that will enhance the efficiency of the existing process at those times when applicants are in abundant supply relative to occupational demands. In times of tighter supply, the selection and assignment process automatically returns to rest on the time-honored selection standards that remain at the heart of the person-job match procedures.

Unfortunately, person-job match is not an evaluative method for determining the best selection standards that are possible. It does not show that the existing standards minimize attrition or the costs of attrition, nor does it suggest what alternative selection standards would better serve this or any other purpose. Rather, it is a method designed to enhance the efficiency with which existing standards guide

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the allocation of applicants across Air Force occupations. In cases of excess supply it does indicate how to assign well qualified applicants to take better advantage of their talents. In this respect the procedure serves to reconcile the supply of available people with occupational demands somewhat more efficiently than the use of traditional selection standards alone. But the usefulness of person-job match is restricted by the traditional selection standards that still fundamentally define eligibility for occupational assignments.

C. Benchmark Aptitude Evaluation^{17/}

In another ongoing effort, Air Force researchers have developed a methodology for defining alternative occupational selection standards by using policy-capturing techniques. That is, researchers have asked supervisors and training managers how they would choose to allocate a limited number of recruits with varying ability (defined by aptitude test) across selected Air Force occupations. The analysis of their choices is said to "capture" the collective wisdom of experienced professionals. The results have shown that the choices of supervisors and trainers dictate cutting scores that are different than the existing selection standards for some of the occupations studied.

The objective of the benchmark aptitude research is to incorporate a broad range of experience-based judgments into the determination of alternative selection standards that would make more efficient use of the talent that has been traditionally available in the pool of applicants for Air Force enlistment. This effort differs from the person-job match approach in that the choices of the experienced professionals were

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not forced to replicate the traditional standards. The analysis showed, not surprisingly, that the group chose to lower cutting scores for some occupations and to raise cutting several for others.

This experiment merits attention for several reasons. First, the decision makers were compelled to take explicit account of supply and demand together. With a finite number of applicants considered in the experiment relative to the competing demands for recruits in certain occupations, the group could not choose unrealistically high cutting scores for all of the occupations. They simply had to "make do" with available supply. Second, their collective training and supervisory experience served to temper judgments with some understanding of the practical relationship between aptitude test scores and survival in the occupational assignments.

The product of the experiment was an alternative set of cutting scores for the occupations studied that, if actually implemented, would distribute a given pool of recruits by aptitude level across jobs in the most satisfactory possible manner as viewed by the members of the decision-making group. One of the shortcomings inherent in this approach is the critically important factor of group composition. If the group is weighted with experts from one occupation more than another, the one occupation is likely to be judged the one most deserving of a higher selection standard. This is because each expert bases his judgments on the range of his own personal experience, which usually encompasses only the one occupation or the one kind of training program with which he is familiar. Each expert knows that in his own occupation a high aptitude recruit is typically more likely to survive than a low aptitude recruit. The experts

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are also limited because of their infrequent experiences in training or supervising recruits with aptitude levels that vary significantly from the historical levels. If one occupation over the years has generally received recruits who possess average aptitude scores, it is difficult for the experts to determine the extent to which above average or below average recruits would perform differently from recruits made eligible for assignment to the job according to the tradition selection standard. Furthermore, it is doubtful that these or any other likely experts could explain their choices of cutting scores in terms of such objective criteria as a reduced level of attrition or attrition costs in the aggregate, a more equitable distribution of recruits across jobs according to socio-economic representation, reduced turbulence in the flow of first-term survivors into the career component of the various Service occupations, and so on. While these considerations may enter into each expert's deliberations, the final choices are determined by the aggregate perception of the distribution of the variously qualified applicants that would enable the Service to continue to perform its mission satisfactorily.

The cutting scores chosen are the experts' answer to a unique situation defined by a certain number of applicants possessing a certain range of aptitudes who are available for assignment to fill given recruiting quotas for selected occupations. The collective wisdom may dictate an entirely different set of cutting scores in another situation defined by a different applicant pool or different quotas for the various jobs studied. This is perhaps the most significant flaw to this type of policy-capturing exercise.

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The benchmark aptitude approach does afford a means for evaluating standards, but the approach itself cannot be evaluated to determine whether or not the experts make truly good or best choices with respect to reduced attrition, attrition costs, or any other evaluative criterion, and there is no reason to believe that the experts have the requisite breadth of experience and knowledge for making the best choices. The procedure does not automatically preclude the choice of standards that are different than the traditional cutting scores, but there is a strong tendency for decision makers to base their choices on previous experiences with recruits who are the product of the existing screening process. The policy-capturing procedure explicitly accounts for conditions of supply and demand, but the solution is static because it only applies to the specific recruiting situation defined in the experiment. In the recruiting environment of today, static solutions to dynamic selection and assignment problems invite errors that can be costly and perhaps fatal to sustaining Service manpower requirements.

In a follow-up phase of this effort, researchers are attempting to define alternative cutting scores relating the specific tasks performed in an occupation to the ability of people possessing different degrees of aptitude to perform such tasks. This endeavor will probably reveal more clearly the link between measured aptitude and performance of occupational tasks, but some other approach is needed to afford the Services a means for measuring the efficiency of standards and for judiciously altering standards according to varying conditions of supply and demand.

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D. Guidelines for Designing a Method for Evaluating Occupational Standards

A summary of the strengths and weaknesses of prior research efforts establishes a framework for designing an analytical approach of sufficient scope to evaluate the efficiency of existing selection standards and their alternatives.

Common to all approaches is the formal attention paid to the important role that selection standards play in sustaining manpower requirements. The CAPER analysis is driven directly by the requirement to meet the demand for a specific number of training graduates, expressed in terms of training survivors. The person-job match and benchmark aptitude analyses address manpower requirements indirectly, the former through the operation of traditional selection standards and the latter in relying on the collective wisdom of experienced personnel.

Selection standards are viewed as a mechanism for equilibrating supply and demand in the CAPER analyses, but the benchmark aptitude approach does not afford this kind of flexibility. The person-job match procedure implicitly makes adjustments to the screening standards for occupations in periods of excess supply, but the adjustments do not alter the standards traditionally employed. The procedure lacks the capability to make fundamental adjustments to selection standards in periods of deficient supply.

CAPER is made conspicuous by its inability to show how to distribute applicants across many occupations. The resolution of the across-aptitude layering dilemma is left to Service recruiters in the benchmark aptitude study.

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The dilemma is explicitly dealt with by the person-job match approach, but practical solutions obtain only when applicants are in abundant supply.

CAPER can be used to relieve the pressure on Service recruiters to continually identify and attract certain numbers and kinds of applicants for enlistment. The procedure requires that all available applicants be characterized, and the cutting score is set at the level that will insure manpower requirements will be sustained at least cost. Both the person-job match and benchmark aptitude procedures require the recruiters to seek out sufficient numbers of applicants who achieve scores high enough to qualify according to rigid cutting scores to fill whatever quotas exist in the various Service occupations. The approaches are different in that CAPER establishes the cutting score needed to satisfy manpower requirements after all available applicants have been identified, while the other procedures establish recruiting goals (numbers and kinds of applicants who must be identified) necessary to support manpower requirements based upon existing selection standards. The latter approach forces the recruiters to find the needed applicants, but the former approach relieves recruiters of this burden by using the cutting score as a flexible tool for getting the job done with whatever applicants are available in the supply pool.

The CAPER analysis is also noteworthy for the clearly defined criterion of minimum attrition cost by which the appropriate cutting score is determined. In contrast, the efficiency of the selection standards associated with each of the other procedures cannot be expressed in such tangible terms as minimized attrition, lowest possible attrition cost, or any other explicit evaluative reference.

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VI. RECOMMENDATIONS

The formal recruit screening process today is a complex system consisting of tests, testing and scoring procedures, and selection standards. In the operational environment, its complexity derives from the vast array of occupations for which screening must be routinely performed and the ever-changing variety of applicants who must be tested and evaluated with respect to all available jobs. It is not a process that can or should be fundamentally altered over a period of a few weeks or even months. But fundamental changes will be necessary to effect significant improvements in the efficiency with which young men and women are selected and assigned to Service jobs.

The eventual development of better tests means that recruiters must be provided new and different tests, instructions for administering and scoring them, and guidelines for interpreting scores so as to make the best possible assignment decisions. Each involves a considerable period of research and evaluation. On the other hand, a commitment to effect specific changes with an unspecified time limit for completion is not a true commitment.

The Services can best manage their transition to a more effective screening process by directing their research functions to develop comprehensive research and development planning schedules. These documents should form the basis for estimating the manpower and money resources the Services must earmark for the required research. In return the research community must commit themselves to realistic deadlines for delivering their final products.

The status quo is costing the U.S. taxpayer almost one billion dollars per year in direct salary costs alone. The indirect costs are likely even

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more stunning. For reason of cost alone efforts to improve the recruit screening process according to the guidelines discussed in the study should begin as soon as possible.

Accordingly, it is recommended that the Services task their in-house personnel research functions to:

- (1) *evaluate existing selection tests to determine their accuracy in predicting survival over the full enlistment term in each occupation;*
- (2) *perform comparative analyses to assess the capabilities of alternative statistical techniques for designing and validating selection instruments relative to multiple linear regression;*
- (3) *develop prototype tests which assure maximum accuracy predicting survival in Service occupations rather than occupational clusters;*
- (4) *develop software that will permit recruiting organizations to reference unique test scores for every Service occupation in assessing an applicant's job assignment alternatives; and*
- (5) *prepare planning documents that establish schedules for introducing survival-referenced tests, scoring procedures, and corresponding occupational selection standards in the operational (recruiting) environment.*

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FOOTNOTES AND REFERENCES

1. MARDAC publication, Manpower Research Studies AFQT: Historical Data (1958-1972), (MR76-1) July 1975, p. 2.
2. Ibid., p. 5.
3. Ibid., p. 5. The origins of aptitude testing in the Armed Forces were founded in the use of pencil-and-paper tests to select people for assignment as Morse code operators circa World War I and were furthered by the efforts of the Army Aviation Psychology Program in World War II.
4. Accessions Aptitude Testing in the Armed Forces, prepared by Hobar, Inc. under contract with the DMC, September 1975, p. 2.
5. AFQT: Historical Data (1958-1972), op.cit., p. 5.
6. The use of training success measures for pilots, navigators, bombardiers, gunners, and flight engineers as criteria for aptitude test development by the Army Aviation Psychology Program as early as 1941 predates the widespread use of training scores as criteria for designing aptitude tests in later years.
7. For example, John Sullivan noted that mental category standards for Army inductees were changed six times between 1958 and 1966 in his study, "Qualitative Requirements of the Armed Forces," Studies Prepared for the President's Commission on an All-Volunteer Armed Force, Volume I, November 1970, p. 1-2-10.
8. Typically the supply of applicants peaks in the months immediately following high school graduations (June, July, and August) and bottoms out in December.
9. Aggregate rate of involuntary discharge estimated from retention and loss data for the first six months of CY 74 furnished by MGRA (MARDAC) and analyzed by GE TENPO (report on Enlisted Turnover) under contract with the DMC.
10. FY75 accessions data furnished by DOD at the request of the DMC.
11. The average enlistment term for FY75 accessions is assumed to be approximately three years. Employer contributions to Social Security are not included in these figures.
12. Applicant data for FY74 was prepared by MARDAC at the request of the DMC. Accessions data extracted from the Volunteer Roadmaps data base, furnished by MARDAC (report by LtCol John Johnston, Mr. Ken Scheflen, and Capt Paul Winkler).
13. The VOICE effort is conducted by the Personnel Research Division, AF Human Resources Laboratory. The Army's "quality screening research project" is also investigating broader measures of performance prediction. See Research Memorandum 75-8, Army Research Institute for the Behavioral and Social Sciences, July 1975.

14. For a more complete discussion see the report, Accessions Aptitude Testing in the Armed Forces, prepared by Hobar, Inc. under contract with the DMC, September 1975, p. 12.
15. This innovative statistical research is sponsored by the Air Force Military Personnel Center at the direction of the Air Force Deputy Chief of Staff for Personnel. See Predicting Attrition: An Empirical Study at the United States Air Force Academy, by J. R. Dempsey and J. C. East, USAF Military Personnel Center report, March 1976. A similar but more sophisticated approach is discussed in the Hobar, Inc., report, op. cit., pp. 4-10.
16. See William A. Sands' Bivariate Normal Version of the Costs of Attaining Personnel Requirements Model (CAPER), Navy Personnel Research and Development Laboratory, TR-WTR73-18, April 1973.
17. Person-job match and benchmark aptitude are dual efforts conducted by the Personnel Research Division, Air Force Human Resources Laboratory in San Antonio, Texas. The initial benchmark aptitude effort has been followed by job task-determined aptitude requirement research which is more fully discussed in The United States Air Force Occupational Research Project, by Raymond E. Christal, AFHRL-TR-73-75, January 1974.

APPENDIX A. ATTRITION COST COMPUTATIONS

I. METHOD

The salary costs associated with attrition were estimated by taking account of the characteristic pattern of involuntary discharges occurring over the enlistment term -- from the initial month of service through the thirty-sixth month. First, the total dollar amount accrued by a typical survivor was calculated.

The salary an enlisted man accrues over the thirty-six month enlistment term was estimated by using Army average time in grade estimates at the monthly pay for that grade.*

Pay is computed on the basis of monthly basic salary plus BAQ for single members (no dependents) plus BAS. For example, an E-1 with under two years of service earns \$361.20 (monthly basic pay) + \$66.60 (BAQ with no dependents) + \$76.95 (monthly BAS @ \$2.53 per day) for a total of \$504.75. The following table was utilized to estimate the cumulative salary cost over time on the basis of average time in grade.

Grade	Average months in grade	Cumulative months in service	Monthly Pay	Salary Cost	Cumulative Salary Cost
E-1	3*	3*	\$504.75	\$1,514.25	\$1,514.25
E-2	5	8	550.35	2,751.75	4,266.00
E-3	7	15	575.25	4,026.75	8,292.75
E-4	9	24	602.25	5,420.25	13,713.00
E-4	6	30	626.55	3,759.30	17,472.30
E-5	6	36	672.15	4,032.90	21,505.20

* 90 days in service

* Sources: THE NAVY TIMES (Oct 15, 1975) and OSD (M&RA)

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For example, the average recruit serves in the grade of E-1 for the first 90 days of the enlistment term. During the first three months of service the cumulative pay of an E-1 is \$1,514.25. Thus, the average recruit who remains in service for exactly three months accrues \$1,514.25.

Attrition data furnished by MARDAC (OSD, M&RA) was processed under contract by GE TEMPO to determine how many recruits DOD-wide are involuntarily discharged at various times throughout the first thirty-six months of active duty service. An individual attriting during the first three months accrues a small dollar amount relative to someone who attrites, say, after serving for fifteen months. Attrition figures over time expressed as a percentage of the original accessions population reveal the characteristic pattern of involuntary separations shown in the following table:

DGD CUMULATIVE AND SIMPLE
ATTRITION RATES OVER INITIAL
ENLISTMENT TERM (%)

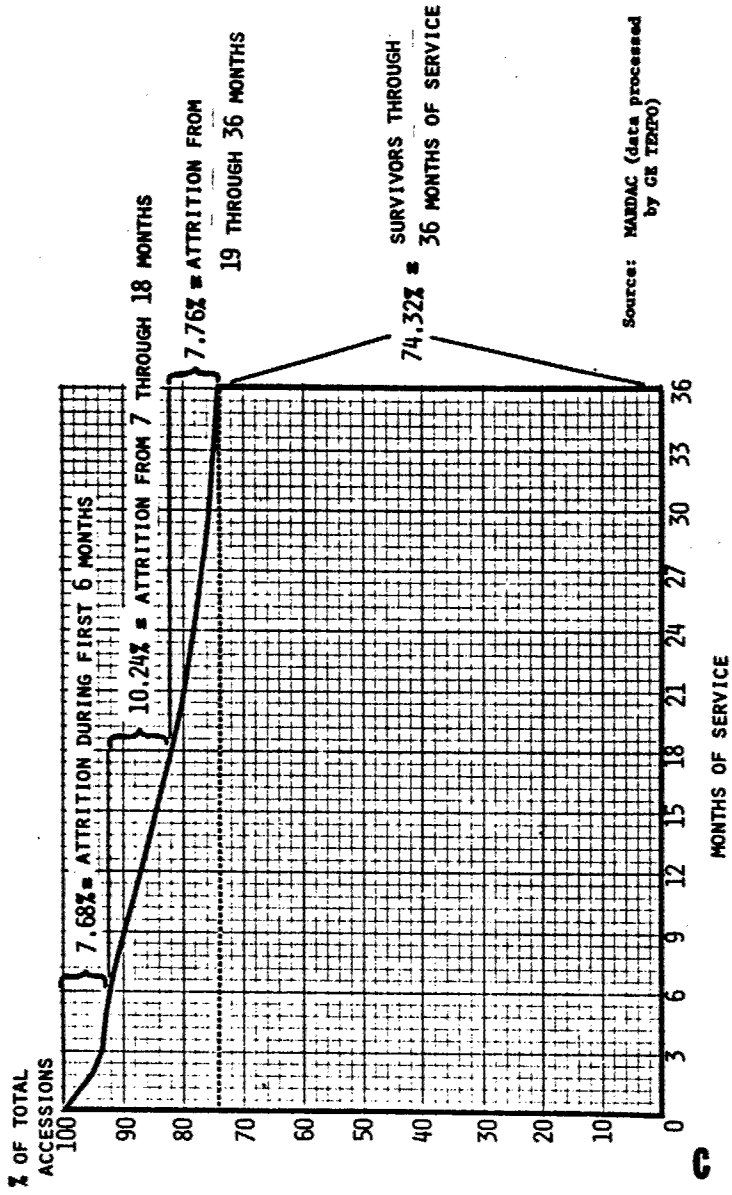
	MONTH OF SERVICE									
	1-2	3-4	5-6	7-9	10-12	13-15	16-18	19-24	25-30	31-36
Cumulative:	5.09	6.58	7.68	10.03	12.72	15.54	17.92	21.74	24.17	25.68
Simple:	5.09	1.49	1.10	2.35	2.69	2.82	2.38	3.82	2.43	1.51

Note that both the proportions discharged within each time interval and the cumulative proportions (including attritions occurring in earlier intervals) are portrayed. The cumulative statistics are presented graphically in the next figure. Source: MARDAC (data processed by GE TEMPO)

The attrition figures for DOD recruits show that, while almost 26% of all recruits are involuntarily discharged, very few accrue as much as

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CHARACTERISTIC PATTERN OF ATTRITION THROUGH
36 MONTHS OF SERVICE FOR DOD RECRUITS



Source: MANDAC (data processed by CE TEPFO)

\$20,000 in pay prior to discharge because an insignificant proportion remain in service as long as the 33 months needed to earn this amount. On the other hand, most of the individuals who attrite accrue more than \$1,500 in pay because the majority remain in service for at least three months before discharge.

The cost of one attrition on average is estimated by weighting the amount of pay accrued by individuals discharged in each time interval by the proportion they represent among all attritions. For example, 5.08% of all accessions are discharged during the first two months of service, representing 19.8% of total attritions ($5.08 \div 25.68 = 19.8\%$). Thus, 19.8% of all attritions accrue roughly \$505 by the time they are discharged, the amount recruits earn after one month of service.* Similarly 5.8% of all attritions ($1.49 \div 25.86 = 5.8\%$) are discharged in the third and fourth months of service. They accrue roughly \$1,514, the total amount earned by a recruit by the end of three full months of service (three months is the mid-point of the "3-4 month" interval which begins on the 61st day of service and ends on the 120th day:)

The amounts accrued for all intervals, weighted in the manner described, were summed yielding a total of \$7,688. This is the DOD average cost of one attrition occurring during the first enlistment term, taking account of salary payments only.

* It may seem that the total amount accrued through two months of service is the proper figure. However, some recruits are discharged during the first 30 days while others are discharged between the 31st and 60th day. Therefore, the average person discharged during the first two months leaves the service after remaining only one month.

II. ATRITION IN SPECIFIC OCCUPATIONS

The GE TEMPO contract effort also produced attrition figures spanning the period from January through June 1974 for various Army occupations. These statistics were used to compute the average cost of one attrition in each occupation.

The accrued-salary approach described in the previous section was employed to analyze the respective costs. Attrition figures for each occupation are indicated below.

TABLE : CUMULATIVE AND SIMPLE ATRITION RATES IN SPECIFIC ARMY OCCUPATIONS (%)

OCCUPATION:	MONTH OF SERVICE									
	1-4	5-6	7-9	10-12	13-15	16-18	19-24	25-30	31-36	
INFANTRYMAN	Cumul:	5.38	5.4	7.2	10.8	15.7	19.4	24.4	29.0	33.3
	Simple:	5.38	0.02	1.8	3.6	4.9	3.7	5.0	4.6	4.3
DRIVER	Cumul:	5.4	6.9	8.4	11.0	14.1	17.4	21.9	26.1	30.2
	Simple:	5.4	1.5	1.5	2.6	3.1	3.3	4.5	4.2	4.1
MECHANIC	Cumul:	5.5	6.4	8.0	10.7	13.8	17.4	22.1	25.9	30.9
	Simple:	5.5	0.9	1.6	2.7	3.1	3.6	4.7	3.8	5.0
SUPPLY CLERK	Cumul:	5.7	6.6	7.5	10.0	14.0	16.8	21.9	26.4	30.2
	Simple:	5.7	0.9	0.9	2.5	4.0	2.8	5.1	4.5	3.8

The analysis resulted in the following cost estimates:

Cost of one attrition in specific occupations

<u>Occupation</u>	<u>Cost</u>
Infantryman	\$10,000
Driver	\$ 9,792
Mechanic	\$ 7,042
Supply Clerk	\$ 9,902

Source: MARDAC (data processed by GE TEMPO)

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III. ATTRITION COSTS AND LIFE CYCLE COSTS

Enormous costs are incurred throughout the full cycle of a serviceman or servicewoman's career. Among the recruits enlisted in a given year, only a small fraction remain on active duty through 20 or 30 years of service. But those who do accrue hundreds of thousands of dollars in earnings over that period and continue to collect retirement incomes for the remainder of their lifetimes. To the extent that they and their dependents utilize the various non-money benefits provided by the DoD, the total expense increases even more.

One might ask, how should these costs be considered in allocating enlistment applicants across Service jobs at the beginning of a very expensive manpower life cycle? Life cycle costs are largely irrelevant to the recruit allocation problem, because the magnitude of life cycle costs is determined by the required size of the career force, normally defined to exclude first-term people.

Force planners make carefully considered judgments about the numbers of experienced people, or career personnel, needed to sustain a military force to support national security objectives. This judgment effectively determines how many people will be permitted to remain on active duty until retirement. Projected losses from the career force resulting from retirements and separations determine how many first-term personnel are permitted each year to remain on active duty beyond the initial period of enlistment to enter the career force. In the aggregate, the numbers of first-term people willing to enter the career force by reenlisting have traditionally exceeded the numbers required.*

* For specific occupations, however, this has not always been the case.

Regardless of the ease or difficulty with which annual reenlistment objectives are satisfied, however, the objectives themselves and the force structure judgments from which they are derived determine what the total life cycle costs will be. In terms of distributing enlistment applicants across Service occupations each year, a very inefficient allocation (unnecessarily high attrition and attrition costs) may imply no lower or greater life cycle costs than a maximally efficient allocation, excepting the costs of attrition which occurs during the first term.

Costs accruing in subsequent enlistment terms (salary, retirement pay, and non-money compensation) are predestined by force structure considerations. Thus, it would be erroneous to base allocation decisions on life cycle costs. Rather, the object of altering the recruit screening process should be to reduce the considerable costs that can be shown to result from inefficient selection and assignment practices manifested in first-term attrition.

APPENDIX B: THE OCCUPATIONAL SURVIVAL CONCEPT

For more than three decades test researchers have concentrated their efforts on developing selection tests predictive of the scores recruits achieve upon completion of formal occupational training programs (as discussed briefly in Part II of the study text.) Our evaluation of the recruit screening process indicates that better tests will obtain if selection instruments are designed to be maximally predictive of job performance, measured as "occupational survival", success or failure throughout the full term of enlistment.

It should be pointed out that the term survival, as used here, connotes success in basic military and advanced job training as well as satisfactory performance in the job throughout the full term of enlistment remaining after completion of training. Thus, the proposed criterion encompasses performance in training, the traditional criterion, as well as on-the-job performance.

The survival criterion can only be developed by tracking recruits from the first day of the enlistment term through the last day. Researchers must undertake data collection efforts that will enable them to determine the answers to the following questions:

- 1) To what job was the recruit initially assigned?
- 2) Did he succeed or fail in basic training? If he failed, when did it occur?
- 3) Did he succeed or fail in advanced formal training for the job to which he was assigned? If he failed, when did it occur?
- 4) If he failed in the initial job training program, was he assigned to a formal training program for a different job? What was the new job? Did he succeed or fail in the second training program? If he failed, when did it occur?

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- 5) Upon completion of formal occupational training, did he succeed or fail on the job? If he failed, at what point did it occur?

Personnel researchers must be able to answer these questions for every recruit assigned to each Service occupation in order to develop survival profiles necessary for designing improved selection tests. Extensive tracking of this type is not generally done by Service researchers today; however, it is clearly feasible.

The absence of a complete longitudinal data base is a small barrier when compared with the methodological objections raised by researchers to proposals for adopting a radically different measure of recruit performance. It is commonly assumed that involuntary separation occurring in the field, at some time following the completion of basic and occupational formal training, is normally the result of intangible factors adversely influencing the individual that are not related to the job itself. This assumption is invoked to justify using training scores as the prediction criterion for selection tests. That is, virtually all recruits who fail for want of those specific attributes essential for performing satisfactorily in a given job are identified prior to the completion of training. People who fail afterward do so because of "hidden deficiencies" which would manifest themselves in any occupation to which they might be assigned. Selection tests are therefore designed to predict training performance because it is in formal training that the potential for failure for job-related reasons is accurately revealed.

According to this view, the initial testing and selection performed by recruiters together with the extensive evaluation conducted through all

phases of formal training are maximally efficient in screening out all people who lack the particular attributes essential for satisfactory performance on the job. It is assumed that formal screening procedures and training evaluation insure that every recruit delivered to the field is suited to the demands of the job. If the recruit fails to perform satisfactorily on the job, it is because of his inability to adapt to the general military environment, lack of motivation, or undetectable personality or character aberrations.

We can examine this assumption by focusing on attrition rates among comparably qualified recruits assigned to two different occupations. Attrition occurring during the post-training portion of the enlistment term is of particular interest, because the stated assumption implies that an equal proportion of recruits completing training for each job satisfactorily should be involuntarily discharged in the post-training environment, the result of conditions not related to the job. That is, there will be a few "bad apples" in every barrel, and the barrel itself has little to do with the proportion that is later discovered.

Our barrels in this example are the Army Mechanic and Driver occupations. Our apples are divided into two groups, mental category I recruits (the top of the line) and mental category IV, non-high school graduate recruits (the least desirable recruits according to traditional measures of recruit quality).

The following table indicates the proportions of all recruits of either type initially assigned to each job who graduated from formal occupational training but who were involuntarily discharged during the last two years of a 36-month initial enlistment term.*

* Data prepared in GE TEMPO contract as described in Appendix A of this study.

Assigned and Trained as:

<u>Attrition during last 2 years:</u>	<u>Drivers</u>	<u>Mechanics</u>
• Mental Category I	21.6%	8.8%
• Mental Category IV (NHS)	19.7%	30.6%

Source: MARDAC (data processed by GE TEMPO)

The figures for mental category I recruits reveal a considerable difference in the proportions attriting after training in the two jobs.

Evidently there are one or more characteristics of the Driver occupation that lead many high quality recruits to fail (21.6%) when assigned in that capacity, even after completing all formal training successfully.

The demands of the Mechanic occupation influence mental category I recruits to perform quite differently on the job when so assigned, indicated by the comparatively low 8.8% attrition figure.

A marked difference in likelihood of post-training survival is also indicated for mental category IV (NHS) recruits in the respective jobs. But for this group the post-training demands of the Driver occupation are much more conducive to success on the job than in the Mechanic occupation.

Our high quality apples are much more perishable in the Driver barrel, yet our low quality apples are more likely to go bad in the Mechanic barrel. These findings indicate that the job itself can significantly alter the probability of success or failure, even after extensive screening has been performed by means of selection testing and evaluation while engaged in training. Equally important, the characteristics of each job affect different kinds of recruits in different ways. What is inimical to satisfactory performance among high quality recruits in the Driver occupation influences low quality people in a positive manner. The converse is true in the Mechanic occupation.

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The statistics do not support the assumption that attrition in the post-training environment is unrelated to the unique demands of the job. Rather, they give strong support to the alternative view that the specific characteristics of the occupation to which an individual is assigned continue to directly affect a person's chances of success or failure in the long run despite the extensive screening precedes his assignment to the field.

This type of analysis shows how improvements in the predictive accuracy of tests can be assessed in the future. It may be expected that as better tests are devised to more accurately predict occupational survival, two changes in attrition patterns will occur. First, attrition throughout the enlistment term will decline in most jobs and particularly attrition occurring in the post-training environment. Second, the magnitude of attrition in each job occurring among recruits of a given quality, such as a mental category, will approach a standard level. As greater screening efficiency is attained, it will become more difficult to find jobs in which, say, mental category I recruits experience an unusually high, non-standard attrition rate in the post-training environment. Attrition will continue to occur, of course, because there will indeed remain undetectable individual attributes which contribute to failure in the field regardless of the characteristics of the job. But failures resulting from the inappropriate matching of recruit attributes to the demands of the occupation over the full term of enlistment will become increasingly rare. Maximum possible efficiency will manifest itself across all Service occupations in a comparatively low, standard rate of involuntary separation in the field among similarly qualified recruits.

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WORKING PAPER
NOT AN OFFICIAL POSITION OF THE DMC

REPRESENTATIONAL POLICY IN THE U.S. ARMED FORCES

A Staff Issue Paper for
the Defense Manpower Commission

By
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EXECUTIVE SUMMARY

TITLE: Representational Policy within the U.S. Armed Forces.

BACKGROUND: The advisability of taking policy actions to achieve and sustain a representative armed force has been the subject of increasing public debate and concern. Despite the lack of representation during the past three decades, representation is becoming a formal policy objective of the Services. While concern is expressed for the levels of minorities and women, and for educational, geographical and economic representation, in practice, the policy actions concentrate on achieving representation of blacks and other minorities and geographical representation.

PROBLEM: Whether the Services should have representational policies; if so, how should the policies be defined.

CONCLUSIONS: The adoption of formal representational policies by the Services would cause major problems of definition (i.e., who should be subject to representational levels), administration (what skills, units, areas, ranks should be subject to representational controls) and political (what would be acceptable representational levels). The imposition of representational requirements would also have adverse impacts on recruiting programs and the sustainability of the All Volunteer Force.

RECOMMENDATIONS: The Department of Defense and all Services should cease all actions which establish and support the achievement of representational goals and should recruit and assign personnel without regard to representational factors.

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REPRESENTATIONAL POLICY

This paper discusses representational policy with respect to military personnel in the U.S. Armed Forces; that is, a combination of decisions concerning appropriate levels of representation and the necessary implementing administrative actions.

In contrast to goals or objectives, representational policy decisions would prompt the expenditure of funds or the authorization of less-than-maximum efficiencies in order to support the representational policy decisions. For example, a representational goal might be to have all new Service accessions representative of the geographical areas of our country. This goal would then serve as a standard against which recruiting results could be compared. A representational policy decision, on the other hand, would assign recruiters to less productive areas in order to achieve the desired geographical mix. Without such a representational policy, the most cost efficient recruitment program would locate recruiters in areas where they would produce the largest number of quality recruits, regardless of the impact on representation.

HISTORICAL PRECEDENTS

Representation in the armed forces should be considered in the context of historical precedents, and, for the purposes of this discussion, the norm for representation is the proportion of each group within the national population.

Whereas the draft generally insured a better geographical representation within the forces, the Services have never been representative in other areas. Perhaps the closest that the Armed Services came to representation was in the closing months of World War II, when the vast majority of the younger age classes were inducted into the forces. However, even during that period of major manpower demands, only 73.1% of the 19-25 year

olds were in service.^{1/} The remainder, about one man in every four, was disqualified or excused.

Since that time, the Services never have approached representational levels.

Black Representation

In the active forces in 1949, blacks comprised 7.5% of the enlisted forces and less than 1% of the officer corps. By 1952, the proportion of black enlisted men had reached 9.2% (still below the national proportion).^{2/} Indeed, the proportion of black enlisted men stayed at about the 9%-10% level until the adoption of the AVF concept in 1971-72, when the proportion began to climb, reaching a level of 16% at the end of FY 75.^{3/} Thus, blacks were more underrepresented in the decade of the 50's and 60's than they are overrepresented in the 1970's.

The level of black representation in the National Guard and Reserves is the classic case of extremes. At the end of 1969, slightly more than 1% of the National Guard and Reserves were black, even though the President of the United States had for two years called the recruitment of blacks "a matter of highest urgency".

"For some reason, we haven't been able to get a handle on why they haven't wanted to enlist", a top National Guard official said.^{4/}

During recent years, the National Guard obviously found the answer to that question, and the proportion of blacks in the National

^{1/} Fourth Report of the Director of Selective Service (Wash.,DC,GPO,1946) p.481.

^{2/} The Negro in the Armed Forces, a Statistical Fact Book, OASD(Equal Opportunity), Sept. 1971.

^{3/} Representation Monograph, OASD(N&RA), MPP, Nov. 28, 1975.

^{4/} The New York Times, Feb. 26, 1970.

Guard has significantly increased, with blacks comprising more than 25% of new accessions in both FY 1974 and FY 1975.

Education and Mental Group Representation^{1/}

Another of the major categories most commonly associated with representational policies is education and mental group levels, and in this area the Services again have never approached representation. Indeed, particularly during the recent AVF years, it has been the policy of the Services to improve their educational and mental group levels, with the aim of getting as many high school graduates and higher mental group recruits as possible. The Services, especially the active forces, have generally been successful in this quest, although their 72% high school graduates in the FY 1975 accession group are slightly below the 77% of 18 year olds who receive high school diplomas. In the Reserve Forces, however, only 51% of the accessions in FY 1975 had high school diplomas.

Concerning college trained youth, the recruiting records are more disproportionate. During FY 1975, some 45% of the 18 year old male population entered college; at the same time, only 11% of the accessions into the armed forces had some college training. On the other side of the ledger, almost 55% of the accessions in the National Guard and Reserves in FY 1970 were college trained. (This level dropped off to 6.1% by FY 75.)

^{1/} Data on active forces accessions, educational and mental group levels for FY 70-74 from DoD Special Studies No. A02, F02, M02 and W02 of 9/4/75; data on FY 75 Armed Forces accessions, educational and mental group levels from OASD(M&RA). Data on high school graduations, first-time male college enrollments and 18 year old male population from Projections of Educational Statistics to 1983-84, (HEW, National Center for Educational Statistics, 1975), pp. 43, 44, 154, 159. Estimates on GED's from Dr. Vance Grant, National Center for Educational Statistics.

Data on Reserve Forces accessions, educational and mental group levels for FY 70-75 from Briefing Charts prepared by Office, Deputy Assistant Secretary of Defense (Reserve Affairs), 30 June 1975.

The non-high school graduate also has been disproportionately recruited into the armed forces. In our society, the proportion of 18 year olds who do not receive high school diplomas has held steady at about 23% for the last six years. During this same period, while the proportion of active force accessions with less than high school diplomas has varied between 28% and 39%, the proportion of non-high school graduates in the National Guard and Reserve has changed from a very under-represented 5.7% in FY 1970 to a very overrepresented 54.5% in 1974.

Concerning mental groups, there also has never been proportionate representation. First, the lowest 10% or so (Category V personnel) are precluded by law from entering the Service. Second, the Services during the AVF years have limited the number of Category IV personnel. At the same time, the proportions of Categories I and II personnel have never in recent years reached their proportions of the general population.

Representation of Women

The proportion of women in the armed forces also has fluctuated over the postwar years, from a low of 1.1% of total active military strength in FY 1964 to 4.6% level of FY 1975. The proportions of women in the separate Services also varied at the end of FY 1975, ranging from a low of 1.6% in the Marine Corps to a high of 5.4% in the Army. Despite Service programs to broaden occupational opportunities for women, they remain disproportionately represented in administration MOS's (military occupational specialties), with approximately eight times the proportion in administrative jobs in both the active and Reserve Forces than in the forces in total.^{1/} Further, because of their arbitrary decisions to limit the number of women enlistees, the Services have been able to reach their recruitment goals while insisting upon higher entry standards. If the

^{1/} Data furnished by OASD(M&RA).

quota restrictions on women enlistments were removed and if entry standards were equal for men and women, the representation of women in the Services would be significantly higher.

Geographical Representation

From 1940 until the cessation of active inductions in 1973, the Selective Service insured a generally representative geographical distribution of young men in the armed forces. Due to differences in regional educational systems, volunteerism rates, health conditions, etc., there were some differences; however, they were not significant.

During the recent AVF years, there has been some movement away from this historical geographical representation level. For example, in FY 1971, New England and the Mid-Atlantic States were providing 19.3% of armed forces accessions; in FY 1974, this had been reduced to 17.2%. That same year, there was a 4% drop in the Midwest, while the Southeast, Southwest and Pacific Coast states all increased by 2% to 3%.^{1/} Then, during FY 1975, due primarily to shifts of recruiting personnel, the percentages were brought more into line with the FY 1971 levels.^{2/} In sum, although there have been slight variances, geographical representation has generally been achieved throughout the last 35 years, although it has only been in the last year or so that specific policy actions were taken in order to achieve this goal.

Economic Representation

As with racial, educational and male-female groups, the Armed Services never have been very representative of the Nation's economic classes. Although the draft prompted a somewhat better cross section than current AVF policies, the Selective Service rules on occupational

^{1/} Project "Volunteer Road-Map", U.S. Air Force, 1974.

^{2/} Representational Monograph, op. cit.

and college student deferments (which were extended by many to the point of non-eligibility for induction) resulted in a smaller-than-average proportion of higher income youth entering service. At the other end of the economic spectrum, the bad education and health records of many poor families traditionally precluded proportionate numbers of young men from these backgrounds from entering the service.

During the AVF years, there has tended to be a further concentration of accessions from the so-called middle range of economic classes. Because of continuing raises in Service educational/mental group standards, the bottom portion of the economic ladder has been increasingly precluded from entering the Services, while the absence of competitive wages for college trained individuals has substantially limited men from the higher economic classes. Although the research on economic status of accessions is somewhat unreliable, the validity of the data is such that the Department of Defense states: "For the most part, recruits come from middle income families and neighborhoods."^{1/}

Summary

An analysis of accession and force characteristics during both the draft years and the current AVF years supports the conclusion that the armed forces never have been completely representative, with the possible exception of geographical factors. In the other areas of prime interest -- racial, educational, male-female and economic -- there have been both wide ranges and changes in representation levels and limited past concern on the part of policy makers, the public or Congress as to the significance of these non-representative factors.

^{1/} Representational Monograph, op. cit.

CURRENT PUBLIC DEBATE CONCERNING REPRESENTATION

Despite the fact that the armed forces were not totally representative in the post World War II years, the question of whether they should be representative was never given much concern until the late 1960's, when a combination of events opened the door for what has become a fairly heated debate among legislators, academicians and others.

The role of the draftee in the Vietnam War first focused public attention on the disproportionate representation then apparent in the ranks of the Army and Marine Corps combat units and in their casualty rolls. Through the use of Selective Service deferment/exemption schemes, and by enlisting in the National Guard or Reserves, few college trained upper class young men were being assigned to combat units in Vietnam. Conversely, there was a disproportionate number of so-called "poor" and Blacks in the combat units. And with high casualty rates, particularly among young blacks, the question was raised concerning representation in the forces.

Proponents of Representational Policies

During the same period, the President directed the Gates Commission to determine the ways and means necessary to recruit an All Volunteer Force. The question of representation was studied by the Commission and comments thereon were contained in their widely read report. Although the Commission Report discounted claims that the AVF would become "all-black" or dominated by servicemen from low income backgrounds, their consideration of representational factors in the military for the first time in recent years gave an official endorsement to a concern for representation - a concern which heretofore had never been expressed -

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at least since the late 1940's, when the desegregation of the armed forces by President Truman prompted a plea from the Army for a 10% quota for black enlisted and, later, a private agreement with President Truman that a quota could be established if the number of black enlistees "became disproportionate".^{1/}

Although the Gates Commission Report did not document its research on this particular issue, the report stated:

Members of both the white and Negro communities have expressed concern that the all-volunteer force might fill its enlisted ranks with the poor and the black. This concern is linked to the recognition that a move to a voluntary force requires a substantial increase in first-term military pay. Higher pay, it is said, will increase the attractiveness of military service primarily among lower income groups, where the proportion of Negroes is high. A predominantly black enlisted force might develop. This will result, according to some, in the black and the poor bearing a disproportionate share of the burden of defense. Some whites are concerned with the dangers of having in the community a large number of blacks who have had military training. They fear that these men will participate in domestic disorders and riots.^{2/}

While the report repeatedly discounted these claims, they nevertheless gave the expressed concern a legitimacy that heretofore it had not enjoyed.

Following the Gates Commission Report, others in and outside of the Government have commented on the issue of representation. Although there have been passing references in most of these comments to geographical, educational, male-female, and to a greater extent, economic representation, the prime area of debate has involved the level of black representation. This debate was given greater emphasis during the AVF years by the rapid increases in the number of black enlisted accessions into the active and Reserve Forces.

^{1/} The New York Times, 30 May 1975, p. 34.

^{2/} Report of the President's Commission on an All-Volunteer Force, February 1970, pp. 141-142.

Among those commenting on the issue were two sponsors of the legislation which established the Defense Manpower Commission. Speaking of their concerns and the need for a commission, Senators Kennedy stated:

Throughout the debate over the passage of the Military Selective Service Act of 1971, Public Law 92-129, proponents of a volunteer Army argued that there would be no major increase in the percentage of minorities in the Armed Forces. They said the Gates Commission and the Defense Department analyses suggested that the percentage of minority and poor members in the Services would remain fairly stable and in most cases would not increase beyond their percentage of the general population.^{1/}

Senator Eagleton stated:

I said at that time that I believed that an All Volunteer Army would be a poor man's Army, that it would be composed of young men and women from the lower end of the socio-economic scale who, because of lack of formal education, lack of training, lack of opportunities, and lack of money would accept military service as a means of economic survival.^{2/}

The result of their concern was a specific charge to the Defense Manpower Commission (in P.L. 93-155) to give special consideration to:

The implications for the ability of the Armed Forces to fulfill their mission as a result of the change in the socio-economic composition of military enlistees since the enactment of new recruiting policies provided for in Public Law 92-129 and the implications for national policies of this change in the composition of the Armed Forces.

NOTE: The ability of the armed forces to accomplish their mission as a result of the changes in the socio-economic composition of enlistees is discussed in the DMC staff Research Paper, "The Impact of Socio-Economic Composition in the All Volunteer Force," by Kenneth J. Coffey, Edward Scarborough, Frederick J. Reeg, Audrey J. Page and James W. Abellera. The implications for national policies of these changes are discussed in this paper.

Further attention was called to representation as an issue by many other organizations, individuals and groups. Among these were Drs. Morris Janowitz and Charles Moskos, Jr., perhaps the most vocal critics

^{1/} Congressional Record, 26 September 1975.

^{2/} Ibid.

of "representational problems." Writing in various professional journals, the two academicians echoed the same theme, which is best illustrated from the following excerpt from one of their articles:

Professional military officers and civilian commentators view a large concentration of blacks as exacerbating race tensions and management problems within the Services. Many are apprehensive about the internal reliability of such a force. They further ask the question: Can a military force whose combat units are overweighted with a racial minority have credibility in the world arena? They speak of a "tipping effect" or that point at which the proportion of blacks becomes so high that large numbers of whites are no longer prepared to enter the particular Service or branch involved. Such an occurrence could be engendered by factors including the perceived status decline of units overproportionately black, or the real force of black hooliganism on the part of many lower-ranking white enlisted men. The result could well be a significant diminishment of white recruits for the ground force units involved.^{1/}

Dr. Janowitz again echoed this theme in testimony before the Defense Manpower Commission:

A representative military is the basis of civilian control and the legitimacy of the military. In a democratic society, a representative military is essential to military effectiveness.^{2/}

Writing in the New York Times, John W. Finney also called attention to the concern of some politicians for racial representation imbalances:

Some conservatives and liberals also question whether an all-volunteer force is a desirable social objective in a democracy: the Conservatives because they are worried about the number of blacks in the services, the liberals because they are worried that the nation may be acquiring a mercenary force drawn from the lower classes that future political leaders can use for military adventures.^{3/}

^{1/} Morris Janowitz and Charles Moskos, Jr., "Racial Composition of the All-Volunteer Force: Policy Alternatives," Armed Forces and Society, Vol. 1, No. 1, Fall 1974.

^{2/} Testimony before the Defense Manpower Commission, 17 July 1973.

^{3/} The New York Times, 3 November 1974.

Concern over black overrepresentation also was expressed editorially by the New York Times, stating that:

...The end result can be a force so largely made up of Blacks as to destroy the integration aim.^{1/}

Finally, even the Defense Manpower Commission has identified representation as a "problem." Citing the need for an in-depth study, the Commission in its Interim Report said:

Whereas the draft in essence gave the military a distribution system which caused the Services to more nearly reflect a cross section of American youth, the All Volunteer Force, on the other hand, leaves the socio-economic and minority group balance more to chance. The result has been some pronounced aberrations in the distribution of military personnel which, although solvable, nevertheless create problems.^{2/}

Proponents of "Free-Flow" Policies

A defense of current non-representational enlistment levels generally has been made by black leaders and scholars.

Writing in the Washington Star, Vernon Jordan said:

It is interesting that while American servicemen were fighting and dying in Vietnam there was little concern about the disproportionate numbers of blacks in front-line combat units and on the casualty lists.

Criticisms of the armed forces should be based on real issues, not on false racial concerns.^{3/}

In the same article, however, Mr. Jordan expressed concern over the "black under-representation" in the officer ranks.

Another voice of concern over possible black representation policies came from Representative Shirley Chisholm. In my mind, said Chisholm:

All this talk about a volunteer Army being poor and black is not an indication of "concern" for the black and the poor but rather of the deep fear of the possibility of a black Army. Very

^{1/} The New York Times, 5 February 1975.

^{2/} Defense Manpower Commission, Interim Report to the President and Congress, 16 May 1975, p. 14.

^{3/} The Washington Star, 13 July 1975.

few people desire to verbalize the underlying fear and anxiety of a large number of black men trained in the military sense in a Nation where racism is rampant. Individuals who are upset over black Power rhetoric shudder at the idea of a whole Army of blacks trained as professional soldiers.^{1/}

Representative Ronald Dellums has also spoken out with respect to possible representational policies:

If, through the exercise of free choice by individuals, there are more blacks in the Service than in the population (proportionally), we should expect a proportionately greater sacrifice. The whole idea of a volunteer Army is that the individual will take this risk and this responsibility on by his or her free choice. It is not the role of the military to turn a qualified volunteer down while telling him "your community will not stand for it". Despite protestation to the contrary, that is what we are talking about, denying blacks opportunity to join the military.^{2/}

To this, Eddie W. Williams, President of the Joint Center for Political Studies, adds:

But whether it is admitted publicly or not, we know that the controversy also stems from dark visions of military trained blacks taking control of cities and by unsubstantiated notions about the degree of confidence our allies have in black troops.^{3/}

In sum, there is growing debate and controversy over the question of representational policy within the Services. The vast majority of the comments have involved the level of black representation. Although concerns have been expressed both by factions "worried" about the increased proportions of blacks in the armed forces and by other factions who are "worried" that their opponents will initiate some form of policy controls over black accessions and representational levels, little has been proposed concerning specific actions that could be taken - either in order to control the number of black accessions or to ensure an absolutely "free flow" opportunity for all members of all groups.

^{1/} Testimony before the House Armed Services Committee, March 15, 1971.

^{2/} Joint Center for Political Studies, Focus, Vol. 3, No. 8, June 1975, p.6.

^{3/} Statement before the Defense Manpower Commission, 17 July 1975.

CURRENT DoD POLICY OBJECTIVES AND ACTIONS

The achievement and sustainment of a "representative" armed force would seem to be a current objective of the Department of Defense, although the exact dimensions of desired representational levels and the degree to which the Services are or are planning to go in terms of supporting their representational objectives with policy actions are as yet unclear and have not been subject to Congressional examination or public debate.

However, the issuance of monthly statistical reports which discuss "Representation", the publishing of an in-depth Representation Monograph by OSD (M&RA), and public statements from civilian leaders within DoD all support the conclusion that the representation level of the armed forces is a basic consideration of our civilian and military leaders.

For example, as Assistant Secretary of the Army Brotzman recently told the Defense Manpower Commission:

.... With the advent of the volunteer Army, it became increasingly evident that the makeup of the force might become substantially unrepresentative. This became a matter of concern to many Members of Congress as well as to other national leaders and to the media. There was worry that the Army might develop into a mercenary organization, an Army of the poor, a regionally biased Army, or an Army disproportionate in minorities. These concerns, while only concerns at the time, prodded the Army into an introspective look.^{1/}

In the same statement, Secretary Brotzman seemed to provide the results of this policy examination:

Equally important as having a quality and professional Army is having an Army which is generally representative of the American people. I mean representative in the racial, geographic, and socio-economic sense.

^{1/} Statement of Assistant Secretary of the Army (M&RA) Brotzman before the Defense Manpower Commission, 17 July 1975.

Although others also have commented on representational policy goals, there are mixed interpretations within the Services concerning appropriate representational policies, and there are limited but increasing amounts of formal policy actions being taken in support of representational objectives. However, these policies and actions seem to be restricted to achievement only of racial and geographical representational objectives. None of the Services, nor OSD, is particularly concerned about the lack of representation concerning education and mental group levels, proportions of women or proportions of the "poor".

Inter-Service Differences in Policy Objectives

Although each Service seems to have an implicit service-wide policy of achieving proportional representation of accessions based on geographical origin, there are inter-Service differences in their racial representational policies.

The Army objectives, which apply to regular, Reserve and National Guard, make no mention of racial representation in terms of percentages within the total population. Racial representation objectives are established in terms of in-service proportions of enlisted blacks and other racial minorities. Using the in-service percentage of enlisted blacks, for example, the Army objective is to provide representative participation in all skill areas. Similarly it would appear from the Army policy of computing a "representation index" to measure and track progress, that the ultimate goal is to have the racial representation in officer strength equal to the representation in enlisted strength.

The Marine Corps objectives are similar to the Army in that there is no reference to the general population for enlisted accessions. Marine objectives generally define racial representation in terms of racial "balance" between occupational groups and major Fleet Marine Force commands based on in-service population. In the area of officer accessions the Marine Corps has established a racial representation goal of attaining a percentage of minority accessions that approximates the percentage of minority college enrollment.

The Air Force (regular, Reserve and Air Guard) racial representation objectives are stated in terms of both source population and in-service balance. In the area of enlisted accessions the Air Force representation objective is to reasonably reflect the racial/ethnic mixture of the national population. As for in-service personnel, the objective is to achieve equitable distribution of minorities in all career fields. The Air Force objective for representation in the officer ranks is established at 6% minority by early 1980.

The Navy racial representation objective is stated in terms of seeking to achieve increased representation of minorities proportional to the demography of the source population. Quantifying this racial representation objective, the Navy accession goals are 12% enlisted and 6% officer minorities. The Navy has no established objective related to racial representation in various career fields; however, to improve the opportunity of minorities for apprentice training, there is a recruiting goal that the percentage of enlisted minority school eligible accessions be the same as the school eligible percentage of total accessions.

In sum, in addition to geographic origin, representation based on race has become a consideration of all Services in establishing specific manpower objectives. The applications of representation are not standard. It might pertain to accessions proportional to the general population, or certain qualified groups (e.g., enlisted vs. officers), or distribution and balance across occupational fields, career specialties, and certain major commands.

Current DoD Policy Actions

Each of the Services to some degree currently is expending funds or supporting recruiting operations in order to achieve representational objectives. Thus, in the terms defined at the beginning of this paper, each of the Services currently is following a representation policy. As noted previously, these policy actions impact mostly on racial representation and, to a lesser degree, geographical representation levels and distribution.

In addition, there are many actions that have been taken in recent years by the Services which have direct impact on representational levels, although the stated reasons for the policy actions were not related to the achievement of representational goals.

Within the Army, the clearest example concerns geographical representation. During FY 1975, the Army redistributed its recruiting force with a stated objective of achieving better geographical representation among recruits. This move was taken although it would have been more

efficient and cost effective to concentrate recruiters in certain "pro-Army" areas of the country. This move, which transferred some recruiters out of heavily black areas, also resulted in a reduction in black enlistments, although the impact on black enlistments was not a stated goal of the redistribution program.

Policies which directly limited the enlistment of blacks have been in effect in both the Navy and Marine Corps. Resulting from high level concern over the number of blacks who were concentrated in less-demanding skill areas, both Services attempted to limit the proportion of less qualified black enlistees by relating their acceptability to the recruitment of black enlistees with higher Mental Group rankings. The Marine Corps program was in effect during FY 1974 and 1975, although stopped in February 1975. The Navy program still is in operation. In practice, both programs either limited or permitted the enlistment of Black Category IV personnel while allowing the enlistment or turning away of whites with similar minimum qualifications.

The Air Force also has taken at least one policy action which has increased the proportion of minority candidates within occupational MOSs. Designed to achieve a better distribution of minority enlistees throughout the various skill areas in the Air Force, the program essentially authorizes parallel assignment systems. Although candidates from both the black and non-black groups are minimally qualified, the minority candidates who are assigned to at least 10% of the available MOS skill openings may

or may not be equally qualified to the non-minority candidates they have displaced.

In addition to these programs, all four Services operate special minority officer recruitment programs. Although they may not be as cost-effective as other officer recruitment activities, these programs nevertheless are continued because of the desire of the Services to improve their percentages of minority officers.

Summary

With the advent of the AVF, each Service and DoD became increasingly aware of representational factors, and despite differences in interpretations (which often change with changes in top leadership), the Services in varying degrees seem to be moving forward on implementing policy actions. While some policy actions have been taken to date, and other policy decisions have had representational overtones, a major policy commitment to achieving representation through the expenditure of funds and less-efficient recruiting operations has yet to be made. However, unless Congress, the Administration or the public enter the debate, it seems likely that the Services will continue their evolution toward firm representational policies.

DISCUSSION

The term "representational policy" merits specific definition in terms of criteria and boundaries. In its broadest sense, representational

policy could be an extremely complex and confusing matrix of restrictions and requirements.

In order to gain an understanding of the many problems that would be associated with establishing representational policies, consideration should be given to the following questions:

1. What factors or groups should be included in a representational policy?

The groups and factors most commonly cited in public discussions of representational policy are minority groups, educational and mental group levels, geographic, male-female representation and economic levels.

While identification of the last four factors are reasonably clear-cut, the problem of deciding the minority groups to be included would be complex and subject to heated public debate. While blacks, Spanish-surname, Indians and "others" are commonly identified groups, what about all the other ethnic, religious and nationalistic groups in the country? For example, as Phil Stevens wrote in Air Force Times: ^{1/}

One group of congressmen recently asked Secretary of Defense Schlesinger to explain what they thought was a shortage of ethnic Polish and Italian officers in the general and flag ranks. Most of those members had Polish or Italian names. Perhaps the various senators and representatives of Japanese extraction will be next to ask why there are no generals or admirals with Japanese surnames.

While Mr. Stevens' example is a bit extreme, there nevertheless are various ethnic, religious and nationalistic groups which are striving for recognition, acceptance and success. Thus, any definition of representational policy would have to give serious consideration to all such groups.

^{1/} Air Force Times, 24 September 1975.

2. Who is a member of an identified group?

The problem of matching men and women with identified groups also would be complex, particularly in the area of minority groups. If blacks were chosen as one of the groups, what identifies a "black"? Further, is the objective to achieve a racial representation, or to achieve a representation of those blacks, Spanish-surnames, Indians and others that have yet to enter the mainstream of American life. In other words, should the men and women who have integrated into the mainstream of society be included or excluded from the representational policy category.

3. What is representation?

Extended public debate would be necessary in order to arrive at a consensus of acceptable representational levels, for depending upon the point of view of the proponent, widely different numerical and percentage levels could be justified as appropriate. For example, in the case of black officer accessions, justifiable arguments could be made to set the representational policy equal to the enlisted proportion in a service (for example currently 22% in Army); at 13% (the proportion of blacks in the youth population); 11.6% (the proportion of blacks in the general population; and 6% (the proportion of blacks among college graduates). Cases even could be made for percentages above 22% (in order to "catch up" on past lower-than-representational-level inputs), and less than 6% (by limiting officer candidates to college graduates with specifically required engineering, science, or professional majors).

4. What factors should be subject to representational policy controls?

Another complex question that would have to be answered in order to arrive at any defensible representational policy concerns the areas of applicability for that policy.

For example, and again depending upon the point of view of the proponent, cases could be justified for enforcing a representational policy within the Department of Defense as a single entity, or within yearly accession totals. In these cases, it would be immaterial if significantly more or less of the identified group entered the Army rather than the Air Force, or the Marines rather than the Navy.

A case also could be made for service-wide equity, thus ensuring a balance between Services. The National Guard and Reserves could or could not be included in this position, again depending upon the proponent's point of view.

If service-wide standards are agreed to, then the next logical question concerns within-service distributions. Should representational policy be enforced within the various broad occupational categories, i.e., combat arms, supply, administration, etc.? Should it be extended to specific MOSs within these broad occupational categories? Last, should the geographical distribution of men/women in Service be influenced by representational factors. If so, then the Services would have to insure that an equal proportion of men and women from identified representational groups, within identified occupational clusters or specific MOSs, would be

serving in all geographical areas. . . perhaps even within all subordinate units. . . perhaps even within the smallest identifiable unit, such as an infantry platoon.

EQUAL OPPORTUNITY, AFFIRMATIVE ACTION AND REPRESENTATIONAL POLICY

DIFFERENCES

There are three phrases commonly used to describe official Department of Defense and service policies concerning representational factors. These are Equal Opportunity, Affirmative Action and Representational Policy. Although similar in intent, the three are different in concept and operation.

Equal Opportunity programs are designed to remove vestiges of bigotry and institutional racism in order to insure that all men and women, regardless of their race, ethnic background, economic status or geographic home of record, receive equal opportunity for enlistment, assignment, promotions, etc. At its ultimate success, the only criteria for selection would be "best qualified".

Affirmative Action programs, on the other hand, have attached a numerical percentage or level to the representation of various groups within the forces. While generally viewed as positive programs aimed to increase the participation of minorities in heretofore underrepresented areas, a critical analysis of the programs would also reveal that they function to limit the participation of heretofore over-represented groups and the distinction between Affirmative Action programs and Representative Policy is at best a grey area. While "affirmative action" is a currently

more "acceptable" phrase, the degree of policy enforcement which can occur in affirmative action programs can make these particular programs more "policy" than "action". For example, if the Affirmative Action program recently announced by the Army to reduce the number of blacks in the infantry and combat arms and to increase the number of blacks in other non-combat assignments is limited to active counseling, then there would be competition for the various jobs among equally qualified individuals and the program clearly would be Affirmative Action. Even if special training programs were utilized in order to bring minority group members up to a competitive level, there still would remain equal competition between minority and non-minority group members. However, when distinct policy actions are taken (whether called Representational Policy or Affirmative Action) that preclude assignment of equally qualified individuals in order to achieve better balance, or when the Services are conducting less-efficient recruitment programs for the same purpose, then regardless of title, they are conducting formal representational policy programs.

The Problems of Setting Representational Policies

A representational policy for the U.S. armed forces offers a multitude of variations, each of which would have a different impact on identifiable groups of citizens within our country. As the previous discussion indicated, a variety of points of views could be defended, with a resulting impact on the group in question ranging from an extremely low to an extremely high level.

Consideration of representational policy should not be undertaken lightly or in haste. It would be vital to the continuing success of any policy (which could be a deliberate decision that the policy would be absolutely "free-flow" without overt representational actions) that all interested parties in the country participate in the decision and that the decision be subject to extended public debate. Further, it would be vital to have the decision-makers as "representative" as possible. On the other hand, any discussion of representational policy levels would likely be a very emotional and complex undertaking which could cause more problems than it would cure.

The Problems of Administering Representational Policies

The enforcement of representational policies through deliberate actions on the part of the Department of Defense and the Military Services could create massive administrative problems and additional expenses. Depending upon the degree to which a representational policy was defined, the Services could be required to fulfill their staffing requirements in compliance with a Master Matrix of representational factors which could only be handled by a computer operation.

While such a system is technically possible, any requirement that imposes representational rather than qualification factors could be expected to adversely impact on the capability of the units to perform their missions. This would be the impact of any representational policy as the policy would limit the flexibility of the armed forces to utilize their personnel in the best possible manner in order to provide the best possible defense of our country. It would be unreasonable to expect

that the recruiting/staffing of the forces in accordance with a best man/woman for the job policy would coincide with recruitment/staffing policies with representational restrictions. Therefore, there would be a price paid by the Services in terms of effectiveness for the benefits of a representational policy, the degree of which would be determined by the differences between the representational policy restrictions and the "free-flow" of the best qualified candidates.

The adoption of a representational policy of any magnitude also would have an adverse impact on the cost-effectiveness of the recruiting operations. Because a representational policy would impose requirements different than that achieved under a "free flow" of the best qualified candidates, readjustments in recruiting operations would be required, unless the "marketplace" happened to coincide with the representational levels, which would be a very unlikely occurrence. More likely, the recruiters would have to refrain from signing-on good candidates from an over-subscribed group in order to recruit and sign-on good candidates from the group whose members have not been applying in quantities equal to the desired levels. As a result, there would be additional efforts, increased funding and probable decreased efficiencies in the recruiting operations. It could even lead to recruiting shortfalls.

The Impact of Representational Policies Upon Sustainability of the AVF

The sustainability of the All Volunteer Force is dependent upon adequate numbers of qualified young men and women being recruited for

military service. There is a distinct limit in the recruiting "marketplace." Factors such as minimum medical, educational and moral standards, level of wages and other benefits, the state of the civilian economy and many other factors determine the size of the recruitable pool. During the early years of the All Volunteer Force, there were severe recruiting problems with a "marketplace" that did not significantly exceed the needs of the Services. Since then, particularly in 1974 and 1975, the downturn in the economy has prompted civilian unemployment and resulted in greater numbers of young men and women being interested in military service. As a result, the recruitable pool was increased in size and the Services were able to raise their standards, thereby reducing the size of the pool to a level consistent with their needs while at the same time improving the qualifications of the potential recruits.

Within this ebb and flow of the recruiting marketplace, then, the impact of representational policies must be considered. For example, if a policy was adopted that the black input into the Army would be at the national proportion of black youths (13%), then the Army recruiters in recent months would have been precluded from taking certain qualified blacks (in excess of 13%) while at the same time would have been required to find an additional number of qualified non-minority candidates.

While in the "good" recruiting months of 1974 and 1975, this probably would have been possible by again lowering entry standards in order to increase the size of the non-black recruitable pool, the bottom of the barrel had been reached in 1972-74 and it probably would not have

been possible to attract additional non-minority candidates to the Services without providing additional monetary benefits or lowering the standards below the minimally acceptable level. Thus, in real life, the adoption of any policy which required representational input of volunteers is likely to have a significant adverse impact on the sustainability of the All Volunteer Force. While additional candidates for enlistment can be attracted to the Services from the current "uninterested" or "unqualified" pool, significant costs in force effectiveness and/or monetary cost effectiveness would be incurred. In today's AVF environment, the enforcement of any representational policy beyond that which can be accomplished within current supply-demand limits of the marketplace is not a realistic policy alternative.

CONCLUSIONS

The advent of the All Volunteer Force has prompted an increased surge of interest and concern in representational levels. Despite some comments which have focused upon all elements of representation -- educational and mental group levels, male-female, geographical, economic and racial - the great majority of interest has centered on the racial make-up of the forces, and this concern for representation did not manifest itself strongly until the rate of accessions into the AVF of black volunteers began to exceed significantly the proportions of blacks in the general population. In recent months, each Service, including the National Guard and Reserves, has established its own representational objectives. Not only are these

objectives different from Service to Service, but they often are vague and unclear. Furthermore, each Service has taken at least a few policy-supporting actions which are impacting on the racial and geographical make-up of the armed forces.

Without any guidance being provided by the Congress, Administration and the general public, it is likely that the Services will continue to implement representational policies, at least within the "real life" limits of supply and demand in the marketplace. Thus, while more non-minority candidates are available for enlistment, it is likely that the Services will continue to take policy actions which somewhat limit the access of black candidates. On the other hand, when the economy limits the availability of quality non-minority candidates, it is likely that the Service policies will be broadened so that increased numbers of minorities can be enlisted.

In realistic terms, representational policies of any kind are luxuries that can only be afforded when there is room to "pick and choose" within the available marketplace. Furthermore, although today's surplus of candidates for enlistment allows policies which manage the proportions of minority enlistments and achieves general geographical representation, policies which limit the Services to rigid proportions akin to the national population levels are simply not possible in the present supply-demand scenario. Thus, any representational policies are more likely to "bend" free flow levels of representation rather than achieve true representational levels. Such true representational levels could only be achieved with

significantly different volunteer incentives or some form of involuntary Service commitment, and these are not realistic alternatives in today's world.

The question of whether there should be representational policy cannot be avoided, simply because in the absence of structured debate, the policies are being decided in private and are slowly being implemented. It is therefore essential that the question of whether there should be representational policies for the armed forces be publicly discussed and debated, and that pending a formal decision of the Congress that representation in any form is a stated national policy objective, that the Services and the Department of Defense should be restrained from setting representational policy goals and taking actions of any sort which limit the "free-flow" entry and service of all equally qualified candidates. This would have an immediate impact on the armed forces, with Service personnel tending to be more geographically clustered, with more blacks enlisting in the forces, with fewer black officers being appointed, and with blacks tending to cluster in certain occupational areas.

RECOMMENDATIONS

The DMC staff recommends that, pending a decision of the Congress which formally establishes Representational Policies:

It is recommended that, pending a decision of the Congress which establish and support the achievement of representational goals.

The Services manage their recruitment and assignment practices in accordance with cost-effectiveness and efficiency guidelines.

The Services recruit and assign personnel without regard to representational factors.

It is further recommended that:

The Congress regularly examine the activities of the Services and the Department of Defense with respect to achieving and supporting these policies.

WORKING PAPER
NOT AN OFFICIAL POSITION OF THE DMC

THE IMPACT OF SOCIO-ECONOMIC COMPOSITION IN THE
ALL VOLUNTEER FORCE

A Staff Issue Paper
for the
DEFENSE MANPOWER COMMISSION

by
The Recruitment Group
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November 1975

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EXECUTIVE SUMMARY

INTRODUCTION: Highlights concern which led the DMC to investigate the implications for the ability of the Armed Forces to fulfill their mission as a result of the change in the socio-economic composition of military enlistees under the AVF.

THE ISSUE: Interpret the DMC charge in terms of 10 questions. Questions are derived from stated, implicit or inferable concerns in the DMC authorizing legislation

- 5 questions deal with actual change in socio-economic composition of military
- 5 questions deal with the impact of changes on mission capability

METHODOLOGY: Basic approach to the issue is a review of historical data which identifies socio-economic changes, conduct of a survey to gain perceptions of unit commanders concerning changes and their impact on readiness, and a review of other pertinent research and literature.

SOCIO-ECONOMIC CHANGES: Reviews overall changes in Armed Forces 1964-1975

- Presents statistical data on changes in the Armed Forces in each of the following areas:
 - Educational and mental group levels
 - Race
 - Women
 - Economic Status
 - Geography

SURVEY: Presents summary results of interviews with 154 unit commanders. Survey was designed to gain their perceptions of socio-economic changes in their units and the impact of those changes on the ability of their units to perform their mission.

IMPLICATIONS: In light of reviewing the presented data, the findings from the survey of unit commanders, and other research, this section addresses each of the 10 questions identified in the ISSUE section.

CONCLUSION: There have been several changes in the socio-economic composition of the Armed Forces; however, there are no indicators which point to a diminishing of mission capability resulting from such changes.

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I. INTRODUCTION

Section 702(7) of PL 93-155 directs the Commission to give special consideration to:

The implications for the ability of the Armed Forces to fulfill their mission as a result of the change in the socio-economic composition of military enlistees since the enactment of new recruiting policies provided for in Public Law 92-129 and the implications for national policies of this change in the composition of the Armed Forces.

This specific charge was the result of an amendment introduced by Senator Eagleton and supported by Senator Kennedy. In statements in the Congressional Record, they expressed concern over changes in the socio-economic composition of the forces as defined by those who do not have high school diplomas, are poor and/or are minorities.

Senator Eagleton stated (Congressional Record Sept. 26, 1973):

Two years ago on this floor I took a very unpopular stand when I opposed the effort to abolish the Selective Service System during wartime. I said at that time that I believed that an All Volunteer Army would be a poor man's Army, that it would be composed of young men and women from the lower end of the socio-economic scale who, because of lack of formal education, lack of training, lack of opportunities, and lack of money would accept military service as a means of economic survival.

Senator Kennedy stated (Congressional Record, Sept. 26, 1973):

My concern is . . . that the rising percentage of blacks and the rising percentage of individuals with less than a high school education indicates a basic change in the composition of the military.

. . . my concern now is that we are telling specific groups in the country that the only road to advancement, the only road for achievement is through the military and particularly through the combat arms route. In other words, they must be in a position where they are risking their lives to provide for the Nation's defense before we will accord them an opportunity to better their economic status.

The implication of this failure (the Senator probably is referring to 1973 recruiting results which indicated disproportionate numbers of minority enlistees) for both the Armed

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Forces and for the society must be explored and resolved not only with regard to the black and Spanish-speaking, but also with regard to the poor. I am hopeful that this amendment will afford an opportunity to achieve that result.

II. DEFINING THE ISSUES

The stated, implicit or inferable concerns of the two sponsoring Senators, as well as the intent of the authorizing legislation centered on education, economic status and race with respect to socio-economic composition. The DMC staff expanded these factors to include mental category, women and geography. These factors, in regard to composition, can be examined in the context of the following questions:^{1/}

1. Has the AVF recruited an increasing percentage of individuals without high school diplomas or equivalents, or from Mental Group IV?
2. Has the AVF become increasingly Black, and if so, in what areas?
3. Has the AVF recruited increased numbers of women?
4. Has the AVF become a poor man's Army?
5. How has geographic composition of the AVF changed?
6. Has the change in educational levels and mental groups within the AVF impacted on the ability of the Armed Forces to carry out its mission?
7. Has the increase in Blacks in the AVF impacted on the ability of the Armed Forces to carry out its mission?
8. Has the increased numbers of women in the AVF impacted on the ability of the Armed Forces to carry out its mission?
9. Have the changes in the economic status of accessions during the AVF years impacted on the ability of the Armed Forces to carry out its mission?
10. Have the changes in the geographic mix of the AVF impacted on the ability of the Armed Forces to carry out its mission?

^{1/} The statutory charge dealing with implications on national policy will be examined in another paper. **E**

III. METHODOLOGY

It is very difficult, if not impossible, to clearly assess "the implications for the ability of the Armed Forces to fulfill their mission as a result of the change in the socio-economic composition . . ." as stated in FL 93-133. It is based on the premise that socio-economic composition of a force affects performance. This may or may not be true. The DMC staff has dwelt at length on this matter. Performance could equally, or more so, be a function of such dynamic factors as materiel readiness, leadership, training and morale. Also, "quality" (i.e., qualifications, motivation, attitude, etc.) might be more important than socio-economic background. There are numerous unquantifiable variables and intangibles, internal and external to the Armed Forces, which complicate any assessment. Recognizing the many sensitivities, yet still attempting to respond to the charge in FL 93-133, the DMC staff adopted the following methodology in their efforts to document, discuss and evaluate the ten specific questions posed in Section II, Defining the Issues.

In the DMC approach, the first step required a documentation and evaluation of the changes (in socio-economic terms) which have occurred in the Armed Forces during recent years. Section IV, below, contains detailed discussion of these changes for each of the following categories:

1. Educational and Mental Group Levels
2. Race
3. Women
4. Economic Status
5. Geography

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The statistical record for recent years provided the basis for discussing and answering several of the questions. However, in terms of the other questions, this documentation of changes in socio-economic composition formed only the factual basis on which further research was based.

Two types of additional specific research were undertaken. First, a survey was conducted by the DMC staff (with the assistance of a professional survey research firm) of commanders in the field from all four Services. (This research effort is described in detail in Section V and in Appendix A.) To supplement this survey-research effort, the DMC staff explored pertinent DOD and other literature on the subjects in question.

IV. SOCIO-ECONOMIC CHANGES DURING THE AVF YEARS

The socio-economic changes which have occurred in the All Volunteer Force in the mid-1970's should be placed in the context of the broad changes which occurred in the Armed Forces generally.

The first broad change concerns overall Armed Forces size.

In 1964, the last year of relative peace before the Vietnam buildup, there were 2.685 million active duty military personnel, another 933,256 in the Selected Reserve, and more than 1.14 million civilian employees. By 1970, the demands of the Vietnam War had increased the size of the Defense establishment to 3.065 million active duty personnel, another 933,000 in the Selected Reserve and 1.26 million civilian employees. From that date through FY75 there were continuous reductions in the force levels, with a June 30, 1975 active duty end strength of 2.1 million, 906,000 in the Selected Reserve, and slightly less than 1.1 million civilian employees.^{1/}

^{1/} Department of Defense Manpower, FY 64-FY 77, The Components of Change, April 1975, Table 1.

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Because of these reduced force levels and other factors, there also has been a reduction in yearly accession goals. In FY 70 more than 633,000 men and women enlisted or were conscripted for the active forces, with another 207,000 volunteering for the Selected Reserve. By FY 75, the accession requirements had been reduced to 456,000 for the active forces but increased to 226,000 for the Selected Reserve. Further, while non-prior enlisted made up about two-thirds of Selected Reserve accessions in FY 70, they accounted for less than one-third during FY 75.^{1/}

The changes which have occurred during the All Volunteer Force years will be discussed in terms of the following socio-economic categories: Educational and Mental Group Levels; Race; Women; Geography; and Economic Status. The discussion will examine changes in composition, where composition is a function of basic inventory, authorized strength and adjustments, losses and accessions.

A. Educational and Mental Group Levels

One of the fundamental changes in the personnel characteristics of the All Volunteer Force concerns education and mental group levels.

For purposes of this discussion, education levels were divided into three groupings: (1) less than high school graduation or G.E.D.; (2) high school graduation or G.E.D., but no college training; and (3) some college.

^{1/} Selected Manpower Statistics, Department of Defense, OASD(Comptrols); February 1975, p. 49; "Briefing Charts," OASD(Reserve Affairs), June 1975; "June Results, FY 75 Totals," OASD(M&RA), July 1975.

Non-High School Graduates

The overall pattern of accessions into the Total Force for non-high school graduates did not change significantly during the AVF years. However, there was a significant difference in non-high school graduate accession rates between the active and Reserve forces. In the Guard and Reserve, the percentage of accessions with no high school diplomas or G.E.D.'s increased from the 5.7% level of 1970 to the 48.6% level of FY 75. At the same time, the percentage of non-high school graduate accessions in the active forces declined, from the 38.8% high of FY 73 to the 28% level of FY 75.

The non-high school graduate made up about 23% of the 18-year old population during the FY 70-FY 75 period. In sum, the Total Force accession rates for non-high school grads (30.4% in FY 75) were slightly higher than the proportion of non-high school grads in the general population. The FY 75 level of non-high school graduate accessions also is only slightly lower than the 32% non-high school graduate level of 1964 accessions.

Whereas the percentage of non-high school graduates entering the active Services has dropped over the last decade, similarly there has been a general improvement in the proportion of high school graduates among all active military personnel. Due both to in-service education programs and G.E.D. testing, the overall proportion of non-high school grads among all in-service active duty personnel has steadily decreased from the 27% level of FY 64 to the 13% plus level of FY 75. Thus, despite a relatively high level of non-high school graduates entering the Services, the overall proportion of non-high school graduates within the Services has been steadily decreasing.

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On the other hand, although statistics are not available, it would appear that the large proportion of non-high school grade recently entering the Guard and Reserve programs is bound to reduce the overall educational level of these programs to a point well below their active Service counterparts.

High School Graduates

A slightly higher proportion of high school graduates entered the Armed Forces during the FY 70-FY 75 period compared to FY 64-69. However, the increases were relatively minor.

In the active forces, the number of enlistees with high school diplomas, G.E.D.'s and no college held steady for the FY 70-74 period, and then increased in FY 75, probably due to recruiting efficiencies and the decline in the economy. During the same five-year period, there was a general decline in the numbers of recruits with high school diplomas, G.E.D.'s and no college who entered the Guard and Reserve programs. On net, however, the percentage of recruits from this category who entered the Total Force during the AVF years remained relatively constant.

The high school graduate or G.E.D. recipient who did not go on to college provided the bulk of accessions into the Armed Forces during the AVF years. On the Total Force basis, this group accounted for 47.5% of accessions in FY 70, and this percentage climbed steadily to the FY 75 level of 65.2%. During these same years, the young men in this category comprised 26.7% and 31.1% of the 18-year old population, respectively. Thus, men with this educational level provided a much larger proportion of entrants into the Armed Forces than their proportion of the 18-year old male population. During FY 75, more than 43 men out of every 100 with a

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high school diploma, G.E.D. and no college, entered the Services, active or Reserve. Combined with those in the "some college" category, at least 71% of all accessions in FY 75 completed high school. This rate was 5% higher than the FY 74 rate, but only 3% higher than the rate of 11 years before, in FY 64.

While the accession rates for high school graduates changed little between FY 64 and FY 75, there was continuing and marked improvement in the overall educational level of the active forces, with the proportion of the active force with high school diplomas rising from the FY 64 level of 73% to the FY 75 level of 87%. This rise in educational levels was due to several factors including in-service education programs, G.E.D. testing programs and higher retention rates for better educated recruits. Concerning attrition rates, the DOD rates were inspected over 36-month enlistment terms. The inspection showed that the loss rates are greatest for non-high school graduates and lowest for high school graduates. Individuals with some college or a college degree represent similar attrition rates. Regarding the attrition rates for these levels of education within each Service, the same rank order is maintained, except in the Air Force where individuals with some college or college degrees maintain the lowest attrition rates. Generally, high school graduates have the lowest attrition rates.

Some College

In terms of the three categories, the most significant change in the AVF era occurred in the "some college" category. In FY 70, almost one million young men, or 50.6% of the 18-year old age group entered college. This same year 69,385 college trained men were enlisted or inducted in the active forces, another 97,409 enlisted in the National Guard or Reserves.

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In total, 166,793 college trained men entered the Services. They accounted for 28.2% of all Total Force accessions (compared with 13.3% in 1964), and represented 17% of the college trained manpower pool from the 18-year old age group.

By FY 75, the draft pressures on college students had ceased, and there was a large reduction in the number and relative percentage of college trained men entering the Armed Forces. In FY 75, while 19,841 college trained men enlisted in the active forces (5.2% of accessions), only 3,095 men enlisted in the Reserves or Guard for a Total Force college trained input of 22,936. This input accounted for 5.3% of the FY 75 accessions and represented only 2.1% of the number of 18-year olds who entered college.

The reductions in college trained enlisted accessions also had an impact on the educational level of the Armed Forces. During FY 64, the last years of peace preceding the Vietnam buildup, 8% of the military personnel on active duty had completed two or more years of college. In 1970, more than 20% of the active force had completed two or more years of college. Thereafter, the proportion of college trained men in the active forces steadily fell to a rate of 9% by January 1975 (approximately the same proportion as 1964).

Mental Group Levels

In terms of mental categories, while there was a steady reduction in the percentage of Mental Group IV's recruited into the active forces, there was a corresponding increase in Mental Group IV's recruited into the Reserve forces. In FY 70, the active forces recruited 18% Category IV's; by FY 75, this was reduced to 6% (in FY 74, the active forces had recruited 13% Category IV's). Conversely, the 4.4% level of Category IV's for the Reserves in FY 70 climbed to 20.6% by FY 75.

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B. Race

While the term "race" in reference to the Armed Forces normally includes Blacks, Spanish-surname, American Indians and other racial/ethnic groups, this discussion will be limited to the changes with regard to Blacks only. Data on changes in the other categories is not readily available.

Black Accessions

There was an increase in the percentage of Black accessions into the All Volunteer Force during FY 71-74 with the proportion for all active enlisted and most officer and Reserve enlisted falling off in FY 75. (Data on Reserve forces officer accessions is not available.)

While the pattern of increases were similar for the three groups, their points of departure, in terms of base levels in FY 70 and before, were widely different.

While the proportion of Black enlisted accessions into the active forces in FY 71 was 13% (it was 11% in FY 64^{1/}) the proportion of Black enlisted accessions in the National Guard and Reserve program in FY 71 was only 1.5% and the proportion of Black officer accessions into the active forces was less than 3%.

As noted in the following chart, the largest increase in Black enlisted accessions for the active force over the FY 64 to FY 75 period occurred in the Army, with an increase from the 13% level in FY 64 to a high of 28% in FY 74 before falling off to 23% in FY 75.

^{1/} FY 64, which is reflected throughout this paper, was selected as a "base" year for comparison purposes since it was both pre-AVF and pre-Vietnam buildup.

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Chart I

Black Enlisted Accessions, Active Force, FY 64 - FY 75

	<u>ARMY</u>	<u>NAVY</u>	<u>USMC</u>	<u>USAF</u>	<u>DOD TOTAL %</u>
1964	13%	5%	9%	9%	11%
1965	15	6	8	13	12
1966	12	3	9	8	10
1967	9	4	10	8	11
1968	14	5	13	10	12
1969	14	9	14	12	13
1970	14	8	15	12	13
1971	13	9	13	15	13
1972	15	13	18	13	14
1973	19	11	19	14	16
1974	28	11	22	17	21
1975	23	10	19	15	18

As the following chart illustrates, there also were progressive reductions in Black accessions during the months of FY 74 and FY 75 in the Army.

Black NPS Male Accessions - U.S. Army - FY 74 and FY 75 - By Month

<u>Month</u>	<u>FY 74</u>	<u>FY 75</u>	<u>Diff +/-</u>
JUL	34.0%	30.6%	- 3.4%
AUG	30.1	28.1	- 2.0
SEP	30.2	26.7	- 3.5
OCT	28.6	24.3	- 4.3
NOV	27.2	22.0	- 5.2
DEC	28.1	20.4	- 7.7
JAN	24.2	18.4	- 5.8
FEB	23.7	18.4	- 5.3
MAR	24.2	17.2	- 7.0
APR	27.3	17.7	- 9.6
MAY	29.0	21.9	- 7.1
JUN	31.0	22.0	- 9.0

As Chart II, below, illustrates, there also were increases in the proportions of Blacks enlisted in the National Guard and Reserve. Unlike the active forces, the rate of increase on a DoD basis continued steadily during the FY 71-75 period although several of the components reported smaller percentages of Black accessions in FY 75. The Army Reserve had the largest change in the Black accession rate, increasing from the 1.3% level of FY 71 to the 42.4% level of FY 75.

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Chart II

Black Enlisted Accessions in the Selected Reserve, by Component ^{1/}

	<u>Blacks as % of Total Accessions</u>				
	<u>FY 71</u>	<u>FY 72</u>	<u>FY 73</u>	<u>FY 74</u>	<u>FY 75</u>
ARNG	1.5%	3.3%	13.2%	24.4%	26.0%
USAR	1.3	2.0	8.7	28.7	42.4
USNR	1.4	3.3	6.2	17.6	8.8
USMCR	7.1	26.6	35.8	27.0	23.3
ANG	.8	2.2	4.8	25.6	9.6
USAFR	.7	2.4	9.3	36.8	22.6
DOD TOTAL	1.8	4.8	14.9	25.6	27.5
TOTAL ACCESSIONS (IN THOUSANDS)	102	95	70	46	72

The proportion of Black officer accessions also increased during the AVF years. As Chart III illustrates, the proportion of Black officer accessions in FY 75 is higher than the rate for FY 64; however, both are still far below the rate of Black enlisted accessions.

^{1/} Data on Black enlisted accessions for FY 64-70 are not available.

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Chart III

Black Officer Accessions 1964 - 1975 Active Forces

	ARMY	NAVY	USMC	USAF
1964	2.4%	0.3%	0.4%	n.a.
1965	2.5	n.a.	0.3	2.6%
1966	2.3	0.2	0.4	2.0
1967	2.4	0.2	0.4	1.4
1968	1.8	n.a.	1.4	1.5
1969	0.7	n.a.	1.1	1.2
1970	1.4	n.a.	2.0	1.4
1971	n.avail.	n.a.	n.a.	n.a.
1972	2.1	2.7	4.4	3.2
1973	3.4	5.2	4.7	5.4
1974	9.4	5.8	6.2	7.0
1975	7.0	6.5	5.3	7.5

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Total Blacks in the Armed Forces

The large increases in Black enlisted accessions in both the active and the Reserve forces impacted upon the overall in-service proportion within the Armed Forces. Different attrition and reenlistment rates for Black and White servicemen also impacted on the changes in Black levels within the forces. Overall, during their initial 36 months in service, Blacks were attrited by 1 1/2% less than their White counterparts on a DOD-wide basis. ^{1/} Within the Services, however, the Army was the only branch in which Blacks attrited at a lower rate than Whites. Concerning reenlistment rates, Blacks in 1973 and 1974 reenlisted at somewhat higher rates than Whites in the Army, Navy and Air Force; Whites reenlisted at higher rates in the Marine Corps.

The following Chart IV illustrates the increases in the proportions of Blacks within the active forces.

The proportion of Blacks in the National Guard and Reserve forces also has increased. As Chart V illustrates, the largest change has occurred in the Army Reserve and the Marine Corps Reserve, which increased from 2.2% to 11.1% and 3.2% to 14.4%, respectively. The smallest increase occurred in the Naval Reserve, which increased from 2.0% to 4.4%.

^{1/} Based on a DMC sponsored study by GE Tempo of FY 72-75 data.

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Chart IV

Proportions of Black Enlisted Personnel Within the Active Force

CY 64 - CY 74

	ARMY	NAVY	USMC	USAF	DoD Total
1964	12%	6%	9%	10%	9.7%
1965	14	6	9	11	10.5
1966	12	5	9	10	10
1967	12	5	10	10	9.9
1968	13	5	12	10	10.2
1969	11	5	12	11	9.6
1970	14	5	11	12	11
1971	n.avail.	n.a.	n.a.	n.a.	n.a.
1972	20	8	18	14	15
1973	21	8	18	14	16
1974	22	8	18	15	16

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Chart V

X Black Enlisted within the Selected Reserves ^{1/}

	<u>FY 71</u>	<u>FY 72</u>	<u>FY 73</u>	<u>FY 74</u>	<u>FY 75</u>
ARNG	1.2X	2.0X	3.2X	5.6X	7.2X
USAR	2.2	2.9	5.6	7.2	11.1
USNR	2.0	3.0	3.5	3.4	4.4
USMCR	3.2	7.4	12.6	11.6	14.1
ANG	1.0	1.4	2.0	2.9	3.8
USAFR	2.8	3.3	4.2	5.6	8.1
DOD TOTAL	1.7X	2.6X	4.2X	5.6X	7.8X

The proportion of Black officers in the active forces also increased during the AVF years, although as Chart VI illustrates, the changes in all the Services have been slight, with the largest increase occurring in the Marine Corps, which increased from 0.3X to 2.8X and the smallest occurring in the Air Force which increased by less than 1X.

^{1/} Data from FY 64-70 are not available.

Chart VI

Proportions of Black Officers Within the Active Forces CY 64 - CY 74

	ARMY	NAVY	USMC	USAF	DoD Total
1964	3.3%	0.3%	0.3%	1.5%	1.8%
1965	3.5	0.3	0.4	1.6	1.9
1966	3.5	0.3	0.6	1.7	2.0
1967	3.4	0.3	0.7	1.8	2.1
1968	3.3	0.4	0.9	1.8	2.1
1969	3.2	0.7	1.2	1.8	2.1
1970	3.4	0.7	1.3	1.7	2.5
1971	n.a.	n.a.	n.a.	n.a.	-
1972	na.	n.a.	n.a.	n.a.	-
1973	4.3	1.2	2.2	2.0	2.8
1974	4.6	1.3	2.8	2.3	3.0

Black Distributions by Military Occupations

Significant changes in personnel characteristics within military occupations also occurred during recent years.

While the increases in accessions impacted upon the numbers of Blacks within specific occupational groups, there was no significant change in the occupational areas in which Blacks were serving in the pre-AVF years.

As Chart VII, below, illustrates, on an active force basis, smaller percentages of Blacks in the electronics and technical areas have continued, while the proportion of Blacks in Infantry, Gun Crews and Allied Specialists and Service and Supply Handlers has remained higher.

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Chart VII

DISTRIBUTION OF BLACK ENLISTED PERSONNEL AMONG OCCUPATION GROUP ALL ACTIVE SERVICES 1964 - 1975

<u>OCCUPATIONAL GROUPS</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1974</u>	<u>1975</u>
Infantry, Gun Crews and Allied Specialists*	16.4%	14.3%	15.5%	14.5%	15.8%	13.9%	15.2%	19.3%	21.1%
Electronics Equipment Specialists	5.6	7.6	5.8	5.5	5.4	5.0	5.0	6.0	6.7
Communications and Intelligence Specialists	6.7	8.4	6.7	6.3	6.3	6.2	6.3	9.6	12.3
Medical and Dental Specialists	12.0	13.4	11.2	9.8	9.7	9.7	10.3	14.3	14.4
Other Technical and Allied Specialists (Includes Photography, Drafting, Surveying, Mapping, Weather, Music, etc.)	7.1	8.4	7.2	6.8	6.3	6.5	6.4	8.9	10.2
Administrative Specialists and Clerks	10.4	11.8	11.6	11.4	10.5	11.0	11.2	17.4	20.2
Electrical/Mechanical Equipment Repairmen	7.2	9.3	7.4	7.4	7.3	7.4	7.4	11.2	12.1
Craftsmen	9.7	12.2	9.7	9.8	8.4	9.7	8.6	12.9	13.1
Service and Supply Handlers	17.1	17.9	16.1	15.7	15.3	16.3	17.3	21.1	21.4
Miscellaneous Others	6.2	8.6	5.9	5.7	10.2	8.6	11.6	16.4	15.8

*Does not include Air Force

The pattern of Black distribution in the Army varied somewhat from that of the DOD. While occupational groups with larger proportions of Blacks are, in order, Administrative Specialists and Clerks, Infantry, Gun Crews and Allied Specialists, and Service and Supplier Handlers, and the occupational areas with fewer Blacks are Electronics Equipment Specialists and Other Technical and Allied Specialists, there has been substantial increase in the proportion of Blacks in the Communications and Intelligence Specialists, Medical and Dental Specialists, and Electrical/Mechanical Equipment Repairmen.

Comparisons in the Army for each of the ten major occupational areas are contained in Chart VIII below.

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Chart VIII

DISTRIBUTION OF BLACK ENLISTED PERSONNEL AMONG OCCUPATION GROUPS -- ARMY ONLY 1964 - 1975

<u>OCCUPATIONAL GROUPS</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1974</u>	<u>1975</u>
Infantry, Gun Crews and Allied Specialists	19.3%	14.9%	17.2%	15.1%	15.7%	13.8%	15.7%	21.1%	24.2%
Electronics Equipment Specialists	11.2	12.7	11.8	10.3	9.6	10.0	9.1	12.2	14.8
Communications and Intelligence Specialists	9.2	10.4	8.6	8.2	8.5	8.5	8.9	12.6	17.8
Medical and Dental Specialists	16.6	17.5	15.1	13.0	13.6	13.5	13.5	19.7	19.7
Other Technical and Allied Specialists (Includes Photography, Drafting, Surveying, Mapping, Weather, Music, etc.)	9.3	10.1	8.8	8.2	8.0	7.8	7.7	10.3	12.7
Administrative Specialists and Clerks	11.7	13.0	12.5	12.4	12.8	12.2	13.9	22.2	27.7
Electrical/Mechanical Equipment Repairmen	11.3	11.7	10.8	10.4	11.1	10.5	11.1	16.1	18.7
Craftsmen	11.2	11.2	10.8	10.8	11.3	11.0	11.7	15.8	16.6
Service and Supply Handlers	17.1	17.7	16.0	15.4	17.1	16.8	8.7	8.0	9.3
Miscellaneous Others	5.0	7.3	7.0	7.9	9.8	7.4	8.7	8.0	9.3

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In the Selected Reserve, Army National Guard (ARNG) and Army Reserve (USAR) data for CY 74-75 show similar changes in racial patterns. In the ARNG, the Black share of all E-2's grew from 20% to 28% from CY 74 to CY 75. Black figures for the Infantry/Gun Crews occupations show an increase from 16% to 21% during the same years.

In the USAR, Blacks comprised 16% of all E-2's in CY 74 and jumped sharply to 30% by CY 75. For the Infantry occupations, the Black share increased from 17% to 25%.

Chart IX

<u>Army National Guard (E-2's)*</u>	<u>CY 1974</u>	<u>CY 1975</u>
% Black, Infantry/Gun Crew MOS's	16%	21%
% Black, all MOS's (ratio of percentages)	20% (0.8)	28% (0.8)
<u>Army Reserve (E-2's)*</u>		
% Black, Infantry/Gun Crew MOS's	17%	25%
% Black, all MOS's (ratio of percentages)	(1.1)	(0.8)

* E-2 is lowest enlisted grade for which reliable data are available.

Data are also available on the Occupational Group distribution of Black officers in the Active Forces. As noted below, the largest proportion of Black officers are Administrators and Supply and Procurement and Allied Officers. The lowest proportion is among General Officers. During the FY 64-75 period, the growth in Black officers has been reflected predominately in the two "high proportion" Occupational Areas noted above. Tactical Operations Officers and Medical Officers, on the other hand, show smaller increases during this 11-year period.

Chart X

DISTRIBUTION OF BLACK OFFICERS AMONG OCCUPATIONAL GROUPS BY MILITARY SERVICE

ALL SERVICES 1964 - 1975

<u>OCCUPATIONAL GROUPS</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1974</u>	<u>1975</u>
General Officers and Executive M.E.C.	0.6%	0.7%	0.2%	0.3%	0.2%	0.2%	0.3%	0.7%	0.7%
Tactical Operations Officers	1.8	2.2	2.0	2.2	2.1	2.0	2.1	2.2	2.5
Intelligence Officers	1.4	1.7	1.6	1.4	1.5	1.7	1.8	2.3	2.6
Engineering and Maintenance Officers	1.7	2.7	2.1	2.3	2.3	2.5	2.1	2.7	3.1
Scientists and Professionals	0.7	1.8	1.4	1.5	1.5	1.5	1.5	1.9	2.0
Medical Officers	2.3	2.9	2.3	2.1	1.9	2.3	2.0	2.2	2.5
Administrators	1.9	2.7	2.1	2.2	2.2	2.4	2.3	3.8	4.2
Supply Procurement and Allied Officers	2.2	2.8	2.5	2.8	2.8	3.2	3.0	4.0	4.5
Others	0.9	1.8	0.9	0.6	0.7	1.7	1.4	2.3	2.5

Black Distribution by Units

The distribution of Blacks among specific units often varies from the average DoD-wide and Army-wide distribution patterns discussed above. The unit distribution pattern in the Army, in particular, might be the result, in part, of their Unit of Choice and Station of Choice programs.

As a result, while Secretary of Defense Schlesinger can cite the 26% Black proportion in the Army's most-ready division (the 82nd Airborne), the 9th Infantry Division, recruited at and around Fort Lewis, Washington, has a very low proportion of Blacks. Other units with high proportions of Blacks include the Second Marine Division (31%) and the Army 197th Infantry Brigade (52.2% of E-1 - E-4).

The distribution of Blacks within specific units also varies. While the overall proportion of Blacks in the 82nd Airborne Division was cited as 26%, a DMC visit to the Division noted that the Headquarters and Command sections most often were more White than the division-wide average, while some of the combat companies reached Black representation rates of more than 50%. The Second Marine Division also has a larger proportion of Blacks (38.9%) in the infantry units than in headquarters and support organizations.

Using unit locator codes, the Manpower Research and Data Analysis Center (MARDAC) prepared a listing for the DMC of units by Service with high proportions of Blacks. These ranged from the Navy high of 14.6% aboard U.S.S. J.F. Kennedy (CV-67), to percentages up to 62.6% in several Service units within the Army, to the Air Force high Black proportion of 40.3% in several supply, support and training squadrons.

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The Army training base cadres also contain large proportions of Black servicemen (as well as many whites whose homes are in nearby areas), with the rate ranging from a high of 40.1% at Fort Lee and 37.6% at Fort Benning to a low of 13.2% at Carlisle Barracks and 17.3% at Fort Leonard Wood.

For the range of units with high proportions of Blacks, there are corresponding units with high proportions of Whites. However, this data has not been obtained.

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C. Women

In FY 64, the number of military women was the lowest since immediately following WWII and comprised only 1.1% of total military strength. From 1964 to 1972, there was a steady increase of 2,000-3,000 women a year bringing the percentage up to 1.9%. Beginning in FY 73 larger increases occurred as shown below:

	<u>Total Women</u>	<u>% of Active Force</u>
FY 73	55,100	2.4%
FY 74	74,500	3.4%
FY 75	96,900	4.6%
FY 76*	109,200	5.2%
FY 77*	119,900	5.7%
FY 78*	130,700	6.2%

* Programmed

These percentages were not uniform among the Services, as shown in the following table:

	<u>Percent Women of the Total Force (Active)</u>	
	<u>30 Jun 71</u>	<u>30 Jun 75</u>
Army	1.7%	5.4%
Navy	1.6%	4.0%
Marine Corps	1.2%	1.6%
Air Force	2.3%	4.9%
Total DOD	1.6%	4.6%

Lower attrition rates for women also have contributed to the increases in overall strength within the Services, as males show a 21% higher rate of total attritions than females. This trend is continued among each of the individual Services except for the Navy. Females

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indicate a smaller rate of total involuntary attrition by 11% for DoD overall. This smaller rate of total involuntary attrition is observed within each of the Services although the percentage does vary within Services.

The participation of women in the Reserve components has increased from 0.4% (3,700) in FY 71 to 3.4% (30,900) in FY 75. In order to achieve this increase, however, a high percentage of the total accessions in FY 74 and 75 were women. This will mean that in these particular year groups, there will be disproportionately high concentrations of women. As with the Active Forces, the proportion of women is not uniform among the Reserve components.

Percent Women of the Reserve Force

	<u>30 Jun 71</u>	<u>30 Jun 75</u>
Army National Guard	-	1.6%
Army Reserve	0.4%	7.0%
Naval Reserve	0.9%	2.1%
Marine Corps Reserve	0.2%	1.2%
Air National Guard	0.6%	3.2%
Air Force Reserve	1.9%	6.5%
Total DOD	0.4%	3.4%

Accession Goals

The accession goals of the Services for the enlistment of women have always been achieved because of a surplus of qualified applicants. The actual number and percentage of total accessions have

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varied considerably among Services and within a Service from one year to the next. Programmed accessions have also been changed during a fiscal year in response to overall strength changes, shortfalls in male accession recruiting, changes in required specialty backgrounds, etc. This is a willingness on the part of the Services to reduce the programmed women accessions in response to short-term considerations which has a very detrimental effect on the achievement of desired end strengths and percentage participation of women in the Military Services.

An example of this is the Air Force decision to limit attendance at Officer Training School to primarily engineers and scientists because of the backlog of ROTC graduates waiting to come on active duty. This decision closed one of the only two avenues to an Air Force commission for women except for those few who were engineers or scientists. This action also meant that the programmed percentage of women officers in the current and succeeding fiscal years will not be met. It also means that these year groups will have a permanent lower percentage of women officers in them than was originally desired.

The accession of non-prior service enlisted women varies among the Services as shown in the following table.

	<u>FY 1976 Program</u>	
	<u>No. of Women</u>	<u>% of Total Accessions</u>
Army	17,200	9.2%
Navy	5,200	4.7%
Marine Corps	1,300	2.5%
Air Force	9,000	11.4%
Total DOD	32,700	7.7%

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The percentage of women in DOD as part of the non-prior service accessions has varied from 2.4% in FY 71 to a high of 9.0% in FY 75 and is programmed to be 8.0% in FY 78.

Distribution

The entrance of military women into all of the career fields except those directly involving combat began in the early 1970's. Before that time, women were permitted to enter only the more traditional fields; i.e. medical, dental and various administrative fields. In FY 71, almost 90% of all enlisted women were in these fields. With the reassessment of the role of women in the military came the realization that more career fields would have to be opened to absorb the programmed increased and that there were no valid, defensible reasons for keeping any of the non-combat career fields closed to women.

This acceptance made possible the opening of 94% of the Army career fields as compared with 39% previously. The Navy increased to 80% and the Marine Corps to 70%. The Air Force increased their open fields from 55% to 97% (see Table III, below).

By the end of FY 73, the percentage of women in the medical, dental and administrative career fields had dropped to 73%. The percentages of military women in each of the nine DOD occupational groupings for FY 71, FY 73, and FY 75 are shown in the table on the following page.

With respect to geographic assignments, up until the early 1970's military enlisted women could only be assigned to selected major installations that had a separate women's company or squadron organized to handle

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TABLE III
FEMALE MILITARY END-STRENGTH BY DOD OCCUPATIONAL AREA
(Percent)

	ARMY		NAVY		USMC		USAF		DOD Total						
	PT11	PT12	PT11	PT12	PT11	PT12	PT11	PT12	PT11	PT12					
Infantry, Gun Crew and Seamanhip Specialists	0.2	0.8	.7	2.2	0.1	.4	0.0	1.6	4.1	0.1	0.0	.8	0.5	0.4	.7
Electronic Equipment Repairmen	0.3	0.3	.6	4.0	2.0	3.4	5.0	4.2	14.9	0.0	1.4	7.3	1.3	1.3	3.6
Communications and Intelligence Specialists	2.0	3.8	5.4	6.3	4.8	11.0	3.2	2.4	5.4	4.6	16.1	7.1	4.0	8.9	6.6
Medical and Dental Specialists	33.2	32.7	25.5	26.5	20.7	20.1	0.0	0.0	.5	17.9	10.1	12.4	23.3	22.3	16.3
Other Technical and Allied Specialists	1.4	1.5	1.3	4.6	3.0	2.6	2.3	3.4	2.7	3.5	2.4	2.7	2.9	2.3	1.9
Administrative Specialists and Clerks	61.0	59.4	55.2	56.2	22.8	22.8	44.5	83.3	66.2	71.2	56.8	47.6	65.8	51.0	39.1
Electrical/Mechanical Equipment Repairmen	0.4	0.1	1.9	0.0	0.1	1.7	0.5	3.2	.4	0.0	1.2	12.5	0.2	0.5	4.7
Craftsmen	0.0	0.0	.4	0.1	0.1	.2	0.1	0.4	1.4	0.1	0.7	2.0	0.1	0.3	.8
Service and Supply Handlers	1.5	1.4	9.0	2/	0.1	0.3	4.2	4.4	4.5	1.4	2.4	3.4	7.3	1.9	2.1
Unclassified				46.0 ^{2/}	32.0 ^{2/}									10.8	20.3

Sources: Utilization of Military Women, December 1972 (A Report of Increased Utilization of Military Women FY1973-FY1977). Prepared by Central
All Volunteer Force Task Force, Office of Assistant Secretary of Defense, Manpower & Reserve Affairs, P. XII-8 and Manpower Requirements
Report for FY1975, Department of Defense, February, 1974, P. B-30.

1/ Represents Navy personnel (E-3 and below) with the following skill identifiers: Seaman/Seaman Recruit, Airman/Airman Recruit and Firman/Firman
Recruit. They are serving as apprentices and do not receive occupational specialties until they achieve the grade of E-4.

2/ Since Army enlisted personnel do not receive a skill identifier until after completion of basic and technical school training, women in this
category were not included in the percentage computation, however, 28.8% of them are in this category and were included in the DOD Total column.

TABLE III
FEMALE MILITARY END-STRENGTHS BY DoD OCCUPATIONAL AREA
(Percent)

	Army		Navy		USMC		USAF		DoD Total		
	FY71	FY75	FY71	FY75	FY71	FY75	FY71	FY75	FY71	FY75	
Infantry, Gun Crew and Seamanhip Specialists	0.2	0.8	2.2	0.1	0.0	1.6	4.1	0.1	0.0	0.8	0.4
Electronic Equipment Repairmen	0.3	0.3	4.0	2.0	5.0	4.2	14.9	0.0	1.4	7.3	1.3
Communications and Intelligence Specialists	2.0	3.8	6.3	4.8	3.2	2.4	5.4	4.6	16.1	7.1	4.0
Medical and Dental Specialists	33.2	32.7	25.5	26.5	20.7	20.1	0.0	0.0	17.9	18.1	23.3
Other Technical and Allied Specialists	1.4	1.5	1.3	4.6	3.0	2.6	2.3	3.4	2.7	2.4	2.3
Administrative Specialists and Clerks	61.0	59.4	55.2	56.2	22.8	22.8	84.5	83.3	69.2	56.8	65.8
Electrical/'mechanical' Equipment Repairmen	0.4	0.1	1.9	0.0	0.1	1.7	0.5	3.2	0.0	1.2	0.2
Craftsmen	0.0	0.0	0.4	0.1	0.1	0.2	0.1	0.4	0.1	0.7	0.1
Service and Supply Handlers	1.5	1.4	9.0	0.1	0.3	4.2	4.4	4.5	1.4	2.6	1.9
Unclassified			2/	46.0 ^{1/}	32.8 ^{1/}					3.4	7.3
										10.8	20.3

Sources: Utilization of Military Women, December 1972 (A Report of Increased Utilization of Military Women FY1973-FY1977). Prepared by Central All Volunteer Force Task Force, Office of Assistant Secretary of Defense, Manpower & Reserve Affairs, P. XII-8 and Manpower Requirements Report for FY1973, Department of Defense, February, 1974, p. B-30.

1/ Represents Navy personnel (E-3 and below) with the following skill identifiers: Seaman/Seaman Recruit, Airman/Airman Recruit and Fireman/Fireman Recruit. They are serving as apprentices and do not receive occupational specialties until they achieve the grade of E-4.

2/ Since Army enlisted personnel do not receive a skill identifier until after completion of basic and technical school training, women in this category were not included in the percentage computation, however, 28.8% of them are in this category and were included in the DoD Total column.

their off-duty administration. This restriction applied to all grades and was even a factor in the assignment of married enlisted women. This geographical restriction necessitated a separate assignment and rotation system for enlisted women.

Along with the decisions to increase the numbers of military women and the opening of career fields came the opening of additional military locations for the assignment of enlisted women. This was necessary to prevent large concentrations of women on the small number of previously available installations, to enable the same assignment system to handle both men and women, and a recognition that enlisted women do not need formalized off-duty supervision. The Air Force alone increased the number of locations from 35 in 1966 to over 200 today.

The present primary constraint on assignment of enlisted women is in assignment to those remote or isolated locations where only a handful of individuals are assigned and are required to live in confined quarters.

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D. Economic Status

Changes, if any, which have occurred in the economic status of accessions during the AVF years are near impossible to determine with any accuracy. However, since the advent of the AVF, several attempts have been made to obtain and catalog the economic status of accessions in terms of the economic level of his or her parents. While none of these efforts produced definitive data, the conclusions reached by each effort might support a general conclusion that the lower economic classes are not now nor have ever been enlisted in the Armed Forces in great numbers, that more of the high economic classes were being enlisted during the draft years than during the AVF years, and that the bulk of accessions both during the draft and the AVF years have come from the so-called middle economic segment of our society.

Parents Earning Records

Two of the attempts to determine the economic status of enlistees have directly attempted to discover parent's earning records. In this regard, the Air Force conducted a survey of new accessions. Although the Air Force points out the questionable validity of their findings, the survey would tend to indicate that both the high and low portions of the economic ladder were underrepresented. Chart XI, below, portrays the Air Force study results:

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Chart XI

Earnings	1970		1973	
	US Family Earnings	Parents' Earnings, AF Recruits	US Family Earnings	Parents' Earnings, AF Applicants
Under \$3,000	12%	5%	11%	9%
\$3,000 - \$6,000	14	13	11	14
\$6,000 - \$9,000	20	20	14	17
\$9,000 - \$12,000	20	24	16	21
\$12,000 - \$15,000	14	16	15	17
\$15,000 - \$25,000	17	16	26	18
More than \$25,000	3	6	7	4

The second method of attempting to determine the economic status of accessions concerned analyses of average wages from the enlistee's home area of record. This analysis was based on relating Zip codes of enlistee's home of record to average earnings for the Zip code area. Again, this method is highly questionable, as illustrated by Zip Code 20854 in Potomac, Maryland, an area reported to have the highest average family income in the country. Potomac not only includes high incomes, but also contains low-income housing enclaves such as Scotland.

Conducted initially by DoD, the Zip Code analysis was recently updated and presented to the DMC by Dr. Richard Cooper of Rand. In addition to confirming the relatively low proportions from both the high and low extremes of the economic ladder, Dr. Cooper's analysis, as detailed below, would seem to indicate that there has been no significant shift in the levels during the pre- and post AVF years, although his CY 1972 and 1973 data are now dated. In any case, Dr. Cooper's conclusions support the survey by DoD, as presented to the Senate Armed Services Committee in 1974.

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Chart XII

PERCENTAGE DISTRIBUTION OF DOD ENLISTED ACCESSIONS BY GROUP OF ZIP CODES RANKED ACCORDING TO AVERAGE HOUSEHOLD INCOME^a

ZIP Code Percentiles	Average Household Income	Percentage Distribution of DoD Enlisted Accessions		Percentage Distribution of 16-21 Year Old Male Population Not Enrolled in School	
		Pre-AVF	Post-AVF	All	
95 - 100	\$17,190	2.9	2.8	5.8	2.9
90 - 95	\$14,840-\$17,190	4.7	4.4	7.0	4.3
75 - 90	\$12,352-\$14,840	18.1	17.5	19.9	15.7
50 - 75	\$10,431-\$12,352	28.6	27.9	27.7	27.0
25 - 50	\$8,722-\$10,431	24.5	24.6	22.0	25.4
10 - 25	\$7,263-\$8,722	12.0	12.7	11.0	15.6
5 - 10	\$6,401-\$7,263	4.4	4.8	4.2	5.6
0 - 5	\$6,401	4.8	5.3	2.4	3.5

^aReports the percentage distributions of total DoD accessions (inductions and enlistments) by percentile rankings of 5-digit ZIP codes located in Standard Metropolitan Statistical Areas (SMSAs). SMSA 5-digit ZIP codes were ranked on the basis of average per-household income, and then categorized into percentile groupings. Accessions were then matched with these percentile rankings by using the home address ZIP code for each enlistee or inductee.

^bPre-AVF: January 1, 1971 to December 31, 1972.
Post-AVF: January 1, 1973 to December 31, 1973.

Educational - Health Factors

Both the last two methods of attempting to determine the economic status of accessions base their deductions on the assumption that, in general, the health and educational levels of lower economic classes will be lower than their middle class and upper class counterparts.

Based on this assumption, changes in medical rejection rates and educational levels of accessions would tend to support the conclusion that changes were occurring in the economic status of enlistees. During the AVF years, there was a major drop in the number of accessions with college

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training (normally associated with middle and upper economic classes) and a gradual decrease in the numbers and proportions of non-high school graduates (normally associated with lower economic classes).

The last method to be discussed concerns review of physical and mental rejection data. Prior to the adoption of the AVF, there were steady physical rejection rates among volunteers of about 11%. Since the adoption of the AVF, this rate has not changed. Further, there has been a general increase in the rate of mental disqualifications, coincident with the raising of minimum entry standards, as expressed by test scores.

These results also support the conclusions discussed above.

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E. Geography

Possible changes in the geographical distribution patterns of AVF accessions has received attention from DOD and researchers only in the last year or so. As the National Guard and Reserve Forces are by definition a reflection of their particular areas, the question of geographical distribution which has been addressed affects only the Active Forces.

During the draft years, the conscription system was designed to provide a generally well distributed pattern of accessions into the Armed Forces. Each State in the country had their "quota" for Selective Service inductees and the quotas were related to their proportion of the draft-eligible population. During the AVF years, the first attempt to study and evaluate possible changes in geographical patterns was undertaken by the Air Force's Project "Volunteer Roadmap" in 1974.

The Air Force project used the home of record of accessions for all four Services as the basis for their analysis of geographical distribution patterns. Their findings were as follows:

1. Quantity-wise, the recruit market has not changed from FY 72 to FY 74 - the most populated states (the top 10/20/30 states) provide the bulk (50%/75%/90%) of the recruits;
2. Regional preference for one Service over another appeared to exist in FY 74: Northeast Region - Air Force; the South Atlantic Region - Army; Midwest - Navy; and the East North Central Region - Marine Corps;
3. Quality-wise, again the most populated states (the top 10/20/30 states) provide the bulk of the AFQT Mental Group I and II's (above average recruits);

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4. Regionally - State by State, the Midwest provides a higher share of AFQT Mental Group I and II's (52% to 59% of the recruits) as compared to the South Atlantic/East and West South Central Regions being 26% to 37% share I and II's.

STATE BY STATE COMPARISON

In response to a request from the Senate Armed Services Committee, the Office of the Secretary of Defense carried the "Volunteer Roadmaps" project a step further as the basis for their report to the Senate Committee in late 1974.

The OSD Report measured geographical distribution of accessions in two ways: by state of residence at time of entry, and by urban-rural identifications. As noted in Chart XIII, below, the accessions from each of the five groupings of states generally paralleled their proportion of the population, although the accessions from the largest ten states were 3.8% less than the population from these states.

CHART XIII

Comparison of State Distributions of U.S. Population (ages 17-22) and Enlisted Accessions, All Services, FY 1974

States Ranked by Population	Percent of Total		Cumulative Percentage	
	US Population (Ages 17-22)	Enlistments (FY 1974)	US Population (Ages 17-22)	Enlistments (FY 1974)
Ten Most Populous States (CA, NY, TX, PA, OH, IL, MI, NJ, FL, MA)	52.7	48.9	52.7	48.9
Next Ten States (IN, NC, GA, VA, WI, MO, LA, MN, TN, MD)	21.7	23.5	74.4	72.4
Next Ten States & Puerto Rico (AL, WA, KY, CT, IA, SC, OK, MS, CO, KS)	15.5	16.1	89.9	88.5
Next Ten States (OR, AR, AZ, WV, NB, UT, NM, ME, RI, ID)	7.0	8.1	96.9	96.6
Ten Least Populous States & DC, Virgin Islands & Guam (MT, HI, SD, NH, ND, DE, NV, VT, AK, WY)	3.1	3.4	100.0	100.0

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REGIONAL COMPARISONS

The OSD Study also examined accessions on the basis of a geographical grouping of the States. As noted in Chart XIV below, the enlistment from northeastern states are somewhat below the available population, while the southern and western states are somewhat above, though none of the variances are large.

Although there were small differences, the above results were confirmed both by Dr. Richard Cooper of Rand (presented to the DMC at a public hearing) and by the DMC staff. The DMC staff effort utilized a special MARDAC computer run of FY 71 and FY 74 accessions.

CHART XIV

	<u>US Population</u> <u>(Ages 17-22)</u>	<u>Enlistments</u> <u>FY 1974</u>
New England	5.5	4.5
Middle Atlantic	17.0	12.8
East North Central	20.0	17.6
West North Central	<u>8.1</u>	<u>7.9</u>
Subtotal	50.6	42.8
South Atlantic	14.8	17.6
East South Central	6.6	7.5
West South Central	9.7	11.8
Mountain	4.3	5.2
Pacific	12.5	14.1
Other	<u>1.5</u>	<u>1.0</u>
Subtotal	49.4	57.2
TOTAL	100.0	100.0

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URBAN-RURAL COMPARISON

The OSD Report also attempted to classify accessions on the basis of urban or rural. Their methodology was to utilize the home of records and compare them with the 57 largest Standard Metropolitan Statistical Areas. The results of their efforts are as follows:

CHART XV

Urban Areas (57 Largest SMSA's):
US Population and Percentage of Epistees, FY 1974

<u>Year</u>	<u>US Pop</u>	<u>Army</u>	<u>Navy</u>	<u>Marine Corps</u>	<u>Air Force</u>	<u>DOD</u>
FY 1972	50	46	46	48	43	46
FY 1973	50	45	48	49	43	45
FY 1974	50	44	48	50	43	46

Geographical Origin Within Units

Hard data on the geographical origins of accessions of unit personnel are not available; however, "groupings" of men and women on the basis of geography was noted by the DMC staff in various field visits. The "groupings" are most pronounced in the Army, where the Unit of Choice and the Station of Choice programs have allowed regional recruiting programs. For example, the 9th Infantry Division at Fort Lewis, Washington, was recruited almost entirely from the Pacific Northwest area; and the 197th Infantry Brigade at Fort Benning has a heavy proportion of men from the Southeastern area. Various training installations, such as Forts Jackson and Dix, also have high proportions of permanent party personnel from nearby areas.

The geographical distribution of men within units also is supported by internal Service assignment policies which often assign men and women to nearby facilities because of its cost effectiveness and indicated personal preference.

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V. SURVEY OF COMMANDERS

In addition to reviewing the socio-economic changes which have occurred during the AVF years, and as previously indicated in methodology (Section III), the DMC staff (with the assistance of a professional survey research firm) conducted a survey of military commanders in the field. The objective of the survey was to gain commanders' perceptions on how changes in the socio-economic composition of their units impacted upon the ability to perform their mission.

A. Results of Survey by DMC Staff and Research Consultant Teams ^{1/}

The survey teams visited various military installations throughout the United States and spoke to commanders at squadron, battalion, ship level and higher. Combat and support units of the Regular, Reserve and Guard were included.

	<u>UNITS BY SERVICE</u>		
	<u>REGULAR</u>	<u>RESERVE</u>	<u>GUARD</u>
Air Force	34	10	3
Army	43	0	2
Marine Corps	13	7	-
Navy	<u>23</u>	<u>19</u>	<u>4</u>
TOTAL	113	36	3

^{1/} A more detailed summary of survey results is attached as Appendix A.

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The ranks of commanders ranged from O-3 to an O-8. The average time in Service of the 154 commanders was 19 years and the average time in command was 15 months.

The survey instrument, prepared by the DMC staff with assistance from Opinion Research, Inc. of Princeton, New Jersey, was a questionnaire designed to identify commander perceptions of changes and unit ability to carry out its mission. Each interview lasted about 30 minutes with one team member guiding the discussion with questions and a second team member recording responses and key comments. The following summarizes the responses received.

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SURVEY RESULTS

Question 1: WHAT WOULD YOU CONSIDER TO BE THE MOST IMPORTANT CHANGES THAT HAVE OCCURRED IN THE ARMED FORCES IN THE LAST FIVE YEARS?

Changes related to the AVF (e.g., attitudes, motivations, and desires of enlistees; deemphasis of patriotism and service to country; emphasis on recruitment and retention goals; increase in women and minorities, etc.)	27X
Changes related to end of Vietnam involvement	16X
Emphasis on human relations (increased individual awareness, reduced racial tension, concepts of supervision, etc.)	15X
Higher quality of accessions	6X
Fewer resources	3X
Lower quality of accessions	3X
Other changes (e.g., total force concept, increased direction by superiors, values of society and drugs impacting on military, etc.)	27X

Question 2: WITH THE ADVENT OF THE ALL VOLUNTEER FORCE, WHAT MAJOR CHANGES HAVE OCCURRED IN YOUR UNIT?

No significant change	34X
Increased quality (where quality was defined as intelligence, attitude and motivation)	22X
Decreased quality	13X
Increased number of women	8X
Increased number of minorities	2X
Other changes (e.g., "people" related programs, individual education, etc.)	21X

Question 3: WHAT FACTOR MOST ENHANCES YOUR UNIT'S EFFECTIVENESS?

Meaningful operations and well trained personnel	44X
Dedicated officers and NCO's (leadership)	25X

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Morale, motivation and attitude of troops	13%
Sufficient material resources	6%
Other	12%

Question 4: WHAT FACTOR MOST HAMPERS YOUR UNIT'S EFFECTIVENESS?

Lack of training, experience and personnel turnover/ instability	32%
Shortage of material resources	18%
Demands of administrative details	15%
Attitude, morale, drugs and other general problems of society	9%
Personnel shortages	6%
Other (e.g., education programs, increase in off-base living by troops, etc.)	20%

Question 5: HOW HAS THE INCLUSION OF FEMALE PERSONNEL AFFECTED THE
ABILITY OF YOUR UNIT TO CARRY OUT ITS MISSION?

No change in ability	29%
Positive	18%
Negative	8%
Not applicable; no women assigned	45%

Question 6: HOW HAS THE INCREASE OF BLACKS AND SPANISH-SPEAKING
AMERICANS AFFECTED THE ABILITY OF YOUR UNIT TO CARRY OUT ITS MISSION?

No change	50%
Positive	3%
Negative	4%
Not applicable; no noticeable increase	44%

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Question 7: HOW HAS THE CHANGE IN EDUCATIONAL LEVEL AMONG SERVICE-MEN AFFECTED THE ABILITY OF YOUR UNIT TO CARRY OUT ITS MISSION?

No change	32X
Positive	40X
Negative	7X
Not applicable; no perceived change	20X

Question 8: HOW HAS THE CHANGE IN GEOGRAPHICAL REPRESENTATION AMONG SERVICEMEN AFFECTED THE ABILITY OF YOUR UNIT TO CARRY OUT ITS MISSION?

No change	30X
Positive	4X
Negative	5X
Not applicable; no perceived change	61X

Question 9: HOW HAS THE CHANGE IN MENTAL CATEGORY AMONG SERVICE-MEN AFFECTED THE ABILITY OF YOUR UNIT TO CARRY OUT ITS MISSION?

No change	29X
Positive	29X
Negative	8X
Not applicable; no perceived change	34X

Question 10: IF YOU COULD, WHAT MAJOR CHANGES WOULD YOU MAKE IN THE CURRENT PERSONNEL POLICIES OF YOUR SERVICE?

Responses to this question were generally broad and varied. Only 6% of all respondents indicated there were no changes that they desired to make. Of the various responses, the following were the most frequently identified:

Improve recruiter practices and recruitment policies	9X
Increase enlistment standards to require higher school graduation by all enlistees	6X
Improve stability by reducing personnel turnover	6X

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B. Limitations of the Survey

The survey of unit commanders in order to gain their perceptions of socio-economic changes and the related impact upon ability of a unit to perform its mission addressed basic concerns expressed in Section 702(7) of PL 93-155. However, any conclusions should be tempered by certain limitations inherent in the survey.

Two person interview teams were alternately composed of white and black, males and females. Team composition might have inhibited responses, however, team composition was altered in an effort to lessen/compare inhibitions. Responses received by all white or all male teams were essentially consistent with responses received by all black and male/female teams. Also, responses received by Opinion Research, Inc. were consistent with responses received by DMC staff teams.

In some instances, after being at an installation for a period of time, survey teams began to pick up a "party line." Whether because previously interviewed commanders were communicating with still to be interviewed commanders, or some other reason, several persons were anticipating questions and had ready answers.

Due to resource limitations overseas units were not visited. This overlooks a significant percentage of active military units in a forward environment. As an alternative to overseas travel six just-returned commanders (4 Army, 1 USAF, 1 Navy) were interviewed. Their considerations and responses appeared similar to those expressed by CONUS commanders.

The sample of units surveyed did not include Army Reserve units. Also the total sample size was relatively small due to time and resource limitations.

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Finally, a commander's perception of his unit's ability to perform its mission reflects some degree of uncertainty. Judgments, by necessity, must be based upon material readiness, leadership, morale and performance during readiness inspections and training exercises. There is no way to truly simulate actual combat, attending conditions, and individual reactions. At best the survey responses were perceived estimates. However, in the absence of any better measure, and since the person held accountable for a unit's readiness and ability to perform its mission is the commander, the DMC staff judged that he, better than anyone, should be able to assess his unit's status and ability to fulfill its mission.

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VI. DISCUSSION OF SOCIO-ECONOMIC COMPOSITION AND IMPACT

The information contained in the two preceding sections, as well as the details of supporting data and information, provide the basis for a DMC staff response to the ten questions listed in Section II. These responses are as follows:

1. Has the AVF recruited an increasing percentage of individuals without high school diplomas or equivalents, or from Mental Group IV?

The AVF years have witnessed a steady improvement in the educational level of enlisted personnel in the active force. While the percentage of college-trained accessions has fallen off, the percentage of high school graduate accessions has increased and there has been a steady decline in non-high school graduate accessions. There also has been a steady decline in Mental Group IV's recruited for the active Services.

The impacts of AVF policies on the educational and Mental Group levels for the National Guard and the Reserve have been generally negative. There has been a dramatic drop-off in college trained accessions and high school graduate accessions, while both Mental Group IV's and non-high school graduates have proportionately increased. While on the surface this would appear as a problem area, two factors should be kept in mind: (1) the overall numbers of non-prior service accessions for the Guard and Reserve have significantly declined, thus the impact of lower educational/mental group levels among accessions has been less pronounced; and (2) the large proportion of college-trained draft-motivated enlistees of the Vietnam era may well have been over-qualified for the service jobs for which they enlisted.

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Conclusion: The AVF has not become a haven for less-educated recruits. The educational level of active force accessions has improved, while the educational/mental group level of Guard/Reserve accessions has gone down.

2. Has the AVF become increasingly Black, and if so, in what areas?

There has been a steady increase in Black accessions during the AVF years in officer procurement and in the Guard and Reserve programs, although the increases in Black officer accessions for the active forces have been very slight. Black enlisted accessions in the active forces increased from FY 71-74, but then decreased in FY 75. Overall, the largest increases in enlisted accessions for Blacks have been in the Army and Marine Corps.

The Army by FY75 had reached a level of 22% Black. The Navy reached 8% in FY73 and has not changed. Black percentages in the Selected Reserve also have increased, but the current 7.8% level for all the Selected Reserve is substantially below the active forces level. The proportion of Black officers also has increased, but like the Selected Reserve enlisted statistics, the percentage of Black officers is still far below the percentage of enlisted Blacks (3% Officers vs. 16% Enlisted).

The distribution of Blacks among specific Occupational Groups has also changed, although the historical pattern of finding more Black enlisted men in the combat arms, in service and supply, and administrative billets has not changed. Similarly, the pattern of more Black officers serving in administrative and supply billets has not changed.

Perhaps the greatest change in Blacks within the Armed Forces can be found within specific units where, because of Unit of Choice and Station of Choice programs and other factors, there are occasionally

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wide variations from the Service-wide norms.

Conclusion: While more Blacks currently are serving in the active and Reserve forces than the pre-AVF years, the percentage varies between Services, their Reserve and National Guard components and between Occupational Areas. When compared to DOD totals, Black active forces enlisted personnel continue to be found in greater percentages in service and supply, combat arms, and administrative billets. Numbers of Blacks have increased in the Reserve forces, but percentages are much lower than the active forces. The percentage of Black officers continues to remain far below the percentage of Black enlisted.

3. Has the AVF recruited increased numbers of women?

The number of women in the military Services has increased dramatically in relation to its size in the mid-1960's. However, in relation to total DOD strength, women comprise and are programmed to comprise a small percentage (6.2% in FY 78). The opening of most non-combat career fields to women has promoted a more equitable distribution among the various specialties; however, two-thirds of military women still work in the traditional medical and administrative areas with no significant concentrations in any of the mechanical or electronic career fields. The increasing numbers of women necessitated the opening of additional military installations to

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the assignment of women to prevent very large concentrations of them on a few installations.

Conclusion: While the AVF has recruited increased percentages of women, a ceiling on the numbers of women entering the armed forces is in effect. The distribution of women in the various Services and their Guard and Reserve components and in the occupational areas varies greatly. Each service has different policies pertaining to the geographic locations to which women may be assigned and the occupational areas in which they may be utilized. These policies also vary among components of the same service.

4. Has the AVF become a poor man's Army?

Absolute data concerning the economic status of accessions are not available, nor are likely to be available in the near future. However, each of several recent attempts to quantify this question could support the following general statements:

1. The children of "poor" families have never entered into the Armed Forces in great numbers due to the restrictions of minimum mental, educational and physical standards; further, it would appear that there has been no significant increase in the proportions of enlistees from "poor" families during the AVF years.
2. The children of "rich" families also have not entered into the Armed Forces in great numbers, due first to the inequities

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in the draft system and today to the greater opportunities in the civilian sector. While the draft prompted a large proportion of "rich" youth to serve, a smaller proportion from this group are enlisting during the AVF years.

3. The children of "middle" class families have and are providing the bulk of Armed Forces accessions.

Conclusion: The AVF has not become a poor man's Army.

5. How has geographical composition of the AVF changed?

As both National Guard and Reserve unit membership are geographically constrained by regulations, the examination of geographical distribution patterns is limited to the Active Forces.

Prior to the AVF, the draft was designed to provide geographical distribution of accessions for the Active Forces. With the end of the draft, certain changes began to occur and these were subject to several examinations including the Air Force's "Volunteer Roadmap", special study efforts by OSD in response to concern from the Senate Armed Services Committee, as well as supplementary efforts by RAND and the DMC staff.

Although both recent and limited in scope, the study efforts to date support the following statement:

1. that the pattern of accessions during the AVF years generally have been on an equitable geographical distribution basis;
2. that the small variances between large states, small states, urban-rural and regions of the country have not nor are likely to create

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major changes to geographical distribution;

3. that some units and bases, particularly within the Army, have increasing percentages of members from nearby areas.

Conclusion: The Active Forces, with the exception of certain units, have experienced little change in geographical distribution. Concerning the Reserve and National Guard, geographical distribution is not an issue.

6. Has the change in educational levels and mental groups within AVF impacted on the ability of the Armed Forces to carry out its mission?

An indicator of educational level/mental group change as they impact on mission capability is the survey of unit commanders. In response to the question on education level, 20% of the commanders perceived

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no change. Of the remainder (123 units), 91% stated that the change in education level had either a positive effect or no impact upon the unit's ability to carry out its mission. In response to the question on mental groups, a similar pattern emerged. 34% of the commanders perceived no change in the proportion by mental group of new accessions. Of the remainder (102 units), 88% stated that the change had either a positive effect or no impact on the unit's mission capability. As with any of these judgments on ability to carry out mission, a final evaluation on capabilities will only be possible after a unit is actually committed to combat.

While not directly related to mission capability, the intangibles of "unit personnel health" indirectly impact on the ability of units to carry out their missions. In this regard, there have been positive achievements during the AVF years. In general, AWOL and Courts Martial rates are down, and while Remedial Reading and other such "bootstrap" programs are still in existence, their student bodies have been reduced. Further, and directly related to educational/Mental Group achievements, various research studies have related years of education and Mental Group ranking to such factors as rates of unsuitability discharges, achievement rates for technical specialists, as well as overall performance in training. As reported by OSD to the Senate Armed Services Committee, there has been a direct relationship in each of these areas between higher education test scores and lower attrition/discharge rates.

While higher education levels and GCT scores generally predict high training marks and performance, there are some exceptions. For example,

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the Army's Training and Doctrine Command (TRADOC) recently concluded an evaluation of "self-pacing" courses for tank crew members which indicated that the best educated and most intelligent students were the worst gunners. According to TRADOC, the best gunners appeared to be those whose GCT scores are in the lowest 50%.^{1/}

At the same time, most of the other research in this area has been unsuccessful in equating the successful passing of written exams to future military performance. Most of the valid conclusions have indicated that successful passing of written exams of the types now administered indicates future success in other areas of academics and very little correlation to job performance.

Also, while the educational/Mental Group level of Guard-Reserve accessions has gone down, the impact to date appears to be minimal due both to the relatively small numbers of non-prior service accessions involved and the probably over-qualification of draft-era accessions.

Conclusion: There has been no apparent negative impact on the ability of the Armed Forces to carry out their mission as a result of the overall changes in the educational/Mental Group levels of accessions. Further, the intangibles of unit personnel health seem to be improving, with a probable impact on unit readiness.

^{1/} Briefing by MGEN Gorman, Deputy Chief of Staff for Training, TRADOC, to Defense Manpower Commission, 21 July 1975.

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7. Has the increase in Blacks in the AVF impacted on the ability of the Armed Forces to carry out its mission?

One indicator currently available to the DMC staff to answer this question is the survey of military commanders summarized in Section V and Appendix A. Of the 154 commanders interviewed, 44% said that they perceived no increase in the number of Blacks in their unit. Of the remainder who did perceive an increase (87 units), 93% stated that the increase either improved or had no impact upon their unit's ability to carry out its mission. This would clearly indicate that to date an increased number of Blacks has not degraded ability to units to perform their mission. However, as with any change (i.e. people, time, training, etc.) a true evaluation can only be arrived at after a unit is committed to actual combat.

Although DOD-sponsored research demonstrates that race (whether it be white, Black, other) is not a factor in individual performance, the impact of increased Black representation in the Armed Forces has been the subject of recent public discussion. While this discussion is likely to continue, it is significant to note that the DMC staff observed a higher degree of interest in this subject in the academic, political and higher military levels than at the level of the operating military unit.

Conclusion: There is no apparent impact on the ability of combat units of the Armed Forces to carry out their missions because of changes during the AVF years in percentages of Blacks.

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8. Has the increased numbers of women in the AVF impacted on the ability of the Armed Forces to carry out its mission?

The underlying concern in any discussion of military women is the fear that too many women will lessen combat effectiveness. The Services have expended great amounts of time and effort to determine and justify the maximum percentage of women they can utilize without negatively impacting on combat effectiveness. However, the more basic analysis of what constitutes combat involvement and combat effectiveness has yet to be addressed. Even according to the liberal definition of combat forces used by the Department of Defense in their Manpower Requirements Report for FY 1976, over half of the total active duty strength is defined as support forces. It would then appear that the current 4.6% and the FY78 projection of 6.2% women in DoD is very conservative and should have little, if any, impact on combat effectiveness.

This observation is supported by the responses of the commanders surveyed. Of those who had women assigned, over 85% said they had no impact, or a positive one, on the unit's effectiveness. However, of those commanders who had no women assigned, many indicated a fear that they "might" hamper its effectiveness.

Conclusion: While the limited numbers of women now in the AVF have no apparent negative impact on combat effectiveness, their lack of acceptance by numerous Service members does hamper more efficient utilization and demonstrates the need for a program to enhance the techniques of management and utilization of military women.

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9. Have the changes in the economic status of accessions during the AVF years impacted on the ability of the Armed Forces to carry out its mission?

This question was not included in the survey of commanders. Since the information on family income is not recorded in an enlistee's record, it was unlikely that commanders would be familiar with economic status. Additionally, in most cases, when individuals enlist they become an independent member of the standard and separate income schedule of the Armed Forces.

With respect to the status of the poor in the military, the concern is not over the economic status of the new accession, but rather the economic level of his parents. The assumption here is that new accessions coming from families at certain higher economic levels will manifest specific favorable characteristics, while individuals coming from families at the lower end of the socio-economic scale may manifest unfavorable characteristics with respect to military suitability and adaptation.

It should be noted that during the course of DMC staff field trips, it was discovered that a perceived prejudice was being made for individuals who were thought to come from families at the lower end of the socio-economic scale. Many of the officers and senior NCO's (particularly at the Basic Training Centers) felt that accessions coming from poor families were underachievers, problem-oriented, not good leadership material, and would fail at a higher rate than individuals who came from families above the poverty level. Most had no specific data, but "just knew it".

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While various studies have related educational levels and Mental Group scores to training attrition rates, and while it is reasonable to assume that a larger proportion of less-educated applicants will be found in families from the lower economic level, no research was uncovered that directly relates economic status of parents to successful performance in the Armed Forces, or to the ability of units with men and women from lower economic family backgrounds to more or less effectively carry out their mission.

Conclusion: As there has been no significant change in the economic status of accessions during the AVF years, the question is moot. However, had there been a significant change, there is little data available that could be used to relate family economic background to individual or unit performance readiness.

10. Have the changes in the geographical distribution of the AVF impacted on the ability of the Armed Forces to carry out its mission?

The Reserve and Guard have experienced no noticeable change in geographic distribution, since enlistees come from communities in close proximity to the unit. Of the 113 Regular unit commanders interviewed during the DMC survey, 88% perceived no shift in geographical distribution, or in those cases where a shift was perceived (mainly due to unit-of-choice guarantees) there was no impact on mission capability.

In non-survey DMC staff visits to units with high proportions of men and women from nearby areas, several pluses and minuses were cited. Among these were the impact of larger proportions of personnel likely to be off post on evenings and weekends and hard to group in an emergency versus fewer personnel or family problems due to close proximity of home. The impact of disproportionately high casualties from the area in question also was discussed, although this point generally was discounted in

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light of the geographical concentration of Reserve and Guard units.

Conclusion: The changes in geographical representation in the active AVF have not impacted on the ability of the AVF to carry out its mission.

The impact of geographical distribution changes in the Reserve and National Guard is not an issue.

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DATA SOURCES

Data on active forces accessions, education and Mental Group levels for FY70-74 from DOD Special Studies No. A02, F02, M02 and W02 of 9/4/75; data on FY64 and FY75 armed forces accessions, educational and Mental Group levels from OASD(M&RA). Due to DOD recordkeeping errors, some discrepancies exist between these categories, particularly for FY70-FY73. Data on high school graduations, first-time male college enrollments and 18-year old male population from Projections of Educational Statistics to 1983-84, (HFW, National Center for Educational Statistics, 1975), pp. 43, 44, 154, 159. Estimates on GED's from Dr. Vance Grant, National Center for Educational Statistics.

Data on Reserve Forces accessions, educational and Mental Group levels for FY70-75 from Briefing Charts prepared by Office, Deputy Assistant Secretary of Defense (Reserve Affairs) 30 June 1975.

Data on active forces educational levels from Selected Manpower Statistics, OASD(Comptroller) May 1975.

Other Data Sources

The Negro in the Armed Forces: A Statistical Fact Book, OASD (Equal Opportunity), September 1971; supplemented by Blacks in the Armed Forces, a 1973 and 1974 up-date, and data furnished by MARDAC.

Secretary of Defense James R. Schlesinger, Annual Defense Department Report, FY75, p. 184.

"Effects of Aptitude, Job Experience and Literacy on Job Performance, Summary of HumRRO Work Units Utility and Realistic," HumRRO, February 1971.

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Department of Defense, Defense Manpower Quality Requirements, Report to the Senate Armed Services Committee, as required by Report No. 93-385, January 1974.

Morris Janowitz and Charles C. Moskos, Jr., "Racial Composition of the All Volunteer Forces", Society, May-June 1975, pp. 37-42.

Ronald Dellums, "Don't Slam Door to Military," FOCUS, June 1975, p. 6.

Richard L. Cooper, Rand Corporation, "Statement Before the Defense Manpower Commission", 28 January 1975.

"Applicants for Enlistment: Results of Examinations for Military Service," HumRRO, July 1975.

Data provided by TRADOC for DMC briefing, 28 July 1975.

Data provided by Fort Benning and 197th Infantry Brigade for DMC Briefing, 30 June 1975.

Data provided by LGEN Robert Q. Nichols, CG, FMFLANT, USMC, to DMC, 10 September 1975.

Attrition data from DMC Contract Study, "Enlisted Turnover," prepared by GE-Tempo, November 1975.

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APPENDIX A

SOCIO-ECONOMIC IMPACT SURVEY^{1/}

I. Background and Approach.

Implicit in Section 702(7) of PL 93-155 is the perception that changes in the socio-economic composition of military enlistees, since the enactment of new recruiting policies provided for in PL 92-129, has impacted upon the ability of the Armed Forces to fulfill their mission.

The basic military mission involves combat. There is no way to realistically simulate actual combat. Also, there is no way to actually determine a unit's ability to perform in combat short of committing that unit to battle. The person held accountable for a unit's readiness and ability to perform its mission is the commander. He, better than anyone, should be able to assess his unit's status and ability to fulfill its mission.

Readiness reports, AWOL's, courts martial rates, inspection reports, etc. might be individual indicators of readiness. However, even when these indicators are combined in an effort to estimate a unit's ability to fulfill its mission, they fail to recognize such major determinants as leadership, esprit de corps, individual attitude and motivation which could dictate action/reaction in any given situation.

Because of problems in arriving at a full range of valid, quantifiable indicators for readiness, the DMC staff was unable to devise an approach which would accurately measure known data on socio-economic changes in the Armed Forces versus individual unit readiness and the ability to perform its mission. As the next best alternative, the DMC staff chose to interview unit commanders to gain their perceptions on how changes in the socio-economic composition of their units impacted upon the ability to perform their mission.

II. Development of the Survey Instrument and Field Testing.

The original survey instrument was a questionnaire developed by the DMC staff. It was designed to gain perceptions of the impact of socio-economic changes on unit effectiveness. The instrument was "field tested" at the following installations:

Seymore Johnson AFB, NC	(Air Force)
Fort Benning, GA	(Army)
Camp Lejeune, NC	(USMC)
Norfolk, VA	(Navy)

The field test was to determine whether the questions produced the desired information on socio-economic change vs. mission capability. The installations for testing were chosen primarily because of their geographic proximity, variety of units stationed there, and Service representation.

^{1/} Pages 62-64 and page 68 of this Appendix appear in the main section of this report.

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A summary of results, analysis and critique were conducted following the field test. To refine the approach and improve credibility of the DMC staff effort Opinion Research, Incorporated (ORI) of Princeton, New Jersey was called upon as a consultant/participant. ORI assisted in refining the instrument and they subsequently conducted a number of the interviews.

Interview teams were comprised of two members. One member would ask the questions and guide the discussion while the second member would record responses and key points. Interview/recording tasks were alternated to reduce bias. Team members were selected from among 2 black males, two caucasian males, and four caucasian females. Team composition was changed several times in another effort to reduce bias.

III. Selection of Units.

Military installations were selected to provide a broad geographic crosssection within CONUS from East to West Coast. Numerous locations were selected to provide access to units having the following characteristics:

Battalion, squadron, ship or larger
Combat and combat support
Non-combat and special
Regular, Reserve and Guard
Various seniority among commanders

OSD in coordination with the Services provided a variety of designated units to be visited at each installation. Installations visited were:

Fort Lewis, WA	Fort Riley, KS
March AFB, CA	Philadelphia, PA
Morton AFB, CA	Willow Grove, PA
Miramar NAS, CA	Dover AFB, DE
San Diego, CA	Indiantown Gap, PA
Camp Pendleton, CA	McGuire AFB, NJ
Fort Hood, TX	Fort Dix, NJ
Fort Wood, TX	

Due to time and resource limitations no overseas units were visited. As the next best alternative five just-returned commanders from overseas based units (3 Army, 1 USAF, 1 Navy) were interviewed. The following tables provide breakdowns of units by Service, ranks of commanders, and commander experience in terms of time in Service and time in command of unit.

UNITS VISITED (194 TOTAL)

	<u>REGULAR</u>	<u>RESERVE</u>	<u>GUARD</u>
AIR FORCE	34	10	3
ARMY	43	0	2
MARINE CORPS	13	7	-
NAVY	23	19	-
TOTAL	<u>113</u>	<u>36</u>	<u>5</u>

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BANK OF COMMANDERS INTERVIEWED

	AIR FORCE	ARMY	MARINES	NAVY	RESERVE	GUARD
0-7 & above	1	0	0	5	1	0
0-6	10	2	3	10	8	2
0-5	11	36	8	7	20	3
0-4 & below	12	5	2	1	7	0

AVERAGE YEARS OF MILITARY EXPERIENCE

	AIR FORCE	ARMY	MARINES	NAVY	RESERVE	GUARD
< 14 Yrs.	7	3	1	0	4	0
14-16	3	12	1	2	6	0
16-18	4	11	1	2	9	0
18-20	6	11	4	2	5	0
> 20	20	6	6	17	12	5
AVERAGE YEARS	18	18	20	21	19	22

OVERALL AVERAGE TIME IN SERVICE - 19 YEARS

CONTINUOUS PERIOD IN COMMAND

	AIR FORCE	ARMY	MARINES	NAVY	RESERVE	GUARD
< 6 mos.	7	15	3	4	7	0
6-12	11	8	3	7	7	0
12-18	4	16	5	2	8	1
18-24	7	3	1	7	3	0
> 24	5	1	1	3	11	4
AVERAGE MOS.	19	12	14	16	15	24

OVERALL AVERAGE TIME IN COMMAND - 15 MONTHS

IV. Survey Results.

Teams interviewed commanders individually. Average interview time was about 30 minutes. Prior to commencement the interviewer described what the Defense Manpower Commission is and read the following explanation:

You are being interviewed as a part of the Defense Manpower Commission's effort to sample the opinions of unit commanders from all the Services, including the Reserve Forces. We are attempting to determine whether commanders perceive any changes in the ability of their units to perform their mission as a result of socio-economic factors (sex, race, education, geographical representation and mental category).

This interview is wholly confidential and we are not recording your name or service number. Your opinions will be tabulated along with those of hundreds of other commanders throughout the country. We ask that you be as honest as possible in your responses.

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The interviewer then asked questions and sought amplification of responses where clarity was in doubt. The second team member recorded responses and key points made by commanders in amplification.

The survey was conducted over a several week period during the summer of 1975. Upon completion of the survey responses by commanders were analyzed, coded, grouped and tabulated. The following indicates each of the ten questions asked and summarizes the responses of all 154 commanders interviewed. Following this summary is a more detailed tabulation of responses by commanders in each Regular Service, the Reserve and Guard.

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SUMMARY SURVEY RESULTS

Question 1: WHAT WOULD YOU CONSIDER TO BE THE MOST IMPORTANT CHANGES THAT HAVE OCCURRED IN THE ARMED FORCES IN THE LAST FIVE YEARS?

- | | |
|--|-----|
| A. Changes related to the AVF (e.g., attitudes, motivations, and desires of enlistees; deemphasis of patriotism and service to country; emphasis on recruitment and retention goals; increase in women and minorities, etc.) | 27% |
| B. Changes related to end of Vietnam involvement | 16% |
| C. Emphasis on human relations (increased individual awareness, reduced racial tension, concepts of supervision, etc.) | 15% |
| D. Higher quality of accessions | 6% |
| E. Fewer resources | 3% |
| F. Lower quality of accessions | 3% |
| G. Other changes (e.g., total force concept, increased direction by superiors, values of society and drugs impacting on military, etc.) | 27% |

Question 2: WITH THE ADVENT OF THE ALL VOLUNTEER FORCE, WHAT MAJOR CHANGES HAVE OCCURRED IN YOUR UNIT?

- | | |
|--|-----|
| A. No significant change | 34% |
| Increased quality (where quality was defined as intelligence, attitude and motivation) | 22% |
| B. Decreased quality | 13% |
| C. Increased number of women | 8% |
| D. Increased number of minorities | 2% |
| E. Other changes (e.g., "people" related programs, individual education, etc.) | 21% |

Question 3: WHAT FACTOR MOST ENHANCES YOUR UNIT'S EFFECTIVENESS?

- | | |
|---|-----|
| A. Meaningful operations and well trained personnel | 44% |
| B. Dedicated officers and NCO's (leadership) | 25% |

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C.	Morale, motivation and attitude of troops	13X
D.	Sufficient material resources	6X
E.	Other	12X

Question 4: WHAT FACTOR MOST HAMPERS YOUR UNIT'S EFFECTIVENESS?

A.	Lack of training, experience and personnel turnover/ instability	32X
B.	Shortage of material resources	18X
C.	Demands of administrative details	15X
D.	Attitude, morale, drugs and other general problems of society	9X
E.	Personnel shortages	6X
F.	Other (e.g., education programs, increase in off-base living by troops, etc.)	20X

Question 5: HOW HAS THE INCLUSION OF FEMALE PERSONNEL AFFECTED THE
ABILITY OF YOUR UNIT TO CARRY OUT ITS MISSION?

A.	No change in ability	29X
B.	Positive	18X
C.	Negative	8X
D.	Not applicable; no women assigned	45X

Question 6: HOW HAS THE INCREASE OF BLACKS AND SPANISH-SPEAKING
AMERICANS AFFECTED THE ABILITY OF YOUR UNIT TO CARRY OUT ITS MISSION?

A.	No change	50X
B.	Positive	3X
C.	Negative	4X
D.	Not applicable; no noticeable increase	44X

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Question 7: HOW HAS THE CHANGE IN EDUCATIONAL LEVEL AMONG SERVICE-MEN AFFECTED THE ABILITY OF YOUR UNIT TO CARRY OUT ITS MISSION?

A. No change	32%
B. Positive	40%
C. Negative	7%
D. Not applicable; no perceived change	20%

Question 8: HOW HAS THE CHANGE IN GEOGRAPHICAL REPRESENTATION AMONG SERVICEMEN AFFECTED THE ABILITY OF YOUR UNIT TO CARRY OUT ITS MISSION?

A. No change	30%
B. Positive	4%
C. Negative	5%
D. Not applicable; no perceived change	61%

Question 9: HOW HAS THE CHANGE IN MENTAL CATEGORY AMONG SERVICE-MEN AFFECTED THE ABILITY OF YOUR UNIT TO CARRY OUT ITS MISSION?

A. No change	29%
B. Positive	29%
C. Negative	8%
D. Not applicable; no perceived change	34%

Question 10: IF YOU COULD, WHAT MAJOR CHANGES WOULD YOU MAKE IN THE CURRENT PERSONNEL POLICIES OF YOUR SERVICE?

A. Responses to this question were generally broad and varied. Only 6% of all respondents indicated there were no changes that they desired to make. Of the various responses, the following were the most frequently identified:	
B. Improve recruiter practices and recruitment policies	9%
C. Increase enlistment standards to require higher school graduation by all enlistees.	6%
D. Improve stability by reducing personnel turnover	6%

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TABULATION OF RESPONSES BY REGULAR SERVICE, RESERVE, AND GUARD^{1/}

Question 1: WHAT WOULD YOU CONSIDER TO BE THE MOST IMPORTANT CHANGES THAT HAVE OCCURRED IN THE ARMED FORCES IN THE LAST FIVE YEARS?

	<u>USAF</u>	<u>ARMY</u>	<u>USMC</u>	<u>NAVY</u>	<u>RESERVE</u>	<u>GUARD</u>	<u>TOTAL</u>
A.	26%	42%	15%	22%	14%	60%	27%
B.	9%	35%	8%	4%	11%	0%	16%
C.	26%	2%	8%	39%	8%	0%	15%
D.	0%	7%	31%	9%	0%	0%	6%
E.	9%	0%	8%	4%	14%	0%	6%
F.	3%	2%	8%	0%	0%	6%	3%
G.	26%	12%	23%	22%	47%	40%	27%

Question 2: WITH THE ADVENT OF THE ALL VOLUNTEER FORCE, WHAT MAJOR CHANGES HAVE OCCURRED IN YOUR UNIT?

	<u>USAF</u>	<u>ARMY</u>	<u>USMC</u>	<u>NAVY</u>	<u>RESERVE</u>	<u>GUARD</u>	<u>TOTAL</u>
A.	44%	16%	38%	39%	44%	20%	34%
B.	21%	16%	23%	39%	14%	60%	22%
C.	9%	19%	15%	9%	11%	20%	13%
D.	9%	19%	0%	0%	3%	0%	8%
E.	0%	7%	0%	0%	0%	0%	2%
F.	18%	23%	23%	13%	28%	0%	21%

Question 3: WHAT FACTOR MOST ENHANCES YOUR UNIT'S EFFECTIVENESS?

	<u>USAF</u>	<u>ARMY</u>	<u>USMC</u>	<u>NAVY</u>	<u>RESERVE</u>	<u>GUARD</u>	<u>TOTAL</u>
A.	44%	42%	15%	30%	64%	40%	44%
B.	18%	44%	38%	26%	3%	40%	25%
C.	26%	2%	8%	17%	11%	20%	13%
D.	3%	0%	8%	13%	14%	0%	6%
E.	9%	12%	31%	13%	8%	0%	12%

^{1/} Responses coded by letter and correspond to response described in previous summary.

Question 4: WHAT FACTOR MOST HAMPERS YOUR UNIT'S EFFECTIVENESS?

	<u>USAF</u>	<u>ARMY</u>	<u>USMC</u>	<u>NAVY</u>	<u>RESERVE</u>	<u>GUARD</u>	<u>TOTAL</u>
A.	29%	49%	23%	22%	28%	20%	32%
B.	15%	5%	0%	35%	31%	20%	18%
C.	15%	26%	15%	0%	6%	60%	15%
D.	15%	2%	23%	17%	3%	0%	9%
E.	3%	12%	15%	0%	3%	0%	6%
F.	24%	7%	23%	26%	31%	0%	20%

Question 5: HOW HAS THE INCLUSION OF FEMALE PERSONNEL AFFECTED THE ABILITY OF YOUR UNIT TO CARRY OUT ITS MISSION?

	<u>USAF</u>	<u>ARMY</u>	<u>USMC</u>	<u>NAVY</u>	<u>RESERVE</u>	<u>GUARD</u>	<u>TOTAL</u>
A.	41%	23%	15%	22%	31%	40%	29%
B.	24%	23%	8%	13%	14%	20%	18%
C.	18%	9%	0%	4%	0%	20%	8%
D.	18%	44%	77%	61%	56%	20%	45%

Question 6: HOW HAS THE INCREASE OF BLACKS AND SPANISH-SPEAKING AMERICANS AFFECTED THE ABILITY OF YOUR UNIT TO CARRY OUT ITS MISSION?

	<u>USAF</u>	<u>ARMY</u>	<u>USMC</u>	<u>NAVY</u>	<u>RESERVE</u>	<u>GUARD</u>	<u>TOTAL</u>
A.	44%	53%	77%	52%	44%	20%	50%
B.	0%	2%	9%	0%	3%	20%	3%
C.	3%	9%	0%	0%	3%	0%	4%
D.	53%	35%	15%	48%	50%	60%	44%

Question 7: HOW HAS THE CHANGE IN EDUCATIONAL LEVEL AMONG SERVICEMEN AFFECTED THE ABILITY OF YOUR UNIT TO CARRY OUT ITS MISSION?

	<u>USAF</u>	<u>ARMY</u>	<u>USMC</u>	<u>NAVY</u>	<u>RESERVE</u>	<u>GUARD</u>	<u>TOTAL</u>
A.	18%	37%	54%	17%	42%	40%	32%
B.	53%	44%	15%	57%	19%	60%	70%
C.	3%	7%	23%	0%	11%	0%	7%
D.	26%	12%	8%	26%	28%	0%	20%

Question 8: HOW HAS THE CHANGE IN GEOGRAPHICAL REPRESENTATION AMONG SERVICEMEN AFFECTED THE ABILITY OF YOUR UNIT TO CARRY OUT ITS MISSION?

	<u>USAF</u>	<u>ARMY</u>	<u>USMC</u>	<u>NAVY</u>	<u>RESERVE</u>	<u>GUARD</u>	<u>TOTAL</u>
A.	32%	47%	77%	22%	0%	0%	30%
B.	3%	9%	0%	4%	0%	0%	4%
C.	12%	7%	8%	0%	0%	0%	5%
D.	53%	37%	15%	74%	100%	100%	61%

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Question 9: HOW HAS THE CHANGE IN MENTAL CATEGORY AMONG SERVICEMEN AFFECTED THE ABILITY OF YOUR UNIT TO CARRY OUT ITS MISSION?

	<u>USAF</u>	<u>ARMY</u>	<u>USMC</u>	<u>NAVY</u>	<u>RESERVE</u>	<u>GUARD</u>	<u>TOTAL</u>
A.	38%	28%	23%	13%	33%	40%	24%
B.	24%	35%	23%	43%	17%	60%	29%
C.	0%	9%	23%	0%	14%	0%	8%
D.	38%	28%	31%	43%	36%	0%	34%

Question 10: IF YOU COULD, WHAT MAJOR CHANGES WOULD YOU MAKE IN THE CURRENT PERSONNEL POLICIES OF YOUR SERVICE?^{1/}

	<u>USAF</u>	<u>ARMY</u>	<u>USMC</u>	<u>NAVY</u>	<u>RESERVE</u>	<u>GUARD</u>	<u>TOTAL</u>
A.	21%	2%	31%	0%	6%	0%	9%
B.	6%	0%	31%	9%	6%	0%	6%
C.	0%	5%	0%	26%	3%	0%	6%
NONE	3%	7%	8%	4%	8%	20%	6%

^{1/} Responses to this question were generally broad and varied. The responses listed in the tabulation were those most frequently identified.

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V. LIMITATIONS OF THE SURVEY

The survey of unit commanders in order to gain their perceptions of socio-economic changes and the related impact upon ability of a unit to perform its mission addressed basic concerns expressed in Section 702(7) of PL 92-133. However, any conclusions should be tempered by certain limitations inherent in the survey.

Two-person interview teams were alternatively composed of white and black males and females. Team composition might have inhibited responses; however, team composition was altered in an effort to lessen/compare inhibitions. Responses received by all-white or all-male teams were essentially consistent with responses received by all-black and male/female teams. Also, responses received by Opinion Research, Inc. were consistent with responses received by DMC staff teams.

In some instances, after being at an installation for a period of time, survey teams began to pick up a "party line." Whether because previously-interviewed commanders were communicating with still-to-be interviewed commanders, or some other reason, several persons were anticipating questions and had ready answers.

Due to resource limitations overseas units were not visited. This overlooks a significant percentage of active military units in a forward environment. As an alternative to overseas travel, six just-returned commanders (four Army, one Air Force, one Navy) were interviewed. Their considerations and responses appeared similar to those expressed by COMUS commanders.

The sample of units surveyed did not include Army Reserve units. Also, the total sample size was relatively small due to time and resource limitations.

Finally, a commander's perception of his unit's ability to perform its mission reflects some degree of uncertainty. Judgments, by necessity, must be based upon materiel readiness, leadership, morale and performance during readiness inspections and training exercises. There is no way to truly simulate actual combat, attending conditions, and individual reactions. At best, the survey responses were perceived estimates. However, in the absence of any better measure, and since the person held accountable for a unit's readiness and ability to perform its mission is the commander, the DMC staff judged that he, better than anyone, should be able to assess his unit's status and ability to fulfill its mission.

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WORKING PAPER
NOT AN OFFICIAL POSITION OF THE DMC

PROSPECTS FOR SUSTAINING THE PEACETIME
ALL VOLUNTEER FORCE, 1976-1985

A Staff Issue Paper
for the
Defense Manpower Commission

by
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with assistance from
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Recruitment Group
Defense Manpower Commission Staff

March 1976

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EXECUTIVE SUMMARY

BACKGROUND:

Establishes the 18 year-old male population as the focus of the analyses. The composition of the population is discussed:

- Continuing students
- Unenrolled but employed
- Institutionalized or in-Service
- The available pool

Identifies the major factors influencing the supply of applicants over the next ten years:

- Population shifts
- School enrollment rates
- Employment prospects

ANALYSIS:

Portrays three supply scenarios for 1976-1985 according to moderate, slow, and rapid economic growth assumptions.

Compares DoD projections of recruit demand with alternate supply projections.

FINDINGS:

Active force recruiting needs can be sustained without great difficulty if moderate or slow economic growth is realized.

Rapid economic growth portends significant recruiting shortfalls by the mid-1980's.

ALTERNATIVES:

Various actions are available to respond to recruiting shortfalls:

- Changes in mental, educational, and physical standards for enlistment.
- Provision of enlistment bonuses for specific jobs

ALTERNATIVES:
(cont'd)

- General military pay increases
- Revision of job selection standards
- Increase women accessions

A series of actions will be effective in averting a major recruiting shortfall for the active force without resorting to a significant pay increase. In terms of cost-effectiveness, the sequence of actions should be:

- Revise job selection standards
- Increase wom. accessions
- Lower physical standards
- Provide bonuses for selected jobs
- Raise military pay

SENSITIVITY:

Discusses how the projections are affected by alternate assumptions about the future.

RESERVE RECRUITING:

Finds that Reserve recruiting needs may be sustainable if moderate or slow economic growth is realized.

Rapid economic growth will likely result in major recruiting shortfalls unless major policy changes are effected.

- Geographic redistribution of the Reserve forces
- Restructure of the Reserve compensation system

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I. INTRODUCTION

The prospects for sustaining DoD annual requirements for new enlisted manpower from 1976 through 1985 will be affected by the dominant demographic, economic, and social trends prevailing during the next decade. Three major factors outside the control of the DoD are considered first: population shifts, patterns of national economic growth, and school enrollment rates. Specific management actions that can significantly influence the prospects for sustaining the All Volunteer Force are then considered.

Sustainability prospects are assessed by characterizing the projected size and composition of a representative segment of the manpower pool from which enlisted non-prior service (n.p.s.) accessions will come, the national 18 year-old male population. Various scenarios portraying the supply of volunteers are developed according to alternative assumptions concerning the growth of the civilian economy between now and 1985.

The annual demands for 18 year-old n.p.s. accessions projected by the DoD are matched against the supply of applicants forecasted in each scenario to identify potential shortfall (insufficient supply) situations. The analysis will focus on the 18 year-old population because the various types of historical and projected data needed to develop reasonable projections of accessions supply are available for this age group, while some data deficiencies exist for other age groups. 18 year-olds represent the largest share of active duty n.p.s. accessions, and the factors affecting this group in the future are likely to influence other enlistment-aged people in a

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similar manner.

The annual DoD-wide requirement for enlisted accessions reflects the estimated numbers of new people needed to maintain the force size mandated by national security interests. The DoD projects that a stable active duty force size of 2.1 million will be required for the period from FY 1976 through FY 1985. After taking account of projected retirements and prevailing rates of voluntary and involuntary discharge, the DoD projects that annual active duty n.p.s. accession requirements for FY 1976 through FY 1980 will range from 437,000 to 402,000, declining thereafter to a constant 387,000 per year through FY 1985.*

The major uncontrollable factors and their consequences are presented first. Because the Services have recourse to a variety of management actions that can significantly alter supply as well as demand, the effectiveness of each action is assessed to determine how shortfalls could be reduced by a judicious choice of responses.

The first six sections address the recruiting outlook for the active duty force. The analysis shows that recruit supply will likely be sufficient to satisfy Service demands through 1985 if the national economy grows at a slow or moderate pace in the future. Rapid economic growth portends a significant contraction in the supply of recruits, but shortfalls can be averted without resorting to substantial increases in military pay by implementing a series of management actions.

* The DoD accession requirements could change subject to two considerations. First, the Congress could legislate a reduction in the 2.1 million force size; second, DoD could choose to return to some two-year enlistments, thus increasing the accession requirements in following years. Both possibilities are discussed elsewhere in the study.

Recruiting prospects for the Selected Reserve, addressed in the seventh section, are less favorable, although the demand for recruits can likely be satisfied if slow or even moderate growth is realized. In the case of rapid economic growth some management actions are available that would achieve positive effects, but these may not be sufficient to avert major recruiting shortfalls that could occur by the mid-1980's. Some significant policy changes could be warranted.

II. BACKGROUND

1. The 18 Year-old Male Population

One factor dominates all considerations about the future supply of military manpower. The Bureau of the Census projects that the broad population of all working-aged men and women, 16 to 65 years of age, will increase 12 1/2% between 1 July 1975 and 1 July 1985, from 133.3 million to 149.9 million. In contrast, however, the Bureau projects the population of 18 year-old males will decline by 15.1% over the same period. Similar percentage declines will occur for 18 year-old females as well as for males and females in other enlistment-eligible age groups, an aftershock of the post-war "baby boom".

The decline in the 18 year-old male population is significant because this group represents the single largest year group from which male n.p.s. accessions come each year, more than one-quarter of the total accessed in FY 1972, FY 1973, and FY 1974. The 18 year-old male population is the focus of the analysis for this reason, and also because the factors influencing this group during the next decade will similarly affect the other segments of the enlistment-aged (17 to 26 year-old) population of men and women.

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2. Major Categories of the Target Population

Recent history gives a basis for characterizing the annual population of 18 year-old males, termed the target population, according to their actual availability for enlistment.* The numbers available for enlistment in any year can be estimated through a process of elimination. 18 year-old males who (1) elect to continue their education throughout the year, (2) find satisfactory civilian employment, (3) are institutionalized, or (4) are already in the armed forces establish the major categories of young men not available for enlistment. After taking account of these categories, the remainder of the target population is a reasonable estimate of the size of the available pool.

a. Continuing students

People who are enrolled in school during October of a given fiscal year and who re-enroll in school one year later are not available for enlistment during the fiscal year. These people, termed "continuing students," include all young men who graduate from high school and immediately enroll in 4-year colleges, 2-year colleges, or technical/vocational schools on a full-time or part-time basis. Also, high school students who do not graduate but remain in school for an additional year and first-year college students who return to begin their second year are included.

Perhaps more important, the definition excludes high school graduates who do not continue their education, first-year college students who either drop out or do not return to begin their second year, and high school drop-outs. These people elect to pursue alternatives to further education.

* 18 year-olds are defined as those who attain their 18th birthday during the fiscal year. Fiscal years are defined throughout the discussion according to the historical convention, from 1 July to 30 June.

According to enrollment statistics published by the Bureau of the Census for the years 1971 through 1974, "continuing students" represented 50.1% of the target population during FY 1972, declining to 47.9% during FY 1973 and 47.3% in FY 1974.

b. Unenrolled but employed

"Unenrolled, employed" people include those young men who do not enroll in school but are instead holding civilian jobs on a part-time or full-time basis. Employment data for 18 and 19 year-old males not enrolled in school, published in the 1975 Handbook of Labor Statistics, show that 32.7% of the target population was unenrolled but employed as of October 1972, jumping up to 35.8% as of October 1973, and falling off to 34.7% in October 1974.

c. Institutionalized or in-Service

"Institutionalized or in-Service" includes young men who either are institutionalized (prisons, sanitariums, etc.) or who have already entered the armed forces in the previous fiscal year. In FY 1972 these people represented 4.1% of the 18 year-old male population, declining to 3.7% in FY 1973 and 3.6% in FY 1974.

The remainder of the target population in each fiscal year, the "available pool", consists of young men who are available for enlistment at some time during the year. The available pool represented an estimated 13.0% of the population in FY 1972, 12.9% in FY 1973, and 14.4% in FY 1974.

The above percentages are displayed in Table 1. The corresponding numbers within each category are also provided. Statistics for FY 1975 are projected from FY 1974 where data current through FY 1975 are not available.

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TABLE 1

THE COMPOSITION OF THE 18 YEAR-OLD MALE POPULATION, FY 1972-73
(Thousands)

	FY 1972	FY 1973	FY 1974	FY 1975
Population of U.S. males attaining 18 years of age during the fiscal year	2,003 (100%)	2,043 (100%)	2,046 (100%)	2,143 (100%)
LESS: Institutionalized population (1,51) and those who enlisted in previous fiscal year (approx. 2.02)	- 83 (4.12)	- 75 (3.72)	- 74 (3.62)	- 76 (3.52)
Civilian non-institutional population	1,920	1,968	1,972	2,067
LESS: Enrolled in October and will re-enroll in following year (continuing students)	-1,006 (50.12)	-978 (47.92)	-978 (47.32)	-1,015 (47.32)
Non-continuing students and unenrolled population	916	995	1,013	1,052
LESS: Number holding civilian jobs at the end of the fiscal year	-833 (32.72)	-731 (35.82)	-716 (34.72)	-746 (34.72)
Pool available for enlistment during fiscal year	261 (13.04)	264 (13.92)	257 (14.42)	308 (14.42)

TABLE 2

THE AVAILABLE POOL, APPLICANTS AND ACCESSIONS, FY 1972-73
(Thousands)

	FY 1972	FY 1973	FY 1974	FY 1975
Pool of 18 year-old males available for enlistment during the fiscal year (civilian non-institutional population, less continuing students and unenrolled holding jobs):	261	264	257	308
Applied for enlistment during the fiscal year:	142	144	161	167
Applicants as percent of available pool:	54.42	54.22	54.22	54.22
Accepted for enlistment during the fiscal year:	107	113	100	96
Enlistees as percent of applicants during the fiscal year:	75.42	77.42	61.72	57.52

Sources: U.S. Bureau of Census, BLS, OSD (MARP)

3. Applicants for Enlistment, FY 1972 - FY 1974

Unique data provided by the U.S. Army Recruiting Command (USAREC) and the Office of the Assistant Secretary of Defense for Manpower and Reserve Affairs (OASD(M&RA)), Manpower Research and Data Analysis Center (MARDAC), were used to estimate the total number of males in the age group who actually applied for enlistment in each year. These figures are displayed in Table 2.* Applicant statistics are the link between the available pool and service accessions, because not all young men who are available during the year choose to apply for enlistment, and not all who apply are accessed.

The figures show that slightly more than one-half of the available pool applied for enlistment in each year from FY 1972 through FY 1974. The figure for FY 1974, 54.2%, represents the proportion who chose to apply in the absence of implicit draft pressure at the then-prevailing levels of military and civilian pay.

Data for male 18 year-old accessions also displayed in Table 2 show that, while the numbers of applicants grew from 144,000 to 161,000 from FY 1973 to FY 1974, accessions declined from 113,000 to 100,000. The 61.7% selection rate among 18 year-old male applicants in FY 1974, quite low relative to the 77.4% rate in FY 1973, creates the misleading

* The original data furnished by MARDAC showed that a considerable amount of informal pre-selection screening occurred among applicants to the Air Force, Navy, and Marine Corps. Pre-selection screening served to reduce the total counts of mental category IV and V applicants for these Services. Army applicant data was used as a bench mark to reconstruct the applicant totals for the other Services. Pre-selection screening may have resulted in some undercounting even for Army applicants in FY 1972 and FY 1973, but Army recruiting officials estimate that few discrepancies exist in the FY 1974 statistics owing to supply pressures experienced in that year.

impression that FY 1974, the first complete year of the All Volunteer Force (AVF), afforded Service recruiters the opportunity to be more selective in enlisting applicants. The Services did experiment with tighter enlistment standards during FY 1974, but the reduced selection rate primarily reflected the difficulties recruiters experienced in reconciling the full range of applicant preferences (e.g., Service of choice, desired job, unit of choice, geographic location of choice timing of entry into training, length of initial enlistment, and so on) with Service requirements. The initial year of the AVF was a buyer's market in which an enlistee purchased a full range of enlistment options and inducements offered by the armed forces in return for his services over the term of the enlistment contract. Many applicants were attracted by the options, but a significant proportion did not buy, as was their prerogative in the AVF environment.

III. DOMINANT FACTORS INFLUENCING THE FUTURE SUPPLY

The supply of enlistment applicants in each year from 1976 through 1985 can be similarly characterized. The size of the available pool will be principally determined by changes in the size of the target population as discussed earlier, school enrollment patterns, and civilian employment opportunities.

1. School Enrollment Patterns

School enrollment rates for 18 year-olds generally increased throughout the 1960's, reaching their peak in the early 1970's. The rates declined during the years of transition of the AVF. The draft contributed to the

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high enrollment rate experience of the late 1960's and early 1970's, and the elimination of the draft conspired with other factors to reduce enrollment rates to current levels. For this reason, the Office of Education projections of the numbers of continuing students during the next decade are based upon the FY 1974 rate; 47.3% is the estimated proportion of continuing students in the target population for each year in the future.

The institutionalized or in-Service category is also estimated to remain fairly stable at approximately 3.5%, with 1.5% of the target population in institutions and 2.0% already in Service (entering the armed forces at age 17 in the previous fiscal year).

2. Patterns of National Economic Growth

The assumptions regarding the size of the continuing student and institutionalized or in-Service categories effectively fix the size of the civilian non-institutional group of unenrolled 18 year-old males. The broad pattern of national economic growth over the next ten years becomes the crucial consideration as it will affect civilian employment opportunities available to the unenrolled group in the future.

a. The growth of civilian employment opportunities

Historical data concerning the growth of civilian job opportunities available to 18 and 19 year-old males and to the working-aged population were analyzed to determine if long term economic expansion or contraction affects the two groups differently. Analysis of data covering 17 ten-year periods from 1948 through 1974 (1948-58, 1949-59, and so on through 1964-74) shows that, after taking account of population changes, employment opportunities for unenrolled 18 and 19 year-old males remain stable

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or expand only when total civilian employment increases quite rapidly. Civilian employment opportunities for young unenrolled males can be expected to decline somewhat over the long term in the face of only a moderate expansion of total civilian employment and will likely fall rapidly when total civilian employment fails to grow at all or declines slightly. These findings are summarized in Table 3.*

Total civilian employment increased approximately 2 1/2 percent faster than the civilian working-aged population over the average ten-year period from 1948 to 1974. Thus, this figure establishes our definition of moderate economic expansion, the "moderate" economic growth example addressed in the next section of the study. Sluggish economic growth, the basis for the "slow" example, is defined by the total civilian employment growth rate that exactly matches the civilian working-aged population growth rate. Rapid economic expansion is defined by total civilian employment that grows five percent faster than the increase in the working-aged civilian population, and is the basis for the "rapid economic growth" example.**

* See Appendix A

** It may at first seem unlikely that employment could grow at a faster rate than population growth over an extended period of time. This is made possible by the entry of new workers into the labor force, attracted by employment opportunities that are normally created in the course of economic expansion. When the economy ceases to grow or contracts, these people return to non-employment pursuits (e.g., wives who return to housework). In 1974, 85 million or 65% of all working-aged men and women held civilian or military jobs, and 46 million were not employed. This large non-employed pool provides the additional workers who make it possible for total civilian employment to increase faster than the population growth rate. Although such growth cannot be sustained indefinitely, a 2 1/2 or even 5% increase in employment relative to population from 1975 to 1985 is not unreasonable.

TABLE 3.

CHANGES IN EMPLOYMENT OPPORTUNITIES FOR YOUNG MEN RELATIVE
TO THE WORKING-AGED POPULATION (OVER 10-YEAR PERIODS)

	→ <u>Slow Growth</u>	→ <u>Moderate Growth</u>	→ <u>Rapid Growth</u>
Percent change in total civilian employment relative to population	0 +1 +2	+2 1/2 +3 +4	+5
Percent change in total employment for unenrolled 18 year-old males projected for FY 75-85	-29 -25 -22	-20 -18 -15.1	-11

Source: Results of analysis detailed in Appendix A

IV. SUPPLY PROJECTIONS

The foregoing analysis of employment opportunities for unenrolled young men relative to changes in total civilian employment provides the basis for projecting the future size of the available pool for three possible patterns of economic growth. The size of the available pool in turn limits the number of 18 year-old males who can reasonably be expected to apply for enlistment. The maximum numbers of accessions that a given applicant pool will yield can be calculated and compared with accession requirements projected by the DoD. Also, the mental category characteristics of accessions can be compared with annual DoD requirements.

As indicated earlier, the effects of variations in military pay are discussed in a subsequent section. Here it is assumed that the relationship between military and civilian pay levels prevailing during the past two years will continue over the next decade. All economic growth scenarios also assume stable school enrollment and "institutionalized or in-Service" rates at FY 1974 levels discussed in the previous section.

1. The Available Pool in Three Scenarios of Economic Growth

The pace of national economic growth over the next ten years will determine how many unenrolled 18 year-old males will find satisfactory civilian employment opportunities. Moderate, slow, and rapid economic growth each portend a different employment outlook for unenrolled young men, and a corresponding impact on the size of the available pool.

a. The moderate economic growth scenario

The moderate economic growth scenario assumes that total civilian employment will grow 2 1/2 percent faster than the projected 12.7% increase

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in the civilian working-aged population, approximately the same relative increase (ten-year average) in total civilian employment that accompanied the expansion of the U.S. economy from 1948 to 1974*.

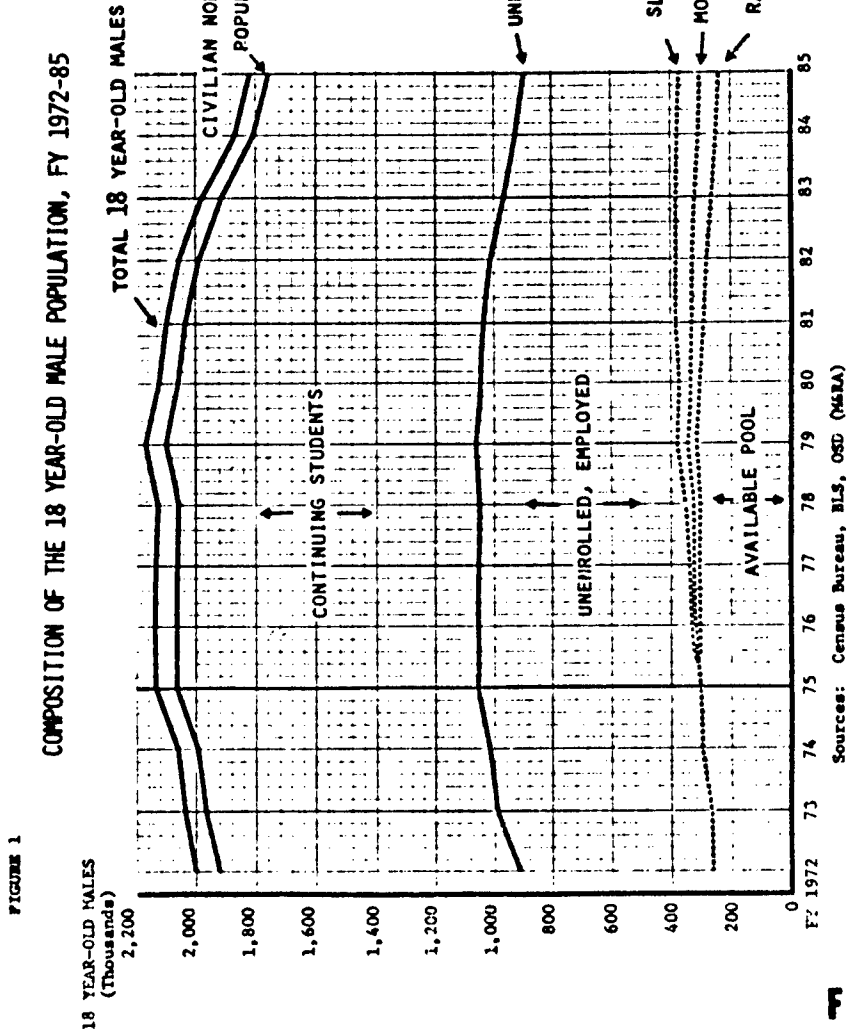
According to the analysis of relative employment opportunities depicted in Table 3 earlier, moderate economic growth is projected to induce a 20.1% decline in civilian employment opportunities for unenrolled 18 year-old males, in contrast to the 15.1% drop in the size of this population. At this rate of decline, employment opportunities for this group will decrease from an estimated 744,000 holding jobs at the end of FY 1975 to 594,000 in FY 1985. As a result, the available pool is projected to decline from 308,000 to 301,000 over the same period.

The simple average annual decline, -0.6% per year relative to population change, is used to project the impact of employment opportunities diminishing gradually in successive years. These projections are displayed in Figure 1 and are accompanied by the estimated sizes of the other categories of the 18 year-old male population.

b. The slow economic growth scenario

The slow economic growth scenario assumes that growth in total civilian employment will exactly match the projected 12.7% increase in the civilian working-aged population, well below the typical job growth rate which exceeds population growth by 2 1/2 percent, the historical U.S. experience.

* The 12.7% growth of the civilian working-aged population is based on the assumption that the active duty military population will remain constant at 2.1 million.



National economic growth that constrains total civilian employment to this comparatively low rate of increase is projected to induce almost a 30% decline in civilian employment opportunities for 18 year-old males, a sharp drop in contrast to the 15.1% contraction in the size of the target population. Employment opportunities for unenrolled 18 year-old males are projected to decrease from an estimated 744,000 holding jobs at the end of FY 1975 to 529,000 at the end of FY 1985. As a result, the available pool will actually increase from 308,000 to 366,000 over the same period.

The simple average annual decline, -1.6% per year relative to population change, is used to project the gradual impact of this reduction in civilian employment opportunities for unenrolled 18 year-old males from year to year. The projections are displayed in Figure 1 and are accompanied by the estimated sizes of the other categories of the target population in each year.

c. The rapid economic growth scenario

The rapid economic growth scenario assumes that total civilian employment will grow five percent faster between 1975 and 1985 than the projected 12.7% increase in the civilian working-aged population. The results of the employment analysis depicted in Table 3 indicate that civilian employment opportunities for the target population will increase sharply in response to rapidly expanding employment overall. A reduction of approximately 11% in the numbers of jobs available to unenrolled 18 year-old males is projected, but this represents a net expansion of employment opportunities when compared to the 15.1% population decline. As a result, the available pool is projected to decline from 308,000 to 235,000 over the same period.

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The simple average annual change, approximately +1.0% per year relative to population change, is used to project the impact of employment opportunities varying from year to year. These projections are displayed in Figure 1 and are accompanied by the estimated sizes of the other categories of the target population.

2. Projected Supply and Demand: Applicants and Accessions

The maximum numbers of accessions that the available pool will yield are projected for each economic growth scenario by assuming that 54.2% of the available pool will apply for enlistment in future years, as in the first complete year of the AVF, FY 1974. The application rate may be expected to remain at this level so long as the attitudes of young men and women towards military service do not shift and the ratio of military pay to civilian pay remains constant.*

The applicant selection rate, the maximum proportion of applicants whom the Services will select for enlistment, is assumed to be 61.7%. We have used the FY 1974 applicant selection rate for three reasons. First, it represents the enlistment standards that existed prior to

* Alternatively the proportion of the available pool apply for enlistment in years prior to FY 1974 could be used, but these figures capture the confounding influences of implicit draft pressure and a comparatively relaxed recruiting posture. FY 1974 statistics reflect the strictly voluntary behavior of available 18 year-old males under conditions likely to be replicated in the future if the stated assumptions obtain.

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the imposition of more restrictive mental and educational criteria from July 1974 to the present. Second, this rate takes account of applicant rejections of Service enlistment offers, a phenomenon likely to recur in a voluntary enlistment environment. Third, the figure captures the effect of intensive Army recruiting efforts during a period of unfavorable supply conditions.

DoD projections of total n.p.s. male enlisted accession requirements (for the active forces only) and the estimated numbers of 18 year-old males that will be required (27.8% of the total male requirements in each year) are provided in Table 4.* The annual 18 year-old male requirement is compared with the projected supply of accessions in each scenario to establish the outlook for sustaining manpower requirements.

a. Moderate economic growth

Table 5a shows that, although the size of the available pool declines sharply over the decade, the projected supply of applicants remains well above Service demands for 18 year-old males in each year. Even when a 61.7% applicant selection rate is considered, the remaining supply of enlistment-eligible applicants willing to accept Service enlistment offers is projected to exceed demands if moderate economic growth is realized.**

* Accessions data furnished by DoD (MARDAC) show that 27.8% of male n.p.s. accessions (all Services) in FY 1974 were drawn from the target population. This figure declined to 26.0% in FY 1975, owing to restrictions the Services placed on the enlistment of non-high school graduates. The FY 1974 statistic is a more appropriate measure because it better represents the distribution of accessions by age in a year the Services could not afford to impose unusually restrictive selection standards.

** Of the 38.3% of the applicant pool that does not enlist, as in FY 1974, approximately two-thirds include applicants who fail to meet minimum physical and mental standards for enlistment (see OASD(M&RA), MARDAC report no. 76-2, July 1975); the remainder of this group is assumed to reject Service enlistment offers as unacceptable after recruiters have established the particular enlistment options, inducements, and bonuses for which the applicants' test scores make them eligible.

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TABLE 4.

PROJECTED DEMAND FOR NON-PRIOR SERVICE ACCESSIONS
FY 1976-1985

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>Annually, 1981-85</u>
Total n.p.s. male requirement	368	380	367	370	365	350
18-year-old male requirement	102	106	102	103	101	97

Source: Office of the Secretary of Defense, Manpower and Reserve Affairs (MARDAC)

TABLE 5a. MODERATE GROWTH:
18-YEAR-OLD MALE APPLICANTS AND ACCESSIONS, FY 1976-85
(THOUSANDS OF PERSONS)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
NUMBER IN THE AVAILABLE POOL:	316	316	322	345	330	329	328	318	306	301
PROJECTED SUPPLY OF APPLICANTS:	171	171	175	187	179	178	178	172	166	163
PROJECTED NUMBER OF APPLICANTS SELECTED:	106	106	108	115	110	110	110	106	102	101
PROJECTED DEMAND FOR 18 YEAR-OLD N.P.S. MALES:	102	106	102	103	101	97	97	97	97	97
NET SURPLUS(+):	+ 4	0	+ 6	+12	+ 9	+13	+13	+ 9	+ 5	+ 4
SURPLUS AS PERCENT OF REQUIREMENT:	+4%	0	+6%	+12%	+9%	+13%	+13%	+9%	+5%	+4%

TABLE 5b. SLOW GROWTH:
18-YEAR-OLD MALE APPLICANTS AND ACCESSIONS, FY 1976-85
(THOUSANDS OF PERSONS)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
NUMBER IN THE AVAILABLE POOL:	324	332	346	376	369	374	380	376	367	366
PROJECTED SUPPLY OF APPLICANTS:	176	180	188	204	200	203	206	204	199	198
PROJECTED NUMBER OF APPLICANTS SELECTED:	109	111	116	126	123	125	127	126	123	122
PROJECTED DEMAND FOR 18 YEAR-OLD N.P.S. MALES:	102	106	102	103	101	97	97	97	97	97
NET SURPLUS(+):	+ 7	+ 5	+14	+23	+22	+28	+30	+29	+26	+25
SURPLUS AS PERCENT OF REQUIREMENT:	+7%	+5%	+14%	+22%	+22%	+29%	+31%	+30%	+27%	+26%

TABLE 5c. RAPID GROWTH:
18-YEAR-OLD MALE APPLICANTS AND ACCESSIONS, FY 1976-85
(THOUSANDS OF PERSONS)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
NUMBER IN THE AVAILABLE POOL:	308	302	299	314	291	294	276	261	244	235
PROJECTED SUPPLY OF APPLICANTS:	167	164	162	170	158	154	150	141	132	127
PROJECTED NUMBER OF APPLICANTS SELECTED:	103	101	100	105	97	95	93	87	81	78
PROJECTED DEMAND FOR 18 YEAR-OLD N.P.S. MALES:	102	106	102	103	101	97	97	97	97	97
NET SURPLUS(+) OR SHORTFALL(-):	+ 1	- 5	- 2	+ 2	- 4	- 2	- 4	-10	-16	-17
SURPLUS(+) OR SHORTFALL(-) AS PERCENT OF REQUIREMENT:	+ 1%	- 5%	- 2%	+ 2%	- 4%	- 2%	- 4%	-10%	-16%	-17%

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b. Slow economic growth

In Table 5b the size of the available pool and the estimated numbers that would apply for enlistment are displayed. The latter figures were computed by again applying the 54.2% application rate experienced in FY 1974. When a 61.7% selective rate is considered, the estimates show that maximum accessions supply will exceed Service demands by a considerable margin.

c. Rapid economic growth

The size of the available pool and the estimated numbers that would apply for enlistment in the case of rapid economic growth are presented in Table 5c. These figures show that the available pool will contract sharply in the face of favorable employment opportunities for unenrolled 18 year-old males. Although the supply of applicants will exceed accession requirements throughout the decade, the estimated numbers of qualified applicants willing to accept Service enlistment offers may be expected to fall short of the projected demand in FY 1977, FY 1978, and FY 1980 through FY 1985.

These data are summarized in Figures 2a, b, and c.

3. Alternative Demand Assumptions

It is possible that accession demands could vary from the figures projected by the DoD for several reasons. The prospects for sustaining manpower requirements would be altered accordingly.

a. Further reductions in the active duty force strength

If the President and the Congress authorize further reductions in the active duty force strength in future years, the demand for n.p.s. accessions may be expected to decline. For a force reduction of 200,000,

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FIGURE 2a.

MODERATE GROWTH: PROJECTED APPLICANTS, ACCEPTED APPLICANTS*, AND ACCESSION REQUIREMENTS

18 YEAR-OLD MALES
(thousands)

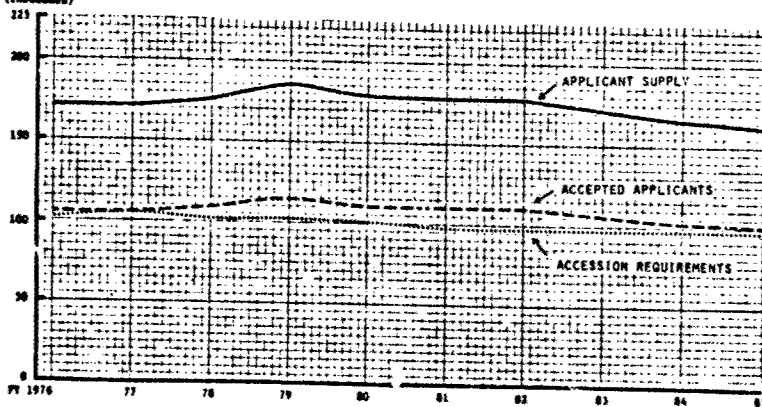
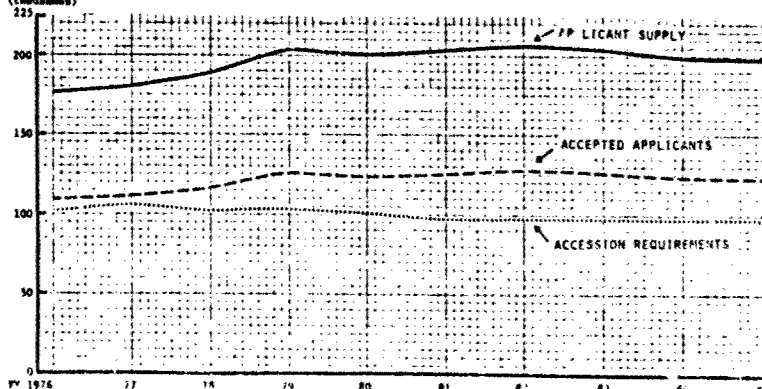


FIGURE 2b.

SLOW GROWTH: PROJECTED APPLICANTS, ACCEPTED APPLICANTS*, AND ACCESSION REQUIREMENTS

18 YEAR-OLD MALES
(thousands)

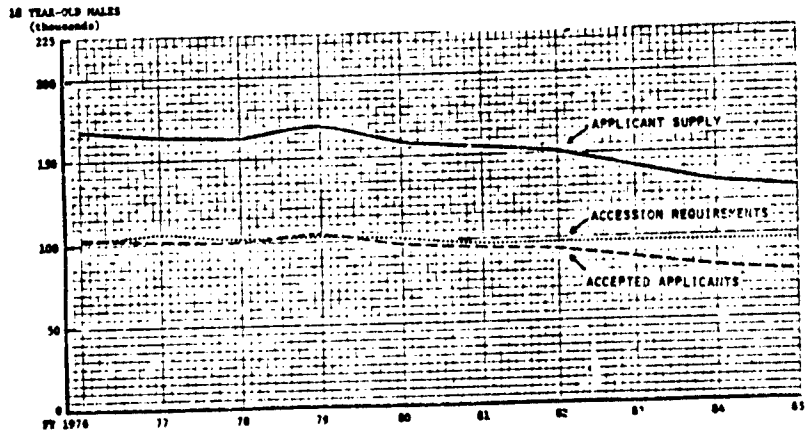


* Applicants who are accepted by the Service and who also choose to accept the enlistment offer

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FIGURE 24.

RAPID GROWTH: PROJECTED APPLICANTS, ACCEPTED APPLICANTS,
AND ACCESSION REQUIREMENTS



* Applicants who are accepted by the Services and who also choose to accept the enlistment offer

from 2.1 million to 1.9 million active duty personnel, n.p.e. accessions would likely be reduced to 90% of currently projected figures. By 1983, the annual demand for 18 year-old male accessions would decline from 97,000 to 87,000.

If moderate or slow economic growth is realized in the future, force reductions of this magnitude will yield even more favorable prospects for sustainability. If rapid economic growth is realized, a potential shortfall of 20% or 19,000 18 year-old males (97,000 required vs. 78,000 expected) will be reduced to approximately 10% or only 9,000 accessions short of the requirement.

b. A return to the FY 1974 pattern of shorter enlistment terms

In response to a pending accessions shortfall, the Services could elect to re-introduce enlistment terms of two years' duration on the same scale as occurred in FY 1974. Such an action would be predicated on the assumption that shorter enlistment terms would induce some 18 year-old males to apply for enlistment who would not otherwise. The rapid economic growth scenario illustrates supply conditions that would lead the Services to respond in such a manner.

Suppose that the Services, especially the Army and Marine Corps, elected to introduce the shorter enlistment term option in 1983 to avert an imminent shortfall of 10,000, 10% short of the required 97,000 accessions. The action would be justified by the expectation that accessions would increase by 11.5%, from 87,000 to 97,000.

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Under these circumstances, the policy would lead to a 10X jump in demand above the currently projected requirement for 18 year-old males in 1985. This is because current demand projections are based on the pattern of enlistment terms prevailing in FY 1976 (average enlistment term of 3.7 years). Because the average enlistment term in FY 1974 was 3.3 years, the more rapid turnover of first-term personnel would produce as much as a 12X increase in accessions demand as early as two years following policy implementation. The requirement for 18 year-old males would thus jump to 109,000 by FY 1985.

In response to a pending shortfall of 31,000 (109,000 required vs. 78,000 expected), the Services could elect to maintain the same policy through FY 1985. Here, however, an 11.5X increase in accessions would yield only 87,000 net, some 22,000 short of the higher accessions requirement for FY 1985, the consequence of actions taken earlier to avert the FY 1983 shortfall. These figures suggest that a return to reduced enlistment terms, while temporarily effective, could aggravate sustainability prospects in the long term.

4. Quality Considerations

Applicant data for FY 1974 were analyzed to determine how the characteristics of the applicant pool are likely to change as the overall application rate varies (total applicants as a percent of total 18 year-old males in the population).^{*} Applicants as a percentage of the corresponding

^{*} See Appendix B.

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mental category total are measured on the vertical axis and are compared to the overall application rate (total applicants as a percentage of the total population) indicated on the horizontal axis. The graph shows that the application rate for young men in each mental category increases in a linear fashion as progressively larger proportions of the total population make application for enlistment.

Table 6 portrays the estimated numbers of applicants in mental categories I through III combined who would likely be enlisted in each year, based on selection rates for these applicant groups in FY 1974.** When compared to the estimated numbers of enlistees required annually by the DoD in the top three mental categories, it appears that sufficient quality would be available across all ten years of both the moderate and slow economic growth scenarios.***

* It is assumed that the national distribution of the 18 year-old male population by mental category in the next decade will not vary significantly from the national distribution as measured in the 1973-1974 school year; that is, 4.43% - M.C. I, 29.58% - M.C. II, 42.32% - M.C. III, 19.90% - M.C. IV, and 3.76% - M.C. V.

** Service recruiting managers acknowledge that FY 1974 was a particularly difficult recruiting year. Selection rates were likely near the maximum AVF levels. Selection rates for applicants in mental categories I & II combined and mental category III in FY 1974 (DoD-side) were, respectively, 74.5% and 80.7%.

*** Estimates of the required numbers of enlistees in the top three mental categories is based on the maximum feasible proportion of mental category IV enlistees in a given recruiting year, 22 %, as established by the DoD in the special report of Defense, "The All Volunteer Force and the End of the Draft," March 1973.

TABLE 6

PROJECTED QUALITY FOR FY 1976-85 IN THREE SCENARIOS
OF ECONOMIC GROWTH (18-YEAR-OLD MALES)
(thousands of persons)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Minimum DoD requirement for categories I-III accessions	80	83	80	80	79	76	76	76	76	76
Maximum supply of categories I-III accessions										
Moderate growth	94	94	96	103	99	98	98	95	91	90
Slow growth	97	99	104	112	110	112	113	112	110	109
Rapid growth	92	90	89	94	87	85	83	78	73	70

For the rapid economic growth case, the projections show that sufficient quality will be available in FY 1976 through FY 1983, despite the modest quantity shortfalls projected for several of these years. However, the numbers of accessions in mental categories I through III projected for FY 1984 and FY 1985 will not be adequate to sustain the minimum quality needs of the DoD if rapidly expanding employment opportunities obtain.

V. EFFECTIVE RESPONSES TO SUPPLY SHORTFALLS

The rapid economic growth scenario portends shortfalls in the supply of male recruits required for active force accessions beginning as early as 1977, with substantial shortfalls possible by the early and middle 1980's. For purposes of this section, discussion of management actions to effectively deal with deficient supply will address the "worst case" -- the rapid growth scenario in 1985, the year in which 18 year-old male accessions are projected to fall short of the DoD active force requirement by as much as 20%.

It should not be inferred that the projections presented in the rapid growth scenario are more likely to be realized during the next decade than the alternate projections developed for the slow and moderate growth scenarios. The factors determining the actual growth path for the U.S. economy in the future are complex and largely unpredictable. Rapid growth is possible, however, and the unfavorable consequences projected for recruiting warrant further analysis.

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There are three ways to eliminate a recruiting shortfall in a given year. First, steps can be taken to increase the proportion of applicants who are selected for enlistment. Second, the size of the applicant pool can be increased by inducing additional people to seek enlistment who would not apply otherwise. Third, the numbers of recruits needed can be reduced. The various management actions which would serve to reduce or eliminate a recruiting shortfall of 20% are discussed in these terms.

1. Methods for Increasing the Selection Rate

Four actions are discussed which would increase the proportion of applicants selected for enlistment: Changes in physical standards for enlistment, changes in mental standards for enlistment, increased selection of female applicants, and the provision of occupation-specific enlistment bonuses.

a. Changes in physical standards

The April 1974 RAND Corporation report entitled "Physical Standards in the All-Volunteer Force" provides an extensive analysis of physical standards for enlistment. The study concludes that:

"A comparison of U.S. enlistment standards with those in the armed services of other advanced nations and those for entry-level jobs in the civilian sector suggests that U.S. standards may be higher than necessary . . . [this conclusion] is reinforced by a comparison of enlistment standards with standards for retention and mobilization."*

* RAND report no. R-1347, by David S. C. Chu, et. al.

The study identifies nine aspects of current physical standards for enlistment that could be modified to reduce the overall physical disqualification rate by 40%. A report prepared by OSD(M&RA), MARDAC indicates that 13.1% of all applicants for enlistment are disqualified for failure to meet current physical standards.* Although this report cited data for FY 1973, physical standards have remained materially the same through the present. Variations in physical standards as prescribed in the RAND study would serve to boost the proportion of physically qualified applicants by 5.2% from 86.9% of the pool to 92.1%. In the illustrative shortfall projected for 1985, this action would yield 5,000 additional 18 year-old male accessions.

b. Changes in mental standards for enlistment

Mental and educational standards for enlistment have been adjusted many times in the early years of the AVF, especially with the advent of favorable supply conditions in FY 1975 and FY 1976. This is seen in the comparison of the 61.7% applicant selection rate for FY 1974 and the lower 57.5% selection rate in FY 1975 portrayed earlier in Table 2

The FY 1974 selection rate employed to project the likely supply of accessions in each of three scenarios reflects the less restrictive standards prevailing in that year. The projections define the maximum numbers of young men who could be accessed in the future according to

* Manpower Research and Data Analysis Center report no. MR 76-2, July 1975. Earlier studies cite physical disqualification rates of the same magnitude. See for example Binkin and Johnston's estimate of 11% in All-Volunteer Armed Forces: Progress, Problems, and Prospects, June 1973.

standards existing in FY 1974. Had we assumed the FY 1976 selection rate, the male shortfall in FY 1985 would be even greater than the 19,000 projected for the rapid economic growth case.

Since the shortfall projection already presumes the Services would automatically return to FY 1974 enlistment standards, further actions to reduce the shortfall would include the elimination of the remaining mental and educational restrictions the Services imposed prior to FY 1974. In the extreme, all such restrictions could be waived excepting statutory restrictions on the enlistment of mental category V applicants.

The upper bound on the number of additional applicants who could be made eligible for enlistment by this action can be estimated by noting that 13.3% of all applicants in FY 1973 were disqualified for enlistment according to the mental and educational standards prevailing that year.* Mental category V people are expected to represent 6.5% of the applicant pool in FY 1985.** The difference between the two figures, 6.8%, measures the maximum proportion of the applicant pool that could additionally be made eligible for enlistment by waiving all Service-imposed mental and educational standards. If all applicants in mental categories I through IV were permitted to enlist in FY 1985, accessions could be increased by 6,000 from 78,000 to 84,000 with a

* The 13.3% figure is cited in MARDAC report no. MR76-2, July 1975. Because standards were not raised appreciably from FY 1973 to FY 1974, the figure is a reasonable estimate for FY 1974 as well.

** The mental category V share of the applicant pool is based on estimates developed earlier in the chapter to characterize the applicant pool in future years.

corresponding reduction in the projected shortfall. Waiver of standards existing prior to FY 1974 on a selective basis would of course yield smaller increases in accessions supply.

The waiver of Service-imposed restrictions could also pose some undesirable consequences, especially in the case of eliminating all non-statutory restrictions. Rates of attrition in training and involuntary Service discharge for the new accessions group could rise well above the average levels for better qualified accessions, creating substantial additional costs to the Services. Similarly the enlistment of these applicants could have negative impact on overall force effectiveness. The decision to exercise this option would require consideration of these consequences.

c. The provision of occupation-specific enlistment bonuses

During the transition from the draft environment to the AVF bonuses were used to attract applicants to enlist for assignment to specific occupations. The Army combat arms bonus is the principal example. An unpublished study conducted by the General Research Corporation for the OSD (M&RA) indicates that these bonuses had the effect of redistributing applicants away from occupations without the bonus provision to occupations with the provision. The bonus thus served to counterbalance the original preferences of some applicants. The study suggests that the bonus provisions influenced few additional people to apply for enlistment.

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To the extent that bonuses can effectively compensate for other unsatisfactory features of the specific enlistment offer extended to each applicant, it is possible that many applicants could be induced by job bonuses to accept enlistment offers that they would otherwise reject. FY 1974 data for DoD applicants in mental categories I and II combined show that, while an estimated 87% were physically and mentally qualified for enlistment, only 74.5% accepted the specific enlistment offers extended by the Services to which they applied. The difference, 12.5%, is an estimate of the proportion of all enlistment-eligible applicants who rejected Service enlistment offers because the particular terms were unacceptable.

It is possible that a system of well-designed bonus provisions could significantly reduce applicant rejections, perhaps cutting the proportion by a third. This assumption implies that an additional 4% of the applicant pool could be induced to enlist by overcoming initial applicant preferences with compensating bonus payments. Such an effect would yield approximately 4,000 additional accessions in 1985.

The costs of providing bonuses to achieve this effect cannot be determined with currently available information. However, total expenditures associated with the selective provision of appropriately scaled bonuses for specific occupations would likely be less than the cost of financing a general increase in regular military pay accruing to all accessions to effect a comparable increase in total accessions.

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d. Increased selection of female applicants

The composition of the 18 year-old female population was analyzed in the same manner as the male group. Historical and projected data for FY 1972 through FY 1985 are displayed in Table 7. Employment projections for unenrolled young women are based upon the assumptions of the rapid economic growth scenario.

One important distinction is that only 4.1% of women in the available pool applied for enlistment in FY 1974 in contrast to 54.2% of all available 18 year-old males who applied for enlistment in the same year. This may be explained by the different attitudes that men and women may hold toward working in military occupations, especially with regard to those who have family responsibilities, and by the "self disqualification" of some women who recognized that they did not meet the stiffer educational requirements which the Services have imposed.

In addition to accepting only female high school graduates, the Services currently impose more restrictive enlistment standards on female applicants than for males. This is evident in the comparison of FY 1974 applicant selection rates, 46.0% for women vs. 61.7% for 18 year-old men. Physical standards are materially the same at the present time, but mental standards are significantly different. Even though female applicants are, as a group, better qualified than male applicants in terms of mental category achievement, the proportion selected is markedly lower.* The differential standards also assist the Services in enforcing quotas for women accessions.

* For example, 39% of all 18 year-old women who applied for enlistment in FY 1974 were mental category I and II, compared to 24% of all 18 year-old male applicants.

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TABLE 7.
 PROJECTED SUPPLY OF 18-YEAR-OLD FEMALE ACCESSIONS,
 FY 1976-1985
 (thousands of persons)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Total 18-year-old female population	2,062	2,050	2,089	2,033	2,002	1,959	1,883	1,768	1,737	1,695
In-service, institutionalized and continuing students	922	916	934	909	895	876	842	790	776	758
Unenrolled, employed (rapid growth assumption)	688	688	705	690	683	672	649	613	606	594
Available pool (unenrolled, not employed)	452	446	450	434	424	411	392	365	355	343
Projected supply of applicants	18	18	18	18	17	17	16	15	15	14
Projected number of applicants selected	8	8	8	8	8	8	7	7	7	7
Projected demand for 18-year-old non-prior service females	6	6	7	7	7	7	7	7	7	7

Sources: U.S. Bureau of the Census, Bureau of Labor Statistics, and OSD (MARA)

The selection rate for females could approach the male selection rate if the Services moved to equalize mental and educational standards for men and women. By substituting the FY 1974 selection rate for male applicants as the possible rate for women in FY 1985, a considerably larger number of female applicants could be accessed. Higher rates for women would yield at least 2,000 additional accessions.* To achieve this effect, however, quotas restricting the number of female accessions would have to be eliminated at the same time. It should be recognized also that many other factors could conspire to increase the supply of women accessions well above these projections between now and 1985. For example, changes in female perceptions about the equalization of opportunity in the armed forces as well as equal enlistment standards could produce a quantum jump in the numbers of women seeking to enlist by 1985.

2. Increasing the Size of the Applicant Pool

a. Military pay raise

With the exception of conscription, raises in military pay offer the most direct means for increasing the numbers of young men who apply for enlistment. A comprehensive econometric analysis of enlistment behavior for the years 1958 through mid-1975 was conducted under contract by the General Research Corporation for the Defense Manpower Commission. The study included a comparative analysis of the various enlistment supply models traditionally employed by economists to estimate the relationship between changes in military pay and enlistment rates.

* This is a conservative figure because it does not take account of the effect equalized standards would have on "self disqualifications." It is likely that some women as a result would apply who would not otherwise.

The GRC study indicates that pay increases can be used effectively to increase accessions. For example, the study suggests that a 10% increase in pay could yield as much as a 14% increase in enlistments, a 20% increase in pay could yield a 28% increase enlistments, and so on.*

The GRC study supports the Gates Commission finding that pay increases (or decreases) can significantly increase (or reduce) voluntary enlistments. Assuming that the same relationship between pay increases and enlistment behavior will obtain for the target population in 1985, 17% is the figure by which military pay would have to be increased to eliminate the 19,000 male shortfall projected in the rapid growth scenario.**

3. Reductions in the Numbers of Recruits Needed

a. Efficiencies in recruit screening

Annual accession goals can be reduced if the President and the Congress determine that a reduced force strength is sufficient to meet national security objectives. When national security objectives do not warrant this judgment, accession goals can be reduced only by introducing efficiencies in Service recruiting, training, and manpower utilization.

* Modal values for the estimated elasticity of the enlistment rate with respect to pay variations were 1.2 and 1.4; the latter figure is said to capture the cumulative effect of pay raises accompanied by boosts in Service recruiting activities (expanded recruiting staffs, more extensive advertising, etc.) of the kind that paralleled increases in military pay during and immediately following the transition to the AVF. Modal elasticities for Army voluntary enlistments, mental categories I - III combined, are cited because the Army data for this group are least sensitive to estimation biases induced by the demand restrictions (selective recruiting) that often obscure Air Force and Navy enlistment data.

** 1.4 times a 17.40% pay increases yields a 24% increase in enlistments; 78,000 18 year-old male accessions increased by 24% yields 97,000 accessions, the DoD requirement in 1985.

The initial selection of applicants for enlistment and assignment to Service occupations is the gateway to formal training and utilization on the job. It is here that significant efficiencies can be achieved that result in reduced recruiting needs without loss of force effectiveness.

An analysis of the traditional armed forces selection and assignment process demonstrates that improved selection tests and judicious modifications to selection standards for occupations could produce a significant reduction in first-term attrition from Service (involuntary discharges) and the costs associated with attrition.* It is shown that, at current rates of involuntary discharge, fewer than 75 out of every 100 DoD accessions may be expected to perform satisfactorily throughout the first term of enlistment.

A method for establishing alternatives to existing selection standards for jobs is developed that shows how recruits can be assigned to occupations in which they are most likely to perform satisfactorily. Use of the alternative standards would reduce the estimated numbers of recruits assigned to each occupation needed to produce the required number of survivors (fully-qualified and reliable people who complete the full term of enlistment).

The analysis concludes that improved applicant selection for occupational assignments can be achieved that would permit the DoD to reduce annual accession requirements by 3% to 4%, or a shortfall reduction of 3,000 to 4,000 in FY 1985. Each of the Services sponsor continuing research to develop more effective screening and assignment programs. These efforts support the expectation that properly directed and adequately funded research can culminate in economies of this magnitude by 1985.

* See the DMC staff study "Job Selection Standards in the Armed Forces," by James W. Abellera.

4. The Relative Effectiveness and Cost of Alternative Responses

An annual shortfall as great as 20% may require a series of responses to close the gap between accessions supply and demand. Among the various responses discussed in the preceding section, the military pay raise alone offers the means for eliminating a major shortfall without resorting to other management actions. Each of the alternatives to a pay increase achieves a limited effect, but multiple actions can significantly reduce or eliminate the accessions shortfall projected to occur by 1965 if rapid national economic growth is realized.

The choice of the appropriate response(s) must also take account of the respective costs associated with each type of action relative to the estimated effect. In general, a military pay increase is a comparatively costly response to a pending shortfall. An appropriate measure for comparing costs is the estimated costs per person, indicated by the average expenditure needed to reduce the shortfall by one accession. These costs have been estimated for each of six possible management responses.

To simplify the discussion, current cost data is used in the computations below. Thus, the figures for each response underestimate the probable cost per person in nominal 1965 dollars, but the relative ranking is not affected. The responses are presented according to relative cost in ascending order.

a. Revise existing selection standards for Service occupations

This action has the multiple benefits of reducing accession requirements, attrition, and the costs of attrition. As indicated in Chapter VII, a systematic revision of occupational selection standards could enable the Services to reduce their overall recruiting quotas by at least 3%. For an

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18 year-old quota of 97,000 males and 7,000 females in 1985, this amounts to a reduction approximately 3,000 male accessions required and 200 females.

The people who would no longer be accessed would include only those recruits who would otherwise be involuntarily discharged from service some time prior to completing the first term of enlistment. The average salary that accrues to each person involuntarily discharged is approximately \$7,700. Supposing that it costs as much as \$1,000,000 to develop and implement the revised selection standards, the net savings made possible through a reduction in the requirement for 18 year-old males by 3,000 (from 97,000 to 94,000) is estimated to be \$7,300 per accession.

b. Equalize male and female selection rates

The elimination of restrictive selection standards applying specifically to females would likely bring the female selection rate up to the current male rate, or 61.7%. At this level, female accessions would increase from 7,000 projected for 1985 to 9,000. Selection of the additional female accessions to meet the male requirement would thus reduce the male shortfall by 2,000.

The cost implied by the enlistment of one woman to replace the requirement for one man would include expenditures for altering living facilities to accommodate the additional women accessions. Through effective personnel management and planning, the implicit costs associated with duty restrictions on women can be avoided.

The substitution of women for male accessions, while not costless, would probably compare favorably with all other shortfall reduction actions excepting the revision of occupational selection standards.

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c. Less restrictive physical standards for enlistment

The RAND study cited earlier estimates that, after considering the costs of disability compensation and the higher disability rates implied by waiver of unnecessarily restrictive physical standards, each additional recruit accessed would cost \$200.

An additional 3.8% of the applicant pool could be accessed if physical standards were lowered, raising the male selection rate from 61.7% to 65.5%.^{*} Among 127,000 18 year-old male applicants, almost 4,000 additional recruits could be accessed, cutting the projected male shortfall from 19,000 to 14,000.

d. Provision of enlistment bonuses for selected occupations

The expenditure necessary to induce as many as 4,000 additional qualified applicants to accept Service enlistment offers (one-third of those qualified applicants who will otherwise reject enlistment offers) can be minimized by conducting a comprehensive and continuing evaluation of applicant job preferences relative to their pay preferences. The careful determination of the appropriate bonus amounts and occupations for which bonus provisions yield maximum effect can insure that the required expenditures per additional accession will remain well below the cost of achieving a comparable effect by increasing the general level of military pay for all recruits.

e. Increase in the general level of military pay

For a pay elasticity of 1.4, a 24.36% increase in male accessions (19,000 additional recruits, from 78,000 to 97,000) can be achieved by increasing military pay by 17.40%. At current pay levels, recruits earn

* Although an additional 5.2% would qualify in terms of new physical standards, not all would accept the enlistment offer or qualify according to mental standards.

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\$17,750 during the average initial enlistment term.* The pay raise needed to eliminate the male recruit shortfall would increase the average recruit's earnings to \$20,835. All recruits, the 78,000 young men and 7,000 young women expected to enlist without a pay raise, as well as the additional 19,000 18 year-old males needed to close the requirement shortfall, would realize the higher earnings.**

The higher level of pay that would accrue to 104,000 male and female 18 year-old recruits would increase total salary costs by \$320.8 million. In addition, the cost of paying salaries to 19,000 accessions at the base rate would be \$337.3 million. Thus, the cost per additional accession to close the recruiting gap would be \$34,636.

f. Enlistment of all physically qualified applicants except mental category V

This action would qualify an additional 6.1% of the applicant pool for enlistment both physically and mentally if all Service-imposed restrictions on mental and educational suitability were eliminated. The selection rate would rise by a slightly smaller amount, from 61.7% to 66.7%, after taking account of the proportion of newly-qualified applicants who would reject the enlistment offer. A net increase of 6,000 male accessions would result.

The costs of increasing accessions in this manner cannot be estimated with available data. Due consideration must be given to the higher rates

* People who complete the full term of enlistment earn more, but those who are involuntarily discharged during the first three years of Service (25% of all recruits) earn substantially less in basic pay, quarters, and subsistence prior to discharge.

** These computations are on the conservative side because they do not include the costs of higher pay rates that would obtain for other military personnel, the automatic consequence of increasing pay for new enlistees. In order to maintain a reasonable wage separation across grades, E-2 to E-9 pay and officers' pay would have to be increased some percentage. Similarly, the impact of a broad pay increase on retirement pay scales is not included.

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of training attrition and involuntary discharge expected among the marginal applicants. If every applicant ineligible under current Service standards were to be accepted for enlistment, some reduction in force effectiveness could result. This is the most difficult type of cost to assess, and accurate estimates are beyond the scope of this analysis.

5. Cost Summary: Each Response Evaluated Independently

For each of the six responses, Table 8 portrays the estimated cost of reducing the 18 year-old male shortfall of 19,000 (97,000 required vs. 78,000 expected) by one accession. The figures also reflect the maximum probable effect of implementing each action separately. Cost figures for each response include salary expenditures per accession as well as other incremental costs.

The last column indicates the cost of achieving a comparable effect by raising military pay, assuming a pay elasticity of 1.4. It is evident that in all cases except the enlistment of marginal (mental ability) applicants, the cost of raising military pay exceeds the cost of the alternative action.

Revision of occupational selection standards promises the only means for reducing the projected shortfall at a net savings. However, this response would not be sufficient, by itself, to eliminate the 20% shortfall.

6. The Cumulative Effects of Alternative Responses

Table 9 presents the cumulative effects of implementing various management actions to reduce the projected shortfall. The actions are

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TABLE 8

ESTIMATED EFFECTIVENESS OF ALTERNATIVE ACTIONS

Response	Maximum effect	Impact on male shortfall	Implementation Cost*	Savings	Pay raise necessary to achieve comparable result
Revise existing selection standards for occupation	Accession requirements reduced by 3 percent	Reduced to 16,000 (down by 3,000)	-----	\$7,300	+2.75% \$30,930
Equalize male and female selection rates	Increase female selection rate to 61.7 percent female accessions up 2,000	Reduced to 17,000 (down by 2,000)	More than \$17,750 but less than \$18,050	-----	+1.83% \$30,743
Lower physical standards	Increase male selection rate from 61.7 to 65.5 percent (male accessions up by 5,000)	Reduced to 14,000 (down by 5,000)	18,050	-----	+4.58% \$31,245
Provide enlistment bonuses for selected jobs	Increase male selection rate from 61.7 to 65.7 percent (male accessions up by 5,000)	Reduced to 14,000 (down by 5,000)	More than \$18,050 but less than \$21,245	-----	+4.58% \$31,245
Raise military pay by 17.40 percent	Increase male enlistments by 24.36 percent (male accessions up by 19,000)	Reduced to 0 (down by 19,000)	\$34,636	-----	+17.40% \$34,631
Enlist all eligibles (lower mental categories, excluding category W)	Increase male selection rate from 61.7 to 66.7 percent (male accessions up by 6,000)	Reduced to 13,000 (down by 6,000)	Impact on force effectiveness not estimated	-----	+5.48% \$31,352

* Cost estimates include the average salaries the additional recruits would receive during the initial term at current pay rates (\$17,750)

TABLE 9

ESTIMATED CUMULATIVE IMPACT OF ALTERNATIVE ACTIONS

Action	Maximum effect	Cumulative impact on accessions shortfall	Pay raise necessary to eliminate remaining shortfall	Pay raise necessary to eliminate remaining shortfall \$ per additional recruit (net)*
Revise existing selection standards for occupations	Accession requirements reduced by 3 percent	Reduced to 16,000 (down by 3,000)	+13.45%	\$32,820
Equalize male and female selection rates	Increase female selection rate to 61.7 percent (female accessions up 2,000)	Reduced to 14,000 (down by 2,000)	+11.49%	\$32,463
Lower physical standards	Increase selection rate from 61.7 to 65.5 percent (accessions up by 5,000)	Reduced to 9,000 (down by 5,000)	+6.99%	\$31,674
Provide enlistment bonuses for selected jobs	Increase selection rate from 65.5 to 69.7 percent (accessions up by 6,000)	Reduced to 3,000 (down by 6,000)	+2.19%	\$30,837
Raise military pay by 2.2 percent	Increase enlistments by 3 percent (accessions up by 3,000)	Reduced to 0 (down by 3,000)	—	no remaining shortfall
Waive all mental and educational standards except mental category V exclusions	Increase selection rate from 69.7 to 76.1 percent (accessions up by 9,000)	Surplus of 9,000	—	no remaining shortfall

* Total additional expenditures required divide by number of additional recruits needed, assuming a pay elasticity of 1.4 and average salary of \$17,750 before pay raise.

sequenced from most to least cost-effective. The last column indicates the estimated percentage increase in pay that would be needed to close whatever gap remains at each level. These figures suggest that a sequence of management actions could serve to reduce a recruiting shortfall as great as 20% without resorting to a significant pay increase. The cumulative impact of multiple responses exceeds the sum of effects for the actions taken individually because some responses interact with others to produce compounded results.

7. A Short-Term Response to Supply Shortfalls

The supply projections developed for three scenarios of national economic growth portray the consequences of gradual changes in civilian employment conditions. Realistically, conditions change rapidly from year to year even while a given longer-term trend continues. Temporary shifts in civilian employment conditions can lead to shortfalls in the case of moderate and slow as well as rapid economic growth.

For example, recruiting prospects for the moderate economic growth projection in FY 1977 are a maximum supply of 106,000 18 year-old male accessions, exactly matching the Services' demand. An unpredictable shift in employment conditions could reduce the supply by several thousand, thereby creating a shortfall of the same magnitude.

As an alternative to the various management actions that could be taken in response to the hypothetical shortfall, the Services could elect to accept the reduction without further action.

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This choice may be defensible if several conditions are satisfied.

First, the Services must judge that the shortage will not result in a critical reduction of force effectiveness, a condition that is likely to be satisfied when the shortage amounts to only a few percent of the total accessions requirement.

Second, there must be evidence that the circumstances underlying the supply shift are temporary. If, for instance, there are sound reasons for projecting a rapid return to substantially more favorable supply conditions, it should be possible to adjust recruiting efforts in the following year to absorb the shortfall.

The distinguishing feature of this alternative is that it implies no sudden changes to enlistment standards, recruiting practices and programs, or the military pay structure. The merits of passively accepting a shortfall as an alternative to other positive management actions must be weighed by the Services and the DoD in the context of a temporary and modest deviation from otherwise favorable supply conditions.

VI. SENSITIVITY OF THE PROJECTIONS

The foregoing projections may not be realized if the various assumptions on which they are based do not obtain. It is impractical to develop alternative projections for each of the many permutations and combinations of conditions that might influence the prospects for sustaining accession requirements. However, certain key assumptions are discussed to illustrate how accessions supply and/or demand will be affected if these assumptions are proved unreasonable by future events.

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A. Assumptions Regarding Military/Civilian Pay Ratios and School Enrollment Rates

All three economic growth scenarios yield projections of the available pool and applicant supply which are based on the assumption that the ratio of military pay to civilian earnings will remain constant throughout the next decade at the level prevailing today. This assumption will not obtain if future military pay increases vary from the average civilian pay increases.

In general, a slow rate of increase in military pay relative to civilian pay may result in significant shortfalls prior to 1985 if rapid economic growth occurs; shortfalls could also result in the next five years if the civilian economy expands at a moderate pace while the pay ratio declines.

The various projections are based on a national school "continuation" rate for 18 year-olds assumed to remain constant at the level experienced in school year 1973-1974. Economic theory suggests that, in the case of slow economic growth, school enrollment rates for this age group could drop below this level in response to declining returns to investments in education.

The costs of attending college-level public institutions full-time are projected to increase more than 12% in constant dollars over a ten year period ending in 1985, and the cost of attendance at private institutions will increase almost 21%.^{*} Thus, the rising cost of a college education could put downward pressure on school enrollment rates even while the economy grows at a moderate rate. Lower enrollment rates portend a larger pool of young men and women available for enlistment than otherwise projected in these two scenarios.

^{*} Figures developed from Projections of Educational Statistics to 1983-1984, 1974 Edition, National Center for Education Statistics.

Rapid economic growth may be accompanied by higher than average increases in real earnings for college-trained people. If so, the higher returns to investments in education could offset the projected increases in real costs, resulting in a fairly stable enrollment rate throughout the decade. Supply projections developed in the rapid economic growth scenario may therefore be less sensitive to the constant school enrollment rate assumption than either of the other scenarios.

B. Rapid Economic Growth Accompanied by Reduced Terms of Enlistment

The development of supply and demand projections thus far are based on the assumption that Service recruiting policies will remain substantially the same from 1975 through 1985. In particular, it has been assumed that the average length of the enlistment term will not be reduced throughout the period.

The length of the initial term of enlistment varied significantly during the years of transition to the AVF. Various six-year enlistment options were introduced, and the two-year enlistment option was gradually phased out. The effect of these changes can be measured by the 14% increase in the average first term of enlistment throughout DoD, up from 2.9 years in FY 1971 to 3.3 years in FY 1974.

The shift to longer enlistment terms also served to reduce personnel turnover; the Army estimates that actual accession requirements for FY 1976 declined by 15,000 or 20,000 as a result. It is evident that variations in the length of enlistment terms can influence accessions requirement projections.

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In response to a major shortfall, it is conceivable that the Services would consider reducing enlistment terms in the expectation that additional people would be attracted to apply for enlistment. If the Services elected to return to pre-AVF enlistment term patterns in the early 1980's, the impact would be felt as early as 1983. By 1985, accession requirements could rise as much as 14% above currently projected levels.

Supply projections for the rapid economic growth scenario are used to estimate how many additional 18 year-old males would have to apply for enlistment to warrant shifts in enlistment terms resulting in a 14,000 increase in accession requirements (111,000 or 14% above the original 97,000 male requirement). Noting that 61.7% of all applicants are selected for enlistment:

$$111,000 \text{ accessions} = (.617) \times (180,000 \text{ applicants})$$

Since the size of the available pool is projected to be 234,000, the application rate would have to be 76.9%, or:

$$180,000 \text{ applicants} = 76.9\% \text{ of } 234,000 \text{ in the available pool}$$

When contrasted with the current application rate of 54.2%, it appears that an additional 23% of the total available pool would have to be induced to apply by the prospect of a short enlistment term. This corresponds to a remarkable increase of 42% in the numbers of young men applying for enlistment.

It is certainly not clear that shorter terms of enlistment would attract new applicants on this scale. Perhaps selective reductions in enlistment terms for a limited number of recruits would serve to narrow

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the gap between accessions supply and demand, but a return to the pre-AVF pattern of enlistment terms is not likely to improve a shortfall situation.

C. Mental and Educational Standards for Enlistment

Implicit in the moderate, slow, and rapid economic growth supply projections is the assumption that the Services will return in future years to the enlistment selection standards employed in FY 1974. Alternatively, the Services could elect to maintain the considerably tighter standards employed in FY 1975.

1. The Impact of Recent Changes in Mental and Educational Standards

One might expect that because tighter standards were imposed over the period from FY 1973 to FY 1975, a major proportion of the applicant pool was excluded from enlistment. Technically this is true. An examination of applicant statistics throughout this period shows that one out of every four applicants accessed in FY 1973 DoD-wide under the standards prevailing at that time would not have been accessed by FY 1975. However, FY 1973 was also the final year of the draft, and as many as one out of every seven accessions who were then qualified for enlistment would not have accepted Service enlistment offers in the absence of implicit draft pressure.*

The combined effects of tighter enlistment standards and the transition to strictly voluntary enlistments together conspired to reduce the applicant selection rate from 77.4% in FY 1973 to 37.5% in FY 1975.** The diminution of draft pressure by itself caused the

* An estimated 12.5% of all qualified applicants in FY 1974 rejected Service enlistment offers, or one out of every seven who met minimum mental and physical standards.

** Additional restrictions were imposed between 1 July 1975 and 1 February 1976 (e.g., the exclusion of 17 year-old non-high school graduate applicants) which have induced a further decline in the selection rate. However, the data needed to estimate the selection rate for this period is not available.

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selection rate to decline from 77.4% to 64.5%. Tighter standards reduced the rate further, from 64.5% to 57.5%. Thus, a return in future years to selection standards operating in FY 1973 without the accompanying effect of implicit draft pressure would yield only a 64.5% applicant selection rate. Similarly, a return to standards existing in FY 1974 is estimated to yield a 61.7% selection rate, the figure used throughout the supply projection analyses developed earlier.

2. The Effect of Retaining FY 1975 Standards

If the Services retain FY 1975 mental and educational standards throughout the next ten years, shortfalls will be more likely in both the moderate and rapid economic growth scenarios.

To illustrate, in the case of rapid economic growth a 57.5% selection rate implies that by FY 1985 a maximum of 73,000 male applicants could be accessed to meet the 97,000 requirement projected for that year. If moderate economic growth is realized, the projected supply of 163,000 male applicants will yield only 94,000 accessions at a 57.5% selection rate, 3,000 short of the requirement.

The Services have demonstrated considerable flexibility in setting mental and educational standards in past years. Variations in enlistment standards have traditionally been used as a means for adjusting to varying conditions of accessions supply and demand. The same flexibility will enhance the prospects for sustaining accession requirements in future years if unfavorable supply conditions are realized.

D. Service Recruiting Efforts

The Commission study which estimated the effect of basic pay increases took account of the complementary effect of intensified recruiting activities which accompanied the pay increases occurring in recent years. These efforts included the expansion of recruiting staffs, functional reorganization, greater advertising, and other actions designed to increase the effectiveness of Service recruiting efforts. (See Chapter III, RECRUITING THE MILITARY FOR THE TOTAL FORCE.) The study results suggest that accelerated recruiting efforts served to increase the supply of accessions to some extent.

If the Services fail to intensify recruiting efforts in this manner to deal with a shortfall in the future, the effect of any contemplated pay increase on accessions supply could be diminished. Conversely, if the competitiveness of military compensation is permitted to decline in the future, the resulting decline in accession rates will likely be compounded if Service recruiting activities are constrained simultaneously.

E. Rates of Reenlistment

The projected DoD requirement for active forces non-prior service accessions that established the annual demand for 18 year-old male recruits assumes that present reenlistment rates will persist in the future.

Reenlistment rates reflect both the career preference of people completing the first term of enlistment satisfactorily and the reenlistment objectives of the Services. In general, a slowly or moderately expanding civilian economy is unlikely to induce many first-term enlisted people to leave active duty to seek alternative civilian pursuits. However, a

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rapidly expanding economy portends enhanced civilian employment opportunities which might induce some people to leave the Service who would otherwise reenlist. The consequence, a lower-than-expected reenlistment rate, would be translated into non-prior service accession requirements exceeding the current DoD projections. The shortfalls projected earlier for the rapid economic growth scenario consequently may be understated.

Service reenlistment objectives are fundamentally defined by career force structuring considerations. That is, the Services have determined the proportions of noncareer people (generally those serving in their first term of enlistment) and career people (the remainder) that would best meet Service needs. Currently, projected reenlistment objectives represent the numbers of first-termers who must join the career component of the force each year to maintain an optimal balance between career and noncareer components.

The Services could choose to alter this balance in the future if they determine that an alternative force distribution is justified for reasons of economy or effectiveness. (See Chapter VII, SHAPING THE CAREER FORCE IN THE FUTURE.) In general a shift towards an older force than is currently planned would eventually reduce the annual demand for enlisted accessions. A shift towards a young force would dictate higher accession demands than are currently projected.

F. Technical Impact Resulting from any Representational Policy

Representational goals can be attained without jeopardizing sustainability prospects, but only if the mandate to enforce policy is backed up by a commitment to pay whatever additional costs are implied by conditions of supply and demand prevailing over the next 10 years.

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The impact of representational policies should be considered in the context of the ebb and flow of the recruiting marketplace. To illustrate, in FY 1974 Army recruiters succeeded in recruiting sufficient numbers of young men and women to satisfy the demand for accessions with little or no margin to spare. Almost 28 percent, or 47,000, of the Army's 167,000 non-prior service accessions in FY 1974 were black, the consequence of recruiting efforts unrestricted by representational policy. Had a rigid representational policy been enforced in the same year restricting, for example, the share of black accessions to the national proportion of black youth, or 13 percent, then only 22,000 black males would have been enlisted. Perhaps more important, 25,000 additional nonblack accessions would have been required to make up the difference, an effort probably beyond Army recruiting capabilities in that difficult year.

Marketplace supply and demand unrestricted by representational policy will determine the minimum level of expenditure necessary to sustain accession requirements. The enforcement of representational policy would increase these costs to the extent that recruiters would have to deviate from "free-flow" selection and assignment practices. In a difficult recruiting environment, rigid representational policies could threaten the prospects for sustaining accession requirements if the DoD were required to enforce such policies without a corresponding commitment to underwrite the costs of promoting representational goals.

G. Attitudes Toward Military Service

The effect of shifts in the attitudes of young men and women regarding military service is not subject to quantification, but major changes could profoundly alter the prospects for sustaining DoD manpower requirements in the next decade.

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The national mood can be moved by events, as both the attack on Pearl Harbor in World War II and the continued involvement of U.S. armed forces in Vietnam demonstrated. Perceptions and attitudes towards military service as opposed to economic alternatives will also have an effect on recruiting young people.

VII. SELECTED RESERVE RECRUITING PROSPECTS

The methodology employed to assess the prospects for sustaining Selected Reserve demands for n.p.s. accessions borrows from the analytical framework developed for the active duty force.

It is more difficult to establish boundaries around the potential supply of Selected Reserve accessions because not all 18 year-old male students can be categorically excluded, nor can all unenrolled but employed young men be defined as unavailable for enlistment. Recognizing, however, that enlistment in the Selected Reserve implies a six to twelve month period of full-time training initially, it is not unreasonable to assume that the majority of n.p.s. accessions will be drawn from the same available pool which supports the accession demands of the active force. Thus, the size of the available pool of 18 year-old males as established earlier is used as a reference in determining the relative ease or difficulty with which Selected Reserve accession requirements can be sustained in future years.

The demand for 18 year-old male accessions is based upon projected n.p.s. Reserve requirements furnished by the DoD. Demand projections for FY 1978 through FY 1985 are straight-line projections that are subject to change for various reasons, as will be discussed shortly.

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1. Supply and Demand

The supply of (Selected) Reserve accessions, as with the active force, will be influenced by demographic, social and economic conditions prevailing during the next ten years. Additionally, active duty recruiting programs will compete with Reserve efforts to enlist available young men. Projections of the available pool, discounted by the numbers of 18 year-old males who will enlist in the active duty force, are compared with the projected demand for n.p.s. Reserve accessions to evaluate sustainability prospects.

a. Supply projections

By assuming that active force recruiting will succeed in satisfying requirements for 18 year-old male accessions in each year from FY 1976 through FY 1985, the size of the remaining pool available for Reserve enlistment can be projected for moderate, slow and rapid national economic growth assumptions. These figures are presented in Table 10.

The data indicate that the available pool will decline over the decade in each case; the most significant drop will occur in the case of rapid economic growth, from 212,00 in FY 1975 to 138,000 in FY 1985.

b. The demand for Reserve accessions

Projected n.p.s. accession requirements represent approximately one-third of the total enlisted accessions the Selected Reserve will need in future years to maintain a force of 895,000. Prior-service accessions will make up the balance of the requirement. As with the active force, demand projections reflect the numbers of people expected to retire or separate from the Selected Reserve in each year.

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TABLE 10.
A. THE POOL OF 18-YEAR-OLD MALES AVAILABLE - SUPPLY AND DEMAND
FOR SELECTED RESERVE ENLISTMENT, FY 1975-1985
(thousands of persons)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Slow growth	212	222	226	244	273	268	277	283	279	270	269
Moderate growth	212	214	210	220	242	229	232	231	221	209	204
Rapid growth	212	206	196	197	211	190	187	179	164	147	138

TABLE 11.
B. DEMAND FOR 18-YEAR-OLD ACCESSIONS
(thousands of persons)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Total 18-year-olds required	19	21	22	22	22	22	22	22	22	22	22
18-year-old males required	15	17	17	17	17	17	17	17	17	17	17

TABLE 12.
C. RATIO OF DEMAND TO THE AVAILABLE POOL

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Slow growth	.07	.08	.08	.07	.06	.06	.06	.06	.06	.06	.06
Moderate growth	.07	.08	.08	.08	.07	.07	.07	.07	.08	.08	.08
Rapid growth	.07	.06	.09	.09	.08	.09	.09	.09	.10	.12	.12

The future demands for 18 year-old male and female recruits are portrayed in Table 11. These figures assume that women will continue to represent 20.4% of n.p.s. accessions, as in FY 1975.

All considerations that could influence the future demand for active accessions apply equally to the Reserves. In addition, the Reserves rely heavily on prior-service accessions to support their total accession requirements, and factors that could affect the flow of people from active duty should be considered also. An unexpected or deliberate reduction in this flow would be translated into a comparable increase in the demand for n.p.s. recruits.

c. Recruiting prospects

A general assessment of recruiting prospects in the Selected Reserve involves the comparison of n.p.s. requirements to the size of the available pool in each year throughout the next decade.

In Table 12 the relationship between supply and demand is portrayed as a proportion. For all but the slow economic growth assumption, the projections show that the demand for recruits as a proportion of the available pool will increase between now and 1985.

The FY 1975 figure represents an appropriate base line against which projected figures for later years can be evaluated. An earlier discussion of Reserve recruiting efforts in Chapter III characterizes FY 1975 as a year in which supply conditions were especially favorable for n.p.s. recruiting. Active duty recruiters enjoyed widespread success in sustaining Service demands for both the numbers and kinds of accessions required. Reserve recruiting, however, was only marginally successful. Although sufficient

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numbers of young men and women were enlisted, accessions were often only marginally qualified to fill existing job vacancies in Reserve units.

The recruiting environment in FY 1975 is typical of the favorable supply conditions likely to prevail in the future if slow national economic growth is realized. Comparison of the n.p.s. demand as a proportion of the available pool in FY 1975 to the corresponding FY 1985 figure for slow economic growth indicates that Reserve requirements can be sustained in the future if slow economic growth conditions are realized.

For the moderate economic growth scenario, however, the projected ratios suggest that recruiters will find it somewhat more difficult to satisfy the annual demands for n.p.s. accessions relative to the FY 1975 experience. Shortfalls could occur in this case if the Reserve forces fail to respond with effective management actions of the type discussed earlier for the active duty force.

The rapid economic growth scenario portends the least favorable supply conditions. In this case the available pool is projected to decline to the point that Reserve accession requirements will represent 12% of the pool, almost twice the figure for FY 1975. Major shortfalls could likely be reduced by implementing a series of management actions, but it is questionable that shortfalls could be eliminated. It is indeed possible and perhaps probable that the demand for Reserve accessions will not be sustainable if the national economy grows at a rapid pace throughout the next ten years.

The increase in the ratio of demand to the size of the available pool for the rapid economic growth case, while striking, should also be viewed in terms of the extent of market penetration implied for 1985.

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Approximately one out of every eight people in the available pool will be needed to sustain Reserve n.p.s. accessions requirements. While this is almost twice the level of current penetration, the task is not impossible, especially when contracted with the current effectiveness of active force recruiting efforts. In FY 1975, active duty recruiters accessed 96,000 18 year-old males out of 308,000 in the available pool, or more than two out of every eight who were available. However, only an heroic increase in the effectiveness of Reserve recruiting efforts over the next ten years would be sufficient to achieve the necessary effect.

d. Management actions

Management actions that will enhance recruiting prospects for the active force apply similarly to Reserve recruiting problems, although with lesser effect in some instances. For example, increases in Reservist pay cannot be expected to yield proportionate increases in accessions of the magnitude estimated for active duty recruiting.

Other staff studies in Volume III provide a comprehensive discussion of changes in Reserve recruiting organization, staffing, and management that promise to increase effectiveness. In addition, several other approaches warrant mention.

It should be recognized that the Reserve and active duty recruiters often compete for exactly the same people. Thus, a Reserve recruit gain may also be an active duty recruit loss. For any given pool of available people, the numbers who can be accessed into either component of the Total Force can be maximized by emphasizing the differences in incentives, particularly in type, for active duty and Reserve enlistment. For example, recognizing that Reserve duty is perceived by many as a form of part-time employment,

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the Reserve forces have emphasized the attractiveness of Reserve duty as a form of supplemental income in current advertising programs. This appeal serves to create in type of approach can be made more effective. An candidates for active duty enlistment.

It is possible that this type of approach can be made more effective by raising the amount of the incentive through the provision of enlistment bonuses. Little is known about the probable effect of increasing the money incentive, and further analysis in this area is clearly warranted.

An examination of the geographic distribution of the Selected Reserve suggests that greater recruiting effectiveness can also be achieved by capitalizing on demographic characteristics and trends. To illustrate, the combined enlisted strength of Army and Air National Guard components in California as a percent of the total National Guard enlisted strength is currently 5.6%. However, almost 10% of the U.S. population currently resides in California, and by 1985 the Bureau of the Census projects that California will have an even greater share of the U.S. population. Conversely, the Army and Air National Guard enlisted strength in Alabama currently represents approximately 4.5% of the total for all states. The population of Alabama today is 1.7% of U.S. population, and this share is projected to decline to 1.1% by 1985.

Both cases indicate that Selected Reserve organizations presently may not be positioned to fully capitalize on demographic characteristics. Many other factors such as co-located active duty installations, the strategic threat and regional attitudes towards Reserve duty are involved in determining

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the optimal geographic distribution of the Reserve force. However, population growth trends portend even greater disparities in the future. Thus, re-assessment of locational decisions may be justified by the prospect of increasing the effectiveness of Reserve recruiting activities to satisfy future requirements for manpower.

Finally, other significant policy changes may be justified by the prospect of a major recruiting shortfall, such as the restructuring of the Reserve pay system. For example, Reservists' wages at present are rigidly tied to active duty pay scales. A limited number of days worked per month translates automatically into a very limited amount of pay for junior enlisted Reservists. Although a 100% increase in pay might be sufficient to induce many additional young men and women to seek enlistment into the Selected Reserve, the increase can be effected only by doubling military pay for active as well as Reserve enlistees, clearly a prohibitively expensive proposition. By unlinking Reserve and active duty pay systems, greater flexibility in structuring pay incentives could be exercised to support Reserve recruiting efforts.

VIII. CONCLUSIONS

The prospect of sustaining active duty n.p.s. accession requirements during the next ten years will be determined by conditions of supply and demand. The supply of accessions for the active forces will be sufficient to satisfy Service demands currently projected by the DoD without recourse to changes in recruiting policies and programs if the national economy grows at a moderate or slow pace.

If rapid economic growth is realized, the supply of accessions will not be large enough to support Service needs. However, a range of management

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action is available which, if implemented, would avert a major recruiting shortfall without resorting to pay increases beyond those required to maintain the current ratio of military pay to civilian pay.

Reserve recruiting prospects in the next decade are less favorable, although accession requirements can likely be sustained if slow or even moderate economic growth is realized. Management actions are available which could be employed effectively, but these may not prove sufficient to avert major recruiting shortfalls that will likely occur if rapid economic growth is realized, and significant policy changes affecting geographic distribution of the Reserve force and the Reserve pay system may be warranted.

IX. RECOMMENDATIONS

It is recommended that:

- (1) Further evaluation of demographic economic and social trends be conducted by the DoD on a continuing basis to provide for adequate planning of Total Force recruiting activities based on the most current possible projections of accessions supply and demand.
- (2) The DoD develop a comprehensive planning document establishing the specific management actions and policies that will serve to avert a major active and/or Reserve accessions shortfall induced by unfavorable conditions of supply and/or demand.

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APPENDIX A

TRENDS IN EMPLOYMENT OPPORTUNITIES FOR YOUTH

We examined the relationship between the patterns of growth of civilian employment for youth and for the total working-aged population by analyzing the respective growth statistics for 17 ten-year periods from 1948 to 1974. After correcting for population shifts, the analysis shows that working opportunities for youth have generally remained constant or have improved only when total civilian employment has grown quite rapidly.

A. Methodology

1. Employment data

To develop data for youth employment, annual average civilian employment figures for unenrolled 18 and 19 year-old males and total civilian employment figures for the period 1948-1974 were extracted from the 1975 Handbook of Labor Statistics, Bureau of Labor Statistics.

2. Population data

The Bureau of the Census furnished annual estimates for the 18 and 19 year-old unenrolled civilian non-institutional male population for the 1948-1974 period. The Bureau also provided annual estimates of the size of the working-aged civilian population (16-64 years of age, male and female combined).

3. Approach

Employment data were analyzed by computing the ratio of employment figures for the first and last years of each ten year period. For example, for the 1948-1958 period the total civilian employment estimate for 1958,

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63,036,000 was divided by the estimate for 1948, 58,343,000 yielding the ratio value of 1.0804 or a net 8.04% increase in total civilian employment over the period. The same approach was used to compute ratio values for unenrolled young men. The computed values are displayed below.

FIGURE A-1

EMPLOYMENT RATIOS (multiplied by 100)

<u>YEAR</u>	<u>UNENROLLED 18-19 YEAR-OLD MALES</u>	<u>TOTAL CIVILIAN</u>	<u>YEAR</u>	<u>UNENROLLED 18-19 YEAR-OLD MALES</u>	<u>TOTAL CIVILIAN</u>
48-58	66.81	108.04	57-67	118.25	116.08
49-59	80.99	112.11	58-68	128.02	120.44
50-60	81.64	111.64	59-69	119.65	120.54
51-61	93.56	109.65	60-70	126.61	119.53
52-62	100.32	110.71	61-71	125.29	120.34
53-63	93.10	110.76	62-72	151.35	122.49
54-64	106.95	115.30	63-73	173.67	124.57
55-65	121.59	114.34	64-74	163.42	124.00
56-66	129.23	114.26			

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Similarly, ratio values were calculated for population estimates for the two groups, displayed below.

FIGURE A-2

POPULATION RATIOS (multiplied by 100)

<u>YEAR</u>	<u>UNENROLLED 18-19 YEAR-OLD MALES</u>	<u>WORKING AGED POPULATION</u>	<u>YEAR</u>	<u>UNENROLLED 18-19 YEAR-OLD MALES</u>	<u>WORKING AGED POPULATION</u>
48-58	80.13	107.08	57-67	145.80	114.56
49-59	78.95	107.79	58-68	127.44	115.09
50-60	84.17	107.77	59-69	121.27	115.54
51-61	105.88	110.21	60-70	145.66	116.67
52-62	119.70	110.68	61-71	131.45	117.72
53-63	118.19	112.24	62-72	114.46	119.20
54-64	117.79	113.01	63-73	156.94	118.81
55-65	140.54	113.59	64-74	171.51	120.70
56-66	150.00	113.89			

Because relative changes in population size can significantly influence employment growth patterns, employment ratios were adjusted by dividing by the computed population ratio for each ten-year period. This weighting procedure yielded the following figures:

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FIGURE A-3

EMPLOYMENT RATIOS WEIGHTED BY POPULATION RATIOS (multiplied by 100)

<u>YEAR</u>	<u>UNENROLLED 18-19 YEAR-OLD MALES</u>	<u>WORKING AGED POPULATION</u>	<u>YEAR</u>	<u>UNENROLLED 18-19 YEAR-OLD MALES</u>	<u>WORKING AGE POPULATION</u>
48-58	83.38	100.90	57-67	81.10	101.33
49-59	102.58	104.01	58-68	100.46	104.65
50-60	96.99	103.59	59-69	98.66	104.33
51-61	88.36	99.49	60-70	86.92	102.45
52-62	83.81	100.03	61-71	95.31	102.23
53-63	78.77	98.68	62-72	104.77	102.76
54-64	90.80	102.03	63-73	110.66	104.85
55-65	86.52	100.66	64-74	95.28	102.73
56-66	86.15	100.32			

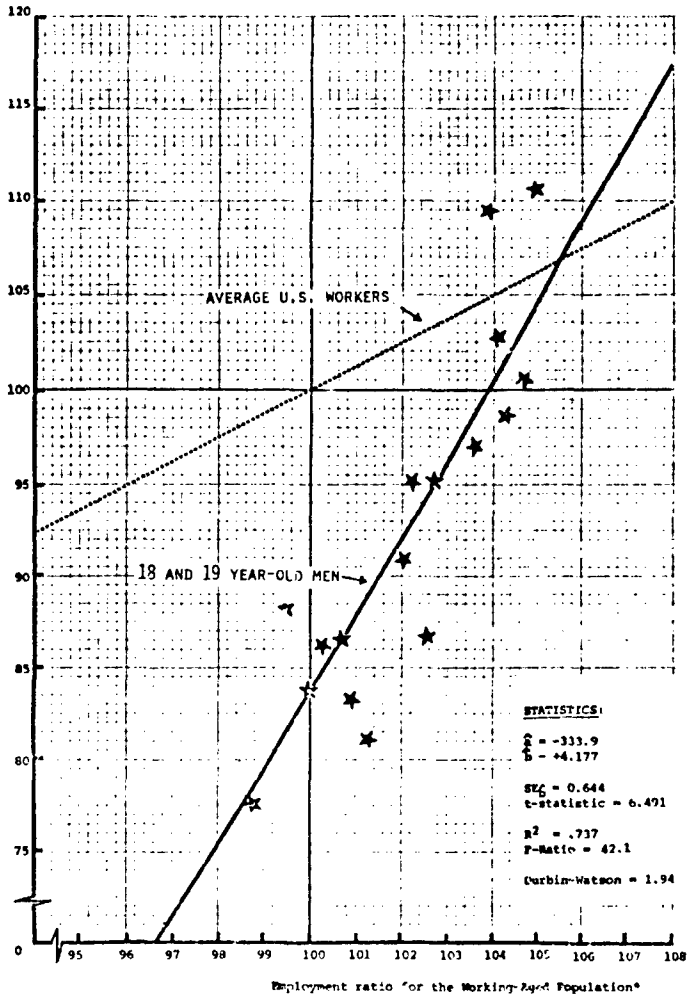
B. Results

The relationship between growth of employment opportunities for unenrolled young men and working-aged people in general was estimated from the resulting figures. The chart below portrays the plot of weighted employment ratios for youth vs. working-aged people.

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Shifts in Civilian Employment for 18 and 19 Year-Old Unenrolled Males Relative to Total Employment Trends (10 Year Periods), 1948 through 1974

Employment Ratio for Young Men*



* Employment estimate for last year of the period divided by first year estimate, adjusted for population change, and multiplied by 100.

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The relationship was estimated empirically with regression analysis (ordinary least squares), yielding the regression line indicated on the chart.

The dashed line represents the visual equivalent of the relationship that would be expected if the growth of youth employment exactly matched the overall national employment growth pattern. Inspection of the standard error of the slope coefficient estimate, 0.644, shows that the estimated slope, +4.177, is significantly greater than the +1.000 value that would obtain if both groups were affected equally by changing employment conditions.

C. Discussion

The estimated relationship gives evidence that employment opportunities for young unenrolled males do not change according to the pattern typical of the working-aged population. Over the average ten-year period of the post-war U.S. experience, civilian employment opportunities for young, comparatively unskilled men declined relative to their population size even while employment increased for the working-aged population. The most drastic declines generally occurred during periods in which overall employment grew only slightly or decreased. Employment prospects for youth remained stable or improved only during periods of above-average increases in total employment.*

Of equal interest is the implicit finding that young males are much more likely to be hired (or fired) than the average American when employment prospects improve (or worsen), as indicated by the slope coefficient

* During the average ten-year period from 1948 through 1974, total civilian employment in the U.S. outpaced population growth by 2 1/2% (ratio value of 1.024)

estimate of +4.177. It means that a 1% net change in employment opportunities for the working-aged population in the long term induces a 4% change in opportunities for 18 and 19 year-old males. This supports the view that young men out of school are generally regarded by employers as marginal labor.

Young women fare somewhat better, as indicated by the chart (see next page). The same procedures discussed earlier for males were used to estimate the pattern of changes in relative employment opportunity for unenrolled 18 and 19 year-old females. While the estimated regression line shows that opportunities for this group may also vary from the average pattern, the data suggest that employment prospects for young women may be somewhat less sensitive to broad economic shifts than their male counterparts. Women who leave school often possess skills that are more marketable, e.g., typing, shorthand, and clerical skills, which remain in demand even when unfavorable economic trends prevail. Also, to the extent that young women command lower wages than young men for the same work, employers are more likely to hire or retain the former group when employment conditions change. These findings should be regarded more cautiously, however, because statistical significance was not achieved.

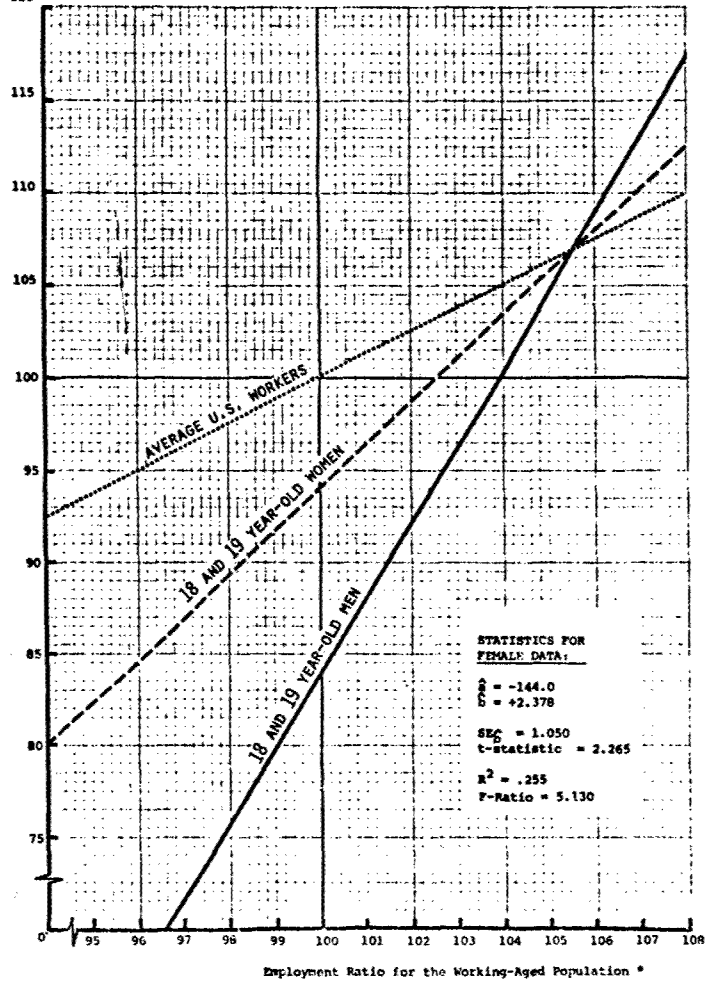
D. Alternative Approaches

We examined alternative procedures to estimate the employment growth relationship and found that the results remained fairly stable. These included using data for all 18 and 19 year-old males (enrolled and unenrolled combined) and for females as well.

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Shifts in Civilian Employment for 18 and 19 Year-Old Unenrolled
Men and Women Relative to Total Employment Trends
(10 Year Period), 1948 through 1974

Employment Ratio
for
Young Men and Women*



* Employment estimate for the last year of the period divided by first year estimate, adjusted for population change, and multiplied by 100.

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An alternative procedure to correct for population shifts was developed by subtracting the population ratio from the employment ratio. This approach was found lacking for theoretical reasons.

Also, we experimented with alternative models, including log-linear and linear partition forms, to identify inter-temporal differences and non-linearities in the relationship between the dependent and independent variables. These efforts did not improve the results appreciably, perhaps because the size of the sample was not large enough to warrant this degree of analytical sophistication.

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APPENDIX B. QUALITY CONSIDERATIONS

I. APPROACH

The supply of recruits in future years will be sufficient to satisfy Service demands only if the numbers of high caliber recruits meet or exceed the minimum numbers required. In order to project the characteristics of enlistment applicants and recruits in future years, a cross-sectional analysis of applicant data for FY 1974 was developed. Each of the fifty states was characterized according to the overall application rate among 18 year-old males, the proportion of all members of the target population in the state who applied for enlistment. The overall rate varied considerably from state to state, the combined result of such influencing factors as prevailing employment conditions, civilian pay levels, Service recruiting efforts, and youth attitudes toward military service; these factors conspired in certain states to yield high overall application rates and in others comparatively low rates. The high states are assumed to be representative of the nation under favorable supply conditions and the low under unfavorable conditions. By examining the distribution of applicants according to mental category across the range of overall application rates, it was possible to infer how the mental category distribution might be expected to shift in the future on a national scale under alternative supply conditions.

II. DATA

Nation-wide data collected by the Armed Forces Vocational Testing Group in the 1973-1974 school year were used to estimate the underlying mental category distribution for all 18 year-old males in each of the fifty states. Estimates of the size of state target populations as of 1 July 1974

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were provided by the Bureau of the Census. Applicant data for FY 1974, by mental category by state, was furnished by OSD(M&RA) MARDAC.

III. ANALYSIS

After computing the overall application rate for each state, the application rate among youth within each of the mental categories was calculated. Thus, a state could be described by one overall application rate* and five specific rates, one for each mental category.

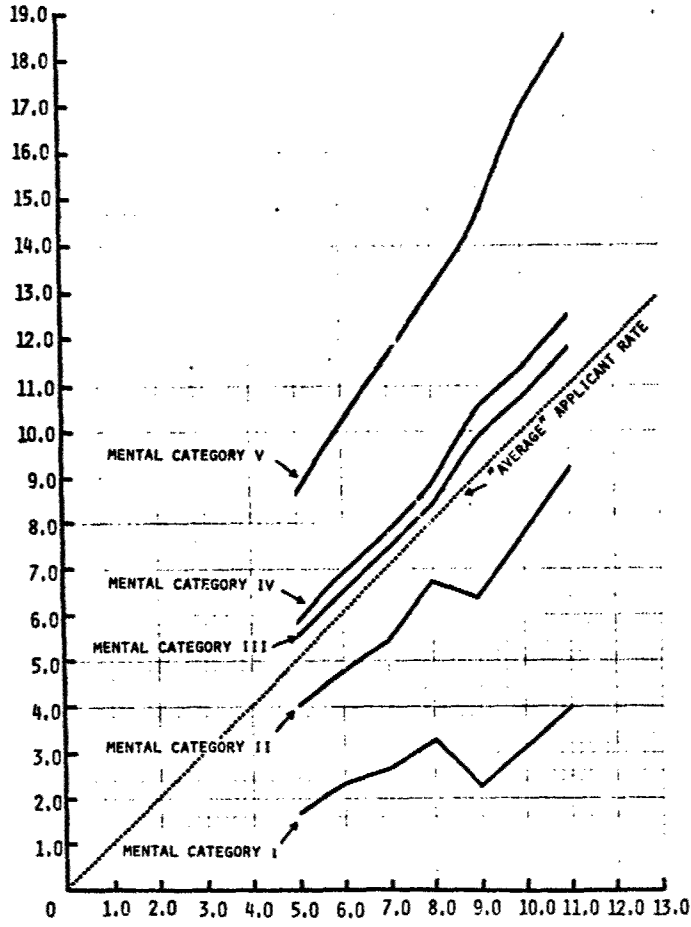
States were then grouped in seven intervals according to the overall rate observed. The intervals were chosen so as to yield mid-points of 5X, 6X, 7X and so on through 11X. Application rates for each of five mental categories were averaged across the states contained in the interval to yield the average application rate among mental category I's, II's, III's, IV's and V's respectively. The figure below shows the resulting plot of application rates within mental categories at progressively higher overall rates. These results suggest that, as improving supply conditions induce progressively larger proportions of the target population to seek enlistment (from 5X up to 11X), the application rate for every mental category generally increases in linear fashion. Straight lines with zero intercepts approximate the relationship between the application rate for each group and the overall rate. As supply conditions vary, measured over the overall application rate range of 5X to 11X, the mental category distribution of the applicant pool does not shift. The figure shows that the lower mental category people (M.C. IV and V) in the target population are much more likely to apply than above-average young men (M.C. I and II) throughout the range. But each group's share of the total may not be expected to change appreciably.

* Overall application rates were adjusted for each state to take account of deviations from the national mental category distribution.

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APPLICATION RATES FOR 18 YEAR-OLD MEN
BY MENTAL CATEGORY, 1974

APPLICANTS AS A PERCENT
OF TOTAL BY
MENTAL CATEGORY



TOTAL APPLICANTS FOR ENLISTMENT AS A
PERCENT OF TOTAL POPULATION (18 YEAR-OLD MEN)

Source: Air Force Human Resources Laboratory, U.S. Bureau of the Census,
and MARDAC

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The dashed line indicates how a theoretically average group might be expected to respond to changing supply conditions. Relative to this line, mental category I and II's are comparatively insensitive to variations in broad conditions that induce the population to alter its preferences toward military service. On the other hand mental category III and IV's, and especially mental category V's are comparatively sensitive to shifting conditions.

IV. ANALYSIS OF DATA FOR WOMEN

A similar analysis of FY 1974 data was conducted to examine the characteristics of the pool of 18 year-old women applicants under varying supply conditions. The same data sources were used as indicated for the males. The results of the analysis are displayed in the figure below.

One important distinction is the range of overall application rates observed for female populations in the fifty states, 0.6% to 2.0%, in contrast to the 5% to 11% range observed for young men. Clearly, women were generally much less likely to apply for enlistment.

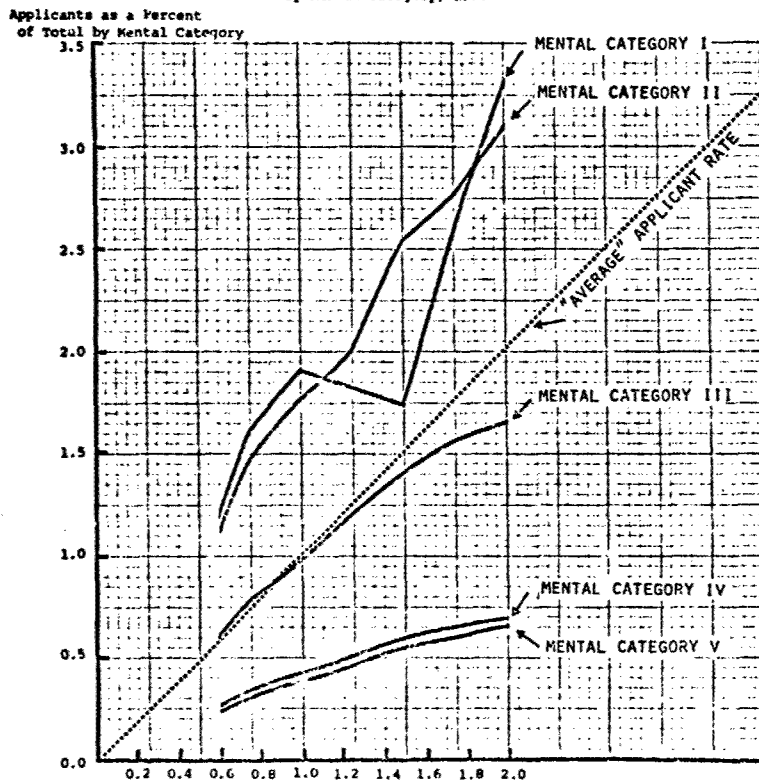
However, among those who sought enlistment, a much larger proportion of women in the top two mental categories (I and II) applied than in the lower categories. Equally noteworthy, the figure indicates that as supply conditions improve, measured from an overall rate going from 0.6% to 2.0%, higher mental category women generally maintain a disproportionately large share of the total female pool.

Again, the dashed line represents the application rate for a theoretically average group of women. Higher mental category women appear to

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be more sensitive, and lower mental category women less sensitive, than the average to shifts in broad conditions that alter population preferences toward military service.

Application Rates for 18 Year-Old Women
by Mental Category, 1974



Total Applicants for Enlistment as a
Percent of Total Population (18 year-old women)

Source: Air Force Human Resources Laboratory, U.S. Bureau of the Census,
and MARDAC

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WORKING PAPER
NOT AN OFFICIAL POSITION OF THE DMC

STANDBY DRAFT CAPABILITIES

A Staff Issue Paper for
the Defense Manpower Commission

By
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February 1976

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EXECUTIVE SUMMARY

ISSUE: Standby Draft Capabilities

BACKGROUND: Mobilization requirements for Selective Service have been established by Congress and various Administration study groups. Proposed FY 1977 funding level for Selective Service could reduce inductee delivery capability below that required for mobilization.

PROBLEM: Is the specific mobilization inductee delivery requirement still valid? If so, does the proposed FY 1977 funding level allow Selective Service to meet the requirement?

CONCLUSIONS: While the major European War scenario would require trained personnel quicker than they could be provided by Selective Service, the Department of Defense has not developed alternative programs to provide the required manpower. Further, there are many grey areas concerning existing mobilization manpower resources.

RECOMMENDATIONS: The current Selective Service induction capability should be retained, pending the development of alternative mobilization manpower resources by the Department of Defense.

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STANDBY DRAFT CAPABILITIES

The key element in consideration of appropriate Standby Draft measures is the time it would take a Standby Draft system to commence inductions in an emergency situation. With no Standby Draft system whatsoever, a system could be constituted so that inductees would be delivered to the Services for basic military training within 6-9 months. On the other hand, with an existing system, which could range from a planning-only activity to a program which retained immediate induction capability, the time delay between Mobilization Day and the day on which inductees could be delivered would be reduced. The present Selective Service System has the capability to deliver inductees within 30 days after Congress restores the induction authority, and this capability cannot be significantly improved, regardless of expenditure.

The administration has proposed a significant reduction in the funding level of the Selective Service System for Fiscal Year 1977. This funding reduction will extend the period of time before the System could deliver inductees.

In any consideration of Standby Draft delivery capabilities, recognition must be given to post-induction training requirements. At present, young men assigned to combat arms units receive a minimum of 15 weeks training. Under new legislative authority, this period could be reduced to three months. Therefore, with a 30-day delivery capacity, the quickest that trained inductees could be delivered to combat arms units would be four months following mobilization; without a Standby system whatsoever, the delay would be approximately one year.

BACKGROUND

The necessity for a Standby Draft mechanism of some sort has not been seriously challenged since Congress in September 1971 included a Standby Draft requirement in a new Section 10 (h) of the Military Selective Service Act. The Congressional action followed recommendations of the Gates Commission and Administration officials. The key phrases of Section 10 (h) are:

... The Selective Service System ... shall ... be maintained as an active standby organization, with (1) a complete registration and classification structure capable of immediate operation in the event of a national emergency, and (2) personnel adequate to reinstitute immediately the full operation of the System. . . .

Since the passage of Section 10 (h), there have been yearly attempts by several Members of Congress to repeal the entire Military Selective Service Act and to cut funding requests for the Standby Draft operations. Although funds for the Selective Service System have generally been reduced from budget request levels in each of the Fiscal years since the end of large-scale inductions, there has been no intensive Congressional consideration of the continuing need for a Standby Draft capability. Further, although Section 10 (h) refers to a delivery capability with the phrases . . . "capable of immediate operation" and "reinstitute immediately," the specific inductee needs of the Department of Defense in a major national emergency have not been reviewed by the Congress.

The need for a Standby Draft mechanism has been re-evaluated on several occasions since the passage by Congress of Section 10 (h). In 1972-73, a Study Group representing the Department of Defense, the Selective Service System, the Office of Management and Budget, the National Security Council, and the Office of Emergency Planning reaffirmed post-mobilization needs for inductees.

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The mobilization requirements for a Standby Draft were again evaluated in 1974 by an inter-agency working group, comprised of representatives from the Department of Defense, the Selective Service System and OMB. Their report reaffirmed the conclusions of the 1972-73 Group. Then, during 1974-1975, the Defense Department conducted a major evaluation of their manpower mobilization requirements and resources. This was the so-called "Total Force Study". The findings of this group re-affirmed the need for a Standby Draft mechanism and resulted in a policy statement by the Secretary of Defense that a Standby Draft mechanism was required in order to meet military manpower requirements under certain major European War scenarios.

During this same period, the Defense Manpower Commission also evaluated the need for a Standby Draft mechanism with a resulting strong endorsement contained in its May 1975 Interim Report.

Since the issuance of the Total Force Study and the DMC Interim Report, there has been no activity within the Administration which has challenged the requirement for a Standby Draft mechanism. However, the request of the Administration to reduce the funding level of the Selective Service System in FY 1977, while still retaining a Standby Draft mechanism, would result in a reduction of the System's current induction capability. Thus, discussion of specific inductee requirements, expressed both in terms of delivery times and numbers, and of the impact of the proposed budget reduction on the capability of the Selective Service System to meet these requirements is a subject of importance.

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Standby Draft Delivery Requirements

A specific time-numbers requirement for the Standby Draft was developed in 1972/73 when the whole question of mobilization manpower requirements was examined by the NSC Study Group mentioned above. The resulting decision established a requirement that inductions through the Selective Service system commence by M plus 30 days (30 days following Mobilization Day) and that 100,000 men be inducted by M plus 70 days, with a continuing induction capability thereafter for the duration of the emergency period.

Utilizing the European War scenario and the Total Force concept (call-up of Selected, Individual, Standby and Retired Reserves prior to commencement of inductions), the Total Force Study Group in 1974/75 again determined that a need could exist for draftees immediately following mobilization. As a result of their study efforts, the Secretary of Defense stated that the Standby Draft mechanism should retain the capability to commence inductions by M plus 30, and to deliver a total of up to 500,000 people by M plus 180.

Selective Service System in Standby

Although the induction authority contained in Section 17(c) of the Military Selective Service Act expired on July 1, 1973, the Selective Service System remains a permanent agency of the government, with continuing statutory duties.

Under the current law, the Selective Service structure (National Headquarters, State Headquarters, local boards, appeal boards and the

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Presidential Appeal Board) must be maintained (Section 10(a), M.S.S.A.). In addition, young men are required to register for the draft (Section 3, M.S.S.A.), and the System is responsible to classify and examine each registrant "as soon as practicable following his registration" (Section 4(a)).

The System also is responsible (Title 10, U.S. Code, Section 672 (a)(2)) for determinations of availability for members of the Standby Reserve, following their ordering to active service in a national emergency.

The AVF years have prompted a continuing period of selected service staff and funding reductions, although the ability of the System to meet the stated DoD delivery requirements has not been diminished. These reductions have been affected without impacting on their delivery capability by developing various cost-effective administrative modernizations, including the use of a computer to store registrant files and process routine administrative matters. As a result of these management improvements, the System has been able to reduce their full-time permanent employment (civilian and military) from 7,009 in FY 1970, to 2,229 at the end of FY 1975, to a planned FY 1976 end-strength of 1,413. There have also been corresponding reductions in Selective Service funding.

Until the submission of the FY 1977 budget, the System was operating under a Concept of Operations developed jointly in 1974 by Selective Service, the Department of Defense, the Office of Management and Budget and staff members of the National Security Council. The recommendations of this group were approved by the President and formed the basis for the FY 1976 budget request for the System. These recommendations were:

- phase down local board operations through fiscal year 1977
- develop and prove new procedures for processing non-resisting draftees and Standby Reservists

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- implement and determine viability of annual registration
- defer standby classification processing until induction authority is requested
- continue to appoint local board members in order to minimize time required to reconstitute local board operations in a crisis.

In order to fund this program in the current fiscal year, the Administration requested \$42 million and \$37.5 million was appropriated (including several million dollars for the operation of the Reconciliation Program). In accordance with the Presidential Directive, received by Selective Service on December 19, 1974, the System took the following actions:

- The local boards ceased operations at the end of 1975 after classifying a portion of the 1956 year group (these are the men eligible for induction during 1976);
- The 626 area offices which were serving the 3,018 local boards were replaced by approximately 130 Administrative offices.
- The level of compensated personnel was reduced by 42%.
- A new computer-assisted program was developed for the storing of registrant information and the issuing of most induction-related letters, orders and other administrative details.
- Continuing registration of young men at their 18th birthdays was suspended by Presidential Executive Order, effective April 1, 1975.
- A yearly catch-up registration was planned for early 1976.
- Processing of Standby Reservists remains inactive.
- Members are being appointed to the inactive local boards.

The 1977 Selective Service Budget

The Selective Service System requested approximately \$28 million for FY 1977. This funding level would support the concept of operations approved by the President in 1974 and would retain a capability of commencing inductions within 30 days and delivering up to 500,000 inductees within 180 days. Because of continuing FY 1977 Reconciliation Service and one-time shut-down costs, the System stated that their on-going funding level for FY 1978 and beyond would be approximately \$18 million. This funding would retain a 30-day induction capability and would allow for approximately 1,100 employees.

Due to cost-cutting efforts and a concern over the appropriateness of the planned once-a-year registration, the question of continuing with active registration and classification was raised by the Office of Management and Budget. Following extensive discussions, the National Security Council and the Department of Defense agreed with OMB that a new "deep standby" posture would end continuing registration and classification activities and provide for a mobilization-planning-only concept of operations. To fund this reduced level of activity, \$6 million was included in the proposed FY 1977 budget. This level of funding was well as the reduced level of Standby Draft activities was reviewed and approved by the President.

The proposed \$6 million funding for the Selective Service System will have the following organizational impacts on Selective Service:

1. The number of Selective Service employees will be reduced from 1,413 to 100 (reduction to be accomplished before June 30, 1975).
2. The 750-800 man Reserve-National Guard sections will be retained.
3. The 156 Administrative Offices will be closed.
4. Selective Service will remain as an independent agency, with a small Washington-based planning staff, planning/coordinating personnel at five regional offices, and at least a State Director (possible un-paid) within each of the 50 states.

The proposed \$6 million budget will have the following impacts on Selective Service operations:

1. There will be no registration or classification activities.
2. There will be a delay in commencing inductions in the event of an emergency. This delay will likely be less during the remainder of 1976 and part of 1977 (when already-registered young men are still in the files) than in the following years when registration and processing would have to be commenced from a standing stop.

1977 Budget Issue

The proposal to change the 1974 Concept of Operations by stopping registration and classification activities prompts two fundamental policy questions:

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Does our National Defense require a Standby Draft capability
with time-phased requirements for numbers of inductees?
Will the proposed FY 1977 funding level for the Selective
Service System allow the System to meet these requirements?

The need for personnel beyond those who would be normally available for a European War scenario has been clearly established and reaffirmed on a number of occasions. This requirement would be in addition to the manpower resources which would be realized by a mobilization of the Total Force, including the Selected Reserve, Individual Ready Reserve, Standby Reserve and the Retired Reserve. While DoD planners do not expect that all men from all categories will be available, in 1975 they estimated the FY 1980 "yield" percentages as follows:

Selected Reserve - 95% of 897,000
Individual Ready Reserve - 70% of 595,000
Standby Reserve - 50% of 311,000
Retired Reserve - 10% of 986,000

These "yield" factors were determined by the staff of the Total Force Study Group within DoD and were commendable efforts to relate expected "yields" to historical precedents. However, their data and conclusions prompt several questions that should be answered, each of which impacts on the probable need for draftees in a mobilization scenario.

First, are the "expected yields" realistic?

The DMC has serious reservations concerning the realism of the "expected yields," based in great part on our analysis of the probable size of the IRR and Standby Reserve pools in FY 1980 and beyond. Recognize that the "expected yields" are based both on a percentage and

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expected pool sizes, pools of significantly smaller size would directly impact upon the mobilization potential. In our study, we concluded that the size of the IRR and Standby Reserve pools will be significantly smaller than projected by DoD. This reduction will be caused by the various new All Volunteer Force manpower policies which impact on the pools, and it is our contention that these new policies and trends were not recognized in the most recent DoD projections. Indeed, in his testimony before Chairman Hebert's Subcommittee on Investigations of the House Armed Services Committee on January 21, 1976, Assistant Secretary of Defense (M&RA) Brehm stated the expected FY 1980 size of both the IRR and Standby Reserve pools were approximately one-third the size of the pools projected in the Total Force Study.

With the period of military obligation limited to six years, the size of the Reserve pools will be determined to a great extent by the numbers of people that leave active service after 2-5 year enlistments. Thus, the movement toward longer initial enlistments, higher reenlistment rates, and increased numbers of women (who have no reserve service obligation) means that far fewer men are leaving service during these AVF years. Further, the Selected Reserve units are recruiting a far-larger number of prior-service veterans leaving fewer-than-ever men for the IRR and Standby Reserve. As a result, unless major policy changes are forthcoming, both the Standby and the Individual Ready Reserve should cease to be viable resources by FY 1980.

Two other facts contribute to our skepticism concerning the "yields" projected by the Total Force Study: first, the expected percentage returns

are somewhat higher than historical precedents; second, there are no precedents for the recall of Standby and Retired Reservists.

Second, will the Reservists report quickly?

This question concerns the timing of recalled reservists; that is, what realistic time delays can be expected between mobilization and the day on which Individual and Standby Reservists assume military duties. In this area, there is very little historical information, although our limited experience with reserve callups indicates that a very optimistic delay period would be 60 days, allowing 30 days for recall notice and 30 days of active duty for orientation and settling-in. On the other hand, there have been Reservists who have delayed their reporting for weeks/months beyond their expected reporting date.

The "special" case of Standby Reservists also deserves discussion. Assuming that policy changes are forthcoming from the Department of Defense which prompt a viable Standby Reserve, the expectation that these men could be ordered to active duty immediately following a mobilization would seem to be very optimistic in light of the legal requirement that their availability be determined by the Director of Selective Service. It will be a busy time for this Director in the days following a mobilization and it would be realistic to expect that his screening of Standby Reservists would be delayed for several weeks.

Third, will recalled Reservists have the requisite skills to fill MOS shortfall vacancies in operating units?

This question concerns the realism of Reserve recall plans in light of probable MOS skill mis-matching. Whereas the mobilization needs would be primarily for combat arms individual replacements, many of the current IRR and Standby Reservists would be unable to assume these roles --

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some never because of health problems -- some only after a period of combat arms retraining. In these latter cases, it might require more than two months of retraining.

As individual "filler" manpower would be required immediately following the commencement of hostilities, neither new volunteers/inductees or Reservists requiring re-training would be able to fulfill these requirements. Both groups would be joining units somewhat after the critical time periods -- volunteers/inductees no sooner than 120 days -- re-called Reservists who require re-training in about the same time frame.

It is the view of the Defense Department that neither volunteers nor draftees can help fill the shortfall; rather, they hope to rely on currently non-obligated veterans who could be assigned to units without extended re-training. As all Servicemen currently are obligated for six years of active and reserve service, the DoD position is that these men should be extended for further periods of time, and the Total Force Study recommended that the Reserve obligation be extended for entering men from the present six years to their 29th birthday. In practice, this would result in an average extension of Reserve service obligations of about 3 1/2 years. While DoD clearly supports the need for inductees during extended combat operations, they are less clear regarding the requirement for inductees beginning at the M plus 30 day point. While the formal DoD planning studies still count on inductees at M plus 30, the DoD endorsement of the "deep standby" concept for Selective Service operations in FY 1977 raises doubts concerning this commitment.

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In sum, the call-up of the Reserves probably will not produce the quantity or the MOS skill matches outlined in current contingency plans. If this is correct, then the need for a Selective Service delivery capability at M plus 30 is much greater than currently stated. Further, pending further analysis both of MOS skill matches and retraining requirements and strength-time-delay-yield factors from the IRR and Standby Reserves, the current Selective Service induction capability provides a known and predictable resource which could deliver newly trained inductees to units within 120 days. In light of the admitted manpower shortfall problems upon mobilization and the fact that the proposed "solution" of extending Reserve service obligations has yet to be fully staffed and considered by the Administration or Congress, and, even if authorized, would not have an impact for six years, the retention of the current Selective Service capability of commencing inductions at M plus 30 days would seem to be the wise course of action.

Impact of the Proposed FY 1977 Funding Level on Induction Capability

The second fundamental policy question raised by the proposed reduction in Selective Service funding concerns the impact of the reduction on induction capability. In the view of Selective Service Director Byron Pepitone, the \$6 million funding level would delay initial inductions by 80 days; that is, the first inductees would be delivered at 110 days. Mr. Pepitone believes that this additional time would be required for conducting a registration and reactivating the local board operations. Others, including some people in Congress, believe that Director Pepitone's estimate is optimistic and that additional time would be required.

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On the other hand, the Office of Management and Budget and, to a lesser degree, the Department of Defense, believe that the delay would be less than the Selective Service System estimate, and that in any case the "deep standby" posture would not significantly impact on mobilization preparedness. They base their judgment on the following rationale:

1. That in the "real world" there is likely to be an alert or lead time on any mobilization effort that would allow Selective Service time to reactivate the system.
2. That an emergency of the European War magnitude would produce additional Service volunteers in the initial weeks following a Mobilization.
3. That the recent change in the law to allow the Services to assign men overseas after three months of training rather than four would cut current delivery times for newly-trained personnel by 30 days.
4. That yet-to-be-proven "new" procedures for post-Mobilization registration and processing would allow Selective Service to deliver inductees within 30-45 days following a decision to induct.
5. That even without new procedures for registration and processing, the World War II mobilization experience illustrates that the Selective Service System, assisted by large numbers of volunteers, could establish the local boards, register, process and deliver inductees in far less time than 110 days.

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Obviously, there is a difference of opinion within the Executive Branch concerning the time which would be required under the \$6 million funding level for the Selective Service System to reconstitute the local boards, register, classify, process and begin deliveries of inductees to the armed forces. While there is likely to be an alert period in any mobilization emergency, there are many examples in history of very short or non-existent alert periods. Furthermore, the reactivation of the Selective Service System in a period of intense international pressures could be interpreted as an overt act of preparing for hostilities. As such, it might not be politically feasible. While additional volunteers probably could be expected in a major national emergency, there is no guarantee that this would be so; indeed, it is not hard to envision scenarios where segments of our society would be totally opposed to mobilization, with a resulting adverse impact on volunteerism. Concerning the reduction in the minimum period which young men must be trained before assignment to combat, there is logic in the OMB and Defense Department position, although the manpower requirements studies which have been conducted concerning mobilization needs indicate that the need for trained personnel would still occur before newly trained individuals could be delivered, even under an accelerated three-month training program. Concerning "new" registration and processing procedures which could be implemented following a Mobilization, many innovative proposals have been developed,^{1/} and others could follow. However, there is a significant difference between proposals for further processing shortcuts and tested operational procedures. Last, while the Selective

^{1/} See Kenneth J. Coffey, Manning of the U.S. Armed Forces in a Post All-Volunteer Force Era (Selective Service System, 1975), 928 pages.

Service System did generally begin inductions very quickly in 1940, they also required more than four months to commence inductions after the one-year AVF experiment in 1947.

In sum, as Chairman Tarr said in his testimony before the Hebert subcommittee on January 21, 1976:

There probably is some merit in each argument. But to all of these, I would reply that a small system without registration and classification would not provide men as quickly as a system with all necessary work done prior to a call for physical examinations.

CONCLUSIONS

An examination of the mobilization manpower planning within the Department of Defense indicates clearly that the extent of probable manpower shortages is still a grey area, with many remaining questions concerning the probable size of the Reserve pools, realistic "yields", time delay factors, and MOS skill re-training requirements. While these various grey areas will probably be resolved in coming months, it is expected that a continuing shortage of trained manpower will be the final answer. To resolve this problem, DoD has proposed an extension of Reserve service obligations, a move that would require legislative changes. Because of this, the possibility of this proposal being adopted is at best unclear. In the meantime, the pool of untrained men and women remains the only viable alternative source of manpower. While additional volunteers might come forth in an emergency

situation, the current capability to induct men at M plus 30 days insures a continuing supply of trained manpower by the M plus 4 months point. In light of the various unanswered questions concerning the current Reserve pool and its mobilization potential, as well as the unresolved problem of supplementing this resource with additional personnel, it would be prudent to retain a proven manpower supply resource until better ways and means are developed. Furthermore, careful analysis should reveal that in many cases of Individual and Standby Reservists time-delay and skill-mismatching problems would delay their reporting to operating units well beyond the point at which newly trained inductees could report.

In sum, the wise course of action may be determined only by comparing costs with benefits. To save \$12 million per year, the Nation would delay the induction of men for at least 60-80 days, possibly longer if the Nation has experienced substantial destruction and turmoil prior to mobilization. The numbers of men required immediately following mobilization or the schedule by which it would be necessary to make them available to the Armed Forces cannot be calculated precisely. However, when time may be our most critical resource, this modest annual saving has no relation to the risk that it would invite.

RECOMMENDATIONS

The Defense Manpower Commission should recommend the following actions:

The Standby Draft System should be retained with a capability to commence inductions within 30 days.

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The minimum funding and staffing level necessary to provide this capability should be provided.

The registration and initial classification of young men should be continued, pending the development, testing and evaluation of various proposals which would allow the System to commence inductions within 20-30 days without the necessity for an on-going or once-a-year registration.

The Department of Defense should reevaluate their expected yields, reporting delays and MOS skill matching problems for the IRR and Standby Reserve.

The Department of Defense should evaluate the effectiveness of substituting newly trained conscripts for those IRR and Standby Reservists who might be delayed in reporting for duty or require extensive skill re-training.

While none of us hopes or expects that it will be necessary to conduct a major mobilization of our military forces, it would less than prudent to allow a major segment of that Total Force to be less than immediately available and of use. The adoption of these recommendations would insure the continuing availability of our mobilization manpower "insurance" - the Selective Service conscript.

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WORKING PAPER
NOT AN OFFICIAL POSITION OF THE DMC

THE COSTS OF THE ALL-VOLUNTEER FORCE AND TOTAL FORCE MOBILIZATION

A Staff Information Paper for
the Defense Manpower Commission

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EXECUTIVE SUMMARY

TITLE: The Costs of the All-Volunteer Force and Total Force Mobilization

BACKGROUND: There are a number of cost items which were initiated immediately before or during the All-Volunteer Force years. These items include basic pay and allowances, enlistment bonuses, officer program scholarships and subsistence, health profession accession programs, quarters improvements, special pay for recruiters, travel entitlements, educational programs, and recruiting and advertising programs. Estimates concerning the actual costs of these items and whether they should be included or excluded from the "true cost" of the All-Volunteer Force vary with cost estimates ranging from a low of essentially nothing to a high in excess of \$4.5 billion.

The cost savings or opportunity costs which would be possible under a return to a system of conscription also are discussed. Like AVF costs, estimates vary, although savings of any magnitude would not be possible without making fundamental adjustments in current pay and other benefits levels.

The costs of mobilizing the Reserves also are discussed, and cost estimates are developed, using both the DoD average costs per active duty person and adjusted proportions of Service and DoD budgets.

PROBLEM: How to define the true costs of the All-Volunteer Force, the cost savings that would accrue upon a return to an involuntary manpower procurement system, and the costs of mobilizing the Reserves.

CONCLUSIONS: Individual judgments and rationale concerning the true cost of the AVF vary to the degree that it is impossible to defend a single cost estimate. Concerning opportunity costs, savings would be minimal unless the Nation was willing to make dramatic reductions in service pay and other benefits. Concerning mobilization costs, unless a specific scenario and related requirements are identified, the cost estimates should be considered as "rough" and indicative of costs rather than actual expected costs. Recognizing that conscription systems prompt "taxes in kind" for those selected, the costs of maintaining an armed force to the Nation do not vary greatly from an AVF to a conscription system. Rather, it is a question of who will bear what share of the military cost.

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THE COSTS OF THE ALL VOLUNTEER FORCE AND TOTAL FORCE MOBILIZATION

BACKGROUND

On March 27, 1969 the President appointed an Advisory Commission for the purpose of developing a comprehensive plan for eliminating conscription and moving toward an all-volunteer armed force. Referred to as the "Gates Commission", they submitted their report to the President in February 1970.^{1/} The Gates Commission unanimously believed the Nation's interest would be better served by an all-volunteer force, supported by an effective stand-by draft, than a mixed force of volunteers and conscripts. In assessing various alternatives the Gates Commission identified additional budget expenditures which would be required for an AVF in FY 71. These additional expenditures were summarized as follows (in 1970 dollars):

Basic pay increase	\$2.68 B
Proficiency pay	.21
Reserve pay increase	.15
Additional Medical Corps expense	.12
Recruiting, ROTC and misc.	.08
TOTAL	<u>3.24</u>
Less added Federal income tax	<u>-.54</u>
Net addition to budget	\$2.70 B

In the ensuing months, following publication of the Gates Commission Report, there was considerable discussion of AVF cost estimates. In 1971 a commitment was made to end reliance on conscript manpower for the military. This was done with a realization that increased budget costs would be necessary to make the military a competitive employer in the open market place. In general the public was expecting a \$3 billion bill in exchange for an elimination of the draft.

^{1/} "The Report of the President's Commission on an All-Volunteer Armed Force", U.S. Government Printing Office, Washington, D.C., February 20, 1970, 211 pp.

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Today, five years later, the draft has ended. It is perceived by some that manpower costs are running away with the Defense budget, driven by the costs of the volunteer force. Based upon Gates Commission methodology (with adjustments for force size and inflation) the AVF cost remains at about \$3 billion. However, there are growing numbers who reject this figure, claiming the AVF is "costing" the Nation anywhere from essentially nothing up to an estimate far in excess of the \$3 billion cited.

Why this disparity? What is the cost or, even, what is a cost of the AVF?

The crux of the AVF cost dilemma is a result of the definitions and methodologies used to compute both costs and savings attributable to the AVF. Therefore, any figure chosen to represent "a cost" of the AVF will be the result of individual judgments on many variables as to what constitutes a relevant program as well as its concomitant cost.

This paper will identify the various programs which might be attributed to an AVF "cost" figure and present various positions on their applicability.

DISCUSSION

To begin with, the term "cost" can be elusive. For purpose of the following discussion, cost equates to budget estimates and essentially will be viewed in terms of (1) "costs to achieve or maintain an AVF", and (2) "opportunity costs" (i.e., costs that can be recouped or avoided to provide a savings that actually could be realized with a return to the draft).

As noted previously, relevant programs and concomitant costs are subject to individual judgments as to what pertains to the AVF. The approach will be to address each potential factor contributing to the range of AVF costs.

- Basic Pay and Allowances is the single largest item in assessing AVF cost.

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It is also one of the more controversial programs in arriving at AVF attainment or opportunity costs.

There are those who contend that the 1971 pay increases, mainly for junior enlisted and officer personnel, were essential for equity reasons. While they agree that increased pay made voluntary service more attractive, they argue that prior underpayments to first termers amounted to a form of inequitable taxation -- a tax in kind, levied on first-term military personnel. Since prevailing government accounting practices fail to recognize taxes paid in kind, this underpayment to first-termers was never recorded in the budget as either a revenue or expenditures. In addition to providing equity and eliminating the unfair in kind tax burden on first-termers, it is argued there was no net increase since the budget now properly reflects additional military compensation as well as additional revenues to make the payments.

On the other hand there are those that say that the in-kind tax argument is a "smoke screen." Such a burden has always been a recognized and accepted element of conscription. And where underpayments to the military existed for decades, it would be hypocritical to attribute the sudden and dramatic increases in first-term pay to the virtue of equity. More realistically, the 1971 pay increases should be attributed to making military service more attractive at a time when a conscious decision was made to progressively reduce draft calls to zero and adopt the AVF concept. Whether one views the pay legislation (P.L. 92-129) as justifiable on equity grounds or as necessary in a zero-draft environment, it is manifest that the AVF would have had little chance of success without an increase in first-term

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wages. Accordingly, this latter group would argue that first-term pay increases are not only a cost to achieve and maintain the AVF, but would also provide a significant opportunity cost upon a return of conscription.

- Enlistment Bonuses were provided for in P.L. 92-129. There appears to be little debate over this program being directly tied to the AVF. With the Combat Arms Bonus accounting for the single largest category, enlistment bonuses increase volunteers for the less attractive, more risky and difficult to fill occupational specialties. Since under a conscript system new accessions are assigned based upon service needs, it is generally agreed that enlistment bonuses are both an attainment and opportunity cost of the AVF.

- Officer Program Scholarships and Subsistence are not unique to the AVF; however, significant increases were enacted through legislation by the 92nd Congress (P.L. 92-166, 171, 172). Included in this category was an increase in the number of Army, Air Force and Navy ROTC scholarships, as well as a doubling of the ROTC subsistence allowance to a level of \$100 per month. Also authorized was a new \$100 per month subsistence allowance for members of the Marine Corps Platoon Leader Course.

Some argue that subsistence raises were long overdue in light of large increases in room and board costs at universities.

Larger numbers, however, point to the entire package as being AVF motivated. Citing the 1971 timing, and the declining enrollment in ROTC programs, they contend the increased number of scholarships along with the inducement of higher subsistence were the result of the need to attract the sufficient quantity and quality of students to meet officer program needs in a zero draft environment.

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- Health Profession accessions were viewed by the Gates Commission as a most difficult challenge for an AVF. They pointed out that mainly through conscription (as of 1970) 80% of all male physicians in the United States under 35 years of age had served in the armed forces and that 60% of all military doctors served less than 2 years. Several legislative actions since 1971 have improved scholarships and special pays for health professionals.

As with other programs, some argue that many of these new initiatives were logically justified on the basis of a long needed move toward equity with civilian counterparts; that even under the draft with relatively rapid promotions, special pay, continuation pay, etc. a medical officer was grossly underpaid.

There is the opposing viewpoint, however, that only with the conscious decision to end the draft were bold new compensation initiatives undertaken to attract health profession volunteers. Accordingly, this group contends that the greatly expanded Health Profession Scholarship program, optometrist special pay, new health profession bonuses, plus authorization for the new Uniformed Services University of Health Science have been costs attributable to the achievement of the AVF and in certain categories could provide significant opportunity costs if we were to return to a draft.

- Quarters Improvements can include construction or modernization of bachelor quarters and family housing or leased housing for recruiters and other military personnel assigned to areas remote from military installations.

On the one hand, some persons point to the mid-1950's and the establishment of a statutory cost limitation on construction. They cite the continuing dialogue (and disagreement) between DoD and the Congress on what

constituted sufficient living accommodations and associated construction costs. They point to frequent disapproval by the Congress of DoD proposals for standards and construction until FY 1971, at which time previously rejected proposals were approved. This group argues that authorized quarters/housing requests were based upon habitability standards which pre-dated the AVF. Additionally, they point to surveys of applicants and new accessions which disclose barracks and habitability improvements are not identified as factors which attracted volunteers.

On the other hand, there are those who contend that not only did the increased modernization/construction funding (in 1971) appear tied to enhancing living conditions to attract volunteers, but DoD themselves identified a portion of these funds as an AVF initiative.

- Special Pay for Recruiters includes out-of-pocket (OOP) expenses authorized by P.L. 92-129 plus Special Duty Assignment (SDA) pay. These special pays can range as high as \$25 for OOP and \$150 for SDA per recruiter per month.

Many people cite the timing of approval of these special pays, along with the emphasis on recruiting for an AVF, as clearly identifying them as not only an achievement cost, but also an opportunity cost of the AVF.

Alternatively, others contend that OOP expenses are justified reimbursements of recruiter expenses that have nothing to do with whether a recruiter functions in a draft or AVF environment. Also, this group points out that SDA pay is allowed for many assignments other than recruiting, and is designed to attract the necessary number of quality volunteers for assignment to duties outside the normal military career fields.

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- Travel Entitlements were accorded to E-4's with 2 years of service. Previously only those in higher paygrades or E-4's who had a total service obligation of 6 years (i.e. careerists) were eligible for full travel entitlements for dependents and household effects.

As with other pay and allowance compensations this cost ranges from being justified upon the basis of improved equity to being authorized to improve attractiveness of duty in an AVF.

- Educational Programs, particularly those available to off-duty military personnel, have grown significantly over recent years. Many believe education incentives are essential as a recruitment tool to attract the necessary quality of volunteers, and hence, costs for these programs should be both achievement and opportunity costs for an AVF.

There are others, however, who take the position that while education incentives may be useful as recruitment tools, as the scope of these programs widen they create substantial disincentives at critical retention points. Also, they contend many of these programs have been undertaken independent of any AVF effort as natural complements to the educational benefits of the G.I. Bill, whose genesis can be traced to the era of conscription.

- Recruiting and Advertising expenditures have grown significantly over recent years.

While some base cost is essential even during periods of conscription, most people agree that the higher costs for advertising and increased numbers of recruiting personnel are mainly attributable to the AVF.

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Under the heading of "Project Volunteer", DoD in 1974 had estimated that AVF attainment costs approximated \$3 billion. An earlier GAO study had estimated that the generally quoted \$3 billion level may be understated by over \$1 billion in incremental costs that were driven by the AVF, yet not identified explicitly with them.

In summary, Table I lists the various categories and amounts of potential AVF costs (i.e. budget estimates) for the current size Total Force. Depending upon individual judgments and methodologies, those amounts attributable to attaining and maintaining the forces on an all-volunteer basis might range from essentially nothing up to almost \$4.6 billion.

TABLE I

ANNUAL PRO-RATED ESTIMATES (in Millions 1975 dollars)

Basic Pay and Allowances	\$2,494
Combat Arms and Other Enlistment Bonuses	56
ROTC Scholarships and Increased Subsistence	23
Health Profession Scholarships	35
Uniformed Services University of Health Science	10
Travel Entitlements	59
Quarters, Housing and Leases	77
Educational Incentives	53
Recruiter Out of Pocket Expenses	5
Recruiter Special Duty Assignment Pay	23
Recruiting and Advertising (active and reserve)	330
Other Miscellaneous (Previously identified Project Volunteer)	103
G.I. Bill (for new accessions)	<u>1,300</u>
	\$4,568

Opportunity Costs

OSD postulates that the true cost of the AVF involves only opportunity costs, and with higher pay and certain other benefits a continuing requirement (based on equity) the real savings with a return to the draft would only amount to about \$125 million.

In terms of opportunity costs which might be saved with a return to conscription, the major variable is basic pay and allowances. Depending

upon individual judgments, annual opportunity costs from all items in Table I (less basic pay and allowances) could range from nothing up to \$2,074 billion. To the figure derived might be added opportunity costs associated with basic pay and allowance variations. For example, four cases will be considered. Each addresses only enlisted pay and assumes the current 1.86 million active duty enlisted strength is maintained. Case 1 would continue the present compensation system unchanged and assume a 6% annual increase to all personnel for comparability; Cases 2 through 4 would provide a 6% annual increase for E5-E9 only. However, in Case 2 E1-E4 would be held constant; in Case 3 E1-E4 would be reduced to the federal minimum hourly wage of \$2.30 per hour (\$405 per month) in FY 1976, then increased at 6% annually; and in Case 4 E1-E4 pay and allowances would be reduced 33% below the federal minimum hourly wage to \$1.54 (\$270 per month) and held at that level through FY 1980.

Utilizing these four approaches the following table reflects the total enlisted basic pay and allowance cost through FY 1980 for the current size regular force.

(In billions of dollars, 1975 value)

Case	Base year FY 1975	1976	1977	1978	1979	1980
1	15.9	16.9	17.9	18.9	20.1	21.3
2	15.9	16.4	16.9	17.4	17.9	18.4
3	15.9	14.5	15.3	16.3	17.2	18.3
4	15.9	13.5	14.3	15.1	16.0	17.0

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Depending upon the case selected, opportunity cost could range from nothing (for case 1 in any year) up to \$4.3 billion in FY 1980 (comparing case 4 to the assumed comparability increases in case 1). Taking a comparison of case 4 to case 1 to the extreme, reducing the pay of E1-E4 to two-thirds of the federal minimum hourly wage could provide a savings of \$19.2 billion over the five year period of FY 1976 through FY 1980 (plus a maximum of \$10.25 B from other non-pay items).

Other indirect costs and savings, as well as a number of unquantifiable variables, further complicate the AVF cost equation. Among these additional factors are reenlistment bonuses. Since increased retention reduces requirements for non prior service accessions, such retention costs (at least in part) might be attributed to the AVF. In addition, longer enlistments, increased retention, reduced turnover and the attending reduced training requirements are efficiencies not clearly quantified, but which would reduce costs associated with an AVF. Also improved military manpower utilization and civilian substitution prompted by the AVF have resulted in both savings and costs. However, this area is quite complex, and budget estimates are not obvious. Finally, there are indirect and subtle savings and costs associated with an AVF. There are fewer diversions or disruptions of early civilian careers and less draft induced channeling into colleges, deferred occupations, marriage or fatherhood. These all involve unquantifiable implicit savings and costs for our society but would add an unmanageable dimension if an attempt were made to factor these elements into an AVF cost.

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MOBILIZATION COST

Sustainability of the AVF at various force levels will be addressed separately. However, an alternative, accepted and obvious method of quickly expanding the size of the active force is through mobilization of the Guard and Reserve. Manpower mobilization cost estimates, though not as controversial as previously discussed AVF cost factors, are sensitive to certain variables.

The single largest manpower mobilization cost element involves pay and allowances, although support costs would also be large. To arrive at an estimate, one method is to multiply the number of personnel to be mobilized by standard DoD average cost factors. For FY 1975 the factors for direct pay and allowances are \$7,892 per enlisted man-year and \$18,429 per officer man-year. As of end FY 1975, Reserve and Guard strength was as follows:

READY RESERVE

	SELECTED RESERVE		OTHER READY RESERVE	
	OFFICER	ENLISTED	OFFICER	ENLISTED
National Guard	33,821	360,899	467	7,870
Army Reserve	38,089	186,968	51,927	303,170
Naval Reserve	17,109	81,126	29,795	92,122
USMC Reserve	2,552	29,839	5,168	53,207
Air Guard	11,635	83,725	-	399
USAF Reserve	11,479	39,212	20,170	67,328
TOTAL	114,685	781,769	107,527	524,096

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STANDBY RESERVE

	ACTIVE		INACTIVE	
	OFFICER	ENLISTED	OFFICER	ENLISTED
Army Reserve	16,512	243,946	22,232	8
Naval Reserve	203	21,962	27,866	411
USMC Reserve	3,829	36,591	278	-
USAF Reserve	8,104	2,212	27,415	897
TOTAL	28,648	304,711	77,791	1,316

Pay and allowances for any increment of mobilization can be computed using average cost factors. To arrive at totals we use the following general estimates for total mobilization:

	OFFICER	ENLISTED
All Selected Reserve	114,685	781,769
70% Remaining Ready Reserve	75,269	366,867
50% Standby Reserve	53,220	153,014
TOTAL	243,174	1,301,650
	X \$18,429	X \$7,892
	\$4,481.5M	\$10,272.6M

TOTAL ESTIMATE = \$14,754.1M (for pay and allowances only)

While certain savings (ranging up to over \$1,500M) would be realized from prior drill pay of National Guard and Ready Reservists, many mobilized Reservists (particularly Guard) might be replaced with new accessions for caretaker and other specified Reserve duties.

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Significant and varying training costs and time could logically be expected for some portions of the Reserves, upon mobilization.

Another significant element to be added to the manpower mobilization estimates are transfer/transportation costs. While certain Reservists could remain in place and others would possess an organic lift capability, mobilization of many others would involve transportation costs. The costs of re-activating the Selective Service System also should be added.

Beyond pay and allowances, most of the foregoing factors are uncertain without specific mobilization needs detailed. Even though imprecise, perhaps the best total estimate of Reserve manpower mobilization costs can be derived using a pro-rated active duty military personnel cost. The following represents FY 1976 budget requests by major category:

	<u>AMOUNT</u>	<u>% of BUDGET</u>
DoD Total	\$92.8B	100%
Manpower Costs	49.2	53.1%
Military Personnel Costs*	(27.0)	(29.1%)
Civil Service Payroll	(15.4)	(16.6%)
Military Retired Pay	(6.9)	(7.4%)

* Includes Housing

With mobilization there could be a need for increased civilian support. There would also be an impact upon future retirement liabilities. However, for the purposes of arriving at an estimated individual mobilization cost the \$27 billion military personnel line item divided by 2.1 million active duty strength

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yields a gross personnel cost planning factor of \$12,857 per individual. This factor includes pay, quarters allowance, subsistence, clothing, and travel. When applied to the over 1.5 million Reservists anticipated for mobilization it produces a Reserve mobilization cost estimate of approximately \$18.9 billion per year (FY 1976 dollars), for just the factors indicated (disregarding offset for existing Reserve costs).

Again, however, this \$18.9 billion figure is only part of the mobilization manpower cost. Even limited to direct manpower costs it fails to recognize such factors as retired recall, the officer/enlisted mix, and probable needs for civil service and contractor increases. In the event of a larger, extended conflict, there could be the large costs of further expanded forces using large numbers of draftees. Further, beyond the direct pay allowance costs, there would be other large indirect manpower-related costs such as costs associated with expanded facilities, a greatly expanded manpower replacement and training system to support mobilized force levels, medical support, materiel support requirements, other support costs -- and ultimately the impact on retirement and veterans' costs.

In summary, only through a definition of scenario with manpower mobilization requirements, followed by detailed tabulations and computations of applicable tables of distribution, can accurate mobilization costs be derived.

CONCLUSION

Once a scenario and specific related requirements are clearly identified, manpower mobilization costs for the Guard and Reserve, or selected portions thereof, can be estimated using existing costing factors.

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On the other hand, with respect to AVF costs, even with budget statistics available, estimates can vary widely depending upon individual judgments and the attending assumptions and methodology used.

The DMC staff believes that:

Only with a dramatic reduction in pay, to minimums reasonable for subsistence and allowance, could significant budget reductions be realized by a return to conscription.

Any AVF cost estimate derived will be arbitrary and subject to considerable debate. Furthermore, a cost for the present All Volunteer Force is only part of the issue; the issue must involve the AVF concept itself.

The AVF is a current peacetime reality. Whether explicit or implicit (e.g., "in kind" tax borne by conscripts), it can be argued that the costs of maintaining a given size military force are essentially comparable whether that force is raised through conscription or volunteers. In fact, some can present a valid case that a conscripted force costs the Nation more in total resources. It is a question of who will bear what share of that military cost.

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WORKING PAPER

Not official position of Commission

STUDY REPORT

**POSSIBLE IMPROVEMENTS IN ACCESSIONS
APTITUDE TESTING AND SELECTION
IN THE MILITARY SERVICES**

Prepared by Hobar, Inc., Management Consultants
for the Defense Manpower Commission
under Contract # DM 6AC 002

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EDITORIAL NOTE:

For reason of brevity, Appendices A and B
of the Hobar, Inc. report are not reprinted here.
The text is presented in its entirety with this
exception.

ABSTRACT

Research performed by the armed services on the tests used to screen accessions to the military services has found that the tests are "not as valid for minority personnel as they are for the majority group." The tests predict school performance with varying success, but do less well in predicting job performance. The problem appears to lie less in the tests than in the inefficient use of the available data and in the mathematical methods used for validation.

The study recommends establishment of a validity standard and proposes that extant data from accessions testing, personnel and medical records be reanalyzed using a completely general, nonlinear predictor. Once the existing data have been examined by nonlinear hypersurface techniques, the contribution of test components and of alternate tests can be explored.

Existing tests are summarized and critiqued and the horizon of new tests and measurements are explored for potential utility in accessions testing and guidance.

FOREWORD

This study was conducted for the Defense Manpower Commission under Contract # DM 6AC 002 by Hobar, Inc., Management Consultants.

The study was initiated by the Government's concern about the validity of test batteries being employed by various branches of the service in screening accessions and in other personnel management functions. The Commission expressed concern for an evaluation of various alternatives to such tests which are or could be used by the military services. The contract directed the research to include a critical listing of written tests, physical performance tests and direct human performance measurements which have been or are being considered as testing/selection procedures/devices as well as the prospects for new and innovative candidates for validation. The prediction/validation procedures being used were also to be enumerated and reviewed and specific recommendations made.

As general guidelines for this study, the following were provided to Hobar:

1. that the devices be applicable to the mass testing procedures, requirements and environment of the armed forces;
2. that the devices be applicable to diverse testing sites and be administrable by para-professional personnel;
3. that the cost for administering the devices be generally comparable to the cost of current testing and evaluation programs;
4. that the devices be primarily related to the prediction of successful job performance; and
5. that the devices better resolve the discrimination problems in current devices.

The word "discrimination" is taken in two meanings: (a) the ability to discriminate in the measurement sense and (b) the civil rights meaning of "discriminating against" which is technically comparable to "bias". In the balance of this study the second meaning is rendered by the word "bias".

Principal investigators for Hobar on this study were Mary T. Howard, Ph.D., psychologist, and Lewey O. Gilstrap, Jr., system scientist and consultant in cybernetics.

This report is submitted by Hobar in fulfillment of its contractual obligation.

SUMMARY

Background

Various studies have been conducted by the different branches of the military service of the validity of the batteries of tests used to screen accessions to the service and to assist personnel management in making subsequent job assignments. Studies have found that the ability of these tests and of the scores derived from them to predict performance of the accessions varies significantly between black and white accessions.¹⁾ Occasionally the bias may be in favor of the black accession, but usually it appears to be to his disadvantage. Often the scores have no statistically significant predictive utility for the black accession,²⁾ a condition which is referred to as "cultural bias" in the general literature.

This study was initiated by the Defense Manpower Commission as a review of existing tests and procedures and a reconnaissance of new tests and procedures that might contribute to resolving the problems inherent in the use of tests which have been shown to be biased against one or more minority groups distinguished by physical, racial, cultural, linguistic or other characteristic.

Findings

The findings of the study are that there is bias in the predictions derived by current methods of information processing from existing test batteries:

1. The standard classification and vocational aptitude batteries used by the services do discriminate between blacks and whites in their validity in predicting training school and job performance. The causes of the bias have not been determined and caution against making assumptions concerning causality is advisable. The selectors used to make job assignments assume a homogeneity of the accessions population which is not borne out by existing studies.
2. The selectors, which are composites of two or three different test battery scores for each of the possible service job assignments, use the available data from the tests quite inefficiently. In some cases, especially when applied to blacks, selectors and school performance do not correlate at a statistically significant level.³⁾ The ability of the services to remedy this situation probably depends on the adoption of improved mathematical methods for handling the prediction problem.
3. The criterion variables (the quantities predicted by the selectors, e.g., school performance, job performance, likelihood of reenlistment, hazard if disciplinary problems) currently used by all

branches of the service are restricted to training school performance.

It is acknowledged that training school performance is a more highly controlled variable than job performance. Deriving a numerical score for training school performance from tests can be achieved without ambiguity. Job performance as evidenced by job ratings, however, may be influenced by unidentified and unquantified variables describing the interpersonal relations with the rater or with the organization into which the accession was thrust. The instruments employed for aptitude testing have in general been modeled on the instruments used for rating school performance. The concentration of effort on predicting school performance reflects the fact that the aptitude tests have been developed primarily by psychologists rather than system scientists and reflect a history of greater accomplishments in the field of educational testing than in other branches of psychology. Lack of progress in developing predictors of job performance is not a reflection on the attention or talent devoted to the problem but rather is an indication of the complexity of the task and the requirement for new mathematical tools.

4. While certain items of personal or biographical data on accessions have been shown to have predictive value, these data are not now incorporated into the selector formula. * They are employed in the selection process by reducing the cutting scores for certain groups. Knowledgeable recruiters and others concerned with job assignments may make qualitative use of such information, but it is not formally incorporated into the selection formula. It could be incorporated into a general nonlinear predictor in a quantitative or qualitative fashion.
5. Novel testing instruments (new paper and pencil tests) and electronic measuring devices have been studied experimentally for possible value in the selection process. Although some of these novel elements can be shown to have probable merit, they can not be evaluated until a general nonlinear predictor has been introduced.
6. Presently employed tests and potential improvements have been studied by linear methods which treat them in isolation rather than consider their interactions. This has been forced by the inherent inadequacies of the available linear techniques. However, variables in complex systems, such as human interactions represent, can not be treated without nonlinear techniques. It is not yet possible to

* In some cases, biographical information e. g., "Did you finish high school?" enters into the subtests and is scored along with other questions, but is not an explicit part of the prediction formula

assess whether the data available from extant records is adequate for the prediction of additional criterion variables.

7. A study by the Navy Personnel Research and Development Center⁴⁾ has found that

"While the military services have not yet been required to comply with this regulation [see 8, below], selection instruments that do not predict the relevant criterion above a chance level ($p < .05$) result in costly mismanagement of the manpower pool. Thus for practical reasons invalid selection methods should be replaced by valid ones."

At least in the instance of the Navy there is an awareness of the nature of the problem, if not of the solution.

8. A U. S. Standard is already in existence defining acceptable validity tests as predictors:

Title 41. Code of Federal Regulations (Department of Labor 1971).

"The relationship should be sufficiently high as to have a probability of no more than one to twenty to have occurred by chance. . . . A test which is differentially valid may be used in groups for which it is valid, but not for those in which it is not valid."

Recommendations

In view of the major findings of the study, the following actions and guidelines are recommended:

1. The regulations in finding 8 should be extended to the armed services. This can be established as an objective to be attained with some implementation date in the future defined for its taking effect.
2. A study should be initiated to determine the true predictive power of the existing service test batteries and the data to respond to the finding 7 above. This study must employ the general nonlinear inferential measurement techniques to assess the full power of the Armed Services Vocational Aptitude Battery (ASVAB) coupled with available personnel records, test records, and medical records. Since the ASVAB is being introduced as the standard, it will not be necessary to evaluate the other test batteries which it is replacing.
3. The criterion variable used in the first phase of the recommended

study would be training school scores. The subsequent phase should explore the other criterion variables such as job ratings, attrition disciplinary problems, and possible needs for additional training. This will provide a reliable quantitative basis for establishing either the sufficiency of the current measurements and tests or the needs for additional tests and measurements. (As a side benefit these studies will yield approximations to the general, nonlinear prediction functions which could be used in the field in recruitment stations and in job assignments.)

4. Where the predictive power of the ASVAB falls short of the full legal validity standards, additional data items can be incorporated into the prediction function (such as the biographical and medical data on the accession) to investigate whether the additions improve the predictive power of the function. The general nonlinear predictor can be itself analyzed to determine which of the data items and test battery components add significantly to the predictive power of the function and which do not and can therefore be deleted from the required data collection effort and from the test battery.

Since all of the above items are now routinely acquired for accessions, no modification to existing procedures in the recruitment stations and in personnel placement would be needed, except for the adoption of slightly more complicated selectors

5. For those job categories where the maximum predictive power attainable is still unsatisfactory, novel instruments and less conventional tests should be employed with appropriate enrichment of the nonlinear predictive function to include the additional variables. If the required validity is achieved, the tests and measurements can be incorporated into the items 2. and 3. above.

These recommendations have been developed within the study guidelines. If these are successful, the military services will be in possession of an integrated accessions and job selection process which should be (a) less discriminatory with regards to extraneous variables such as race, sex, educational, or socio-cultural background, (b) more reliable at predicting which accessions would fill specific service requirements for skills and be successful performers in the military environment, but (c) still feasible in the field to be administered by paraprofessional personnel within budgets comparable to those currently considered defensible.

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INTRODUCTION

This study is concerned with selecting and testing accessions to the military services and the validity of the screening and resulting training and job assignments. Prior studies have shown that the aptitude test batteries used by the services are of differing validity and predictive power among groups and subgroups of differing racial or socioeconomic backgrounds. The purpose of this study is to present a review and analysis of the key elements of testing and selection and to recommend alternatives with potentially greater predictive power and validity.

One key finding made early in this study was that full utilization was not being made in the services of the information gained from existing tests. Thus whatever might be the deficiencies in the current tests, there was no way to determine the uncertainty or error in prediction introduced by the use of an inefficient predictor without empirical study beyond the scope of the present contract. The pros and cons relative to specific tests discussed herein can be stated only weakly. We suspect that the uncertainty of prediction introduced by the current method is greater than the uncertainty resulting from the variation in validity for subgroups.

While the conclusions of this study are weak with respect to specific tests, they are strong with respect to the course of action needed to improve the predictability of performance on job situations which can be derived from accessions tests. They are also strong with respect to the resulting reduction in the bias resulting from the current proceedings as related to the screening and guidance and opportunities offered by the services to members of subgroups.

BACKGROUND

Current and Planned Service Tests and Procedures

The various branches of the military service have been using a number of different vocational aptitude tests including

- o Army Classification Battery (ACB)
- o Navy Basic Test Battery (NBTB)
- o Armed Services Vocational Aptitude Battery (ASVAB)

At one time an Armed Forces Qualifications Test (AFQT) was in use. Because of the overlap in test items between the AFQT and the other test batteries, it is possible to derive an AFQT score from the any of the aptitude test battery scores.

The AFQT score serves as the basis for comparing one battery with the other.

After January 1, 1976 all branches of the service will employ the ASVAB. This test is also administered by the services at high schools in the Armed Forces Vocational Testing Program. The ASVAB produces both an AFQT score and all service-specific aptitude scores. Participants in the AFVTP who have been tested in their high schools with the ASVAB are not required to take additional tests (ACB, NBTB or retest ASVAB) if their ASVAB scores are less than two years old.

The location at which the tests are currently administered differs among the services. The four principal locations are

- at recruiting stations
- at temporary locations visited by mobile recruiter teams
- at Armed Services Entrance Examination Stations (AFEES)
- at recruit training bases

The variations among tests and procedures are listed for each service:

Army

The Army administers the ACB, usually at AFEES, although mobile testing teams may administer tests at locations geographically remote from an AFEES.

Navy

The NBTB is administered only at the Navy recruiter location, not at an AFEES.

Marine Corps

The Marine Corps administers the ASVAB at an AFEES. The aptitude measures are not referenced unless an enlistment option is under consideration (e.g., a job choice guarantee). The Marines also administer the ACB at recruit training. The ACB is also used as the basis for assignment decisions.

Air Force

The Air Force administers the ASVAB (normally) at the AFEES.

With the exception of the Marine Corps, which administers both the ASVAB and the ACB, the services do not administer any paper and pencil tests other than those listed.

Physical examinations are also administered to all military accessions, and a moral evaluation, which nominally consists of a check for a felony conviction, is also made.

While there are differences among the ACB, NBTB, and the ASVAB the test batteries are all similar in that they provide (a) differential aptitude measures and (b) an AFQT score. Specific differences in the various tests are largely

irrelevant for this report since the ASVAB is scheduled to be standardized throughout the services within a few months.

Service experience has shown that potential accessions whose AFQT scores are in the lowest 10% of the population are generally unsuitable for service and are rejected. Those scoring between the lowest 10% and 30% (second and third decile) range are marginal and may be accepted under certain other conditions.

The Assignment Process

The assignment of accessions to different jobs follows a similar pattern in all branches of service. Except where job choice guarantees are involved assignments are dependent upon the needs of the services. Individuals qualified for two or more jobs will generally be assigned on the basis of service requirements existing at the moment.

The method employed by the Navy for assignment of accessions to class "A" schools illustrates the procedure for determining qualifications for specific jobs. The NBTB consists of six tests;

- o General Classification Test (GCT)
- o Arithmetic Test (ARI)
- o Mechanical Test (MECH)
- o Clerical Test (CLER)
- o Shop Practices (SP)
- o Electronics Technician Selection Test (ETST)

Minimum requirements for entry into class "A" schools are based on various combinations or composites of these BTB scores. For example the requirement for Aviation Boatswain's Mate School is

$$\text{GCT} + \text{MECH} + \text{SP} = 156 \text{ (or higher)}$$

The purpose in using a formula such as this for admission to training for a specific job are to identify those most likely to succeed at a job and to eliminate those least likely to succeed. These objectives can be related to the cost of training and the cost of maintaining a personnel inventory.

The composites such as $\text{GCT} + \text{MECH} + \text{SP} = 156$ are called selectors. They are correlated with school grades and can be used to predict how a given accession will perform in a service school. The validation of the presently used selectors is in question. A study conducted by the Navy Personnel Research and Development Center showed that the sum $\text{GCT} + \text{ARI}$ was correlated better with school scores than $\text{GCT} + \text{MECH} + \text{SP}$, although the improve

ment in validity is only marginal. 5)

However, neither the presently used three-term selector or the suggested two-term selector constitutes a general prediction function. Such function would have to be constructed from all battery test data together with any other relevant biographical or demographic data about the individual accession. In its form it would be a weighted function with a coefficient for each data item and would include the cross products of each with every other singly and in combination. (It is not necessary in this paper to discuss the mathematical techniques for constructing approximations to this general prediction function since they are covered in the appendices.) Since the present selectors may in many cases be poor predictors, it appears that selection and assignment in the services is based on less than the full information available. While it is important to have a well-constructed test battery, it is at least as important to make efficient use of the information derived from testing, i. e., to employ the best possible predictor in screening accessions and in making assignments.

Without performing a detailed analysis of the available historical data reflecting test scores and job performance, it is not possible even to estimate the degree of inefficiency of the currently employed selectors.

Prediction

Two improved types of predictor or prediction function of potential use to the services are linear and nonlinear. An improved linear predictor would be a weighted sum of scores from all tests in a battery. The weighting factors (coefficients of terms) vary reflecting the relative contribution of various scores in the test battery. Some scores will contribute negligibly and may be ignored.

The criterion variable being predicted is the score made in a training school. This does not satisfy the true requirements of the services for predictions of how the accession can be expected to perform on the job and in the service. When job ratings have been used as the criterion variable, the correlation or degree of predictability of present selectors is poor. Typically the correlation of selector value with job rating is in the range .2 to .3, whereas the correlation of selector value with school scores runs about .6 to .65. 6)

There are several reasons why job rating is difficult to predict. First, job situations involve a variety of activities that are not represented in the training situation, and these may vary from one location to another, i. e., two

jobs with the same title may not be equivalent. Second, the supervisor or rater may be comparing performance of an individual against that of only a few others or against a non-standard set of performance criteria different from those of other raters. The school raters compare performance against a large number of others and against a standardized set of performance criteria.

School performance is undoubtedly a more controlled and scientific variable, more amenable to statistical analysis, and more attractive as a subject of study. Furthermore the instruments through which school performance is assessed are first cousins of the instruments which have been devised for performance prediction. While the various test batteries were really designed to predict school performance, it is quite possible that the prediction of job performance from the current aptitude test batteries can be significantly improved even without altering the test battery through the use of the general prediction function.

Additional criterion variables which the services require the ability to predict are the probability of attrition, the probability of a requirement for additional training and the probability of disciplinary problems. As will be discussed later, there is not body of theory for establishing a priori which tests or which components of tests currently in use are relevant to these criterion variables. If these variables could be predicted, a significant potential manpower cost saving could result to the services.

Federal standards on the validities of tests require that aptitude test scores which might result from chance alone be less than one in twenty.* Although these standards are not binding on the military services, they are professionally defensible minima and they would be useful to the services in case charges of bias were raised by minority groups in court asserting that equal opportunity were being denied them by accessions testing practice. Furthermore direct dollar savings would result from the greater personnel efficiency resulting from the employment of valid tests both for screening and for career guidance and personnel management.

The most accurate empirical prediction that can be made requires the use of a nonlinear predictor. Like the linear predictor it is in general a function of all available data; however, the nonlinear predictor consists of the

* Title 41. Code of Federal Regulations. (Department of Labor 1971).
"The relationship should be sufficiently high as to have a probability of no more than one to twenty to have occurred by chance. . . . A test which is differentially valid may be used in groups for which it is valid but not for those in which it is not valid."

linear predictor plus many other terms. The linear predictor consists of the weighted sum of the variables representing the available types of data. The nonlinear predictor adds terms representing the interactions among all of the variables, the importance being that the linear predictor must assume that all of the variables are independent of each other, which is a condition rarely encountered in nature and least of all in human affairs. The nonlinear predictor adds terms representing the weighted sum of all the cross-products of all the variables, plus the weighted sum of higher powers of the variables. Background information on prediction as applied to complex systems and the mathematics behind the multinomials which are employed to approximate the nonlinear predictor are described in Appendices A and B.

The great utility of the general nonlinear method of prediction is that it provides a method for deriving empirically an approximation as close as is (a) required and (b) permitted by the available data to the actual relationship between the criterion variable and all other available variables. While in any given case there may be a valid predictive function derivable on theoretic grounds or by linear methods, on the average no other empirically derived predictor can do a better job of prediction using any given available data base (e. g., test battery scores, medical data, biographical data, and personnel records). Some data may be of little value in the prediction of a given criterion variable. Once a general nonlinear predictor has been developed empirically, the relative contribution of each variable (test score or measurement) to the predicted criterion variable (school performance, job performance, likelihood of reenlistment, likelihood of disciplinary problems) can be determined. A variable which does not contribute significantly to the prediction of any of the criterion variables can be eliminated from the data collection efforts (tests, interviews, medical examinations) at the recruitment stations.

The maximum predictive power of service test batteries and of the data derived at routine accessions interviews, investigations, and medical examinations is unknown. It is therefore not possible to make any statements at all about the adequacy of existing tests and procedures. The problem is that current methods of treating the data are at the best multiple linear regressions which may fit poorly if the optimum predictor is nonlinear. This is not intended to imply criticism of those investigators who have in the past been restricted to the use of linear techniques in an attempt to validate tests and selectors. Unfortunately familiarity with the new general nonlinear inferential measurement techniques is not widespread; therefore there are to Hobar's knowledge no current efforts in the United States to attack the problem. Adequate analysis of existing data bases by nonlinear techniques may reveal that adequate data are available without further expenditures either for revision of test batteries or for the acquisition of new methods of measurement employing new and exotic devices. The fact that two- and three-term linear

predictors using test battery scores have, in some cases, been shown to have differential validities and differential predictive power with different groups means little more than that two- or three-term linear approximations to a general nonlinear predictor may be inadequate. The problem may not lie with the tests but with the validation methods. The existence of adequate but novel validation methods is discussed in Appendices A and B.

STANDARD TESTING TECHNIQUES

Written Tests

Pencil and paper tests of all types, whether for vocational aptitude, interest, or personality are a rapid and economical method of eliciting information about individuals. The significance, validity and utility of each such test must be established empirically. Since tests are always constructed for specific areas any one test must necessarily provide an incomplete picture of the standing of an individual with respect to a group. It is customary to obtain profiles of individuals by using a battery of such tests.

The predictive power of a test battery for job suitability is a function of the entire battery. Even though an individual test or test component may appear to possess some predictive power, it would be misleading to assume from that fact that the component would hold up as making a significant contribution to the predictive power of the entire battery until it had been evaluated within the battery with respect to the given criterion variable. Since an evaluation of the ASVAB by the general nonlinear technique has not been made, no statements can be made from the success of existing correlations of the value of any given test or test component. Similarly it is impossible to evaluate in advance of any such study the probable contribution of any given new test or measurement technique. Before any conclusions can be reached about the value of any given test or test component, it will be necessary to validate the tests as a whole using the general nonlinear predictor. Summing or otherwise combining the present two- and three-term linear selectors will not contribute to the validation process.

Physical Performance Tests

Physical performance tests of a general nature such as fitting objects of various shapes into appropriate holes or operating simple keyboards provide information about the ability of an individual to perform tasks as opposed to evaluating his knowledge of the task. Many can, for instance, pass a written test on driving an automobile, including questions about how to steer in a skid,

even though the person might fail a practical driving test. (Strictly speaking a practical driving test is a direct human performance test rather than a physical performance test.) General physical tests assist in differentiating the ability to do things from the superficial ability to talk about them. These general tasks are usually sufficiently simple so that anyone can perform them without extensive instruction.

Mass administration of physical performance tests does present practical administrative problems because of the need to store sufficient test items to handle mass testing and sufficient test administration personnel to provide detailed supervision. While physical performance tests provide information not furnished by written tests, the costs of adding them to the capabilities of the field stations makes them inherently difficult to justify in the light of restrictions on budgets and in the light of the third guideline of this study contract.

Direct Human Performance Tests

Ideally the best test of how well a person can perform on a given job is to train him or her and then test the resulting performance. Since it is not practical to send accessions to all schools to perform all jobs and test them on all jobs prior to accepting them into the service, direct human performance tests must necessarily be based on simplified models of each job or of key characteristics of each job, increasing the validation problem. Direct human performance tests would in many instances require more physical equipment and manpower even than physical performance tests and must again be ruled out as conflicting with the third guideline of this contract.

CRITERIA AND APPROACHES FOR NOVEL TESTS

Goals

The objective in developing new tests should be directed exclusively toward improving the predictability of selected criterion variables. The predictability of a complex system and of its selected criterion variables is a property of the system. If the system is governed by consistent laws and is inherently predictable, and if its behavior over a period of time is recorded, then its behavior represents a nonlinear hypersurface.*

* A function of one dependent and one independent variable is a line. If the relationship is linear, the line is straight; if the relationship is nonlinear, the line is a curve whose form is characteristic of the function expressed as an

When we are dealing in the predictability of a simple relationship between two variables and use regression on the collected data, we can illustrate the process graphically by plotting the data as a scatter diagram on a two-dimensional graph. Regression is a mathematical technique for finding a function (a line) which best fits the data. Linear regression finds the straight line which fits the data best; nonlinear regression finds the closest fit to the data. Mathematical techniques exist to find the best equation to predict the further behavior of the data. These cope with the problem that a nonlinear regression may find a line which "overfits" the data and is a poor predictor. Mathematical techniques also exist to find the best nonlinear predictor to fit an n-dimensional hypersurface, i. e., a predictor for a system in n variables described by a data base consisting of n data series.

The predictability of a function in two variables depends on how far the data points lie from the straight line which represents the best fit. If the points are widely scattered, the predictability is low. On the other hand, the predictability may be low because the relationship is nonlinear and the best predictor might be a curve rather than the straight line.

The predictability of a system in a large number of variables depends on how far the data points lie from the hypersurface which represents the best nonlinear predictor. If the data lie close to a hypersurface, then the system is inherently predictable; however, if the data are inadequate, it may be impossible to identify the best nonlinear predictor even if the system be inherently predictable.

The predictive power of the nonlinear predictor is a property of a complete data base. Simply discarding a data series because it correlates poorly with the criterion variable by itself may weaken the description of the hypersurface. All new tests should be evaluated with respect to how much they improve the predictability of the total aggregate of all tests being used routinely. Similarly a new test should not be added simply because it is moderately well correlated by itself with a criterion variable since it could prove to be largely redundant and would not contribute significantly to improved

equation in two variables. The graph of the function exists as a line in two dimensions which is also called 2-space. A function of one dependent variable and two independent variables is a surface. If the relationship is linear, the surface is a plane; if nonlinear, the surface is bent. The shape and position of the surface depends on the form of the function expressed as an equation in three variables. The graph of the function exists in three dimensions, also called 3-space. A function of one dependent variable and n independent variables ($n = 3$ or more) is a hypersurface in (n+1)-space. If linear, the hypersurface is a hyperplane in (n+1)-space; if nonlinear, it is a nonlinear hypersurface in (n+1)-space.

predictability.

The area of greatest need for the armed services appears to be in the development of good predictors of job performance, rather than training school performance. Other criterion variables would also be of value if they could be predicted accurately.

Approaches

The following approaches could be used by the services to develop improved testing and selection methods:

1. Establish the actual predictive power of the test batteries currently in use with respect to training school performance. This task could be performed in two phases: the first would establish the predictive power of the test battery data only; the second would use personal and biographical data about accessions to determine whether they increase the predictive power of an augmented data base, concentrating on data now available but not employed in the screening of accessions, especially to evaluate the utility of such data as medical records, age, sex, race, place of birth, locale of residence, et cetera.
2. Establish the predictive power of presently acquired data with respect to other criteria, especially job performance, but also for other variables, such as probable attrition, requirement for extra training, and possible disciplinary problems. Exactly the same procedures could be used for this task as would be used for school performance predictability.
3. Once a baseline of predictability has been established, all new tests aimed at improving predictability should be evaluated with respect to the baseline provided by current tests and procedures and not in isolation.

PROSPECTS FOR NEW METHODS

A wide variety of tests and procedures to improve aptitude and vocational tests have been studied both by military and civilian scientists. Also, other procedures for validation of tests have been examined. The following list of new prospects are not intended to be a comprehensive review of this subject but only show the range and potential for additional tests and procedures.

Measurement of Human Verbal and Nonverbal Information Handling Characteristics

With the development of the modern theory of information it was inevitable that tests of human information handling would eventually be made. Studies of human information handling range from perception studies to clinical studies of disturbed children, and they include the development of novel electronic testing devices that provide quantitative measures of human information handling characteristics.

The measure of information in a message is basically a measure of the amount of choice in that message. A message which describes something that is virtually a certainty or one which describes an impossibility contains no information, while a message which informs about the outcome of an event that could have happened in two or more ways contains some amount of information.

Any event or object, animate or inanimate, in the environment is potentially a source of information to a human being. The manner in which human beings handle or process information derived from the various information sources around them, the kinds of sources from which they will accept information, and the total amount of information processed are quite indicative of the way people behave or might behave.

The information content of a message for a machine is computed on the basis of the probability of the message, but human beings may not have knowledge of exact probability and they evaluate on the basis of their expectations about the matter and their needs at the moment. Information received by human beings serves a double function in that it can change expectations as well as serve as a guide to action.

These abstract notions about information have been translated into testing procedures in many different ways. For example, it has been found that normal human beings, barring emergency or crisis situations, tend to shift their attention from one potential environmental source of information to another, eventually covering most of the possible sources. This cycle of examining information sources goes on continuously. The amount of time spent on any one information source is more or less proportional to the amount of information potentially available from the source. Thus, most people tend to examine their surroundings very quickly on walking into a strange room. Once they have scanned the room, they generally spend very little further attention on static objects or objects that provide little or no new information. It has also been found in clinical studies that emotionally disturbed children tend to avoid some potential sources of information and that they may fixate or spend an undue amount of time on other sources. The relative amount of information gained about the environment by an individual, together with

the distortions in the normal process (sources avoided or fixated) constitute a quantitative basis for evaluating individuals. These findings appear to apply equally well to both verbal and nonverbal information processing.

Human nonverbal information processing has been extensively studied in control and tracking tasks. A Zero-Input Tracking Analyser (ZITA), devised by N. K. Walker, has been used in clinical studies of hyperkinetic children as well as for aptitude testing. The task complexity in Walker's device can be adjusted over a wide range, and the tracking scores for a set of tasks of different complexities has been shown to have a high correlation with performance on several different types of jobs. For example, the correlation with keypunching is very high ($r = .96$), and high correlations of certain composite ZITA scores with aircraft pilot skills, air traffic controller performance, and other demanding tasks have also been shown.⁶⁾ It would be an oversimplification to refer to analyser systems such as the ZITA as simply devices for measuring psychomotor ability since nonverbal decision making and other complex nonverbal information processes are involved in operating these devices.

Task Complexity Measurement

Since the ZITA has the capability of measuring performance over a range of task complexity, the possibility for empirically determining the complexity of various military service jobs exists. It appears quite possible to establish complexity measures for each job and to use the ZITA or a similar device to screen accessions on the basis of ability to handle jobs of given complexity. Since human beings are quite adaptable, most people can perform with some degree of proficiency at a wide variety of tasks, and a task complexity measure together with a measurement of the complexity of the tasks a given individual can handle routinely could be quite useful for screening and assignment of personnel.

Measurement of Performance Under Stress and Distraction

It has been found (as might be expected) that human information handling ability distorts under some degree of stress or distraction. The manner and degree of distortion are even more valuable for aptitude testing or job performance prediction. For example, the ZITA with an Added Distraction Task has been used in many studies which show that some groups of individuals (e. g., hyperkinetic children) do far less well on a tracking task when required to perform a second task at the same time, even though undistracted tracking performance may be in the normal range. Another group shows performance improvements when the distraction task is added. Top rated pilots and astronauts

show an interesting pattern of performance on the ZITA with added distraction. First, they appear not to be operating at peak capability on simple tasks but seem to maintain a reserve of information processing capability which they do not use. Second, they solve the problems introduced by increasing the task complexity in a very short period of time and continue to perform the tracking on the complex task about as well as they do on the simpler tasks. Third, when the distraction task is added, they usually solve the problem of how to handle the two tasks in optimal fashion almost immediately and they continue to perform the tracking tasks of varying complexity about as well as without the extra distraction task. By contrast, the average (normal) person may require several minutes to solve the problem of handling the tracking and the distraction task simultaneously and they show a degradation of performance with increasing task complexity. The ability to measure performance very precisely afforded by such electronic devices would undoubtedly improve the quality of job assignments for accessions.

Average Evoked Potentials (Brainwave Studies)

The electrochemical activity of the brain in response to changes in the environment can be observed by monitoring electrical potentials on the scalp. The signals obtained from an individual at rest with eyes closed generally follow certain well-defined patterns, and deviations from the usual patterns may indicate an abnormal condition in the brain tissues underlying or near to the electrodes that show disturbed patterns. The recorded brainwave signals are called an electroencephalogram and the machine used to take such recordings is called an electroencephalograph (or EEG machine).

Medical applications of the EEG require the subject to be at rest with eyes closed, and the medical EEG machine cannot be used without modification for the more complex and detailed recordings of scalp potentials needed to infer characteristics of individuals. The necessary modifications include changing the pickup electrodes, which convey the signals from the scalp to the EEG machine, and computerizing the signal processing. Medical electrodes are usually needles (which are inserted just below the skin), and the research devices require a rosette of electrodes arranged in a small circle so that the direction that the brainwave travels across the scalp can be determined as well as the magnitude of the signal at the point. Also, a stimulus source, such as a flashing light or audible click, must be added to the system. With such a modified machine (which, at present, is fairly expensive and generally not suited to mass testing) it is possible to obtain the average electrical response of the brain to repeated stimuli (flashes or clicks). These signals are called average evoked potentials (AEP's). The shape, direction and time sequences of AEP's recorded simultaneously for

for many points on the scalp provide information relevant to emotional and esthetic characteristics of the way human beings transform information, according to Dr. Manfred Clynes, a researcher in the field. 8)

From the systems theory point of view, AEP's are of value because they represent the response of the brain to an input of a type which has traditionally been used to infer the state variables of linear systems; The state variables, as is discussed in Appendix A, are directly relevant to prediction of future behavior of a system.

Variation on Accession Test Conditions (to Improve the Performance of Minorities)

Aside from possible new tests that could improve predictability, it is possible to alter the conditions under which accessions are tested and trained in such manner as to improve performance, especially for minorities. Research done in the 1960s provided support for the popularly accepted idea that one's attitude influences one's performance.^{9, 10} In some experimental designs, teachers were told that certain students were intellectually dull and others very capable. Teachers treated the students according to the information provided and the academic performance of the students matched teacher expectation. It was significantly at variance with the performance usually expected from students according to the intelligence quotients which the test scores indicate.

Other research concentrated on the locus of control concept, developed by Epps and others in Michigan.¹¹ According to the concept individuals whose experience supports the belief that their own efforts influence the response of the environment (such as grades or promotions) perform in a consistently superior manner. Those who believe that their own behavior has negligible effect on the rewards accorded them perform erratically and exert less effort.

Members of minority groups who are eighteen years or older have been generally subjected to both low expectations by others and environmental feedback informing them that their behavior had negligible effect on the dispensing of external rewards. Individuals in a highly structured setting with rewards and expectations scheduled to coincide with specific behaviors do demonstrate changed behavior outside the experimental situation coincident to the experimental conditions. These changed behaviors are congruent with the experimental hypothesis of changed behaviors.

Minority accessions, prior to testing, could be bombarded with success expectations and identity influence environment by skillful recruiters on an individual and group basis. Specific desirable behaviors of recruiters to improve success orientation of minority accessions could be described and

taught to the recruiters. Implementation of this program could be evaluated by comparison of the "success expectation" accessions scores with scores and accessions tested without the "success" conditions. To determine the ultimate value to the services, the "success" groups should be monitored in training classes and subsequently in jobs.

Operational Aspects of Possible New Methods

The services are already using written test batteries and new batteries would not evoke any significant changes in current procedures. The only variable which might influence budgets would be an extension of the time to take the tests. A very large number of psychological tests have been developed in the professional community and validated, but only a few appear to have much potential. The only satisfactory method of validating these tests for the services is to establish the predictive power of the current tests, and then compare this with the predictive power of the total battery with the candidate test added.

Physical performance tests would require changes in current testing procedures and could potentially increase the cost of acquiring data on accessions by a significant budgetary amount. Physical performance tests generally require one tester to a small group of testees, sometimes one-to-one, whereas written tests can be administered in a large group. If machine grading of physical performance tests is used, the number of testers would be reduced but both the research and development costs of the machines and the inventory of testing equipment would require exceedingly great effectiveness in order to justify the investment. A single performance test is unlikely to give an adequate measure of the potential of the accession for a wide range of jobs. A battery of such tests would require extensive validation. Whether they would yield significantly more information or be afflicted by less bias is unknown.

Direct human performance tests in which the testee is given limited instructions on how to perform a part of a job and is then tested is a variation of physical performance testing and is characterized by the same problems. Direct human performance testing is further subject to a learning curve so that slow learners are handicapped. It is well-known that job performance in many fields is not highly correlated with quickness to learn, other factors in the long run being more important. It might therefore be impossible to validate direct human performance tests if administered at a recruiting station.

"Success" groups do not lend themselves at all to the mass testing environment because they require special skills; however, the "success" teams might be effective as roving recruiters coupled with an adequate public service promotion campaign through the minority oriented media.

Systems methods in which human information capability is measured resembles physical performance testing in a superficial way in that a physical test is usually involved and machines are often required. However, the machines needed can be relatively inexpensive and can be devised to work automatically and to give a direct read-out of the score. They can be supplements to paper and pencil tests demanding only slight changes in operating procedures and a one-time expenditure for the necessary machine inventory. The benefits derived can be particularly significant because the machines can be devised to cover a wide range of performance challenge and therefore provide measures of information handling capacity over a wide range of system complexity under varying degrees of stress. There is a real potential that ultimately such tests might replace many of the current battery of tests and represent both a saving in testing time and effort and improved prediction.

The modified EEG machine which provides AEP's might ultimately replace almost all other forms of testing; but they are quite unsuitable to mass testing, are very expensive, and demand highly trained operators. Much research and a high degree of automation will be required before this approach can seriously be considered for accessions testing.

RECOMMENDATIONS

The recommendations of this study address themselves to practical efforts which the services might adopt in order to improve the selection of accessions, combat bias in the selections, and better serve the service objectives of efficient manpower utilization.

The major recommendation relates to Hobar's finding that the validity problem of the test batteries is not ascribable to the individual tests in the battery but rather to the method of validation. The major recommendation is to undertake a complete validation base line study using the data in service files prior to embarking on any further test development or on the exploration of any exotic tests.

The second recommendation is that the services voluntarily adopt the standards of validation in Title 4 of the Code of Federal Regulations (U. S. Department of Labor 1971) as an objective, leaving open the time at which it would become effective because it may not be possible in all cases to comply. The justification for this step lies in the expected cost savings to be achieved.

In more detailed terms the recommendations of this study are as follows:

1. The services should strive toward the use of selectors with validities meeting the one to twenty chance occurrence probability.

2. A study should be conducted to determine the true predictive power of existing test batteries, together with medical, biographical and personal data now routinely collected. This study must employ a general, nonlinear prediction technique. The study should be restricted to the ASVAB since it will shortly become the standard service test.
3. The criterion variable used in the first phase of the recommended study should be training school scores, as is the case presently. A subsequent phase of the study should explore the predictability of other criterion variables, such as job ratings, attrition, disciplinary problems, and possible needs for additional training. These studies would provide a reliable quantitative basis for establishing either the sufficiency of current tests and data or the needs for additional data. As a side benefit, these studies would produce approximations to the general nonlinear selectors suitable for field use.
4. Where the predictive power of the ASVAB and other data fall short of the full validity standards, additional data items can be incorporated into the prediction function (such as that provided by other test batteries and biographical data) and the increase in predictive power afforded by the new items checked to determine whether the predictive validity of the augmented selectors meets desired standards. The general nonlinear predictors can be analyzed to determine which of the data items and test battery components add significantly to the predictive power of the function and which do not. If a given test in the ASVAB adds nothing of value to the prediction of any service job, it can and should be dropped from use.
5. For those service jobs where the maximum predictive power attainable is still unsatisfactory, novel instruments and less conventional tests or devices should then be examined. Validation procedures should employ all old data plus new data as described above. Once requisite validities have been achieved, the novel methods or tests required to reach this level should be standardized and added to current ones.

These recommendations are consistent with the guidelines used in this study. If the study recommended here is carried out, the services should have a comprehensive accessions job selection process which is (a) substantially less biased than the present process, (b) more reliable for job selection, and (c) feasible to be administered by paraprofessionals within current budget levels.

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WORKING PAPER
Not official position of Commission

ECONOMETRIC ANALYSES OF ENLISTMENT

BEHAVIOR

by

David W. Grissmer
General Research Corporation

Alan E. Fechter

prepared for the
Defense Manpower Commission

April 1976

CONTENTS (DMC EDITORIAL NOTE)

The General Research Corporation contract study
was conducted in two parts:

1. The Supply of Enlisted Volunteers in the Post-Draft Environment (An Analysis Based on Monthly Data, 1970-75), by David W. Grissmer. An EXECUTIVE SUMMARY provided by the contractor is attached (marked as J-1).
2. The Supply of Enlisted Volunteers in the Post-Draft Environment (An Evaluation Based on Pre-1972 Experience), by Alan E. Fechter. The contract study is attached as the second paper (marked as J-2).

WORKING PAPER
Not official position of Commission

February 1976

(EXECUTIVE SUMMARY)

THE SUPPLY OF ENLISTED VOLUNTEERS IN THE POST-DRAFT ENVIRONMENT

(An Analysis Based on Monthly Data, 1970-1975)

David W. Grissmer

The author is Director of the Policy Analysis Department, General Research Corporation. The research reported in this paper was funded mainly by the Defense Manpower Commission, with additional support provided by the Office of Naval Research and the Department of Defense (Assistant Secretary of Defense, Manpower and Reserve Affairs). The author would like to acknowledge the valuable insights of his colleague, Lawrence Goldberg, the research support of Dorothy Amey and Geraldine Sica, and the secretarial support of Bonnie Burwitz and Ruby Stokes.

J-1

EXECUTIVE SUMMARY

In assessing the feasibility of an all-volunteer force, the Gates Commission concluded that pay increases to first-term enlistees aimed at eliminating the conscription tax would also be sufficient to eliminate the draft. This conclusion was based in part on extensive econometric analysis of enlistment and reenlistment supply behavior. These analyses produced an estimated military pay elasticity of 1.25 and an assumed employment rate elasticity of the same magnitude (Gilman, 1970). Many of the Gates Commission recommendations have been implemented, and the draft was eliminated as a source of manpower procurement in 1973. The all-volunteer force is now a reality which suggests that the Gates Commission estimates may have been accurate. Nevertheless, these estimated elasticities were generated from data that reflected the existence of the draft and an unpopular war in Southeast Asia. It is possible that the shift from the draft to a no-draft environment and the shift from an environment of hostility to an environment of peace could have combined to produce significant changes in the parameters of the enlistment supply function. If so, then it is further possible that these changes will have important implications for assessing the future sustainability of the all-volunteer armed force.

The objective of this study is to evaluate the validity of the Gates Commission estimates of military pay and unemployment rate elasticities as potential planning factors for use in developing policies to sustain the all-volunteer armed force. It is also to evaluate the degree to which estimates from models using data since the start of the lottery (1970) agree with longer time series models (1953-1972).

Review of past literature reveals that most studies were able to identify a significant relationship between military pay and enlistments, but were unable to identify a statistically significant relationship between unemployment rates and enlistments. With current unemployment rates approaching 9 percent, it is important in looking at the future of the all-volunteer force to assess the impact this high unemployment is having on enlistment supply. Thus, much of our effort in this study is directed at developing a reliable estimate of the effect of unemployment on enlistment behavior.

Our research consists of two parts: (1) estimation of the parameters of enlistment models using quarterly data on total Army enlistments in Mental Categories I-III for the sample period 1958-1972, and generation of projected quarterly enlistments from these parameters for 1973-1974; and (2) estimation of the parameters of enlistment models using monthly data on voluntary enlistments by Service and level of school completed in Mental Categories I-II, III, and I-III for the sample period 1970-1975. The former analysis using a quarterly data base constitutes an evaluation of the stability of the Gates Commission estimates in two ways: (1) by estimating the parameters of the enlistment supply function over a longer time period (the Gates Commission estimates were generated from a data base that ended in 1968), and (2) by using these parameters to generate predicted enlistments in the post-draft, post-Vietnam era and by comparing them to actual enlistments. The latter analysis using a monthly data base constitutes an evaluation of the stability of the Gates Commission parameters by estimating them from a more recent sample period and by estimating them for voluntary enlistment behavior (the Gates Commission data included draft-motivated enlistments).

Summary of Findings

Based on our quarterly data base, we find the following:

1. Our "best" estimates of military pay elasticities range between 1.1 and 1.2, remarkably close to the earlier Gates Commission estimates.
2. Our estimates of civilian pay elasticities generally exceed (in absolute value) our estimates of military pay elasticities.
3. Our estimates of cash pay elasticities with respect to military pay exceed our estimates of in-kind elasticities.
4. Our "best" estimates of employment rate elasticities range upward from 1.4, but they are neither very robust nor very reliable.

5. The "best" employment rate results are produced by an unemployment rate variable that has essentially been deseasonalized through an averaging process.

6. School enrollment status is a significant determinant of enlistments; our findings suggest that the long-run propensity to enlist on the part of enrollees is significantly lower than the long-run enlistment propensities of nonenrollees.

7. Race is a significant enlistment determinant; our findings suggest that blacks have lower enlistment rates than do non-blacks — however, this racial difference is probably due to racial differences in disqualification rates and are eliminated or reversed once one has accounted for them.

8. Our models generally underpredict enlistment experience in 1973-1974; "best" models are frequently within 10 percent of actual experience in terms of average forecasting error, and are within 16 percent in terms of the root mean squared error.

9. Forecasting performance of these models should be taken with a grain of salt because of quotas imposed by the Army on non-high school graduate enlistments in 1973 and not taken into account in the forecasting models; accounting for these quotas would improve forecasting performance measured by the root mean squared error and would weaken model performance measured by average forecasting error.

Based on our monthly data base, we find the following:

I. For Army enlistees in Mental Categories I-III:

1. Estimates of relative military pay elasticities of around 1.4.
2. Estimates of civilian pay elasticities that exceed (in absolute value) military pay elasticities.

3. A significantly different pay elasticity for black and white enlistees of similar mental category and educational status. For black CAT 1-3 high school graduate enlistment, pay elasticities are greater than 3.5 whereas for a similar non-black group, pay elasticities are around .9.

4. Estimates of employment rate elasticities that average around 1.5 and are more reliable and robust than those estimated from the quarterly data base.

5. Quotas imposed by the Army on enlistments of non-high school graduates in early 1973 acted to reduce significantly the number of Army enlistments in Mental Categories I-III.

6. A comparison of the quarterly time series relative pay elasticity measurement with the time series measurement for CAT I-III Army enlistee shows a significant difference. For the quarterly series, the average relative pay elasticity is 0.8 while for the time series, the best estimate is 1.4. For the quarterly models that provide the best forecast, the agreement between the models is improved.

II. For enlistees classified by Service, mental category, and level of school completed:

1. Military pay elasticities for Army and Air Force enlistees tend to be highest for enlistees with the lowest amount of skill (measured in terms of mental category and level of school completed).
2. Navy pay elasticities suggest that there may have been a quota policy for non-high school graduates during this period.
3. Marine Corps pay elasticities are highest for non-high school graduates.
4. Civilian pay elasticities exceed (in absolute value) military pay elasticities for Army high school graduates in Mental Category III and for Army non-high school graduates in Mental Categories I-II.
5. Employment rate elasticities for high school graduates are most reliable, and range upward from 2.0.
6. Employment rate elasticities for non-high school graduates frequently have the "wrong" sign. This wrong sign can be interpreted in terms of substitution effects. When a greater number of high quality volunteers are available due to high unemployment, the services restrict lower quality enlistees.
7. Employment rate elasticities for Marine Corps high school graduates are unusually high, averaging around 5.0!
8. Employment rate elasticities for non-black Army enlistees who are high school graduates in Mental Categories I-III are reliable and have the "right" sign, whereas employment rate elasticities for comparable black enlistees have the "wrong" sign.

Conclusions

1. Enlistment supply parameters used by the Gates Commission are still valid. The Gates Commission used a pay elasticity of 1.25; our best estimate of pay elasticity range between 1.1 and 1.2 for one data base based on choosing models based on minimum forecasted error, and around 1.3 - 1.4 from the other data base. However, a comparison of pay elasticities from relative pay models of the quarterly time series and monthly time series shows a wider variance. The quarterly time series relative pay elasticities from all models is around .8, while the monthly time series best estimate is 1.3 - 1.4 for CAT I-III Army enlistees.

2. Employment rate elasticities from the monthly time series models show strong significance and the predicted sign for the upper quality enlistees, and strong significance and the wrong sign for lower quality enlistees. This is interpreted in terms of a substitution effect whereby during periods of higher unemployment, services accept more higher quality enlistees and restrict enlistees of lower quality. Unemployment rate elasticities from DoD CAT I-III high school graduate enlistees is .3 - .4.

3. A problem that has persisted in enlistment supply analyses is the identification of supply and demand limited groups. The method of disaggregation of enlistment by race, mental category, and educational level used in the monthly time series analysis produces changes in value of R^2 and the D-S statistics which enables the identification of supply and demand limited groups.

4. Other things equal, a policy that strives to maintain a stable ratio of military to civilian pay may result in declines in enlistments. Our evidence of higher absolute values for our civilian pay elasticities (compared to our military pay elasticities) suggests that equiproportionate changes in military and civilian pay will result in declining enlistments.

5. The notion that cash pay is more efficient as a recruiting device than in-kind pay is not refuted by the evidence of higher cash pay elasticities reported here; however, it is also not confirmed by the evidence. Empirical and analytic problems in estimating in-kind pay require us to caution the reader to use these findings with caution.

6. The sensitivity of our findings, particularly in the lower levels of educational attainment and mental categories, to quote policy suggests that future enlistment behavior should be conditions to such policy. More research is recommended to refine the enlistment supply models so that they take such policies into account in estimating enlistment supply parameters.

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THE SUPPLY OF ENLISTED VOLUNTEERS IN THE POST-DRAFT ENVIRONMENT
(An Evaluation Based on Pre-1972 Experience)

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I. INTRODUCTION

In assessing the feasibility of an all-volunteer force, the Gates Commission concluded that pay increases to first-term enlistees aimed at eliminating the conscription tax would also be sufficient to eliminate the draft. This conclusion was based in part on extensive econometric analysis of enlistment and reenlistment supply behavior. These analyses produced an estimated military pay elasticity of 1.25 and an assumed employment rate elasticity of the same magnitude (Gilman, 1970). Many of the Gates Commission recommendations have been implemented and the draft was eliminated as a source of manpower procurement in 1973. Experience since that time suggests that the estimates of the Gates Commission have held up rather well. Nevertheless, these estimated elasticities were generated from data that reflected the existence of the draft and an unpopular war in Southeast Asia. It is possible that the shift from the draft to a no-draft environment and the shift from an environment of hostility to an environment of peace could have combined to produce significant changes in the parameters of the enlistment supply function. If so, then it is further possible that these changes will have important implications for assessing the future sustainability of an all-volunteer armed force.

The objective of this study is to evaluate the validity of the Gates Commission estimates of military pay and unemployment rate elasticities for use in developing future policies to sustain the all-volunteer armed force. Since little systematic econometric modeling of enlistment supply behavior has been done since the Gates Commission study, this paper constitutes an update of these findings.

Review of past literature reveals that most studies were able to identify a significant relationship between military pay and enlistments, but were unable to identify a statistically significant relationship between unemployment rates and enlistments (Fechter and Grissmer, 1976). Thus, much of the effort in this study is directed at developing a reliable estimate of the effect of unemployment on enlistment behavior. Moreover, since the Army is expected to have the most serious problem in sustaining an all-volunteer armed force, the effort is further concentrated on evaluating alternative enlistments for the Army.

The research consists of the estimation of the parameters of enlistment models using quarterly data for the sample period 1958-1972, and generation of projected quarterly enlistments from the parameters for 1973-1974. The quarterly analysis constitutes an evaluation of the stability of the Gates Commission estimates in two ways: (1) by estimating the parameters of the enlistment supply function over a longer time period (the Gates Commission estimates were generated from a data base that ended in 1968), and (2) by using these parameters to generate predicted enlistments in the post-draft, post-Vietnam era to compare to actual enlistment experience.

Based on the quarterly analysis, I find military pay elasticities ranging between 0.8 and 1.6 produced by the models that forecast enlistment behavior most accurately. The modal elasticity ranged between 1.1 and 1.2, somewhat lower than the Gates Commission estimate of 1.25. I also find that absolute pay models of enlistment behavior produce higher military pay elasticities and better enlistment forecasts than relative pay models. Finally, I find that models which assume no seasonal factors produce better enlistment forecasts than models which assume independent seasonal influences.

My analysis of the effects of employment conditions using the quarterly data base is less successful. Few of the models experimented with produce employment rate parameters that have the theoretically expected sign and are statistically significant. Moreover, the estimated elasticity of enlistments with respect to employment rates in the more successful models generally exceed (in absolute terms) the elasticity of enlistments with respect to military pay, suggesting that potential enlistees value the certainty of their employment prospects in the military over the uncertainty they face in civilian labor markets even if the expected value of military and civilian pay are equal.

I also find that school attendance is an important factor affecting enlistment rates. Other things equal, school enrollees have lower long-run enlistment propensities than non-school enrollees. Based on the parameter of our school enrollment variable, I conclude that enrollees had enlistment rates that are approximately two to nine per thousand lower than non-enrollees. I also find that blacks have lower enlistment rates than non-blacks and I speculate that much of this observed racial differential reflects differences in disqualification rates between blacks and non-blacks.

In addition, I find that pay elasticities are sensitive to the method of estimating eligible enlistees. In general, elasticities are higher when the estimate of eligibles accounts for the likelihood of being physically disqualified from enlisting. I am not able to come to any definitive conclusion about the relative efficacy of cash vs. in-kind pay, principally because of an insufficient amount of variation in in-kind pay. I am able to identify a statistically significant positive cash pay parameter; however, the in-kind pay parameter is frequently negative and close to being

statistically significant. The lack of variability in the in-kind pay variable prevents me from drawing the inference that cash pay is a more effective recruiting vehicle than in-kind pay. Rather, I conclude that the evidence does not imply that cash pay is a less efficient recruiting mechanism than in-kind pay.

II. RESULTS USING THE QUARTERLY TIME SERIES DATA BASE

A quarterly time series data base extending from the first quarter of calendar year 1958 (1:58) through the second quarter of 1974 (2:74) was constructed to evaluate the performance of alternative combinations of model assumptions, estimates of variables, and periods of analysis. This section of the paper discusses supply parameters for Army enlistees in Mental Categories I-III generated by quarterly data for the period 2:58-4:72. The analysis is limited to Army enlistees in these mental categories because they were most likely to be supply determined (since the Army had to resort to conscription during this period). The estimating equation is a logit function:

$$\ln \left(\frac{e_t}{1-e_t} \right) = \alpha_0 + \sum_{i=1}^n \alpha_i X_{it} + v_t,$$

where e_t is the enlistment rate in quarter t , X_{it} is the value of independent variable X in quarter t and v_t is the error term (assumed to have the usual stochastic properties).

The supply parameters are then used to generate estimates of predicted enlistments for the period 1:73-2:74, six quarters. These predicted enlistments are then compared to actual enlistments for those six quarters in order to assess the forecasting accuracy of enlistment supply models whose parameters were estimated from data that reflect the existence of conscription and a war in Southeast Asia.

Models Tested

The basic model assumes enlistments are a function of military pay (M), civilian pay (C), the probability of being drafted (DP), the probability of employment for those who do not enlist (EMP), an index of the actual conflict in Southeast Asia (CAS), index of international tension (BERLIN), and seasonal variables (SII, SIII, and SIV). This is the model used by Fichter (1972). These variables are estimated using exactly the same techniques as those used by Fichter (1972). Twelve variants of this basic model are explored. These variants examine the effects of alternative ways of specifying the pay variables, alternative assumptions about the speed of adjustment to changes in enlistment determinants, and alternative assumptions about the seasonal determinants of enlistments.

Alternative ways of specifying the pay variables are attempts to evaluate the assumption of symmetry in enlistment response to given changes in M and C. Recall that earlier the validity of this assumption, implicit in most enlistment models, was questioned. To test the symmetry assumption, alternative equations are estimated: one set of equations relates enlistment rates to changes in relative military pay (M/C); another set of equations relates enlistments to real values of M and C. The former equations are called the "relative pay models." The relative pay models are based on the assumption of symmetry of enlistment response to pay changes; the absolute pay models are not constrained to this assumption.¹

Alternative assumptions about the speed of supply adjustment include: (1) adjustment to changes in enlistment determinants occurs within one period, and (2) adjustment to these changes takes more than one period. Most enlistment models have assumed adjustment occurs within one period. To test the alternative assumptions about the speed of adjustment, two

sets of equations are estimated: one set of equations includes the enlistment rate lagged one quarter as an independent enlistment determinant; the other set does not include this variable. The former equations are called the "dynamic models," the latter equations are called the "static models."²

Alternative assumptions about seasonal determinants of enlistments include: (1) there is a stable seasonal pattern in enlistment behavior that cannot be explained by any of the other variables included in the enlistment function, (2) the seasonal pattern in enlistment simply reflects the seasonal pattern of the variables of the enlistment function, and (3) the seasonal pattern in enlistments reflects seasonal patterns in school enrollments and a particular seasonal factor associated with the Christmas and New Year holidays in late December.³ Most of the earlier time series models adopt the first assumption. Klotz (1970) experimented with the second assumption. The third assumption is newly introduced in this study. To test these seasonality assumptions, alternative sets of equations are estimated: one set of equations includes the standard quarterly dummy variables; a second set of equations totally excludes seasonal variables; a third set of equations includes a seasonal dummy for the first quarter and a school enrollment rate that is assumed equal to zero in the third quarter and equal to the October enrollment rate in the three subsequent quarters. The first equations are called the "seasonal models;" the second equations are called the "no-seasonal models;" the third equations are called the "alternative-seasonal models."

The 12 estimating equations are summarized below and classified by equation numbers:

<u>Equation Number</u>	<u>Model</u>
1RS	Static, relative pay, seasonal
1R	Static, relative pay, no-seasonal
2RS	Dynamic, relative pay, seasonal
2R	Dynamic, relative pay, no-seasonal
1AS	Static, absolute pay, seasonal
1A	Static, absolute pay, no-seasonal
2AS	Dynamic, absolute pay, seasonal
2A	Dynamic, absolute pay, no-seasonal
1RS'	Static, relative pay, alternative seasonal
2RS'	Dynamic, relative pay, alternative seasonal
1AS'	Static, absolute pay, alternative seasonal
2AS'	Dynamic, absolute pay, alternative seasonal

In addition to the basic model, hereafter referred to as Model I, several other models were tested. Fisher, Klots, and Kim, et al., use values of EMP that are lagged one quarter in their estimating equations in order to minimize the adverse effects of simultaneous equations bias.⁴ Model II replicates this experiment on the Fechter model. In addition, Model II lags DP and CAS one quarter.

Model III is an experiment on an alternative expectations hypothesis. It can be argued that enlistment decisions are made on the basis of expectations extending over the period of the enlistment contract. In the Army, this is usually a three-year period. It can also be argued that, for variables that display highly volatile behavior (such as DP and EMP), current values or values that are lagged one quarter are poor approximations of these expectations. Model III uses an adaptive expectations hypothesis to estimate DP and EMP. This hypothesis assumes that future expectations

are adjusted according to past error in expectations. Given these assumptions, EMP and DP can be expressed as weighted averages of their lagged values, where the weights decline as the lag increases.⁵

Model IV is the same as Model III, only the school enrollment rate of males, 17-20 is added as an independent variable. Other things equal, potential enlistees who are enrolled in school may have lower enlistment propensities than potential enlistees who are not because of their superior long-run employment opportunities in civilian labor markets. If this is so, then there should be an inverse relationship between enlistment rates and school enrollment rates. Moreover, because of the highly seasonal nature of school enrollments one can also expect to find some interaction between the seasonal factors and the school enrollment rate.

Model V adds the proportion of the eligible population that is black to Model III as an independent variable to test for the existence of racial differentials in enlistment behavior. This particular formulation assumes that the effects of race are fully captured by the intercept of the estimating equation and that there are no interaction effects between race and the other independent variables in the equation.

Model VI modifies Model V by adjusting the civilian male population for those who do not qualify for the military for physical and/or administrative reasons.⁶ Recall that the findings of earlier studies were sensitive to how the eligible population was specified. Cross section studies using eligible populations tended to produce lower pay elasticities; the time series study of Kim, et al. (1971), using a 1A population with a larger age range produced higher pay elasticities. The disqualification rates used in this analysis were those from pre-induction examinations.

Data for these rates are available on a continuous basis starting in 1:65. I therefore limited my analysis of this model to the period 1:65-4:72. A second area of noncomparability between the analysis of Model VI and that of the earlier models is in the method used to estimate EMP. EMP is estimated in Model VI as the current employment rate of males, age 20-24. I adjust for the differences in periods of analysis by estimating two equations: one without adjustments for disqualification and one with adjustment for disqualification. A crude estimate of the effect of differences in periods of analysis can be derived by comparing the results of the first equation to the results generated by Model I.⁷ Estimates of the effects of adjusting the population for those who are disqualified can be derived by comparing the results of the first equation to the results of the second equation. Comparisons of the results of the second equation with the results of the other models will be crude estimates of the effect of adjusting population for disqualification rates because they are not standardized for differences in estimates of EMP.

Model VII tests the assumption that the effect of a dollar of cash income is equal to the effect of a dollar of income received in-kind. The variable M is decomposed into two components: cash income (M1) and income-in-kind (M2). Estimating equations are fit to the absolute pay models: one set in which enlistment rates are related to M1 only, and one set in which enlistments are related to M1 and M2. A problem in interpreting the results of Model VII arises because M2 is estimated on the basis of the allowances provided for subsistence and housing. Ideally, one would like to have had an estimate of M2 based on the actual market value of these commodities. The results summarized below for this model are those generated by the estimating equation that includes both M1 and M2.

The results of 66 combinations of models and model variants are summarized below. Particular findings reported include: (1) estimates of military pay elasticities, (2) estimates of employment rate elasticities, (3) estimates of forecasting performance based on 1973-1974 experience, and (4) a ranking of the "best" models (based on their forecasting performance).

Pay Elasticities

Table 1 summarizes estimates of military pay elasticities generated by these studies.⁸ Military pay elasticities are estimated from regression coefficients that are statistically significant in 55 of the 66 cases summarized. The elasticities range in value from 0.64 to 1.78. They are higher in the absolute pay models than in the relative pay models. Moreover, although not summarized here, the elasticities of the civilian pay variables in these models are consistently higher (in absolute value) than the elasticities of the military pay variables by magnitudes ranging upward from one-third.

The effect of adding school enrollment to the estimating equation may be derived by comparing the elasticities generated by Model IV to those generated by Model III. Inspection of Table 1 reveals that addition of the school enrollment rate did not dramatically alter the military pay elasticities.

The effect of adding race to the estimating equation can be derived by comparing the elasticities generated by Model V to those generated by Model III. Inclusion of the race variable raises the military pay elasticities by about 0.3. The coefficient of the race variable is significantly negative in all equations. This negative coefficient suggests that, other things equal, the propensity to enlist from the black population is

Table 1
SUMMARY OF MILITARY PAY ELASTICITIES, ARMY ENLISTMENTS, RENTAL CATEGORIES I-III, 1959-1972

Equation number	Model						
	No lag I	One quarter lag II	Adaptive expectations III	School IV	Race V	Qualified eligibles race VI	Pay components VII
1RS	.88	.72	.72	.73	1.07	1.54	
1R	.88	.64	.77	.77	1.03	1.57	
2RS	1.47	.85 ^a	.75 ^a	.75 ^a	1.12 ^a	1.42	
2R	.92	.64 ^a	.69 ^a	.79 ^a	1.13 ^b	1.65 ^b	
1AS	1.06	.93	1.14	1.13	1.26	1.67	1.57
1A	1.07	.84	1.12	1.15	1.23	1.71	1.67
2AS	1.40	.98	1.09 ^a	1.10	1.26	1.58	1.65 ^a
2A	1.20 ^b	1.04 ^b	1.50 ^b	1.25 ^b	1.68 ^b	1.78 ^b	2.21 ^b
1RS'				.73	1.06	1.59	
2RS'				.72 ^a	1.03 ^a	1.47	
1AS'				1.11	1.24	1.71	1.52
2AS'				1.02	1.18	1.61	1.50 ^a

^at-statistic < 2.0.

^bAssumes instantaneous adjustment because coefficient of lagged endogenous variable had "wrong" sign.

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lower than the propensity to enlist of the white population. In part, this probably reflects the differential in disqualification rates between blacks and whites.

The joint effect of adding race to the estimating equation and of adjusting the estimated enlistment rate to reflect only qualified potential enlistees may be derived by comparing the pay elasticities generated by Model VI to the pay elasticities generated by Model III. The partial effect of adjusting the enlistment rate for ineligible may be derived by comparing the pay elasticities generated by Model VI to the pay elasticities generated by Model V. However, as I noted earlier, there is an element of noncomparability between Model VI and Models III and V, respectively, in sample periods. Direct comparison between Model VI and Model V suggests that adjusting the enlistment rate raises the elasticity substantially. Comparison of elasticities generated by Models V and VI, holding the period of analysis constant, reveals that differences in sample period do not affect the elasticities generated by Model V. Thus the joint effects of race and eligibility add about 0.4-0.8 to the estimated pay elasticity. Moreover, further analysis reveals the adjusting for eligibility reduces the effects of race substantially. The race coefficient is never statistically significant -- and it is positive in seven of the 12 equations. A positive coefficient suggests that, other things equal, eligible blacks have a higher propensity to enlist than eligible whites.

The effect of decomposing military pay into cash and in-kind components may be crudely derived by comparing the pay elasticities generated by Model VII to those generated by Model III. Decomposing military pay into its components raises the elasticity of the cash component by 0.4-0.7. The coefficient of M2 is never statistically significant, but consistently has

a negative sign. One is tempted to leap from the evidence to the conclusion that cash pay is more effective as a recruiting mechanism than in-kind pay. However, a number of factors prevent us from making that leap. First, there was a limited amount of variation in M2 over this period.⁹ Thus, failure to identify a statistically significant effect can be attributable to lack of sufficient variation in M2. Second, the measure of M2 used in this analysis was the value of allowances for subsistence and quarters plus the tax advantage on these allowances deflated by the Consumer Price Index (to express M2 in real terms). These allowances are not adequate measures of the market value of subsistence and quarters. It is entirely possible that a more appropriate procedure would be to inflate the nominal value of M2 to reflect rising prices. (This would be appropriate if the allowances rose more slowly than the relevant components of the CPI.) For these reasons, the results of this analysis must be taken with a grain of salt. Dropping M2 from Model VII lowers the estimated pay elasticities of M1 to about the level of those reported for total pay in Model III.

Employment Rate Elasticities

Table 2 summarizes the estimates of the employment rate elasticities generated by the 66 equations. Marginally significant coefficients are generated by only seven equations.¹⁰ Thirty-six of the equations produced coefficients of EMP that had the "wrong" sign (i.e., positive coefficients). The range of employment rate elasticities estimated from those coefficients that had the "right" sign was -0.1 to -2.8. The range estimated from those coefficients that were found to be marginally significant was -1.4 to -2.6. Models which account for simultaneity by lagging EMP one quarter (Model III) and which formulate a long-run expectation of EMP using the adaptive expectations hypothesis (Model III) perform better than the alternative models.

Table 2
SUMMARY OF EMPLOYMENT RATE ELASTICITIES, ARMY ENLISTMENTS, MENIAL CATEGORIES I-III, 1958-1972

Equation number	Model						
	No lag I	One quarter lag II	Adaptive expectations III	School IV	Race V	Qualified eligibles race VI	Pay components VII
1RS	a	-0.06 ^b	-0.01	-0.13 ^b	a	a	a
1R	a	-1.41	-2.57	-2.22	a	a	a
2RS	a	-1.54 ^b	-1.15 ^b	-2.20 ^b	a	-2.52 ^b	a
2R	a	-1.52 ^c	-2.59	a	-2.28 ^b	a	a
1AS	a	a	a	a	a	-2.2 ^b	a
1A	a	-0.90 ^b	-2.08	a	-1.96 ^b	a	-1.77 ^b
2AS	a	-0.30 ^b	a	a	a	-2.80 ^b	a
2A	a	-0.34 ^{b,c}	-1.50 ^c	a	-1.28 ^{b,c}	a	-1.06 ^{b,c}
1RS'				a	a	a	a
2RS'				-0.84 ^b	-0.40 ^b	-1.23 ^b	a
1AS'				a	a	a	a
2AS'				-0.20 ^b	a	-1.44 ^b	-0.11 ^b

^aRegression coefficient has the "wrong" sign.

^bt-statistic > -1.3.

^cAssumes instantaneous adjustment because coefficient of lagged endogenous variable had "wrong" sign.

However, even these models do not produce reliable results. The best results are generated by Model III, which produces three marginally significant coefficients out of the eight equations reported.

One can only speculate about the reasons for the poor performance summarized in Table 2, but an important possibility would be simultaneous equations bias in this coefficient estimated using ordinary least-squares techniques. Analysis of the intra-year variation in EMP reveals a seasonal high in the third quarter, when enlistments also tend to be high. It also reveals that EMP rose dramatically in 1965-1966 and remained at higher levels thereafter. This inter-year increase in EMP coincides with higher enlistment levels that accompanied our involvement in Southeast Asia. This evidence suggests that the causality may have run from enlistments to EMP (i.e., that EMP was an endogenous variable) during this period. Use of lags and adaptive expectations seems to reduce the problem of simultaneity arising from intra-year variation in EMP; however, the problem arising from inter-year variation remains.

Picking the "Best" Model

Selecting the "best" results for policy purposes is a difficult task — largely because it is an arbitrary decision. There are many factors one can consider in making the selection: the conformity of the results to theoretical expectations, the goodness of fit of the estimating equation; the forecasting accuracy of the estimating equation, etc. The factor considered in this study was the forecasting accuracy of the estimation equation. Table 3 summarizes the forecasting accuracy of the 66 equations for the six quarters beginning with 1:73 and ending with 2:74. Two measures of accuracy are displayed — the root mean square error and the mean error. The latter measure is signed, thus enabling one to determine whether the average

Table 3
 SUMMARY OF FORECASTING PERFORMANCE OF MODELS (MEASURED IN TERMS OF ROOT MEAN SQUARE
 ERROR AND MEAN ERROR (IN PARENTHESES)), ARMY ENLISTMENTS, MENTAL CATEGORIES
 I-III, 1:73-2:74 (IN THOUSANDS OF ENLISTMENTS)

Equation number	Model						
	No lag I	One quarter lag II	Adaptive expectations III	School IV	Race V	Qualified eligibles race VI	Pay components VII
1IS	9.6 (-8.2)	7.7 (-5.9)	6.9 (-4.6)	48.3 (-30.2)	9.6 (-7.0)	7.0 (-3.1)	
1R	10.6 (-9.6)	6.3 (-4.4)	5.3 (-1.9)	7.5 (-5.6)	7.3 (-4.0)	6.9 (-4.6)	
2IS	6.3 (-2.5)	6.2 (-2.3)	6.6 (-2.7)	4700.0 (-4700.0)	7.6 (-3.9)	5.4 (-0.4)	
2R	10.3 (-9.2)	6.0 (-4.0)	5.3 (-1.9)	1400.0 (-1400.0)	7.8 (-4.7)	7.3 (-5.0)	
1AS	6.6 (-5.1)	5.4 (-3.4)	4.8 (-2.5)	4.8 (-2.3)	6.1 (-3.7)	6.2 (-2.7)	7.1 (-6.7)
1A	7.5 (-6.3)	4.5 (-2.1)	4.2 (+0.1)	5.3 (-3.5)	4.8 (-0.9)	6.3 (-4.3)	6.1 (-5.4)
2AS	5.7 (-2.6)	5.3 (-2.1)	5.5 (-2.2)	216.0 (-216.0)	6.3 (-3.2)	4.8 (-0.1)	6.5 (-5.3)
2A	8.7 (-7.6)	5.0 (-3.3)	4.0 (-0.8)	170.0 (-170.0)	5.2 (-2.3)	6.6 (-4.1)	8.6 (-7.8)
1IS'				7.0 (-5.0)	6.5 (-1.1)	7.2 (-4.5)	
2IS'				6.2 (-2.5)	7.2 (-3.7)	5.0 (-1.4)	
1AS'				4.9 (-2.9)	6.3 (-4.1)	6.4 (-4.2)	7.2 (-6.8)
2AS'				5.4 (-2.3)	6.2 (-3.2)	4.5 (-1.1)	6.3 (-5.1)

forecast overestimates (a negative mean) or underestimates (a positive mean) the average actual experience.

The findings from this table may be summarized as follows. The models tend to overpredict enlistment experience. However, many of the models are fairly accurate. Twenty-three equations have mean errors of less than 10 percent and 22 equations have root mean square errors of less than 20 percent. (The average quarterly enlistments for this period were 31,000.) However, these measures of performance are biased by inclusion of 2:73, a quarter in which the Army arbitrarily raised enlistment standards, producing an unusually low level of enlistments. If this quarter were excluded from the measures, the results would be even better.

Model III generally produces the most accurate forecasts. Absolute pay models tend to produce more accurate forecasts than relative pay models. And, in models that use the adaptive expectations hypothesis to estimate EMP and DP (i.e., Models III-V), the no-seasonal models tend to produce more accurate forecasts.

Table 4 summarizes the military pay elasticity and the employment rate elasticity of the equations that produced the most accurate forecasts (in terms of their root mean square error of forecast). Nine equations produced root mean square errors of less than 5,000. Only one of these equations produced a pay elasticity of less than 1.0. Four produced pay elasticities that ranged between 1.1 and 1.2, which is the modal range of the pay elasticities. Only five of the nine equations produced employment rate elasticities that had the "right" sign. Four of these five elasticities were generated from coefficients of EMP that were marginally significant. These elasticities range from -.9 to -2.8. Four of the five elasticities are greater in absolute value than 1.4.

Table 4
RANKING OF "BEST" MODELS (BASED ON ROOT MEAN SQUARE ERROR)

Model	Equation	Root mean square error	Elasticity with respect to	
			Military pay	Employment rate
III	2A	4.0	1.50 ^a	-1.50 ^a
III	1A	4.2	1.12	-2.08
VI	2AS'	4.5	1.61	-1.44 ^b
II	1A	4.5	.84	-.90 ^b
VI	2AS	4.8	1.58	-2.80 ^b
V	1AS	4.8	1.26	c
IV	1AS	4.8	1.13	c
III	1AS	4.8	1.14	c
IV	1AS'	4.9	1.11	c

^a Instantaneous adjustment assured since regression coefficient of lagged endogenous variable had "wrong" sign.

^b t-statistic > -1.3.

^c Regression coefficient of employment rate had "wrong" sign.

FOOTNOTES

1. Fechter (1972, Appendix C) discusses this issue in some detail.
2. See Fechter (1972), pp. 6-7, n., for a detailed discussion of these models.
3. Armed Forces Entrance and Examination Stations usually operate at below-average levels in the last half of December. This is usually offset by above-average levels of operation in early January. This imparts a distinct seasonal pattern to enlistments in the fourth and first quarters.
4. Fisher (1969), p. 248. They also lag their estimate of relative pay one quarter.
5. The estimating equation for these variables is:

$$X_t^e = \frac{\sum_{i=1}^n \beta(1-\beta)^{i-1} X_{t-i}}{\sum_{i=1}^n \beta(1-\beta)^{i-1}}$$

where X_t^e is the actual value of X in period t, X_{t-1} is the actual value of X in quarter t-1, and β is the coefficient of expectations, assumed to be 0.5 and $n = 6$. For a detailed discussion of these expectations models, see Marlove (1958), pp. 227-240.

6. The latter include individuals who do not qualify for enlistment because of past histories which include prison records or drug usage.
7. It is crude because this comparison does not control for the effects of differences in methods of estimating EMP. Adjustment for this effect was not possible before the preparation of this paper.
8. The elasticity of an independent variable in a logit estimating equation is: $b_x \cdot (1-e) \cdot X$, where b_x is the estimated regression coefficient of X, $1-e$ is the complement of the enlistment rate, and X is the value of the independent variable. In this paper, elasticities are estimated at 1972 values of e and X. e is equal to 0.005161 in Models I-V and Model VII; e is equal to 0.009129 in Model VI. In the relative pay models, X is equal to 1.01; in the absolute pay models, X is equal to \$7333.
9. The coefficient of variation was .03; the mean was \$2182.
10. Marginal significance is defined as a t-value greater (in absolute terms) than 1.3. None of the coefficients had t-values greater than 2.0. Elasticities are computed at 1972 value of EMP, .8314.
11. A description of this technique can be found in Grissmer, et al. (1974).

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(EXTRACTS)

INFLUENCE OF DEMOGRAPHIC
AND APTITUDE FACTORS ON
TURNOVER AND JOB PERFORMANCE
OF ENLISTED MILITARY PERSONNEL

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EDITORIAL NOTE:

The GE TEMPO report consists of more than one hundred pages of tabularized data. In the interest of brevity, the narrative and the Table of Contents have been extracted from the report for publication here. Readers desiring further information on the study, particularly data output, may contact GE TEMPO.

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FOREWORD

This report presents the results of a three-month study initiated in July 1975 by TEMPO, General Electric's Center for Advanced Studies, for the Defense Manpower Commission. The primary objective of this study has been to analyze turnover of enlisted military personnel during the 1971-1974 period. The results of this study permit the Commission to examine attrition and promotion performance of various population sub-groups and draw conclusions about future Service composition and quality.

Many interesting problem areas were identified, but not analyzed, as a result of the very short time frame for performance. However, all of the basic data derived from personnel files obtained from the Manpower Research and Data Analysis Center (MARDAC) is provided in the appendices. These appendices contain a wealth of information which a manpower analyst may use to examine some of the more subtle relationships which underlie the data.

TEMPO gratefully acknowledges the valuable guidance and encouragement proved by Mr. James Abellera of the Defense Manpower Commission Staff. It was mainly through Mr. Abellera's efforts that we were able to obtain release of the data used in the study. Several of the analytic approaches used in the study were conceived by Mr. Abellera and proved to be invaluable in overcoming data limitations.

Staff members of the Manpower Research and Data Analysis Center (MARDAC) aided greatly in processing the several data files. Mr. Les Willis was especially helpful in providing technical assistance while Messrs. Ken Schefflen and Robert Groover provided invaluable administrative assistance.

Finally, we are grateful to staff members of ASM Associates who, by their diligent efforts, provided the computer programming support. Messrs. Art Baker and Joel Rudlof provided leadership and handled the bulk of the work while receiving assistance from Messrs. Roy Spence and Bob Powell.

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SECTION 1
INTRODUCTION

The primary purpose of this report is to present the results of a study conducted by TEMPO, General Electric's Center for Advanced Studies, to examine turnover of enlisted military personnel for the Defense Manpower Commission. This report summarizes the findings and highlights the important relationships which evolve from this study. In many cases the analyses are cursory; however, all of the basic data used in this analysis are made available in the appendices.

BACKGROUND

The Defense Manpower Commission was chartered in November 1973 to "conduct a comprehensive study and investigation of the overall manpower requirements of the Department of Defense on both a short-term and long-term basis with a view to determining what the manpower requirements are currently and will likely be over the next ten years, and how manpower can be more effectively utilized in the Department of Defense." The Commission was to consider a number of topics including:

- Utilization of civilian and active duty personnel
- Pay structure
- Grade distribution
- Military retirement system
- Recruiting
- Socio-economic composition
- Cost-effectiveness

The task laid out for the Commission is formidable. Recent major policy changes, including adoption of the All Volunteer Force (AVF) and termination of the Vietnam War, and many other underlying trends render any interpretation of historical data difficult. With service commitments for the last group of conscripts just reaching expiration, the full impact of the AVF is only beginning to emerge. Consequently, questions about socio-economic composition, equity, and quality can best be addressed in terms of accessions and turnover. This study is a timely effort designed to investigate these questions by these available means.

Numerous previous efforts have been undertaken to document the composition of the force and to determine demographic and quality predictors of performance; however, the assortment of reports currently available cover various periods and thus make cross-comparisons difficult. Furthermore, the extremely dynamic situation associated with the AVF transition mentioned above suggests that an update is necessary to identify the trends which are developing now that the AVF concept is reaching maturity.

STUDY OBJECTIVES AND SCOPE

The primary objective of this study was to quantify turnover for various population subgroups during FY 1971-74. In accomplishing this objective, two areas were considered--attrition and promotion. A third area--skill progression--was also considered initially, but was dropped because of the lack of readily obtainable data. Retention and promotion rates were developed in order to identify which population subgroups performed the best in terms of low attrition rates and high promotion rates and which performed the worst in terms of high attrition rates, especially for disciplinary reasons, and low promotion rates.

The scope of this study was limited to analysis of three automated enlisted personnel files compiled by the Manpower Research and Data Analysis Center (MARDAC) from individual service personnel files for the fiscal years 1974-74. Unfortunately, data for fiscal year 1975 was not available in sufficient time for inclusion in the report. The study was further limited by the time and resources available to perform the analysis.

STUDY METHODOLOGY

All data used in the study was derived from the automated enlisted personnel files constructed by the Manpower Research and Data Analysis Center (MARDAC) from Service automated personnel files. The main thrust of the study was to reduce this data to manageable tables which then could be used for the analysis. Each phase of the study, therefore, consisted primarily of computer processing of automated files. The three phases of the analysis were:

- Sample Construction and Validation
- Tabular Analysis
- AID Attrition Analysis

Each of the phases is described below.

Sample Construction and Validation

The initial data processing was performed to draw the sample and validate its composition. The sample consisting of approximately 30 percent of the enlisted military population was constructed from enlisted personnel data provided to the Manpower Research and Data Analysis Center (MARDAC) by the Military Services. The files used to construct

the sample file are:

- Cohort File (FY 1971-74 non-prior service accessions matched to loss data for that period)

- Active Duty Master File (June 30, 1974)
- Active Duty Loss File (FY 1974 separations)

Various error and composition tables were then produced for validation of the samples against published data.

Tabular Analysis

Tabular analysis was conducted to extend the basic understanding of the data and to identify subgroups whose performance was significantly different from the norm. Each element of the numerous tables was a percentage which represented the impact which a subgroup had on the particular event being analyzed. Each element was then compared to the composition of the force as a whole, in order to evaluate the relative roles played by each of the subgroups. The tabular analysis was conducted in three areas:

- Force Composition
- Attrition
- Promotion Performance

AID Attrition Analysis

The statistical technique known as the Automatic Interaction Detector (AID), developed by the Survey Research Center of the Institute of Social Research at the University of Michigan, was employed to identify the population subgroups which were most likely to have high attrition rates. The AID package accepted the list of explanatory (or predictor) variables; such as, sex, race, education level, mental category, etc. and ranked these variables, one at a time, in order of their importance in explaining loss behavior.¹ Significant combinations of the ranked variables were then used to identify population subgroups and associated loss probabilities.

SECTION 2

SAMPLE CONSTRUCTION AND VALIDATION

This section contains a brief discussion of the construction and validation of the various samples. The validity of the samples with respect to composition of the 30 June 1974 inventory and the FY 1971-74 accession groups was evaluated against published data. The validity of the AID samples was evaluated similarly.

SAMPLE CONSTRUCTION

A thirty percent sample was drawn from each of the three MARDAC files described in the previous section. Three values of the last digit of the social security number were used to draw the sample. The resulting three sample files were then merged to yield a sample file of 847,656 records. The data elements in each sample record were then subjected to comprehensive edits to determine the completeness of each sample record. Those records which could not pass the edit, as described in Appendix VIII, were rejected. Table 2-1 contains a count of the records which were rejected.

Table 2-1

Distribution of Rejects

Army	18,240
Navy	5,174
USMC	5,590
USAF	6,922
Unknown	<u>337</u>
Total	36,263

Of the 36,263 records rejected, 19,832 were rejected because loss data was not available. More specifically, the individuals concerned were accessed but did not appear in the 1974 inventory and no loss action was indicated. The majority of these records were Army records. Because of the disproportionate distribution of unuseable records across the services, some minor biases are present in the overall (DOD-wide) analyses. However, analyses conducted for specific services were not expected to suffer significantly.

An additional 25,510 records were excluded because the type of separation was considered independent of the subgroup designation or no longer a factor. The specific separations excluded were:

- Battle Casualty
- Retirement
- Sole Surviving Son
- Marriage
- Pregnancy
- Parenthood

The records considered suitable for analysis were distributed among the services as shown in Table 2-2.

Table 2-2
Records Used in the Analysis

Army	326,464
Navy	185,963
USMC	78,897
USAF	<u>194,559</u>
Total	785,883

INVENTORY COMPOSITION

The tables in Appendix I reflect the composition of the inventory sample. Overall composition of the sample was found to agree closely with published data. The minor deviations observed most likely resulted from the disproportionate number of Army records rejected. Service composition compared to published data is shown in Table 2-3.

Table 2-3
Percentage Distribution of Military
Manpower Among Services on 30 June 1974

	<u>Published*</u>	<u>Sample</u>	<u>Deviation**</u>
Army	36.5%	36.3%	- .55%
Navy	25.7%	25.6%	- .39%
USMC	9.2%	9.4%	+2.17%
USAF	<u>28.6%</u>	<u>28.7%</u>	+ .35%
Total	100.0%	100.0%	

*Department of Defense Appropriations for 1976, Hearings before a Subcommittee of the Committee on Appropriations, House of Representatives

**The deviation represents the percentage by which the sample differed from the published data; the deviation is computed as follows:

$$\text{Deviation} = (\text{Sample \%} - \text{Published \%}) / \text{Published \%}$$

ACCESSION GROUP COMPOSITION

The tables in Appendix II reflect the composition of the sample for each of the four accession groups FY 1971, 1972, 1973, and 1974. Overall composition was found to agree closely with published data. The minor deviations observed, again, most likely resulted from the disproportionate number of Army records rejected. Service composition compared to published data is shown in Table 2-4.

Table 2-4

Percentage Distribution of
Accessions Among Services for
Fiscal Years 1971, 1972, 1973, and 1974

	<u>Army</u>	<u>Navy</u>	<u>USMC</u>	<u>USAF</u>
1971 - Published*	57.2%	14.6%	10.4%	17.8%
- Sample	57.4%	15.2%	9.3%	18.1%
- Deviation**	+ .4%	+ 4.1%	-10.6%	+ 1.7%
1972 - Published*	44.4%	21.2%	13.4%	21.0%
- Sample	44.2%	22.4%	13.6%	20.8%
- Deviation**	- .5%	+ 5.7%	- 0.0%	- 1.0%
1973 - Published*	46.8%	21.4%	11.3%	20.5%
- Sample	46.2%	21.3%	10.9%	21.6%
- Deviation**	- 1.3%	- .7%	- 3.5%	+ 5.4%
1974 - Published*	46.0%	23.2%	12.1%	18.7%
- Sample	45.8%	22.7%	11.9%	19.6%
- Deviation***	- .4%	- 2.2%	- 1.7%	+ 4.8%

*Department of Defense Appropriations for 1976, Hearings before a Subcommittee of the Committee on Appropriations, House of Representatives.

**The deviation represents the percentage by which the sample differed from the published data; the deviation is computed as follows:

$$\text{Deviation} = (\text{Sample \%} - \text{Published \%}) / \text{Published \%}$$

AID SAMPLES

In order to satisfy operational constraints of the AID package, sample sizes for each run were further reduced to approximately 50,000 records by skipping records evenly throughout the file. The resulting four samples, one for each accession group, agreed closely with the composition of the thirty percent sample and the published data. Table 2-5 reflects the distribution of each sample by Service.

Table 2-5
Percentage Distribution of Accessions
Among Services for each AID Sample

	<u>Sample Size</u>	<u>Army</u>	<u>Navy</u>	<u>USMC</u>	<u>USAF</u>
1971	44,838	57.4%	15.0%	9.4%	18.2%
1972	48,761	44.9%	21.7%	13.5%	19.8%
1973	51,687	46.8%	20.8%	11.2%	21.2%
1974	44,210	45.7%	22.8%	12.2%	19.3%

SECTION 3
COMPOSITION ANALYSIS

While primary emphasis of this study has been directed toward retention of various population subgroups, the size and relative importance of these subgroups must also be considered. It is possible that the performance of a particular subgroup may be very good, or very poor, but the subgroup may be so small that its impact on the entire group is insignificant. Furthermore, the composition of the force at a given time ultimately determines the capability of the force, and composition is determined by a combination of accessions and attritions. Consequently, examination of the composition of the current active force and of the composition of the accessions is necessary in order to fully understand the the impact of retention.

The following paragraphs contain a discussion of the major factors which have been changing in the accession groups over the FY 1971-1974 period and which are beginning to be reflected in the composition of the active force. Appendix I contains percentage composition tables for the total active force on 30 June 1974, while Appendix II contains similar tables for each of the FY 1971-1974 accession groups.

DEMOGRAPHIC FACTORS

Sex

One of the demographic factors which has shown a consistent trend is the increase in female participation. As Table 3-1 indicates, percentage of females entering the force has increased every year for a total of five percentage points over the period. Provided female retention is no worse than male retention, one would expect the percentage of females in the inventory to increase.

Table 3-1

Percentage Composition of
FY 1971-1974 Accession Groups and
Total Military Force By Sex

		<u>Male</u>	<u>Female</u>
1971	Accessions	98.4%	1.6%
1972	Accessions	97.5%	2.5%
1973	Accessions	96.6%	3.4%
1974	Accessions	93.6%	6.4%
1974	Inventory	97.1%	2.9%

Race

Another factor which has been discussed recently is the changing racial composition. Table 3-2 reflects a decline in the ratio of Caucasian to black accessions. In fact, the percentage of Negro accessions has increased over 50% (13.5% to 20.8%) and can be expected to increase Negro participation in the inventory.

Table 3-2

Percentage Composition of
FY 1971-1974 Accession Groups and
Total Military Force By Race

		<u>Caucasian</u>	<u>Negro</u>	<u>Other</u>
1971	Accessions	85.4%	13.5%	1.0%
1972	Accessions	84.3%	14.5%	1.2%
1973	Accessions	82.0%	16.9%	1.2%
1974	Accessions	77.7%	20.8%	1.5%
1974	Inventory	81.8%	15.8%	2.4%

Region

Regional composition of accessions is determined by differences in total population and in regional attitudes. Likewise, the changes in accession group composition indicated in Table 3-3 are a reflection of both population shifts and attitudinal changes. Generally, one can expect that the shifts from northeast and north central to south and west will partially reflect the population shifts which have occurred during the 1971-74 period.

Table 3-3

Percentage Composition of
FY 1971-1974 Accession Groups and
Total Military Force By Region of Accession

	<u>Northeast</u>	<u>North Central</u>	<u>South</u>	<u>West</u>	<u>Other/ Unknown</u>
1971 Accessions	18.1%	30.4%	33.4%	17.5%	.6%
1972 Accessions	18.1%	29.6%	33.0%	18.6%	.8%
1973 Accessions	18.0%	27.6%	35.1%	18.6%	.8%
1974 Accessions	17.0%	25.4%	37.0%	19.5%	1.0%
1974 Inventory (Total)	10.4%	16.3%	21.5%	11.8%	40.2%
1974 Inventory (Known)*	17.4%	27.3%	36.0%	19.7%	

*Percentage of inventory with known source of accession. Since source of accession is known only for FY 1971-1974 figures for this line represent the regional composition for those individuals who were accessioned during FY 1971-1974 and were still on active duty on 30 June 1974.

APTITUDE AND ACHIEVEMENT FACTORS

Mental Category

Mental category is one of the major factors used to evaluate the quality of the military force. Since the composition of accessions is changing as indicated in Table 3-4, one can expect these changes will eventually impact the composition of the total force. Percentages in category I and category IV, both high school and non-high school graduates, declined during the FY 1971-1974 period. This decline was transferred almost entirely to an increase in the category III percentage with category II remaining unchanged. With small shift (little more than two percentage points) from category I to category III and the larger shift (almost eleven percentage points) from category IV to Category III, an improvement in quality has apparently taken place.

Table 3-4
Percentage Composition of FY 1971-1974 Accession Groups
and Total Military Force By Mental Category

		<u>I</u>	<u>II</u>	<u>III</u>	<u>IV HS</u>	<u>IV NHS</u>	<u>V</u>
1971	Accessions	5.0%	30.4%	43.3%	9.9%	10.8%	.2%
1972	Accessions	4.3%	31.2%	47.8%	6.3%	10.0%	.1%
1973	Accessions	3.8%	31.0%	51.6%	5.9%	7.4%	.1%
1974	Accessions	2.9%	31.2%	55.6%	4.6%	5.2%	--
1974	Inventory	5.1%	32.5%	44.0%	4.1%	9.8%	4.5%

IV HS - Category IV high school graduate

IV NHS - Category IV non-high school graduate

Physical Status

Physical status upon entry is an important factor in the combat skills areas. A review of the tables in Appendix II indicate that the quality in terms of physical status remained constant at 60% fully qualified and 40% suffering from only one deficiency.

Education

Achievement as measured by educational attainment has shown a marked decline. Table 3-5 reflects the shift from college trained personnel to only those who have attended high school. Those who attended college declined from 18% to 5% while the high school graduates increased from 56% to 61% and the non-high school graduates increased from 25% to 34%.

Table 3-5

Percentage Composition of
FY 1971-1974 Accession Groups and
Total Military Force By Educational Attainment

		<u>Non-High School</u>	<u>High School</u>	<u>College (1-3 Years)</u>	<u>College (Degree)</u>
1971	Accessions	25.3%	56.4%	13.0%	5.3%
1972	Accessions	23.5%	66.1%	7.8%	2.6%
1973	Accessions	28.4%	61.9%	7.8%	1.9%
1974	Accessions	33.9%	61.2%	4.1%	.8%
1974	Inventory	19.3%	71.1%	8.3%	1.4%

SECTION 4
ATTRITION ANALYSIS

As mentioned in a previous section, attrition, interacting with accession composition, ultimately determines the composition and quality of the active military force. Attrition results from a number of causes ranging from normal expiration of service contract without reenlistment to failure of the individual to meet certain physical, mental, or behavioral standards. For the purposes of this study, six groupings of losses were examined:

- Total Losses
- Total Involuntary
- Physical Disqualification
- Unsuitable Behavior
- Trainee Discharge
- Desertion/AWOL

The "total involuntary" grouping is a subset of "total losses" and contains all losses except losses resulting from expiration of term of service and the various early release programs. "Physical disqualification" and "unsuitable behavior" are two of several subsets of the "total involuntary" grouping and "trainee discharge" and "desertion/AWOL" are two subsets of "unsuitable behavior". Appendix VIII contains a complete description of types of losses included in each grouping.

Since training cycle, service policy and length of enlistment are major determinants in the phasing of types of losses, one cannot readily compare the attrition rates of one accession group to another. Generally,

the cumulative attrition rates for an accession group will exceed those of a later group because more factors including expiration of term of service will have had a chance to impact the group. Consequently, only comparisons of subgroups for a given year should be attempted, and time trend analysis should be restricted to examination of a particular subgroup's impact on the rate over time.

The following discussion draws attrition rates from the detailed tables in Appendices III and IV. Where reenlistment rates are used to support a particular point, detailed data is drawn from Appendix V.

DEMOGRAPHIC FACTORS

Reference to Table 4-1 indicates that female attritions for reasons of "involuntary loss" and "unsuitable behavior" were more serious than males' attritions in the 1971 accession group but that this condition had reversed in the 1972 group and was even more favorable toward the females in the 1974 group. The ratio of male to female involuntary loss is .75 for the 1971 group and 2.34 for the 1974 group. Losses for unsuitable behavior followed a similar pattern. On the contrary when examining total losses, the ratio of male to female attrition rates favored the female subgroup in all four attrition groups. This condition probably results from better retention of the female subgroup as indicated by a higher reenlistment rate. The lower male reenlistment rate was partially depressed by the poor reenlistment showing from conscripts (7.4%) as compared to enlistees (44.7%). While it is obvious that female retention is now better than male retention, it should be noted that the female subgroup is still very small (less than 3%) and that the performance of the male group is still the primary determinant of overall force performance.

Table 4-1

Attrition Rates for
 FY 1971-1974 Accession Groups As of 30 June 1974
 and FY 1974 Reenlistment Rates By Sex

	Total			Involuntary			Unsuitable		
	Male	Female	Ratio*	Male	Female	Ratio*	Male	Female	Ratio*
1971 Accessions	71.0%	57.4%	1.24	26.9%	35.9%	.75	15.1%	25.0%	.60
1972 Accessions	40.9%	30.7%	1.33	25.3%	25.5%	.99	15.6%	18.3%	.85
1973 Accessions	22.5%	17.2%	1.31	19.4%	14.3%	1.36	11.5%	10.8%	1.06
1974 Accessions	9.2%	4.5%	2.04	8.2%	3.5%	2.34	3.9%	2.0%	1.95
1974 Reenlistments	34.3%	58.4%	.59						

Negro losses demonstrated patterns similar to those observed for the female subgroup. Table 4-2 reflects the reversal in involuntary and unsuitable behavior losses between the FY 1973 and FY 1974 accession groups. Again the smaller Caucasian-Negro ratios for total versus involuntary losses result from higher reenlistment rates for the Negro subgroup. The Negro subgroup is sizable (16%) and likely to increase in view of increasing accessions and a higher reenlistment rate. Consequently, characteristics of this subgroup are likely to play an increasing role in total force performance.

Urban and rural voluntary loss rates were nearly identical with the rural reenlistment rate only 6% higher than the urban rate. The urban involuntary and unsuitable behavior loss rates were 15-20% higher than the respective rural rates. Since the rural and urban groups nearly halve the total force even minor differences between the groups will have significant impact on the total force.

Regional differences, were present with the northeast running 10-20% worse than the average for involuntary and unsuitable behavior loss rates and the west running 10-50% better than the average. The 1974 reenlistment rates also varied significantly as follows:

South	38.1%
West	34.2%
Northeast	31.1%
North Central	<u>28.8%</u>
Total	34.7%

All four regions are significantly large and any differences in performance would impact the total force.

Table 4-2

Attrition Rates for
FY 1971-1974 Accession Groups As of 30 June 1974
and FY 1974 Reenlistment Rates By Race

	<u>Total</u>		<u>Involuntary</u>		<u>Unsuitable</u>	
	<u>Caucasian</u>	<u>Negro Ratio*</u>	<u>Caucasian</u>	<u>Negro Ratio*</u>	<u>Caucasian</u>	<u>Negro Ratio*</u>
1971 Accessions	70.7%	.99	26.4%	31.4%	14.5%	20.4%
1972 Accessions	40.3%	.93	25.0%	27.9%	15.1%	19.2%
1973 Accessions	22.3%	.97	18.9%	21.2%	11.1%	13.8%
1974 Accessions	9.3%	1.24	8.2%	6.9%	3.9%	3.5%
1974 Reenlistments	33.2%	.81				

*Caucasian rate divided by Negro rate.

APTITUDE AND ACHIEVEMENT FACTORS

Mental categories I-III correlated well with attrition rates for involuntary and unsuitable behavior losses. Performance of mental category IV, high school graduates, fell between that of categories II and III. The category IV members who had not completed high school performed the most poorly and in fact had attrition rates for involuntary and unsuitable behavior which were almost double those of the category III group for most of the accession groups.

The marked difference in performance between the high school graduates and non-high school graduates in mental category IV suggest that perhaps educational level was a strong predictor of behavior. In fact when viewing the population segmented solely on educational attainment, a consistent pattern develops. For losses from unsuitable behavior, higher educational attainment resulted in lower attrition rates. Similarly for total involuntary losses more education meant progressively lower attrition rates except that the subgroup with college degrees had a very slightly higher attrition rate. For both types of losses, the attrition rate for non-high school graduates was 2 to 3 times greater than the high school graduates. Also the non-high school graduates had a higher rate of physical disqualification.

Reenlistment rates* also showed consistent patterns although generally leading to opposite results. The rates by educational attainment declined

* Reenlistment rate, as used in this report, is defined as the number of personnel whose term of service expired during FY 1974 and who were still in the inventory at the end of FY 1974 divided by the number of personnel whose term of service expired during FY 1974.

with level of attainment with the subgroups having no college being very close. The reenlistment rates by education are:

Non-High School Graduate	39.8%
High School Graduate	37.3%
1-3 Years College	21.4%
College Degree	<u>9.4%</u>
Total	34.7%

FY 1974 reenlistment rates by mental category became progressively better as mental aptitude decreased from category I to category III; however, reenlistment rates for category IV were very low as indicated below. The FY 1974 reenlistment rates by mental category are:

I	31.7%
II	35.3%
III	37.8%
IV HS	22.5%
IV NHS	23.7%
Total	34.7%

Physical disqualifications consistently increased with the number of physical deficiencies.

SECTION 5
PROMOTION PERFORMANCE

While retention provides one measure of an individual's ability to perform in the service, it does not provide an evaluation of those individuals who outperform their peers. Promotion rate, on the other hand, provides such a criteria. It should be noted, however, that promotion rate alone is not a sufficient measure since good performance is of limited value if retention is low.

Time to promotion is highly dependent upon service policy, and therefore, any differences in distribution of subgroups among the services will cause differences in service policy to overshadow differences in demographic and aptitude factors when aggregating at the DOD level. While this brief survey ignores this warning and considers only the DOD aggregate, the reader is encouraged to examine individual service tables when performing critical analyses. The following discussion refers to Appendix VI which contains tables reflecting the average time (TAFMS in months) to promotion for individuals of various subgroups on active duty on 30 June 1974.

DEMOGRAPHIC FACTORS

Promotion rates for female subgroups were generally much better than rates for males during the early grades E-2 - E-6 but then fell behind in the higher grades. The Army provided an exception to this pattern by promoting women faster at all grades. The Negro subgroup, on the other hand, did not fare as well and progressed more slowly to all grades at the aggregate service level.

APTITUDE AND ACHIEVEMENT FACTORS

In the lower grades (E-2 through E-5), a definite pattern exists between mental aptitude and promotion rate in the DOD, Navy, and Air Force data. Those in mental category I on the average were promoted earlier than those in category II and so forth up through category IV. Promotion to the E-2 level in the Navy provided one exception where those in category I progressed more slowly than those in categories II and III. Promotion rates in the other services, Army and Marine Corps, generally followed the pattern; however, the pattern was not nearly so definite.

Educational level also showed some definite patterns with those holding a college degree generally having a slower rate while the other three subgroups--non-high school graduates, high school graduates, and 1-3 years of college--progressed according to their education. Again the pattern for progression was mixed at the lower grades but was consistent for the remaining levels (E-3 through E-9) for all services.

SECTION 6
AID ATTRITION ANALYSIS

The attrition analysis described in Section 4 provides numerous insights into the structure and relative size of the attrition problem. However, it does not specifically identify the most significant subgroups defined by combinations of characteristics. The AID analysis, on the other hand, performs this search task by forming and reforming temporary subgroups until the maximum amount of variance in attrition is explained. Two analyses were performed. First, the AID analysis of the total force was performed to determine which characteristics were significant irrespective of Service. In the second study the sample was divided into four Service subgroups before the AID analysis was performed. Appendix VII contains the AID diagrams for the results discussed in the following.

AID STATISTICAL TECHNIQUE

The statistical technique known as the Automatic Interaction Detector (AID) was developed by the Survey Research Center of the Institute for Social Research at the University of Michigan. Given a list of explanatory (or predictor) variables, the AID routines rank these variables, one at a time, in order of their importance in explaining loss behavior. This is accomplished in a series of steps using binary splits. At each step, the population is divided into all conceivable pairs of two mutually exclusive subgroups for each predictor variable. After examining all such pairs for all variables, the pair which accounts for the greatest amount of variance from the average loss rate for that

particular population group is chosen for the binary split. The AID then searches for the next most important split in the same manner as before. The AID stops splitting when there are no further subgroupings which can explain a statistically significant amount of variance within specified limits. At each step, the AID routines provide the loss probability for each subgroup as well as the statistical significance of the split.

TOTAL FORCE ANALYSIS

In the 1971 Accession Group, two subgroups accounting for 55% of the force had probabilities of loss over .94. Table 6-1, at the end of this section, shows AID groups 11 and 21 had .992 and .942 probabilities and accounted for 35.7% and 18.8% of the force respectively. Only 27% of the force had loss probabilities of less than .5, an even chance for retention. Conscripts generally proved to be a poor risk with .992 probability of loss during first term and .341 after reaching career status. Enlistees who reached career status had a loss probability of only .061.

First-term conscripts in the 1972 Accession Group also proved to be a poor risk accounting for 17.9% of the force with a loss probability of .894. Enlistees in career status (i. e., no longer in their first term), on the other hand, accounted for 24.8% of the force with loss probability of only .005. Subgroups accounting for almost 57% of the force had loss probabilities less than .3, that is subgroups in which twice as many were retained than were lost. Table 6-2, at the end of this section, shows the significant subgroups ranked by loss probabilities for the 1972 Accession Group.

The few conscripts in the 1973 Accession Group again appeared to be poor retention risks. However, service terms of most conscripts were approaching completion on 30 June 1974 so early release programs would be more of a factor for them than for enlistees who generally have three-year terms or longer. Possession of a high school diploma

appears to be a significant factor in retention. Subgroups which did not hold high school diplomas consistently had higher loss probabilities. The AID results for the 1973 Accession Group are summarized in Table 6-3, at the end of this section.

For the 1974 Accession Group, the only cause of loss was Disciplinary and Aptitude. As in the 1973 group, failure to hold a high school diploma tended to yield a high loss probability. The higher rate for the Navy and Air Force probably resulted from more active trainee release programs. Table 6-4, at the end of this section, summarizes these results.

ANALYSIS BY SERVICE GROUPS

Once the accession groups were split by service, length of enlistment terms became even more significant than in the analysis of the total force. This factor was especially notable in the first three accession groups (1971, 1972, and 1973) where the opportunity for expiration of term of service had an opportunity to operate.

In the 1974 groups and in the 1973 non-Army groups, which did not have two-year conscripts, other factors, especially high school, became significant. In these groups, absence of a high school diploma generally resulted in a loss probability that was twice that of high school graduates. The high school factor also proved significant within career status in the accession groups. These results are summarized in Tables 6-5 through 6-8, at the end of this section.

Two other factors showed significance in the earlier accession groups. Marital status appeared significant in the non-Army groups in the 1971 Accession Group and in the 1972 Navy group. Mental category appeared significant only in the Navy and only in the 1971-72 groups.

Table 6-1
 Loss Probabilities for FY 1971 Accession Group
 as of 30 June 1974

Subgroups	AID Group	Probability of Loss	% of Sample
Mental Cat. IV or V, Single, First Term, Navy	19	.997	1.6
Conscript, First Term, Army or Marine	11	.902	35.7
Enlistee, Single, First Term, Army or Marine	22	.942	18.8
Mental Cat. IV, Married, First Term, Navy	25	.938	.1
Enlistee, Married, First Term, Army	23	.849	2.8
Mental Cat. I-III or Unknown, Non-High School Graduate, Single, First Term, Navy or Air Force	17	.812	1.9
Mental Cat. IV or V, Single, First Term, Air Force	18	.759	1.5
Mental Cat. I-III or Unknown, High School Graduate and Above, Single, First Term, Navy or Air Force	16	.596	11.0
Married, First Term, Air Force	15	.481	4.3
Enlistee, Married, First Term, Marine	22	.455	.6
Conscript, Career	7	.341	1.7
Mental Cat. I-III or Unknown, Married, First Term, Navy	24	.243	2.4
Enlisted, Career	6	.081	17.9

Table 8-2

Loss Probabilities for FY 1972 Accession Group
as of 30 June 1974

Subgroups	AID Group	Probability of Loss	% of Sample
Conscript, First Term	7	.894	17.9
Non-High School Graduate, Enlistee, Married, First Term, Army	19	.654	8
Non-High School Graduate, Enlistee, Single, First Term	13	.624	11.1
Mental Cat. IV, High School Graduate and Above, Enlisted, Single, First Term	15	.448	3.6
Mental Cat. I-III or Unknown, High School Graduate and Above, Enlistee, Single, First Term, Army	17	.383	8.1
Non-High-School Graduate, Enlistee, Married, First Term, Navy, or Marine or Air Force	18	.347	1.7
Mental Cat. I-III or Unknown, High School Graduate and Above, Enlistee, Single, First Term, Navy or Marine or Air Force	16	.290	19.4
High School Graduate and Above, Enlistee, Married First Term	10	.185	10.9
Conscript, Career	6	.008	1.8
Enlistee, Career	4	.005	24.8

Table 6-3
 Loss Probabilities for FY 1973 Accession
 as of 30 June 1974

<u>Subgroups</u>	<u>AID Group</u>	<u>Probability of Loss</u>	<u>% of Sample</u>
Non-High School Graduate, Conscript, First Term	9	.622	2.6
Non-High School Graduate, Enlistee, First Term Army or Navy or Air Force	13	.438	15.7
High School Graduate and Above, Conscript, First Term	7	.438	4.3
Non-High School Graduate, Enlistee, First Term Marine	12	.279	.35
High School Graduate and Above, Enlistee, First Term, Navy or Air Force	11	.180	31.3
High School Graduate and Above, Enlistee, First Term, Army or Marine	10	.128	21.1
Career	2	.001	21.5

Table 6-4
 Loss Probabilities for FY 1974 Accession Group
 as of 30 June 1974

<u>Subgroups</u>	<u>AID</u> <u>Group</u>	<u>Probability</u> <u>of Loss</u>	<u>% of Sample</u>
Non-High School Graduate, First Term, Navy or Air Force	9	.204	8.3
Non-High School Graduate, First Term, Army or Marine	8	.118	20.3
High School Graduate and Above, First Term	7	.061	61.1

Table 8-5

Loss Probability for 1971 Accession Group
By Service as of 30 June 1974

<u>Army</u>			
<u>Subgroups</u>	<u>AID Group</u>	<u>Probability of Loss</u>	<u>% of Sample</u>
First Term	8	.877	47.6
Career, Conscript	25	.331	2.8
Career, Enlistee	24	.072	8.6

<u>Navy</u>			
<u>Subgroups</u>	<u>AID Group</u>	<u>Probability of Loss</u>	<u>% of Sample</u>
First Term, Mental Cat. IV, or V, First Term	19	.893	11.8
First Term, Mental Cat. I-III or Unknown, Single Non-High School Graduate	23	.820	7.4
First Term, Mental Cat. I-III or Unknown, Single High School Graduate and Above	22	.586	37.6
First Term, Mental Cat. I-III or Unknown, Married	20	.243	15.7
Career	10	.031	27.5

<u>USMC</u>			
<u>Subgroups</u>	<u>AID Group</u>	<u>Probability of Loss</u>	<u>% of Sample</u>
First Term, Single	27	.907	70.1
First Term, Married	26	.585	8.2
Career	14	.056	21.7

<u>USAF</u>			
<u>Subgroups</u>	<u>AID Group</u>	<u>Probability of Loss</u>	<u>% of Sample</u>
First Term, Single	17	.881	41.7
First Term, Married	16	.481	23.4
Career	12	.074	34.8

Table 8-6
 Loss Probabilities for 1972 Accession Group
 By Service as of 30 June 1974

<u>Army</u>			
<u>Subgroups</u>	<u>AID Group</u>	<u>Probability of Loss</u>	<u>% of Sample</u>
First Term, Conscript	13	.910	29.4
First Term, Enlistee, Non-High School Graduate	15	.648	11.9
First Term, Enlistee, High School Graduate and Above	14	.371	25.0
Career	8	.000	22.8
<u>Navy</u>			
<u>Subgroups</u>	<u>AID Group</u>	<u>Probability of Loss</u>	<u>% of Sample</u>
First Term, Single, Non-High School Graduate	37	.670	14.2
First Term, Single, High School Graduate and Above, Mental Cat. IV or V	29	.942	6.0
First Term, Married, Non-High School Graduate	26	.927	2.9
First Term, Single, High School Graduate and Above, Mental Cat. I-III or Unknown	28	.385	67.3
First Term, Married, High School Graduate and Above	24	.120	17.9
Career, Non-High School Graduate	22	.023	2.4
Career, High School Graduate and Above	20	.000	6.8
<u>USMC</u>			
<u>Subgroups</u>	<u>AID Group</u>	<u>Probability of Loss</u>	<u>% of Sample</u>
Conscript, First Term	23	.948	24.3
Conscript, Career	22	.838	2.7
Enlistee, First Term, Non-High School Graduate	28	.462	20.4
Enlistee, First Term, High School Graduate and Above	24	.211	28.9
Enlistee, Career	20	.007	18.8
<u>USAF</u>			
<u>Subgroups</u>	<u>AID Group</u>	<u>Probability of Loss</u>	<u>% of Sample</u>
First Term, Non-High School Graduate	27	.574	8.9
First Term, High School Graduate and Above	28	.277	27.0
Career	18	.001	24.0

Table 6-7
 Loss Probabilities for 1973 Accession Group
 By Service as of 30 June 1974

<u>Army</u>		<u>AID</u>	<u>Probability</u>	<u>% of Sample</u>
<u>Subgroups</u>	<u>Group</u>	<u>of Loss</u>		
First Term, Non-High School Graduate	13	.462	22.5	
First Term, High School Graduate and Above	12	.185	44.8	

<u>Navy</u>		<u>AID</u>	<u>Probability</u>	<u>% of Sample</u>
<u>Subgroups</u>	<u>Group</u>	<u>of Loss</u>		
Non-High School Graduate	11	.414	26.0	
High School Graduate and Above	10	.159	74.0	

USMC

No Significant Splits

USAF

No Significant Splits

Table 6-9
 Loss Probabilities for 1974 Accession Groups
 By Service as of 30 June 1974

<u>Army</u>		<u>AID</u>	<u>Probability</u>	<u>% of Sample</u>
<u>Subgroups</u>	<u>Group</u>	<u>of Loss</u>		
Non-High School Graduate, First Term	13	.107	33.8	
High School Graduate and Above	8	.039	53.7	
<u>Navy</u>		<u>AID</u>	<u>Probability</u>	<u>% of Sample</u>
<u>Subgroups</u>	<u>Group</u>	<u>of Loss</u>		
Non-High School Graduate, First Term	19	.207	26.7	
High School Graduate and Above	19	.076	68.4	
<u>USMC</u>		<u>AID</u>	<u>Probability</u>	<u>% of Sample</u>
<u>Subgroups</u>	<u>Group</u>	<u>of Loss</u>		
First Term, Non-High School Graduate	21	.132	39.6	
First Term, High School Graduate and Above	20	.047	48.1	
<u>USAF</u>		<u>AID</u>	<u>Probability</u>	<u>% of Sample</u>
<u>Subgroups</u>	<u>Group</u>	<u>of Loss</u>		
Non-High School Graduate	15	.173	13.4	
High School Graduate and Above	4	.065	85.5	

6-11