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Department of Defense

MODERNIZING MILITARY PAY

REPORT OF THE FIRST QUADRENNIAL REVIEW OF MILITARY COMPENSATION

VOLUME V

THE MILITARY ESTATE PROGRAM

(APPENDICES)

15 JANUARY 1969

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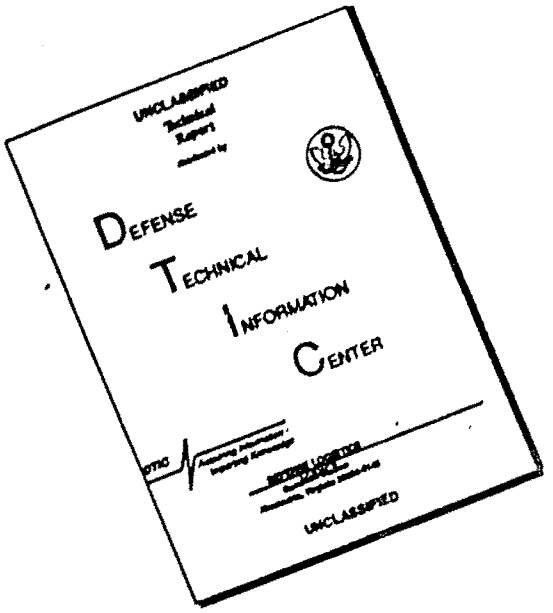

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ERRATA SHEET A

for

Modernizing Military Pay

Report of the First Quadrennial Review of Military Compensation

Volumes IV and V

MILITARY ESTATE PROGRAM

15 January 1969

The following pen and ink changes should be made:

Volume IV

Pg ix	Change the page number for Chart 11-2 from 11-9 to 11-10.
Pg S-2	In the 16th line of print, after the words "Calculation of annuity", the paragraph should read, "2½% for each year of active service creditable for retirement times terminal basic pay."
Pg S-46	In Table 18, change the heading over the first column of minimum and maximum amounts from "MCSB" to "IMSA."
Pg 6-12	For each entry opposite the lines titled "Proposed ÷ Present," move the decimal point two places to the left.

Volume V

Pg v	After the title of Appendix IV add the page number IV-1.
Pg I-A-1	Delete the overprinted material at the bottom of the page
Pg VII-34	In the column titled "Length of Service", the number below the number 28 should be 29, vice 39.

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MODERNIZING MILITARY PAY

REPORT OF THE FIRST QUADRENNIAL REVIEW OF MILITARY COMPENSATION

VOLUME V

THE MILITARY ESTATE PROGRAM
(APPENDICES)

15 JANUARY 1969

PREFACE

This report summarizes the results of the review of the principles and concepts of those elements of military compensation comprising the Military Estate Program, required by section 1008(b) of title 37, United States Code.

The report was prepared by the Retirement Study Group, Compensation and Career Development Directorate, Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs).

This Volume contains the Appendices to Volume IV, which is bound separately.

CONTENTS

APPENDIX I - EFFICIENCY IN MILITARY COMPENSATION

Purpose

This Appendix discusses the broad subject of "Efficiency" or "Cost Effectiveness" in military compensation, provides the study's conclusion concerning the sequence of system revisions necessary to achieve efficiency, and describes the role of the proposed nondisability retirement system in achieving efficiency in military compensation.

Definition of Efficiency in Military Compensation. Efficiency in the use of resources is, in broad terms, getting the most out of a given quantity of resources. Alternatively stated, efficiency is a measure of the relationship of output to input:

$$\text{Efficiency} = \frac{\text{Output}}{\text{Input}}$$

and the motivation is, of course, always to improve efficiency; that is, to obtain the greatest possible output from any given input or, alternatively, to obtain a given output from the smallest possible input quantity.

In measuring the efficiency of the military compensation system:

$$\text{Efficiency} = \frac{\text{Effectiveness in meeting objectives}}{\text{Cost}}$$

and the objective is to obtain the largest possible quantity of "defense" produced by the services of military personnel in exchange for some given total military personnel cost (where total cost is the sum of expenditures on all components of military compensation: active duty pay, retired pay, survivor benefits, special pays, etc.) or, alternatively, the objective is to obtain a given quantity of "defense" personnel services at the lowest possible total personnel services cost.

Progressing Toward Increased Efficiency in Military Compensation

Three key systems interact to determine the efficiency with which military personnel dollars are used:

- active duty compensation,
- military retirement, the principal cost and benefit element of the Military Estate Program,[1] and
- force management.

All three systems currently are under review in the Department of Defense. Because the systems do interact to produce efficient or inefficient results, the sequence in which these systems are to be revised is most important.

There are two divergent views regarding the sequence to be followed. The first holds that the proper approach is to conduct a "force management study" first in order to determine an "optimum force structure" and the management procedures to achieve and maintain that structure, before revising the active duty and retired pay systems. The second view advocates a revision of the active duty and retired pay systems before a force management study is completed and before an optimum force structure and the force management policies and procedures to achieve that structure are determined.

The retirement study found that work should proceed concurrently in investigating and revising all three systems, but that there is a

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1/ All elements of the Military Estate Program affect the efficiency of military compensation program. However, because of the cost and benefit dominance of the retirement element of the program, discussions, and controversy concerning the sequence of revisions tend to ignore other items of the Military Estate Program and center on retirement. That precedent is followed in this appendix.

definite sequence in which the revisions to each system must be completed.

- determine the revisions to the active duty pay system;
- determine the revisions to the military retirement system; and
- determine the optimal force structure and detailed management policies to attain that structure.

This sequence is necessary because optimum design of the first two systems is determined largely by factors outside the control of military management, while optimum design of the third system is in large measure dependent on the cost parameter "givens" presented by the first two systems. The optimal force structure and management policies cannot be determined without consideration of the costs of various alternative structures and policies, because achievement of the optimum solution is in part dependent upon active duty pay, retired pay, and the interaction between them. Change the system of active duty pay and the system of retired pay, and the optimal force structure solution must also change. The report of the study of active duty compensation makes the same point in different words when, in discussing the cost effectiveness of its recommendations, it states:

> "The services' statements of desired force distributions used throughout this study were developed in the context of the existing basic pay and allowances system at rates in effect under 1 July 1966 pay scales. The significant structural changes in active duty pay incorporated in the study's recommendations will require a thoroughgoing reevaluation of this balanced force. The relative costs of the various pay grades is changed substantially by the recommended conversion to a parity salary system. Thus, what was an optimally effective force considering relative costs of its various members at one pay structure is not likely to be the optimum force at the new pay structure. A thorough review of manpower requirements will be required to define the optimum force under the proposed

> salary structure. Until such review is completed, the long-range cost implications of attaining the optimum force structure profile cannot be determined."1/

In progressing toward increasing efficiency in military compensation, the active duty pay system must be the first to be revised. As noted earlier, many of the factors that bear on the development of the active duty pay system are outside the control of the military manager. The pay structure, methods of compensation, and pay rates used by other employers must be considered by military managers if they are to compete successfully in the labor market to obtain and hold the personnel they need.

The retirement system must be second in the revision sequence, because active duty and retired pay are so closely inter-related. Construction of a retirement formula cannot be completed until the active duty pay system is defined. As is true of active duty pay, retired pay must also meet some externally imposed standards--at a minimum, it must permit socially acceptable egress and be competitive with the retired pay of civilian employers. Management may, of course, exceed these minimum standards if it so desires. However, outside forces not only set the minimum levels that can be paid to permit socially acceptable forced egress, but also determine the effects of annuities in motivating voluntary, undesired egress beyond the control of management. An annuity that is too low inhibits the ability and willingness of management to force the kind and quantity of egress desired. On the other hand, too high an annuity level motivates voluntary and undesired

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1/ Modernizing Military Pay, Volume I, dated 1 November 1967, p. 150.

qualities and quantities of retirement egress.

The final determination of an optimal force structure and the force management policies and actions necessary to achieve that structure is third in the sequence of system revisions. After the establishment of both the active duty and retired pay systems--systems containing the cost parameter "givens" that affect the solution--alternative structures and policies can then be examined, and that structure and those policies that provide the most efficient use of military personnel dollars can be selected. The terms "optimal" and "optimum" and the concepts these terms represent include the concept of efficiency. For any desired objective, the "optimum" force is the one that accomplishes the objective most efficiently.

Even though final determination of the optimum force structure and policies occurs later, design of the active duty and retired pay systems must, of course, give broad recognition to the needs of the military organization. For example, the retirement system must recognize the military's need for forced pre-retirement attrition and at least some quantity of early retirements in order to maintain the required "youth and vigor" and a reasonable promotion flow. Both the active duty and retired pay systems must provide the capabilities to satisfy organizational needs, but neither "youth and vigor," forced attrition, or "maintaining a promotion flow" are policy decisions that can be made without reference to the cost of these policies. The extent of the influence of various organizational needs on the force structure and management policies will be dependent in part upon the costs of satisfying those needs.

To many, the logic of an attempt to achieve an efficient compensation system by first establishing the active duty and retired pay levels and structures and then proceeding to determine the optimal or most efficient force structure seems faulty. It seems to them illogical to design pay systems for an unknown force structur Rather, they feel it would be more logical to first determine the ideal force structure and then to determine the active duty and retired pay required to support that structure. Those who hold this point of view frequently state that there is "one best way" to accomplish the mission (defense) and that the country should pay whatever is needed to find that one best way. They overlook the existence of alternatives: that there is no "one best way." There are many ways to accomplish any mission, and in the real world of limited resources, responsible management must examine alternatives and choose the most efficient. The subject of alternative means of accomplishing the mission of national defense is discussed more fully in subsequent paragraphs of this Appendix.

It is true that one cannot design either a retirement system or an active duty pay system for an organization without knowing something about the organization and the structure the organization will require. However redesign of the active duty and retired pay systems need not proceed in ignorance of the organization structure which they will serve. There are certain basic features of the present military organization structure which it appears valid to assume will be continued in future, more efficient force structures. These key features include: an organization that is basically pyramidal in shape; continued attrition of some officers because of failure of selection for promotion; a need

for attriting most career personnel at or before the 30 years of service point, and at least some need for early (20 year) retirements.

The need for early retirements--retirements at ages earlier than those typical in the civilian economy--is the principal feature that makes the military retirement system different from that of other employers. It is the principal feature that must be considered in design of the military retirement system. If the needs of the military organization were to change to the extent that nondisability retirement were not permitted until, say age 55, then it would be possible to approach the design of a military retirement system in a different manner than that used in this study. However, the study could find no basis for discontinuing early retirements. There seemed to be validity to the assumption that future forces will continue to have a need for at least some early retirements. Also, a complete change of the principles upon which the present force structure and management policies are based seems neither likely nor desirable.

Thus, the redesign of the active duty and retired pay systems can be based on some fundamental knowledge of how the military organization is going to be structured. And, given this knowledge, the broad limits within which the active duty and retired pay systems must function and the capabilities that each must possess can be defined. The basic form of the military organizational structure, or the structure of any organization, is determined by the mission or the objectives of the organization. It is not the very fundamentals of the military organizational structure which must be altered to achieve efficiency. Rather, it is

the details of the force structure and the details of the force management policies that can and must be determined after, not before, the active duty and retired pay systems are established. These details include the answers to such questions as "What portion of the force and what skills should be allowed to continue service beyond eight years? beyond 12 years? 16 years? 20 years? 25 years? etc. How much should be spent in special pays such as VRB to motivate retention at various years-of-service points? How much of compensation can be paid to motivate egress at various year of service points?... and so forth." Each of these questions can be answered only in the light of detailed knowledge of the complete structure of active duty and retired pay rates.

It would appear that those who believe that an optimal or most efficient force structure should be determined before active duty and retired pay structures are revised neglect the fact that there is no single force structure or composition which alone is capable of producing some given level of "defense." Rather, within the very broad organizational structure parameters set by a need for youth and vigor, reasonable promotion flow, etc., there are many alternative ways in which the military forces might be structured to accomplish their objectives. The final choice of the most efficient structure is a choice among those alternatives and necessarily must involve consideration of the costs of each alternative. In costing the various alternatives, the cost parameters--or at least the cost parameter minimums--are determined largely by outside forces. Active duty pay must be competitive with that of other employers, while retired pay must permit socially acceptable egress and be competitive with that of other employers.

Rather than presuming the existence of alternative force structures, some may contend that there is some specific set of force structure requirements that exist without respect to cost. In Chapter 7 of their book, The Economics of Defense in the Nuclear Age, Hitch and McKean describe such an approach to defense problem solving as "the Requirements Approach." Because their description of the fallacies of use of this method is authoritative, clear, and relevant, it is included as Annex A.

The same basic issue of "how" an item (or a service) will be produced most efficiently is treated in more general terms in most basic economics texts under various subject headings such as "Production and Cost" or "The Theory of Production and Marginal Products."1/ In the exposition of the most efficient method of producing a given product, economists utilize a "production function" which is simply a description of the alternative methods and alternative factor inputs which can, in an existing technology, be utilized to produce a given product. The particular method (and hence the mix of inputs) which will be utilized is then shown to be determined by the market price relationships of the various inputs--price relationships which are, of course, beyond the control of the individual firm or producer.

In this regard, it should be noted that the adopted standard for determining active duty pay is one that accepts wages in the civilian economy as providing the measure of what military wages should be. Thus, in large measure the active duty wage becomes a "given," set by outside forces of the labor market. Similarly, the military retired

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1/ See, for example, "Economics, An Introductory Analysis," Samuelson, pp. 511-512 and 523-526.

wage, at least the minimum military retired wage, will be set by outside forces--forces beyond the control of the military organization. This minimum should not be exceeded unless the military organization can obtain more efficient use of any extra-standard compensation dollars required to attract, retain, and motivate the kinds and numbers of personnel required by spending such extra-standard dollars in retired pay, rather than in some other element of compensation such as incentive pays.

The logic of revising the active duty and retired pay structures before the determination of an optimum force structure is reinforced when the changing and differing needs of the individual military services are recognized. For example, "youth and vigor" may be more or less important in future forces than in today's force; in the future, an advancing technology may increase the premium on experience and decrease the emphasis on physical abilities in many military occupations. Further, even in today's force, the various individual services have different missions and objectives meriting differing organizational structures and personnel management policies. The optimum Marine Corps force structure may differ considerably from that of the Air Force or Army. Thus, the most efficient force structure and implementing management policies can be ascertained:

- only by individual Service (Army, Navy, Air Force, Marine Corps), rather than for the active duty force as a whole;
- only in the light of then current and then existing mission and needs of each individual Service; and
- only in the light of the active duty and retired pay levels and structures that exist when the policies are determined.

Role of the Revised Retirement System in Achieving More Efficient Force Management

To fulfill its role in making possible efficient force management in a changing future environment, a revised military retirement system must meet only two basic tests:

- It must provide an ability to force egress of members in a socially acceptable manner, both before and after retirement eligibility.
- It must provide an economic incentive to service after retirement eligibility has been reached.

Given these two capabilities, the retirement system can be used in support of any and all force structures. Unless it has these capabilities, it will impede rather than facilitate achievement of an optimum structure. In order to meet the two tests, however, under the assumption that eligibility for an immediate annuity begins after 20 years of service, it is mandatory that 20 year retirement not provide the principal incentive to election of a military career. Implicit in this statement is the conviction that, compared to its present power, the pre-20 year retention pulling power of the annuity must be reduced. This reduction can be accomplished only by lowering the annuity percent of salary paid for 20 years' service.

The level of the retirement annuity payment for 20 years of service is a key determinant in establishing the ability of the retirement system to contribute to efficient force management. The following generalizations concerning the annuity for 20 years of service are relevant in this regard:

- The lower the level of the annuity for 20 years service:

- the less important "retirement" is in motivating pursuit of a military career,
- the easier it is to separate members who have not yet reached retirement eligibility,
- the more attractive a long military career becomes, compared with a short career, and
- the more reluctant management is to accomplish forced egress via "early retirement".

- The higher the annuity for 20 years service:
  - the more important "retirement" is in motivating pursuit of a military career,
  - the harder it is to separate members who have not yet reached retirement eligibility,
  - the less attractive a long military career becomes, compared with a short career, and
  - the easier it is to accomplish forced egress via "early retirement."

It is important to note that while a high annuity for 20 years of service makes it easier or perhaps unnecessary for the force manager to retire large numbers of personnel involuntarily at the 20 year mark (in that large numbers retire voluntarily), the same high annuity makes pre-retirement forced separations more difficult.

The difficulties of forcing separation before retirement eligibility increase as the 20 year annuity level is raised, because the higher the 20 year annuity, the greater the loss imposed on a member by a unilateral governmental decision to force his departure in advance of retirement eligibility.

The report on the study of active duty pay makes the same point when it states:

> "...As the 20 year point gets closer, of course, the prospect of retirement creates powerful incentives to stay in the force to protect one's 'investment' in retirement equity and to begin to collect an income that gets ever closer with the passage of time."1/

The report on the study of active duty pay also perceived a need for a pre-20 year forced egress tool. In Finding 24, it stated:

> "...Separation pay provisions corresponding to those for officers are required for enlisted personnel to provide the military force managers with a fair and effective method for tailoring the career force to specific manning requirements."2/

The active duty pay study again recognized the need for a pre-20 year retirement egress tool when, in discussing the cost effectiveness of its recommendations, it stated:

> "...Any increase in separation costs or significant savings in prospective retirement costs must come from a conscious application of separation pay provisions to tailor the force to optimum requirements and from a restructuring of retirement provisions, to include both numbers of people retiring and retirement annuities.
>
> A fundamental part of this force structure study must be a reevaluation of the numbers of people required to continue to 20 years of service. Attainment of the force structure profiles submitted by the services for the 30 June 1965 force distribution might well result in <u>more</u> people entering the retired rolls if the influence of extra first term retention outweighs the influence of the involuntary separations required in the career force."3/

An increased retention capability is a key advantage claimed for the salary system. What is desired is not an overall increase in retention, but an increased ability to retain selectively. Yet, if

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1/ Modernizing Military Pay, dated 1 November 1967, p. 43

2/ Modernizing Military Pay, dated 1 November 1967, p. 115

3/ Modernizing Military Pay, dated 1 November 1967, p. 150.

the present 20 year annuity payment levels were to remain after enactment of the higher active duty pay levels of the salary system, only an enhanced general retention capability would exist. Unless higher salary levels are accompanied by the capability to force the pre-retirement separation of those who are no longer required, the situation could easily lead to higher active duty pay cost., more 20 year retirees, higher retirement costs, and clogged pre-20 year promotion flow.

Also, some concern has been expressed that managers will feel hesitant about retiring personnel mandatorily at the lower 20 year annuity levels recommended in the study. However, if managers will feel hesitant about forcing retirements at the lowered 20 year annuity percentages, they will be even more hesitant to force pre-retirement separation in the numbers that might be required to maintain an optimum force structure, given the higher retention rates that might stem from the combination of a comparability salary plus continuation of the present 20 year retirement levels. The higher the 20 year annuity, the greater its attraction on those with more than ten year's service, and the more reluctant managers will be to separate those whose services are no longer required.

If the annuity percentage for 20 years of service is lowered, thereby making pre-retirement separations easier, the strength of the annuity as a career incentive will, of course, be weakened. But, pre-retirement retention during the early years of a military career can be better motivated on a selective basis by the combination of the comparability salary and the selective use of special pays than by a high 20 year retirement annuity. In addition, a lowered annuity percentage for

20 years of service also increases the relative attractiveness of a longer military career. Thus, there is a two-pronged advantage to reducing the 20 year annuity percentage:

- Reducing the role of retirement pay in motivating military careers of 20 years or less allows management more selective control over pre-20 year retention and separation rates.
- Making a 30 year career relatively more attractive than a 20 year career allows management more selective control over post 20 year retention and retirement rates.

It is this two-pronged advantage that will permit the retired pay system to do its share in making increased cost effectiveness of the military compensation system possible. In this regard, the report on the study of active duty compensation stated:

> "Although meaningful long run cost implications depend on future actions with respect to force structure and retirement annuities, it is nonetheless clear that the recommendations of this study both permit and require future actions designed to increase the cost-effectiveness of the compensation system. However, translating this potential into payoff will require the timely completion of the necessary studies and vigorous management action to effect the required changes in manpower management."1/

In summary, the military retirement system can best contribute to efficient manpower and personnel management in a constantly changing environment if it:

- provides the minimum 20 year of service annuity level consistent with socially acceptable standards and just treatment of military members,
- provides an incentive to service beyond 20 years, and
- does not utilize "20 year retirement" as the principal incentive to a military career.

1/ Modernizing Military Pay, dated 1 November 1967, p. 151.

ANNEX A

TO

APPENDIX I

THE REQUIREMENTS APPROACH

(An extract from Charles J. Hitch and Roland N. McKean, The Economics of Defense in the Nuclear Age, Harvard University Press, Cambridge, Mass., 1963, pp. 120 -122.)

recommended that a study be initiated to develop a program for increasing the earnings potential of the military retiree. The program envisioned would involve the Veterans Administration, Department of Labor and other Federal agencies as appropriate.

In the absence of systematic analysis in term of objectives and costs, a procedure that might be called the "requirements approach" is commonly used in the military departments and throughout much of the government. Staff officers inspect a problem, say, the defense of the continental United States or the design of the next generation of heavy bomber, draft a plan which seems to solve the problem, and determine requirements from the plan. Then feasibility is checked: Can the "required" performance characteristics, such as some designated speed and range, be achieved? Can the necessary budget be obtained? Does the nation have the necessary resources in total? If the program passes the feasibility tests, it is adopted; if it fails, some adjustments have to be made. But the question: What are the payoffs and the costs of alternative programs? may not be explicitly asked during the process of setting the requirement or deciding upon the budget. In fact, officials have on occasion boasted that their stated "requirements" have been based on need alone.

This, of course, is an illusion. Some notion of cost (money, resources, time), however imprecise, is implicit in the recognition of any limitation. Military departments frequently determine "requirements" which are from 10 to 25 per cent higher than the available budget, but never ten times as high, seldom twice as high. But this notion of cost merely rules out grossly infeasible programs. It does not help in making optimal or efficient choices.

For that purpose it is essential that alternative ways of achieving military objectives be costed, and that choices be made on the basis of payoff and cost. How <u>are</u> choices made by military planners prior to

any costing of alternatives? We have never heard any satisfying explanation. As we noted in our discussion of Figure 6, a good or efficient choice depends upon the relative costs of different resources or inputs; there was no "good" bomb/bomber combination or tactic independent of cost. The derivation of requirements by any process that fails to cost alternatives can result in good solutions only by accident. Probably military planners sometimes weigh relative costs in some crude manner, at least subconsciously, even when they deny they do; or they make choices on the basis of considerations which ought to be secondary or tertiary, such as the preservation of an existing command structure, or the matching of a reported foreign accomplishment.

The defects of the requirements approach can be seen clearly if we think of applying it to our problems as a consumer. Suppose the consumer mulls over his transportation problem and decides, "on the basis of need alone," that he requires a new Cadillac. It is "the best" car he knows, and besides Jones drives one. So he buys a Cadillac, ignoring cost and ignoring therefore the sacrifices he is making in other directions by buying "the best." There are numerous alternative ways of solving the consumer's transportation problem (as there are always numerous ways of solving a military problem), and a little costing of alternatives prior to purchase might have revealed that the purchase of "the best" instrument is not necessarily an optimal choice. Perhaps if the consumer had purchased a Pontiac or a second-hand Cadillac he would have saved enough to maintain and operate it and take an occasional trip. Or if he had purchased a Chevrolet he could have afforded to keep his old car and become head of a two-car

family. One of these alternatives, properly costed and compared, might have promised a far greater amount of utility for the consumer than the purchase of a new Cadillac "on the basis of need alone." Or the exercise might have reassured the consumer that the new Cadillac was indeed optimal. While expensive unit equipment is not necessarily optimal, in some cases it can be proved to be.

APPENDIX II - MILITARY RETIREMENT AND SECOND CAREER INCOME LOSS

Military Retirement and a Second Career

Analyses of the retired military population data collected in the 1966 Department of Defense Retired Population Survey revealed that almost all military retirees enter a second career after military retirement. Table II-1 shows the average age and years of active service of the nondisability retirees who retired in FY 1966. The table shows that military retirees as a group do not fit the image usually associated with retirement. At the time of their military retirement, they are relatively young and have twenty or more years remaining before they reach an age normally associated with withdrawal from the national labor force. By civilian work-life standards they leave military service with almost half a normal working lifetime still ahead of them.

TABLE II-1 - FY 1966 NONDISABILITY RETIREES

	Enlisted	Officers
Average age at retirement	42.9	47.3
Average years of active service at retirement	21.3	23.3

Table II-2 shows the distribution of a recent group of retirees by years of active service at time of retirement. It demonstrates that the great majority of career personnel who retire leave military service soon after the completion of a minimum length military career.

Only a small minority remains long enough to complete a full military career of 30 or more years of service.

TABLE II-2 - PERCENTAGE DISTRIBUTION OF NONDISABILITY RETIREMENTS BY YEARS OF ACTIVE SERVICE - FY 1963 THROUGH FY 1966 RETIREES

Completed Years of Active Service	OFFICER		ENLISTED	
	Percent	Cumulative Percent	Percent	Cumulative Percent
19	0	0	10.2	10.2
20	27.4	27.4	52.6	62.8
21	20.8	48.2	16.7	79.5
22	15.3	63.5	9.8	89.3
23	10.7	74.2	4.6	93.9
24	7.9	82.1	2.0	95.9
25	3.9	86.0	0.9	96.8
26	2.9	88.9	0.7	97.5
27	2.0	90.9	0.4	97.9
28	1.7	92.6	0.3	98.2
29	1.2	93.8	0.3	98.5
30+	6.2	100.0	1.5	100.0

Table II-3 shows the labor force participation and full time employment rates of military retirees and male civilians. Table II-4 displays the percentage of military retirees who have not been employed nor sought employment.

The normal pattern of civilian employment following completion of a military career makes military nondisability retirement unique among retirement plans in today's society in several ways, including the following:

TABLE II-3 - EMPLOYMENT STATISTICS: MALE CIVILIANS VS. NONDISABILITY MILITARY RETIREES

Age	Labor Force Participation Rate[a]			Full Time Employment Rate[b]			Adjusted Full Time Employment Rate[c]		
	Male Civ	Off Ret	EM Ret	Male Civ	Off Ret	EM Ret	Male Civ	Off Ret	EM Ret
35-44	.971	.971	.988	.974	.979	.974	.974	.958	.962
45-54	.950	.945	.974	.964	.965	.956	.964	.942	.941
55-59	.902	.846	.889	.964	.923	.919	.964	.893	.903
60-64	.786	.723	.719	.964	.915	.869	.964	.864	.843
65+	.279	.393	.319	.644	.810	.703	.644	.714	.662

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a/ The ratio of those working or looking for work to the total population. Male civilian rates from July 1966 data. Source: Table A-14, Employment and Earnings and Monthly Report on the Labor Force, Vol. 13, No. 2, August 1966, U. S. Department of Labor. Military retiree data taken from sample survey conducted in July 1966 by the Department of Defense.

b/ The ratio of those working full time (35 or more hours per week) to all those working. Male Civilian data from Table A-24 in publication cited in footnote a/. Military retiree rate assumes all self-employed persons were full time employed, since it was not possible to break out self-employed part time from self-employed full time in the 1966 survey.

c/ The Male Civilian rate is same as Full Time Employment rate. The military rate assumes 19.3% of self-employed retirees were part time employed. In July 1966, 19.3% of self-employed workers in non-agriculture industries were employed part time. Table A-25 in publications cited in footnote a/.

TABLE II-4 - PERCENTAGE OF MILITARY NONDISABILITY RETIREES WHO HAVE NEVER SOUGHT EMPLOYMENT NOR BEEN EMPLOYED, BY AGE AT RETIREMENT

Age at Retirement	Percent Who Have Never Been Employed Nor Sought Employment	
	OFFICER	ENLISTED
37 or less	2.2	1.9
38 - 39	2.1	1.7
40 - 42	2.8	2.7
43 - 45	5.0	3.2
46 - 48	7.1	4.9
49 - 51	12.1	6.6
52 - 54	16.8	10.4
55 - 59	24.5	16.8
60 or more	30.6	27.7
All ages	8.9	4.0

- In all but a very few instances, a military career is not a lifetime career. The military organization demands "youth and vigor" and "retirement" of the individual from military service at an age when withdrawal from the national work force is neither physically necessary, psychologically desirable, nor economically practical. As a result, military retirees typically enter civilian "second careers."
- In practice then, at least for the "second career years," the military retirement annuity is neither a "retirement" nor an "old-age" annuity in the generally accepted sense of these terms.
- Because of the necessity to start a second career after military retirement, the ultimate economic merit of a decision

to follow a military career is determined in large part by the income of the military careerist in his second (civilian) career. Accordingly, an individual's analysis concerning the timing of his military retirement must consider second career employment prospects, with a view to maximizing the combination of income resulting from second career employment plus the military retirement annuity.1/

Military Retirement and Second Career Income Loss

Every career military officer and enlisted man faces ultimate involuntary retirement from military service. In itself, mandatory retirement is not an unusual practice. Most organizations specify some age at which the employee is involuntarily removed. However, few remove their members at such early ages and in accordance with such a specific, well-defined plan as the military.

For the vast majority of its members the military organization requires retirement at a relatively young age compared with the civilian labor force. The basis for this requirement is an emphasis on the maintenance of a young and vigorous military force capable of performing vital defense and combat missions. As a result of prior promotion stagnation and superannuation of personnel that led to military forces with less than the desired efficiency and capabilities, the need for an emphasis on a young and vigorous force is well established and

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1/ A typical "career civilian's" retirement decision primarily must consider financial provision for old age and his preference for "work vs. leisure."

generally recognized. This is not to say that youth and vigor are a panacea for the military organization or that the current organization is optimally structured. Many military skills in today's Armed Forces closely parallel those of the civilian economy. Not all of these skills require the same degree of physical vigor. New concepts, more complex weapons systems, the continuing cold war and the worldwide deployment of military forces demand continuous change in the mix of requirements for physical endurance, technical skill, and practical experience that provide the "ideal" military force structure.

Nevertheless, considering present manpower requirements and personnel management practices, termination of all but a small minority of military careers at an age much lower than the normal civilian employment retirement age fills a need of the organization; not a need of the individual. Future changes in the structure of the military organization and management practices may reduce this need in some degree, but is unlikely that it will be eliminated.

Termination of military careers at an early age may be desirable from the standpoint of the organization, but it imposes both problems and opportunities on individuals. Financial needs during the second career years normally greatly exceed the income from the military retirement annuity. And, even though middle-aged commencement of a new profession may be difficult or even somewhat traumatic, withdrawal from the labor market at the time of military retirement is usually neither physically necessary, financially practical, nor emotionally desirable for the typical military retiree.

Military retirees generally earn less in their second careers than is earned by other civilians of similar age and education. Table II-5 shows the 1965 average money incomes from wages, salary and other sources (except the military retirement annuities) of military retirees and male civilians of comparable ages and education levels. The average income of civilians is higher than that of military retirees in 17 of the 24 categories shown in Table II-5 with retirees having higher incomes generally in the over 65 age group and the eight year or less education group.

In Table II-6 another comparison of the difference between retirees' income and the income of comparable civilians is displayed. The 1965 average income for retirees with different grades and ages at retirement was adjusted upward by 12 percent to put it in the 1968 time period, and compared to the 1968 comparability salary for the same grades and years of service. The comparability salary was used as a standard for comparison, because it indicates the average salary of civilians whose work level is comparable to that of military members of a given grade and years of service. If, say, an 0-5 with 20 years of service has the experience, training, and capabilities to perform at a work level on active duty comparable to a civilian who earns a salary of $20,596, then it might be expected that the 0-5 would earn a comparable amount in a second career if he worked at the same level. To the extent that a retiree does not work at the same level and does not earn the same

TABLE II-5 - COMPARISON OF 1965 MONEY INCOMES (OTHER THAN INCOME FROM MILITARY RETIREMENT) OF MILITARY NONDISABILITY RETIREES AND COMPARABLE CIVILIANS

Level of School Completed and Age	Money Incomes in 1965		Difference
	Retirees[a]	Civilian[b]	Retiree - Civilian
8 Years or less			
35 to 44	$ 5,227	$ 4,542	+ 685
45 to 54	4,925	4,622	+ 303
55 to 64	3,939	4,012	- 73
65 or more	1,869	1,854	+ 15
9 to 11 years			
35 to 44	6,449	6,118	+ 331
45 to 54	5,890	6,111	- 221
55 to 64	4,624	5,532	- 908
65 or more	2,287	2,426	- 139
12 years			
35 to 44	6,533	7,040	- 507
45 to 54	6,492	6,957	- 465
55 to 64	4,714	6,626	-1,912
65 or more	2,762	2,882	- 120
13 to 15 years			
35 to 44	7,603	8,145	- 542
45 to 54	7,409	8,724	-1,315
55 to 64	5,612	6,804	-1,192
65 or more	4,322	3,041	+1,281
16 years			
35 to 44	7,836	10,029	-2,193
45 to 54	8,723	11,557	-2,834
55 to 64	7,515	8,949	-1,434
65 or more	6,577	4,157	+2,420
17 years or more			
35 to 44	9,615	11,048	-1,433
45 to 54	11,088	12,326	-1,238
55 to 64	10,720	10,844	- 124
65 or more	8,552	7,346	+1,206

a/ 1966 Survey of Military Retirees, OASD(M&RA)

b/ U. S. Bureau of the Census, Current Population Reports, Series P-60 Consumer Incomes, No. 51, Tables 22, p.35.

TABLE II-6 - SECOND CAREER INCOME LOSS

Pay Grade	Years of Service	Retirement Age	1968 Comparability Salary[a] (1)	Annual Second Career Income[b] (2)	Annual Second Career Income Loss (3) (1) - (2)
O-6	24	47	$25,436	$12,963	$12,473
	26	49	26,199	12,991	13,208
	28	51	26,962	12,318	14,644
	30	53	26,962	11,215	15,747
O-5	20	43	20,596	12,721	7,875
	22	45	21,214	11,480	9,734
	24	47	21,832	11,816	10,016
	26	49	22,450	9,688	12,762
O-4	20	43	17,946	10,499	7,447
	22	45	18,440	9,317	9,123
E-9	20	39	12,484	9,109	3,375
	22	41	12,734	7,665	5,069
	24	43	12,983	7,501	5,482
	26	45	13,233	6,993	6,240
	28	47	13,483	5,787	7,696
	30	49	13,483	7,482	6,001
E-8	20	39	10,420	8,127	2,293
	22	41	10,625	7,851	2,774
	24	43	10,829	7,429	3,400
	26	45	11,033	7,156	3,877
	28	47	11,238	6,881	4,357
	30	49	11,238	6,497	4,741
E-7	20	39	8,973	8,426	547
	22	41	9,146	7,930	1,216
	24	43	9,318	7,520	1,798
	26	45	9,491	7,245	2,246
	28	47	9,491	7,140	2,351
E-6	20	39	8,068	7,362	706
	22	41	8,068	6,841	1,227

a/ Comparability salary is used to represent the income of the military retiree's cohort in the civilian sector.

b/ Based on 1965 average incomes from wages, salary and self-employment of nondisability retirees who retired in 1956 to 1964. In order to put these incomes in the 1968 time period the 1965 income was adjusted upward by 12%. Only the incomes of officer retirees who had completed 4 years of college and enlisted retirees who had completed 4 years of high school were used in these estimates of annual income.

income in his post military retirement employment, he experiences a second career income loss. The comparison in Table II-6 of average second career incomes and comparability salary shows average second career income losses that increase as age at retirement increases. It shows also that losses are larger for officer grades than enlisted grades.

One may argue that, in part, the differential results from the availability of the military annuity and a reduced civilian earnings aspiration level for the military retiree. This probably causes some of the differential, but there is good evidence that this is not the major cause. Rather, the higher incomes occurring to civilians appear to be primarily a result of their seniority and experience advantages.

If this is the case, then a late, middle-aged transfer from military to civilian employment carries an economic penalty, and one can say that pursuing a military career involves an "opportunity cost" that follows the individual into subsequent civilian employment. Despite a military retirement annuity that is a significant percentage of active duty income, from the viewpoint of the individual, middle-aged military retirement is neither an unmitigated economic nor social benefit. A portion of the military retirement annuity, in effect, compensates the retiree for the economic disadvantages typically encountered in the middle-aged transfer from a military to a civilian occupation--a transfer that satisfies the needs of the organization, not the member. The early military retirement annuity is thus an unusual form of income maintenance program, compensating recipients in part for the "opportunity cost" of pursuing a military career that does not offer a working lifetime of employment.

In addition to those already discussed, a valuation of second career income loss is sensitive to several measurements and assumptions concerning second career income data. Because military retirees are only a small part of the total U. S. population, U. S. census data do not provide income breakouts for this group. The sources of income information concerning military retirees are the 1966 DOD Retirement Survey and other similar prior studies. As is the case with data obtained from any sampling process, the data obtained from the survey of military retirees may be biased. However, the sample is large, represents a significant portion of the total population, and produces results similar to those obtained in other surveys. (It shows average income levels of military retirees to be below those of similar age and education of their career civilian cohorts.) On balance the second career income data are considered as valid as census data and data used to develop comparability wage scales.

- The amount of income loss will vary with the income standard against which second career income is compared. One parameter in the calculation of loss is the second career income of the retiree. A second principal parameter is the civilian cohort income. In the data displayed in Table II-6, active duty comparability salary military income is used as a proxy for civilian cohort income. This should provide a valid comparison, since the comparability salaries were developed from civilian income studies for comparable positions and work levels. Income loss also has been calculated using civilian income

data from the "Cohort Comparability"[1/] study with results similar to those shown in Table II-6. Any calculation of income loss relies on averages for input data and produces a value that is an average. Income loss is not a universal phenomena. Some retirees suffer no income loss and have second career incomes greater than their active duty military incomes. Further, these above average incomes may have stemmed from experience, contacts, or education gained during their military careers. Conversely, however, others suffer greater loss than the "average" loss shown in Table II-6.

Accepting the fact of second career income loss, there are two basic courses of action to deal with the problem:

- Pay retirees the amount of the average loss, experienced by retirees, whatever it may be, in the form of annuity payments.
- Take action to reduce individual income loss amounts thereby reducing the level of compensating payments required.

The first course of action encounters several problems. A principal problem lies in putting a dollar value on second career income loss. Available data give a good, though admittedly imperfect, indication of the current average loss amounts. However, even perfect information regarding the amounts of today's losses would not provide assurance that the situation will be similar in years to come.

1/ The cohort comparability study was accomplished during the study of military active duty compensation as part of the first Quadrennial Review of Military Compensation. See Modernizing Military Pay, Vol. I, Active Duty Compensation, Chapter 4, pages 63-66.

A retirement annuity plan that has as part of its purpose compensation for second career income loss attempts to cope with the world of many years in the future. The relevant question becomes, "What will second career income loss be in future years?" There are several reasons to believe that the current relationships of second career income levels to civilian cohort earnings may not necessarily be maintained indefinitely:

- First of all, the employability of older (middle-aged) individuals may well be more sensitive to economic conditions than the employability of younger people. A transition of the national economy from a shortage of skilled labor to a situation where skilled labor is more plentiful may reduce the second career employment opportunities of military retirees.
- Second, a significant number of officer retirees find employment in aerospace, electronic and other defense related industries. Alterations in the level of activity in these areas could significantly affect the employment opportunities available to military retirees.
- Third, future military skills may be either more or less transferable to the civilian economy than those of today. In a society with a rapidly changing technology, the problem of individual "technological obsolescence of skills" may become increasingly important.

Additionally, it must be recognized that any given retirement annuity will tend to overcompensate some individuals for the opportunity

loss of a military career while undercompensating others, because an annuity must deal with the "average" situation and be applied to the population as a whole.

Conclusions

The phenomenon of second career income loss should be recognized, but its use should be limited to that of a standard for judging the adequacy of the military nondisability retirement annuity in meeting circumstances during the second career portion of the military retirement period and in determining the "net benefit" that retirees derive from annuity payments. Moreover, in view of the uncertainties associated with determining future income loss and in consideration of the variance in second career income loss,

- the income loss, itself, should not be a part of the formula used to calculate the immediate retirement annuity, and
- the immediate retirement annuity should not be the sole means of dealing with second career income loss.

In view of these conclusions, the six step methodology used in developing the revised nondisability retirement formula discussed in Chapter 4 does not explicitly use second career income loss in the formula and does not anticipate that the retirement annuity paid will be sufficient to match the loss actually experienced by every individual military retiree. And, also in Chapter 4 of Volume IV, it is

recommended that a study be initiated to develop a program for increasing the earnings potential of the military retiree. The program envisioned would involve the Veterans Administration, Department of Labor and other Federal agencies as appropriate.

ANNEX A

TO

APPENDIX II

DESCRIPTION OF RETIRMENT SURVEY AND AMPLIFICATION OF SECOND CAREER INCOME DATA

Description of Retirement Survey

The DOD retirement survey was conducted by means of a questionnaire mailed to 133,386 retirees, approximately 25% of the military retired population selected at random on the basis of the last digit of the service number. The original mailing was conducted during the last week of June 1966. This mailing resulted in 73,350 useable responses, while 5,227 questionnaires were returned because of incomplete addresses. In September 1966 a follow-up questionnaire mailed to the non-respondents resulted in 25,279 additional useable responses for a total of 98,629 and a total response rate of 73.9%. (This was a response rate of 76.9% of the questionnaires assumed to have been delivered to retirees.)

Each questionnaire contained an answer sheet for the retiree to enter the appropriate letter or number answer to each question. The returned answer sheets were edited for legibility and completeness before being keypunched and transcribed to magnetic tape for subsequent processing and analysis. Answer sheets with some unknown or incomplete answers were retained in the sample in order to make full use of the completed portions of the answer sheet.

Second Career Income Data

Tables II-5 and II-6, Appendix II display selected income data for military retirees collected in the 1966 survey.

The average money incomes of male nondisability retirees in Table II-5 include income in 1965 from wages, salary, commissions or tips from all jobs, profits or fees from self-employment in a business professional

practice, partnership, or farm, and income from Social Security, non-military pensions, rent (minus expenses), interest, dividends, unemployment insurance, and welfare payments. All male nondisability retirees regardless of grade and employment status were included in the calculation of average incomes to insure comparability of the data with civilian income reported by the Bureau of the Census.

In Table II-6 retirees' average civilian income data are shown for selected sub-components of the survey respondents. The retired survey obtained 1965 earnings from wages, salary, commissions or tips from all jobs and profit or fees from self-employment. For purposes of comparing civilian second career incomes with the 1968 comparability salary, the 1965 average earnings were adjusted upward by 12% (equivalent to assuming approximately a 1965-1968 annual growth in wages of approximately 4%). The following categories of respondents were excluded from the analysis before computing the average second career incomes used in determining second career income loss:

- Disability Retireees
- Reserve Retirees retiring at age 60
- Females
- Nonwhites
- Those who worked less than 40 weeks in 1965
- Those who retired before 1956 or after 1964
- Those with reported incomes of over $50,000.

In addition, only officers who had completed 4 years of college but not 5, and enlisted retirees who had completed 4 years of high school but no college, were included in the average income computations. Because the education level of active duty members will undoubtedly increase in the future, it is anticipated that most prospective officer and enlisted retirees will have completed at least 4 years of college or high school. Since second career incomes were found to be sensitive to the retiree's education level and because future retirees are expected to have significantly different education levels than the retirees in the sample, it was considered appropriate to focus the analysis on officers and enlisted retirees who had completed 4 years of college and high school respectively. To the extent that future officer and enlisted retirees will have completed more than 4 years of college or high school, the second career income data in Table II-6 understates the expected civilian earnings for the higher educated retirees and, therefore, overstates the typical second career income loss.

Analysis indicated that retirees' income is sensitive to either years of active service or age at retirement. Since these two variables are closely related and because a retiree's employability and earnings potential as viewed by civilian employers is probably more sensitive to his age than his years of active service, average incomes were tabulated by age at retirement - a parameter which is a close proxy for years of active service. To obtain larger sample sizes ages at retirement were grouped by two year intervals from age group 38-39 to 58-59. Assuming typical entry ages of 18-19 for enlisted men, and 22-23 for officers, the typical 20 year enlisted and officer retiree would be age 38-39 or 42-43 respectively at retirement.

Tables II-A-1 and II-A-2 display 1965 average second career incomes for retirees by pay grade, education level, and age at retirement. Generally, retirees' second career incomes are inversely related to age at retirement and directly related to education level and grade; that is, higher incomes are associated with the younger ages at retirement, higher education levels and higher grades.

As is true of any data collected by a sampling technique, the estimates of average civilian earnings used in Table II-6 are subject to sampling error. Because the average incomes are based on a sample drawn from the entire retiree population, it is not certain that the averages shown are absolutely accurate representations of the true average income of retirees. A different random sample of the population would probably give a somewhat different estimate of the average income. The accuracy of the estimate depends both on the sample size and the dispersion of the incomes about the measured averages.

Table II-A-3 shows sample sizes, 1965 average incomes, standard deviations,[1/] and absolute and relative 95% confidence intervals of average incomes, for the pay grades and retirement ages shown in Table II-6. The 95% confidence intervals indicate that in repeated sampling of the population 95 out of 100 samples selected would have average incomes that lie within plus or minus the confidence interval of the sample average income.[2/] For instance, the confidence interval

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1/ The standard deviation is a measure of the dispersion of the incomes in the sample about the measured average income.

2/ Confidence intervals were calculated assuming a "t" distribution for average incomes.

$1,953, of the estimated average income, $11,575 for 0-6's with retirement ages 46-47 indicates that we are 95% confident that the true population average income is within ± $1,953 of the sample average of $11,575.[1/]

The relative 95% confidence intervals are generally between 8% and 18% of the average second career income for officer samples and between 2% and 10% of the average income for enlisted samples. The larger confidence intervals are associated with smaller sample sizes that occur in the higher officer grades and older retirement ages.

In evaluating the impact of the second career income data on the conclusions drawn by the study it must be recognized that second career incomes or income losses were a primary criterion only in measuring the adequacy of the proposed 20 years of service step 1 annuities. Second career income data are not essential for measuring the adequacy of the annuity levels of older, long career military retirees because there are existing non-military annuities for similar retirement ages and lengths of service that provide a standard for measuring adequacy.

The relatively large sample sizes and small confidence intervals for the age 38-43 retirees assure that the income data used in determining the proper levels of annuities for short career retirees is reliable and subject to a small margin of sampling error.

1/ In repeated sampling at least 95 out of 100 sample average incomes would be between ± $1,953 of $11,575 or between $9,622 and $13,528.

Table II-A-1

NONDISABILITY RETIREES' 1965 AVERAGE CIVILIAN EARNINGS FROM WAGES, SALARY, AND SELF EMPLOYMENT BY RETIREMENT GRADE, EDUCATION LEVEL, AND AGE AT RETIREMENT a/

Age at Retirement		O-6 Education Level b/ 15- Yrs	16 Yrs	17+ Yrs	Total	O-5 Officers Education Level b/ 15- Yrs	16 Yrs	17+ Yrs	Total	O-4 Education Level b/ 15- Yrs	16 Yrs	17+ Yrs	Total
40-41	$	6,833	15,000	17,400	13,137	10,547	13,821	12,661	11,544	8,862	9,741	9,916	9,051
	(N)	(3)	(1)	(4)	(8)	(203)	(57)	(65)	(325)	(606)	(80)	(69)	(755)
42-43	$	11,094	17,319	18,629	16,759	8,773	11,358	12,799	10,321	8,140	9,374	9,539	8,436
	(N)	(13)	(18)	(34)	(65)	(367)	(118)	(180)	(665)	(651)	(115)	(77)	(843)
44-45	$	10,302	11,467	17,446	14,263	8,800	10,250	11,579	9,830	8,312	8,320	9,079	8,391
	(N)	(40)	(31)	(77)	(148)	(400)	(161)	(197)	(758)	(492)	(62)	(63)	(617)
46-47	$	9,204	11,575	13,865	12,526	8,250	10,550	11,311	9,513	7,426	7,833	7,822	7,513
	(N)	(23)	(45)	(89)	(157)	(261)	(120)	(114)	(495)	(260)	(43)	(29)	(332)
48-49	$	9,157	11,599	15,498	13,072	7,615	8,650	10,147	8,318	6,726	8,071	7,743	6,961
	(N)	(43)	(52)	(101)	(196)	(267)	(80)	(88)	(435)	(232)	(28)	(30)	(290)
50-51	$	9,445	10,998	15,218	13,371	8,560	8,758	9,930	8,993	6,818	8,282	9,018	7,208
	(N)	(21)	(40)	(96)	(157)	(99)	(41)	(56)	(196)	(87)	(8)	(14)	(109)
52-53	$	9,681	10,013	11,957	11,117	7,386	8,650	7,759	7,725	7,012	9,900	7,200	7,144
	(N)	(30)	(53)	(121)	(204)	(77)	(26)	(61)	(164)	(44)	(2)	(5)	(51)
54-55	$	8,358	10,389	11,595	10,829	8,650	9,419	8,536	8,791	5,778	7,626	6,900	6,256
	(N)	(19)	(62)	(97)	(178)	(79)	(30)	(35)	(135)	(34)	(10)	(4)	(48)

(N) - Sample size

a/ The following survey respondents are not included in this sample: Disability and age 60 reserve retirees, non-white and female respondents, those whose age at retirement was less than 40 or greater than 55, individuals who worked 39 or less weeks in 1965 or reported incomes greater than $50,000, those who retired before 1956 or after 1964.

b/ Education level: "15- Yrs" indicates completed one to three years of college or less.
"16 Yrs" indicates completed 4 years of college.
"17+ Yrs" indicates completed 5 or more years of college.

Table II-A-2

NONDISABILITY RETIREES' 1965 AVERAGE CIVILIAN EARNINGS FROM WAGES, SALARY, AND SELF EMPLOYMENT BY RETIREMENT GRADE, EDUCATION LEVEL, AND AGE AT RETIREMENT a/

Enlisted

Age at Retirement		E-8 Education Level b/ 11- Yrs	12 Yrs	13+ Yrs	Total	E-7 Education Level b/ 11- Yrs	12 Yrs	13+ Yrs	Total	E-6 Education Level b/ 11- Yrs	12 Yrs	13 Yrs	Total
38-39	$	8,232	7,256	8,022	7,583	7,419	7,523	8,357	7,702	6,217	6,573	7,524	6,579
	(N)	(33)	(200)	(100)	(333)	(523)	(1,789)	(715)	(3,027)	(348)	(680)	(138)	(1,166)
40-41	$	7,653	7,011	7,406	7,173	6,916	7,080	7,928	7,238	6,073	6,108	6,805	6,180
	(N)	(33)	(314)	(151)	(498)	(518)	(1,934)	(683)	(3,135)	(298)	(737)	(136)	(1,171)
42-43	$	6,480	6,634	8,019	7,003	6,339	6,714	7,590	6,864	5,532	5,777	7,072	5,905
	(N)	(22)	(285)	(115)	(422)	(352)	(1,380)	(541)	(2,273)	(201)	(528)	(122)	(851)
44-45	$	7,164	6,369	7,537	6,788	6,066	6,469	6,911	6,492	4,906	5,411	5,962	5,355
	(N)	(20)	(188)	(90)	(298)	(244)	(819)	(294)	(1,357)	(156)	(359)	(82)	(597)
46-47	$	6,171	6,144	7,088	6,392	5,731	6,375	6,910	6,378	4,986	5,139	5,109	5,089
	(N)	(18)	(102)	(42)	(162)	(144)	(489)	(178)	(811)	(114)	(217)	(38)	(369)
48-49	$	5,764	5,801	6,564	6,002	5,713	5,525	6,768	5,816	4,343	4,976	6,029	4,933
	(N)	(7)	(70)	(28)	(105)	(137)	(288)	(103)	(528)	(56)	(107)	(26)	(189)
50-51	$	7,433	5,487	7,036	6,133	5,212	5,248	6,126	5,430	4,421	4,977	4,848	4,788
	(N)	(5)	(31)	(15)	(51)	(91)	(155)	(69)	(315)	(31)	(55)	(16)	(102)
52-53	$	5,647	5,068	7,068	5,748	4,671	5,187	5,086	5,034	4,085	4,504	4,987	4,400
	(N)	(8)	(26)	(14)	(48)	(44)	(93)	(35)	(172)	(23)	(30)	(7)	(60)
54-55	$	4,701	7,814	5,557	6,767	5,275	4,798	5,438	5,116	4,254	4,291	4,946	4,377
	(N)	(3)	(14)	(7)	(24)	(47)	(58)	(34)	(139)	(20)	(31)	(9)	(60)

E-0 Education Level b/

Age at Retirement		11- Yrs	12 Yrs	13+ Yrs	Total
38-39	$	9,330	8,133	8,597	8,366
	(N)	(3)	(59)	(47)	(109)
40-41	$	7,101	6,845	8,889	7,542
	(N)	(11)	(111)	(61)	(183)
42-43	$	8,073	6,697	7,782	7,205
	(N)	(7)	(105)	(82)	(194)
44-45	$	5,976	6,244	8,340	7,007
	(N)	(8)	(87)	(56)	(151)
46-47	$	8,143	5,167	7,682	6,267
	(N)	(3)	(36)	(24)	(63)
48-49	$	3,576	6,680	11,526	7,633
	(N)	(3)	(24)	(9)	(36)
50-51	$	6,472	6,435	7,250	6,662
	(N)	(4)	(7)	(4)	(15)
52-53	$	4,950	7,849	4,667	6,191
	(N)	(3)	(5)	(3)	(11)
54-55	$	6,098	6,020	7,134	6,362
	(N)	(1)	(6)	(3)	(10)

(N) - Sample size

a/ The following survey respondents are not included in this sample: Disability and age 60 reserve retirees, non-white and female respondents, those whose age at retirement was less than 38 or greater than 55, individuals who worked 39 or less weeks in 1965 or reported incomes greater than $50,000, those who retired before 1956 or after 1964.

b/ Education level: "11- Yrs" indicates completed one to three years of high school or less.
"12 Yrs" indicates completed 4 years of high school.
"13+ Yrs" indicates completed one to three years of college or more.

Table II-A-3

1965 AVERAGE SECOND CAREER INCOMES, STANDARD DEVIATIONS AND CONFIDENCE INTERVALS
NONDISABILITY MILITARY RETIREES - TYPICAL PAY GRADES AND AGES AT RETIREMENT a/

Pay Grade	Retirement Age	Years of Active Service (Typical Retiree)	Sample Size	1965 Average Second Career Income b/	Standard Deviation	95% Confidence Interval c/ Dollars	Dollars as a % of Ave. Income
O-6	46-47	24	45	$11,575	$6,411	$1,953	16.8%
	48-49	26	52	11,599	5,747	1,618	13.9
	50-51	28	40	10,998	5,987	1,938	17.6
	52-53	30	53	10,013	6,609	1,842	18.4
O-5	42-43	20	118	11,358	4,989	900	7.9
	44-45	22	161	10,250	5,877	907	8.8
	46-47	24	120	10,550	5,741	1,027	9.7
	48-49	26	80	8,650	5,289	1,160	13.4
O-4	42-43	20	115	9,374	5,892	1,078	11.4
	44-45	22	62	8,319	4,079	1,015	12.2
E-9	38-39	20	59	8,133	3,553	933	11.5
	40-41	22	111	6,845	2,797	519	7.5
	42-43	24	105	6,697	3,445	659	9.8
	44-45	26	87	6,244	2,263	476	7.6
	46-47	28	36	5,167	2,830	970	18.7
	48-49	30	24	6,680	3,343	1,444	21.6
E-8	38-39	20	290	7,256	3,858	535	7.3
	40-41	22	314	7,010	3,639	402	5.7
	42-43	24	285	6,634	3,562	414	6.2
	44-45	26	188	6,389	3,202	459	7.1
	46-47	28	102	6,144	3,271	635	10.3
	48-49	30	70	5,801	2,721	637	10.9
E-7	38-39	20	1,789	7,523	3,269	151	2.0
	40-41	22	1,934	7,080	3,292	147	2.0
	42-43	24	1,380	6,714	3,097	163	2.4
	44-45	26	819	6,469	2,935	202	3.1
	46-47	28	489	6,375	4,315	382	5.9
E-6	38-39	20	680	6,573	2,891	218	3.3
	40-41	22	737	6,108	2,964	214	3.5

a/ Same pay grades, ages, and years of service used in Table II-6, Appendix II.

b/ These average incomes were reported for calendar year 1965 survey respondents, and were adjusted upward by 12% for the comparison with 1968 comparability salary shown in Table II-6, Appendix II.

c/ A 95% confidence interval indicates that we are 95% confident the true average income for the population of retirees under consideration lies within + or - the confidence interval dollar value of the sample average; that is, in repeated sampling of O-6's age 46-47 at retirement, at least 95 out of every 100 samples would have an average income between $9,622 to $13,528 or $11,575 ± $1,953. It was assumed that the average incomes were distributed according to a t distribution.

APPENDIX III

EARLY RETIREMENT AND INCOME MAXIMIZATION

(This Appendix was published separately in Part IV of Old Age Income Assurance, a compendium of papers on problems and policy issues in the public and private pension system, submitted to the Subcommittee on Fiscal Policy of the Joint Economic Committee of the Congress. It was written by CDR Allen J. Lenz, SC, USN, a member of the Retirement Study Group.)

APPENDIX III - EARLY RETIREMENT AND INCOME MAXIMIZATION

The U. S. military retirement system is designed to serve an established need of the military organization: It functions to permit withdrawal of career personnel from the Military Establishment at relatively young ages, in order to prevent the organization from being dominated by men too old for the rigors of military life and to insure that maintenance of "youth and vitality" will provide a combat effective organization.

The removal of superannuated personnel is a commonplace objective of retirement systems. However, the military system is virtually unique with respect to the early age at which the withdrawal of career members is mandatory or encouraged.

The military retirement system does fulfill its objective of maintaining "youth and vitality" in the military personnel structure. But, in achieving its goals the system establishes a pattern of economic incentives and resultant individual behavior responses which may imperfectly serve the best interests of the military organization. The purpose of this paper is to describe some effects of the military retirement system on labor mobility and to demonstrate that these effects can stem from any retirement system which offers an "early retirement" option to employees who are capable of continued, highly productive employment. 1/

1/ In this paper "early retirement" refers to retirement without actuarial reduction of benefits prior to the "normal" retirement age in our society. The normal retirement age is popularly considered to be about age 65--the age at which unreduced social security benefits become available.

Part I briefly describes the military retirement system. The unique "income maximization" problem thrust upon members of the military profession by the necessity of a second career is examined in part II. Part III summarizes the results of a study of the effects of the length of a military career on lifetime incomes. Part IV examines the career length behavior patterns which may be expected in some nonmilitary organizations offering an early retirement option and part V offers comments concerning the effect of early retirement programs on efficient resource allocation. Conclusions are summarized in the final portion of the paper.

I. MILITARY RETIREMENT AND SECOND CAREERS

Every career military officer and enlisted man faces ultimately involuntary retirement from military service. In itself, mandatory retirement is not an unusual practice. Most organizations specify some age at which the employee is involuntarily removed. However, few, if any, remove their members at such early ages and in accordance with such a specific, well-defined plan as does the military.

For the vast majority of its "employees" the military organization requires retirement at a relatively young age. 1/ The basis for this requirement is an emphasis on the maintenance of a young and vigorous military force capable of performing vital defense and combat missions. As a result of prior experiences wherein promotion stagnation and superannuation of personnel led to military forces with less than the desired efficiency and capabilities, the need for such an emphasis is

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1/ For the most part, mandatory retirement provisions for military officers are not tied directly to age, but rather to grade and length of service. For officers, the retirement system is closely integrated with an up-or-out selective promotion system. Each officer is periodically considered for promotion and those not selected for advancement are eliminated from the active duty force. Those who have 20 years or more of service are forced to retire upon completion of a specified career length (30 years or less, dependent upon the grade attained before promotion failure). Those with less than 20 years' service are discharged with a separation payment. Generally speaking, only officers selected for flag rank (admiral/general) can expect to be able to serve more than 30 years. Enlisted personnel are not subject to the up-or-out selection principle, but few (less than 4 percent of the total enlisted population) serve beyond 20 years, most availing themselves of the voluntary retirement option soon after completing a minimum-length career. If large portions of the enlisted force were motivated to extended-length careers, involuntary removal rates would be high in order to maintain the degree of youth considered essential.
Thus, while maximum-age limitations are not predominant in mandatory retirement provisions, grade and length of service requirements and the 20-year-retirement option tend to generate relatively young retirees and to maintain the desired degree of youth in the active duty force. A typical officer is 43 at completion of 20 years service--a typical enlisted man is 39--but the completion of 20 years of active service can occur as early as age 37.
For further details on the provisions of military retirement, see "Federal Staff Retirement Systems" appendix to the report to the President by the Cabinet Committee on Federal Staff Retirement Systems, Apr. 6, 1967, U. S. Government Printing Office, p. 127.

well established and generally recognized. 1/ This is not to say that youth and vigor is a panacea for the military organization or that the organization is optimally structured. In the present day world many military skills closely parallel those of the civilian economy. Not all of these skills require the same degree of physical vigor. New concepts, more complex weapons systems, the continuing cold war, and the worldwide deployment of military forces may carry need for a recurring change in the mix of requirements for physical endurance, technical skills, and practical experience which would provide the "ideal" military personnel structure. There can be no assurance that the present system of personnel utilization is optimum.

Nevertheless, given the present assumptions concerning manpower requirements and resultant methods of personnel management, termination of all but a tiny minority of military careers at an age much lower than the normal civilian employment retirement age fills a need of the organization--not a need of the individual. The termination may be desirable from the standpoint of the organization, but it imposes problems on the individual terminated. His financial needs normally greatly exceed the income from his military retirement annuity. And, even though middle-aged commencement of a new profession may be difficult or even somewhat traumatic, withdrawal from the labor market is usually neither physically necessary, financially practical, nor emotionally desirable for the typical military retiree. As a result, the great majority of career military

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1/ See Ibid, p. 365.

personnel seek civilian employment in a "second career" after retiring from the military. 1/

Military retirees generally earn less in their second careers than is earned by other civilians of similar age and education. One may argue that, in part, the differential results from availability of the military annuity and thus a reduced civilian earnings aspiration level for the military retiree. This probably causes some of the differential, but there is good evidence that it is not the major cause. 2/ Rather, the higher incomes accruing to the civilians appear to be primarily a natural result of seniority and experience advantages.

If this is the case, then a late, middle-aged transfer from military to civilian employment carries an economic penalty, and one can say that pursuing a military career involves an "opportunity cost" that follows the individual into subsequent civilian employment. Thus, despite governmental provision of a military retirement annuity which is a

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1/ For military retiree employment participation rates, see "The Economics of Military Retirement," Mahoney and Fechter, in "Old Age Income Assurance," Joint Economic Committee, 90th Cong., 1st sess.

2/ See "A Study of the Military Retired Pay System and Certain Related Subjects," a report to the Committee on Armed Services of the U. S. Senate by the Study Committee of University of Michigan, 1961, p. 38, and part III of this paper.

significant percentage of active duty income, [1] from the viewpoint of the individual, middle-aged military retirement is neither an unmitigated economic nor social benefit. A portion of the military retirement annuity, in effect, serves to compensate the retiree for the economic disadvantages typically encountered in a middle-aged transfer from a military to a civilian occupation. The military retirement annuity is thus an unusual form of income maintenance program, compensating recipients in part for the "opportunity cost" of pursuing a military career which does not offer a working lifetime of employment. However, the problems and economic penalties of a transition to civilian employment vary with respect to the individual's retirement age, education, military occupation, and so forth. Further, there is no assurance that the annuities provided for each of the possible military career lengths are equally advantageous. The effect is to create a unique income maximization problem for those eligible for military retirement.

II. MILITARY RETIREMENT AND INCOME MAXIMIZATION

Since the military cannot provide a lifetime career for most of its personnel, it seems logical to assume that each individual achieving eligibility for military retirement will attempt to determine the optimum time, within the range of choices available, to make the transition

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1/ Monthly military nondisability retirement pay is determined by multiplying 2½ percent times the number of years service times the monthly base pay for the individual's retirement grade and longevity pay step. The minimum payment is 50 percent of basic pay (for 20 years' service) and the maximum is 75 percent of basic pay (for 30 or more years of service). Nondisability annuities are not paid for less than 20 years of service. Basic pay is, on the average for those eligible for retirement, only about 76 percent of tax equivalent gross cash income.

from military to civilian employment. Selecting the most favorable point at which to terminate a military career and begin civilian employment will inevitably involve consideration of a variety of factors, both economic and noneconomic. The interest of this paper is in the economic elements of the decision process.

For a military careerist who is eligible to retire from military active duty service, it is contended that the logical and typical approach in deciding "when to retire" would be one of selecting the military career length which maximizes expected future total lifetime income; that is, maximizing the expected income for that portion of the individual's lifetime subsequent to his earliest opportunity to retire from the military organization (after completion of 20 years of active service). We define this period as the "post-retirement-opportunity period" and identify the income received during this period as the "post-retirement-opportunity lifetime income."

After achieving eligibility for military retirement, a military careerist can receive various combinations of four types of income: Military active duty pay; military retired pay; civilian second career pay; civilian second career retired pay.

A careerist who could retire from military service but does not do so continues to receive military active duty pay, but foregoes military retired pay and the opportunity to earn a civilian second career income. Conversely, a careerist who retires foregoes military active duty pay in exchange for military retired pay and the opportunity to earn a civilian second career income.

As the length of an active duty military career is extended beyond the minimum required for military retirement, the tenure of receipt of military retired pay and the potential period during which second career income may be received are obviously shortened. The individual's economic maximization problem thus becomes one of selecting the optimum "mix" of military and second career lengths.

Some of the considerations which may affect the determination of an optimum include:

1. Military retirement pay increases as the length of a military career increases.

2. Continued military service may bring an increase in active duty compensation as a result of promotion and/or reaching longevity pay increase points. Either type of active duty pay increase also serves to increase subsequent retirement pay.

3. It is generally assumed that job opportunities and incomes in second careers decline as military retirement age advances.

4. Second careers also offer potential pension benefits. However, the value of these benefits will decline as the starting age advances and the potential years of civilian second career employment decrease.

5. In large measure, the individual's capabilities, skills, and education determine his civilian employment opportunities. Thus, those with low civilian employment potential will find delayed military retirement more financially rewarding (or less of a financial sacrifice) than will those with a higher employment potential.

III. THE IMPACT OF MILITARY CAREER LENGTHS ON INCOME MAXIMIZATION

The very small number of enlisted personnel who serve beyond the minimum military career length and the growing numbers of officers who retire soon after completion of 20 years service offer strong evidence that military personnel are, in the main, convinced that short military careers are in the best interest of the individual.[1/] In this section I offer evidence concerning the effect of military career lengths on post-retirement-opportunity lifetime incomes.

In an investigation of the effects of economic incentives on the career lengths of officers of the naval service, I utilized a simple mathematical model which considered post-retirement-opportunity income from each of the four potential sources previously noted. [2/] The data used are incomes from active duty military employment, military retirement, second career employment and second career retirement. Second career income information was obtained from some 5,300 responses to a questionnaire mailed to Navy and Marine Corps officers who retired during

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1/ See Fechter and Mahoney, op. cit., for military personnel continuation rates by years of service.

2/ A detailed description of methods is contained in: Allen J. Lenz, "Military Retirement and Income Maximization: An Examination of the Economic Inventives to Extended Military Service," unpublished Ph. D. dissertation, Graduate School of Business, Stanford University, 1967.

the years 1955-64 in the pay grades 0-5 through 0-8. 1/ Through use of various discount rates, the model collapses post-retirement-opportunity lifetime income streams from each of the four potential sources into a single-valued estimate of the present worth of post-retirement-opportunity income.

The optimum retirement length of service was determined by comparing the values resulting from the various possible combinations of military and civilian career lengths. The combination which yielded the largest estimated value was considered the optimum military career length for income maximization purposes.

The results appeared to indicate lack of a significant positive financial incentive for officers to remain on active duty for a maximum length military career. For each individual, the solution depends, of course, on the relative opportunities offered by military and second careers. However, in terms of groups and averages, second career

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1/ The military services differ somewhat in the titles used to identify a particular level in the organizational hierarchy. For purposes of clarity and brevity, ranks are subsequently identified by using the Department of Defense pay grade which is identical for all of the individual military services. Pay grades and applicable rank title equivalents for the group in which this paper is interested are:

Pay grade	Navy rank title	Army, Air Force, and Marine Corps, rank title
0-5	Commander	Lieutenant colonel
0-6	Captain	Colonel
0-7	Rear admiral (lower half)	Brigadier general
0-8	Rear admiral (upper half)	Major general

opportunities tended to be substantially better for those who held advanced degrees than for those who did not. As a result, for advanced degree holders, early retirement appears to show a strong financial advantage over extended military service.

For those who did not hold advanced degrees, the solution generated by the model was less clear-cut and the indicated economic advantages of early retirement were relatively small. However, inclusion in the analysis of factors outside the purview of the model (nonemployment and unemployment rates) strengthens the case for early retirement.

In large measure, the optimum retirement time for those who did not hold advanced degrees appeared to be dependent upon their attitude toward "risk." For example, a Navy captain or Marine Corps colonel (O-6) who completed 23 years of service could look forward to a guarantee of 7 additional years of military employment at an income level which is, at worst, not likely to decline sharply. Conversely, the vagaries of business conditions might make it difficult to secure civilian employment or, if he is employed, might cause him to lose his job. Thus, a transfer to civilian employment during this period could represent, in a real sense, a loss of "security."

However, continued military service until retirement is mandatory increases "risk" in the sense that it increases the odds that, when termination of military employment does finally occur, the retirees will be unable to find civilian second career employment that is both financially rewarding and personally satisfying. Thus, it is difficult to say which course of action, early or later termination of a military career, is the more risky. To a large extent, the solution is dependent

on the economic aspiration level of the individual. If his income aspiration levels are relatively low, extended military service provides a high degree of assurance of attaining his goal. If his income aspirations are low enough such that the combination of military active duty income and subsequent military retired pay satisfies his desires, that is, he does not desire a second career, extended military service provides him complete assurance of attaining his goal. Conversely, if he aspires to higher income levels, early retirement offers the greatest opportunity for realizing his ambitions.

In addition to the results yielded by the model, analysis of questionnaire and other income data led to the following conclusions:

1. Except for a "one time surge" occurring during the first 1 or 2 years immediately after entering the civilian work force, military retirees maintain, but do not tend to improve, the relative income standing they establish at the time of their military retirement; that is, though their incomes may grow over time, the growth experienced generally parallels that of the Nation's wage level. 1/

2. The military retirement age (and hence the age at which the individual enters civilian employment) is a crucial variable in determining the absolute and relative level of income which will be realized from

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1/ This result corresponded with published findings from census data for similar age groups in the overall U. S. population. See H. P. Miller, "Lifetime Income and Economic Growth," "American Economic Review," September 1965, p. 834.

second career employment. As age advances, second career incomes decline. (See table III-1.) 1/

3. There was a strong positive correlation between education and annual income (see table III-1). However, the relative advantage of an advanced degree declined sharply as the retirement age advanced. 2/

4. O-6 retirees almost invariably achieved higher income levels than O-5 retirees in comparable retirement age and education level groups. Thus, if promotion to higher rank is a measure of "success" in military life and annual income is a measure of success in civilian life, one can conclude that the qualities which result in success in the military environment similarly tend to produce success in civilian second careers.

5. The income level achieved in second careers, as well as the labor force participation rate, appears to be very much a function of the opportunities open to the individual and not solely a function of need. Were second career incomes solely a function of need, we would expect O-6 retirees, with their larger retirement annuities, to have lower second career incomes than O-5 retirees. Table III-1 illustrates that the reverse is true, when retirement age and education level are held

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1/ It should be noted that the annual incomes displayed in table III-1 relate only to those individuals who held full-time employment or were self-employed. Lower averages would, of course, result if unemployed and part-time workers were included. However, for the purposes of the analysis undertaken, it was considered that a more valid comparison of the effects of age and other factors would be obtained by focusing on those working full time.

2/ The relatively poor table III-1 income showing of those who obtained master's degrees after retirement stems from the fact that most of this group entered the education field, a relatively low-income profession.

TABLE III-1

AVERAGE 1966 ANNUAL INCOMES OF SURVEY RESPONDENT POPULATION, BY RANK, EDUCATION LEVEL, AND RETIREMENT AGE

(Full time and self-employed only)

Grade and education[1]	1966 average annual income by retirement age								
	Less than 44	44 to 45	46 to 47	48 to 49	50 to 51	52 to 53	54 to 55	Over 55	All ages
0-5:									
LTBS.....	$11,110	$10,910	$9,600	$8,650	$8,830	$8,890	$10,940	$8,390	$9,810
BS.....	12,310	10,630	10,880	10,260	10,060	10,230	(2)	(2)	11,130
MBR.....	15,720	14,350	15,630	11,880	12,000	11,250	11,250	(2)	14,520
MAR.....	10,000	8,640	8,750	(2)	(2)	(2)	(2)	(2)	9,130
Ph. D.....	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	15,050
0-6:									
LTBS.....	(2)	14,170	16,530	11,250	12,190	9,550	10,140	12,920	12,280
BS.....	14,730	13,390	12,030	11,220	11,220	10,280	11,280	12,190	11,440
MBR.....	20,270	17,640	15,670	14,260	12,330	12,490	11,350	13,040	14,660
MAR.....	(2)	(2)	11,670	9,350	7,380	8,630	8,570	(2)	9,070
Ph. D.....	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	14,110
0-7: All...	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	12,920
0-8: All...	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	13,630

1/ Education: LTBS--Less than a bachelor's degree; BS--Bachelor's degree or some work toward a master's degree; MBR--Master's degree awarded before military retirement; MAR--Master's degree awarded after military retirement; and Ph. D--Ph. D degree.

2/ Number of observations too few to provide meaningful data.

Source: Lenz, op. cit, p. 83.

constant. Similarly, tables III-2 and III-3 indicate that labor force participation is strongly affected by the opportunities available, with participation and opportunities increasing with the education level.

For officers holding advanced degrees there appears to be a strong positive economic incentive to leave the military organization soon after achieving retirement eligibility. 1/ If such an incentive actually exists and if career military officers are responsive to economic incentives, we would expect the more highly educated officers tending to retire at earlier ages than their less educated fellows who do not have comparable second career opportunities.

The empirical evidence available substantiates the theory. Table III-4 compares the retirement ages and education levels for O-5 and O-6 officers in the population surveyed. The relationships are very much those which we might expect from the economic data in table III-1. Those who earned master's degrees while still on active duty tended to exit from their military careers at earlier ages than their less educated age and grade cohorts. (At some ages those who obtained master's degrees after their military retirement terminated their military service earlier than those who had earned their master's degrees before retiring, but the former group is small in number and statistics concerning it, therefore, more subject to the influences of random variations.)

Most of the O-5 retirees in table III-1 are individuals who failed of selection to O-6. For them, retirement would be mandatory upon completion of 26 years of service. Most retire before completing that length of service, but when the group is analyzed by education level,

1/ Lenz, op. cit., ch. IV.

TABLE III-2 - PERCENT OF SURVEY RESPONDENTS WHO HELD CIVILIAN EMPLOYMENT FOR 3 OR MORE MONTHS AND WERE CURRENTLY EMPLOYED FULL TIME, BY GRADE, EDUCATION LEVEL, AND RETIREMENT AGE

Grade and education[1]	Percent holding full-time employment by retirement age								
	Less than 44	44 to 45	46 to 47	48 to 49	50 to 51	52 to 53	54 to 55	Over 55	All ages
0-5:									
LTBS.....	93.4%	90.7%	86.5%	84.0%	79.0%	70.4%	75.1%	50.0%	85.3%
BS.....	96.9	95.0	94.0	89.0	91.1	96.2	90.9	64.3	93.9
MBR.....	98.8	98.2	100.0	100.0	100.1	(2)	(2)	(2)	97.4
MAR.....	100.0	92.0	100.0	90.0	100.0	(2)	(2)	(2)	96.8
0-6:									
LTBS.....	100.0	100.0	70.6	94.1	80.0	84.4	66.7	65.0	81.5
BS.....	88.9	95.2	94.2	86.4	80.3	79.4	74.6	75.0	83.5
MBR.....	98.4	96.5	95.5	90.7	88.7	78.7	79.3	90.0	89.4
MAR.....	(2)	(2)	92.3	83.3	97.1	83.6	87.5	(2)	87.6

1/ Education: LTBS--Less than a bachelor's degree; BS--Bachelor's degree or some work toward a master's degree; MBR--Master's degree awarded before military retirement; MAR--Master's degree awarded after military retirement.

2/ Number of observations too few to allow meaningful percentage expressions.

Source: Lenz, op. cit, p. 174.

TABLE III-3 - PERCENT OF SURVEY RESPONDENTS NOT EMPLOYED SINCE RETIREMENT, BY RANK, EDUCATION LEVEL AND RETIREMENT AGE

Grade and education[1]	Percent not employed since retirement, by retirement age								
	Less than 44	44 to 45	46 to 47	48 to 49	50 to 51	52 to 53	54 to 55	Over 55	All ages
O-5:									
LTBS.....	3.6%	4.5%	6.5%	13.3%	11.0%	13.6%	20.0%	56.4%	10.3%
BS.....	2.6	1.5	1.7	5.7	10.4	12.9	7.7	26.3	4.1
MBR.....	2.2	0	2.3	4.0	(2)	(2)	(2)	(2)	2.3
MAR.....	5.9	16.0	5.3	9.1	0	(2)	(2)	(2)	4.1
O-6:									
LTBS.....	14.3	0	5.3	30.8	16.0	19.5	11.8	42.5	21.0
BS.....	1.8	4.6	3.5	6.2	10.2	16.5	19.9	25.5	11.7
MBR.....	0	1.2	1.1	0	7.5	8.9	14.7	9.1	4.7
MAR.....	0	0	7.1	0	0	5.9	0	(2)	2.4

1/ Education: LTBS--Less than a bachelor's degree; BS -Bachelor's degree or some work toward a master's degree; MBR--Master's degree awarded before military retirement; MAR--Master's degree awarded after military retirement.

2/ Number of observations too few to allow meaningful percentage expressions.

Source: Lenz, op. cit., p. 172.

TABLE III-4 - RETIREMENT AGES AND RETIREMENT EDUCATION LEVELS OF SURVEY OFFICERS RETIRING FOR NONDISABILITY REASONS DURING YEARS 1955-64

(Cumulative percent of all retirements accomplished by indicated age)

Grade and education 1/	Age 43	Age 45	Age 47	Age 49	Age 51	Age 53	Age 55	Age over 55
O-5:								
LTBS.....	18.9%	32.3%	49.5%	72.8%	89.2%	95.0%	96.7%	100%
BS.....	30.9	58.0	73.8	85.2	91.6	95.7	97.4	100
MBR.....	45.1	73.3	84.4	90.7	95.2	96.7	98.5	100
MAR.....	34.7	60.2	79.6	90.8	97.9	98.9	99.9	100
O-6:								
LTBS.....	3.6	13.8	23.5	36.8	49.6	70.5	79.2	100
BS.....	4.1	10.5	21.1	37.9	55.4	84.3	86.3	100
MBR.....	6.9	22.3	38.3	52.5	69.3	91.7	98.0	100
MAR.....	3.7	9.2	17.7	36.0	56.7	87.8	98.6	100

1/ Education: LTBS--Less than a bachelor's degree; BS--Bachelor's degree or some work toward a master's degree; MBR--Master's degree awarded before military retirement; MAR--Master's degree awarded after military retirement.

Source: Lenz, op. cit, p. 150.

there are some perceptible differences in the rates of exit. Table III-4 indicates that graduate trained officers in grade 0-5 do not tarry on active duty once they fail of promotion to the next grade. Some 73.3 percent of this group had retired by age 45, while only 58 percent of the B.S. degree holders and 32.3 percent of the nondegree personnel had retired by the same age. It is also interesting to note that 38.8 percent of the graduate trained retirees in grade 0-6 had turned to civilian life by age 47. By retiring at this early age, the majority must have foregone the opportunity to be considered for promotion to the next grade (0-7, rear admiral-brigadier general).

Thus, the data of tables III-1 through III-4 tend to indicate that--

1. There is a positive economic incentive for the more highly educated officers to leave military service soon after becoming eligible for retirement.

2. Officers holding advanced degrees are apparently aware of, and responsive to, this incentive.

3. If education level is a valid measure of the "quality" of a military professional, the officer corps can expect a tendency to lose, via voluntary retirement, a larger portion of the higher quality personnel (advanced degree holders) than it will lose of the lower quality personnel (those not holding advanced degrees).

From the viewpoint of the organization, the undesirable aspects of a retirement system which encourages early retirement of its better quality personnel are obvious. But, is education level a reasonable proxy for the "quality" of a professional military officer? Few, including the writer, would assert that attained level of education was an unfailing

measure of quality in any profession, be it military or civilian. However, the majority of those Navy officers who hold advanced degrees at the time of their military retirement probably have received their graduate educations under Navy auspices and at Navy expense. The receipt of such training is based on a selection process which utilizes standards similar to those used for determining who will be promoted. Presumably, the result is selection for graduate training of the individuals with the greatest career potential; i.e., those the naval organization, using its own standards, views as being of superior quality. If one accepts this rationale, it is difficult to escape the conclusion that the naval service is suffering a quality loss through early retirements.

There is little reason to expect that analysis of Army and Air Force officer retirement patterns would yield basically different results. In general, we would expect that retirements would correlate closely with civilian opportunities--the greater the civilian opportunities, the higher the rate of early, voluntary military retirement. To the extent that the rewards of civilian employment correlate with education, the military can expect to lose its higher educated people at a more rapid rate through early voluntary retirement. Similarly, to the extent that civilian opportunities stem from specific skill training, it should be expected that those members with skills easily marketable in the civilian economy will tend to voluntarily retire earlier than those members possessing skills not in high demand in the civilian economy.

IV. THE INCENTIVE EFFECTS OF "EARLY RETIREMENT" IN NON-MILITARY SYSTEMS

In the military system the potential for premature loss of valued personnel is heightened by the individual's expectancy of

organizationally imposed mandatory retirement before completion of a lifetime employment career. Civilian employers do not, as a practice, mandatorily retire employees with satisfactory employment records before completion of a normal employment lifetime. Thus, they do not force upon their employees an economic evaluation of the merits of early retirement. In fact, most employers do not permit retirement until the member has achieved an age at which full-time employment with another employer is not a practical likelihood. Thus, for most civilian workers, there is little merit in "retirement" from a given employer as an income-maximizing device. Nevertheless, there is a growing tendency toward permitting retirement at earlier years--the Federal Government being more lenient in this respect than most corporate employers. Minimum voluntary retirement qualifications and the mandatory retirement ages for various governmental employee groups are shown below.

Table III-5

	Minimum requirements for voluntary retirement with unreduced immediate annuity		Mandatory retirement at age
	Age	Length of service	
Civil service (excluding law enforcement)	55	30	70
Civil service (law enforcement) ..	50	20	70
Foreign service	50	20	60

At age 55, a civil servant with 30 years of service can retire with an annuity of 56.25 percent of his "high 5 average annual salary." The effects of frequent general wage level increases, longevity changes,

promotions realized by the individual, etc., reduce the annuity to a somewhat lower percent of the terminal salary. However, by retiring, a civil servant escapes a continued $6\frac{1}{2}$ percent of salary contribution to the civil service retirement fund. The combined effect of these influences is to give the individual an immediate gain from continued employment of something less than 45 percent of his salary (where immediate gain equals salary less retirement annuity and contribution). Of course, continued employment will bring him a retirement multiplier which increases by 2 percent for each additional year of service and, given a generally rising wage level in the economy, a higher average wage against which that multiplier will ultimately be applied. And, unlike the military careerist, the civil servant can expect to be able to retain his job until mandatory retirement at age 70, if he so desires. Thus, a retirement timing decision is not so crucial to his financial well-being as it is to the military careerist. Further, for most individuals who retire from civil service at age 55 or later, finding another job may not be easy. The basic choice in a typical civil servant's retirement decision may, therefore, generally be one of continued civil service employment versus retirement to a leisure world. Nevertheless, certainly one would expect that there are many civil servants with skills and capabilities such that employment outside the Federal Government at age 55 would still be an attractive alternative. For these individuals, the availability of a retirement annuity which is a high percentage of the civil service wage results in a high opportunity cost on continued civil service employment. The greater the outside alternatives and/or the larger the retirement annuity, the higher the opportunity cost of remaining with civil service.

And, if other employers value the same attributes as does the governmental employer, the employees the civil service organization would most like to retain will be those with the greatest outside opportunities, and, thus, those most likely to retire soon after eligibility is established. Conversely, those with the poorer outside alternatives can be expected to generally reject the early retirement option; i.e., it will not be as economically advantageous for them to terminate their civil service employment.

The possibility of premature (from the employer's viewpoint) retirement from the civil service is a relatively recent development. The "age 55, 30 years of service" rule was established in 1966. Until that time, retirement prior to age 60 was not permitted without an actuarial reduction in the annuity. Nevertheless, there are already some indications that the early retirement option may bring losses to the civil service organization similar to those the military is apparently experiencing. According to a recent newspaper article: 1/

> Throughout the Federal service are 66,400 Federal employees who are 55 or older, who have at least 30 years of service, and who are eligible for immediate retirement under civil service.
>
> Informal surveys reveal at least half of them are planning to retire within the year. Their pending retirements constitute a massive personnel problem to Federal agencies.
>
> Hundreds of the eligibles hold key supervisory, management, scientific and professional positions, and they can't be replaced easily. Agencies that look and plan ahead are setting into motion programs to train others to take over their jobs.
>
> But, there are many other agency problems related to retirement; example: An agency has about 50 employees eligible to retire, and its officials, for reasons best known to themselves, would be happy if 10 or 12 or them would retire today. The remainder, they feel, are excellent workers who can contribute much more to the public service.

1/ "66,400 Eligible Retirees Pose Personnel Problems," Washington Post, July 11, 1967, p. A18.

> A check showed that perhaps only one of the 10 or 12 so-called unwanted employees had retirement plans, while about 20 of the wanted will retire within the year. The check also showed that a factor contributing to the pending retirements of several wanted employees is the decision of the unwanted to continue working.
>
> The agency has no authority to force the retirement of any employee before that time * * *.

V. EARLY RETIREMENT AND LABOR MOBILITY

The Federal Government has encouraged employers to provide early vesting of pension plans in order that labor mobility not be reduced. Generally unhindered labor mobility is a desirable objective because it permits the efficient allocation of labor resources via the price system; i.e., labor migrates from lower wage, lower marginal product employment to higher wage, higher marginal product employment. However, early vesting of pension plans usually refers to an ultimate, not an immediate, receipt of a pension. A plan may vest after, say 10 years of employment, regardless of age, but payments do not usually begin until the employee achieves a stated normal retirement age. This type of plan is more or less neutral in its effects on labor mobility.. In itself, it neither encourages nor discourages the employee to switch employers. This is the desired effect. In theory, the price (wage) system should function without interference to achieve an efficient allocation of labor resources.

A plan which allows early retirement from an employer's work force and immediate availability of an unreduced annuity is a different matter. When the retiree can switch to other employment, the retirement plan is not likely to be neutral in its impact on labor mobility. Rather, at the point where the employee is eligible, it tends to encourage labor mobility and thereby provide a stimulus which may tend to inefficient allocation of labor resources.

To illustrate how an inefficient allocating may occur, consider a hypothetical example. Let us assume a 55-year-old civil servant with 30 years of Government service, earning $10,000 per year. Our example individual is eligible for immediate retirement and by doing so can draw an annuity of $5,200. In addition, he can take a job with a non-governmental employer at an annual salary of $8,000. The sum of his civil service retirement annuity and his "second career" wage is, therefore, $13,200 or $3,200 more than he can earn by continued employment with civil service. Thus, he can maximize his own personal immediate income by retiring from the civil service work force and switching to the nongovernmental employer. But, if the $10,000 civil service wage and the $8,000 nongovernmental employer wage are both accurate valuations of the marginal product of the individual in the alternative employment situations, the change of employment represents an inefficient allocation of labor resources. The individual has maximized his income, but, at the same time, is contributing a smaller product to society. Clearly, a pension plan generated incentive to change employers is undesirable for society as a whole. Plans should not restrict labor mobility. Neither should they encourage it. It would seem that the ideal pension plan would be neutral with respect to its impact on labor mobility, leaving the task of allocation of labor to the price (wage) system.

VI. SUMMARY AND CONCLUSIONS

The military retirement system functions to encourage and permit withdrawal of career personnel from the military forces at relatively young ages, in order that the military organization may maintain a desired degree of "youth and vigor." Most military retirees enter the

civilian labor force after completing their military careers. During the second career years, the retirement annuity is not an old-age pension. Rather, at least in part, it serves to compensate military retirees for reduced civilian employment income levels which stem from a late entry into civilian employment.

The existing retirement system and the 20-year retirement option have maintained "youth and vigor" in the military forces and assisted in attaining a more rapid and regular promotion flow. However, there are some indications that short (20 years) military careers may be more economically rewarding than longer careers, providing a positive economic incentive to early retirement for certain categories of personnel, including the more highly educated officers.

Most civilian employers do not permit retirement at such early ages that the employee can "retire" and transfer to another employer, thereby earning an active employment wage and simultaneously drawing a retirement annuity from the prior employer. However, a recent lowering of the minimum retirement age now permits civil servants with 30 years of service to retire from civil service and draw an unreduced annuity at age 55. There is reason to expect that this early retirement option may, in the future, imperfectly serve the best interests of the civil service organization, tending to encourage early withdrawal of the more valuable employees, but doing much less to encourage egress of the less productive workers.

A retirement system which provides a positive incentive for early retirement from the work force of one employer in order to transfer to the work force of another employer not only may be undesirable from the standpoint of the original employer, but may be undesirable for society

as a whole, because it may tend to encourage an inefficient allocation of resources.

A retirement conditional pension promise is a very blunt instrument for management's use in screening out inefficient employees. So long as the retirement is optional, not mandatory, the initiative rests with the employee.

Early retirement is likely to have a greater economic appeal to those employees who are still highly productive and who have good outside employment alternatives--those management would most like to retain.

Before offering an early retirement option, employers should carefully assess not only the dollar costs of the plan, but also the pattern of economic incentives it will establish for individual employees. Unless youth and vigor is a requirement of the organization, there would seem to be little merit in an early retirement option. Even when a requirement for youth does exist, an early retirement program can imperfectly serve the organization and society.

APPENDIX IV - SOME EFFECTS OF USING AGE IN THE RETIREMENT ANNUITY FORMULA

Purpose

The purpose of this Appendix is to discuss the use of age in the military retirement formula from the viewpoints of both those who see advantages and those who see disadvantages to the inclusion of age in the military nondisability retirement formula.

Background

Age is not presently a factor in determining the amounts of military retirement annuities, although every other major retirement system examined during the study of the military retirement system does include recognition of age at time of retirement in some manner. Examination of the effects of using age as an explicit determinant in the retirement formula centered on five issues. These are:

- Discrimination for or against members of the force who are below or above the average age at time of retirement eligibility.
- Impact on recruiting and retention.
- Complexity and simplicity in constructing the retirement formula.
- Reaction of present members of the Armed Forces.
- Precedent.

Discussion of Key Issues

First Issue: Discrimination for or against members of the force who are below or above the average age at time of retirement eligibility

This issue normally is raised by those who hold the opinion that age in the formula tends to discriminate against younger members by providing them smaller monthly annuities than would be received by older members

with similar grades and lengths of service. This perception of discrimination rests on the belief that the correct measure of the value of an annuity is the monthly amount of the payment. Those who take the opposite view hold that the correct valuation of the worth of an annuity is the expected value of the lifetime payments that the annuity will provide. Accordingly, those who hold the latter view consider an annuity that does not adjust monthly payments by retirement age and does not provide equality of expected lifetime value of payments to be discriminatory against the older members and in favor of the younger members, because it provides a greater expected value to the younger retirees.

Second Issue: Impact on Recruiting and Retention

This issue normally is raised by those who hold the opinion that discounting for age will have a significant negative recruiting and retention impact among members who are younger than the average age, because their monthly retired pay will be less than that of older retirees with the same grade and length of service. However, the positive effects in recruiting and retention of personnel older than the average age must also be considered. A fixation on youth as the primary criterion in recruitment and retention of military personnel may ignore several factors:

- An older age of entry into military service may be the result of a greater than average length formal education or civilian development of skills. In most instances both qualities are desired by the military organization.

- As a group, officers, at time of entry and at any given length of service, are four years older than enlisted personnel. This age differential stems largely from the fact that the majority of officers have spent four years in college. Officers who have advanced degrees prior to entry into military service will tend to be older than the average for officers--those who have less

than college degrees will tend to be younger than the officer age average.

- A formula that does not recognize age will tend, on a lifetime basis, to discriminate in favor of younger personnel and discriminate against older personnel, failing to distribute benefits equitably with respect to the amount of service performed. Thus, in general terms, failure to recognize age results in discriminating in favor of enlisted personnel and against officer personnel. Again in general terms, if the way that the retirement system treats age is a significant factor at the time of entry, the formula which does not recognize age would tend to encourage entry of those (generally younger) personnel with lower levels of education compared with those (generally older) personnel with higher levels of education.

However, recruitment and career choice incentives are probably not the most significant factors and certainly not the sole factors which should be considered in evaluating the effects of use of age in a retirement annuity formula. The military organization has placed great emphasis on a need for maintenance of "youth and vigor" in the active duty force. The very early retirement ages which the military retirement system permits are justified largely on the basis of this need. It follows, by implication, that the military organization wants not only to recruit youth but to retain the more youthful members. Thus, when members have completed 20 years of service, other things equal, there should be a preference to retire the older members and retain the younger members. Yet, a retirement annuity formula that does not recognize age offers a greater immediate retirement incentive to younger members than it does to older members of the same grade and length of service. This seeming anomoly in incentives occurs because:

- a principal motivation to military retirement is an ability to increase immediate total income by doing so (the total of the military retirement annuity plus the second career income may exceed active duty military income), and

- second career income opportunities and income levels tend to decrease as the military retirement age advances.

The effects are graphically depicted in Chart IV-1. To the extent that second career incomes decline as retirement age advances, an annuity invariant with retirement age offers younger personnel a greater opportunity to increase present incomes than is available to similar but older members and exerts a stronger influence to retire on younger members than on older members.

Compared to a "same cost"[1/] formula that does not consider age, a formula that does recognize retirement age tends to reduce the incentive for younger personnel to retire and to increase the incentive for older members to retire. It cannot be claimed that any age related formula would compensate exactly for changes in second career income opportunities related to age. Nevertheless, an age related formula does move in the right direction, if a principal objective is maintaining "youth and vigor."

Chart IV-2 illustrates the tendency toward equating retirement incentives produced by an age related formula. Compared to a "same cost"

1/ Use of a formula that recognizes age provides, for each length of service, a range of annuity amounts that vary according to the retirement age and that will be more or less normally distributed around some average payment amount. In lieu of any given formula that does consider age in the determination of annuity amounts, it is possible to utilize a formula that does not consider age, but results in a benefit to the individual that is the same as the average benefit level stemming from the formula that does discriminate by age. Either alternative results in the same cost to the government. Therefore, in terms of retirement costs (but not in terms of personnel incentives and system efficiency) the governmental employer would be indifferent in a choice between the two formulas.

CHART IV - 1

ANNUAL ACTIVE DUTY INCOME vs. TOTAL ANNUAL POST MILITARY RETIREMENT INCOMES, USING RETIREMENT ANNUITY FORMULA WHICH DOES NOT CONSIDER RETIREMENT AGE

(CONCEPTUAL)

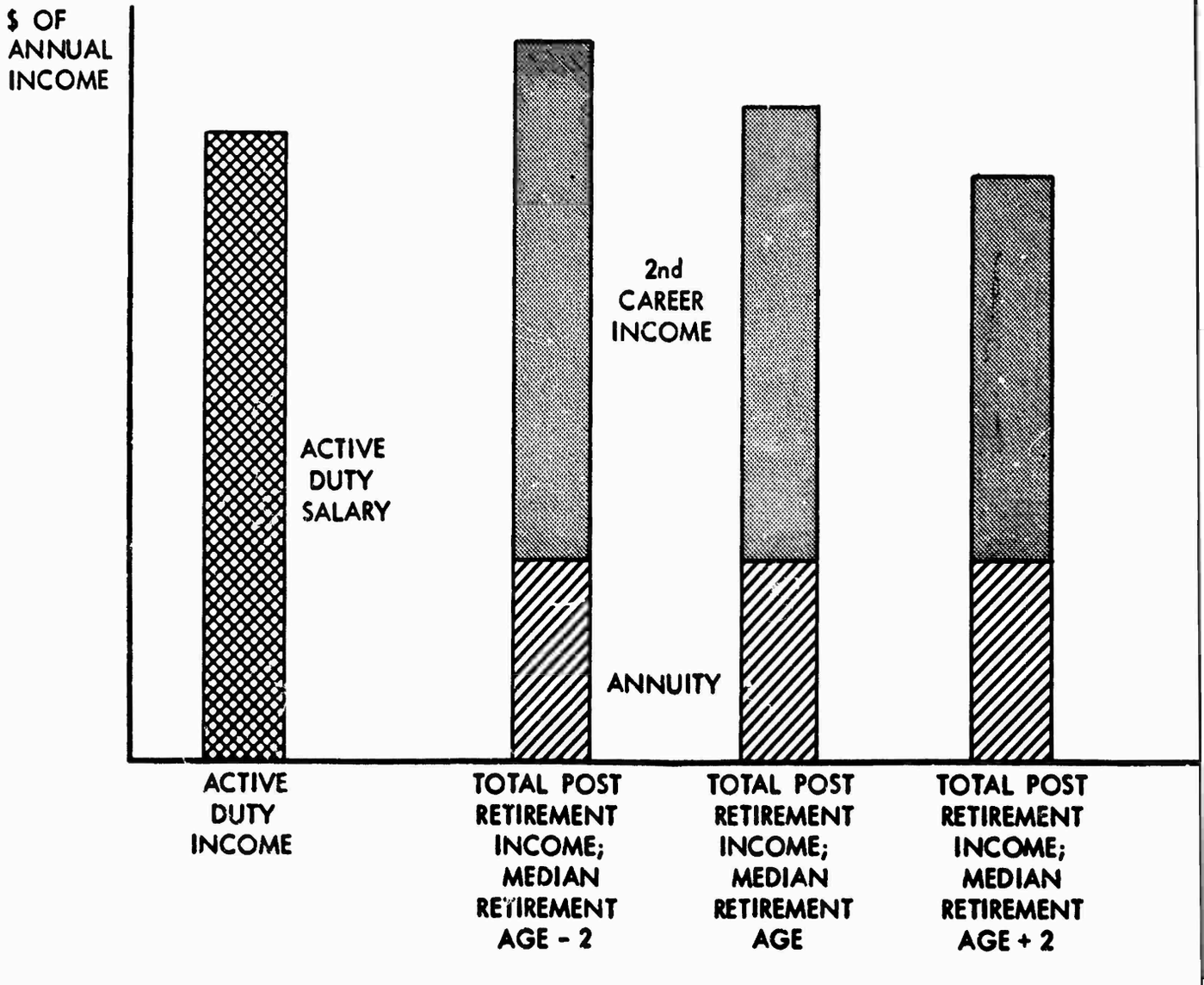
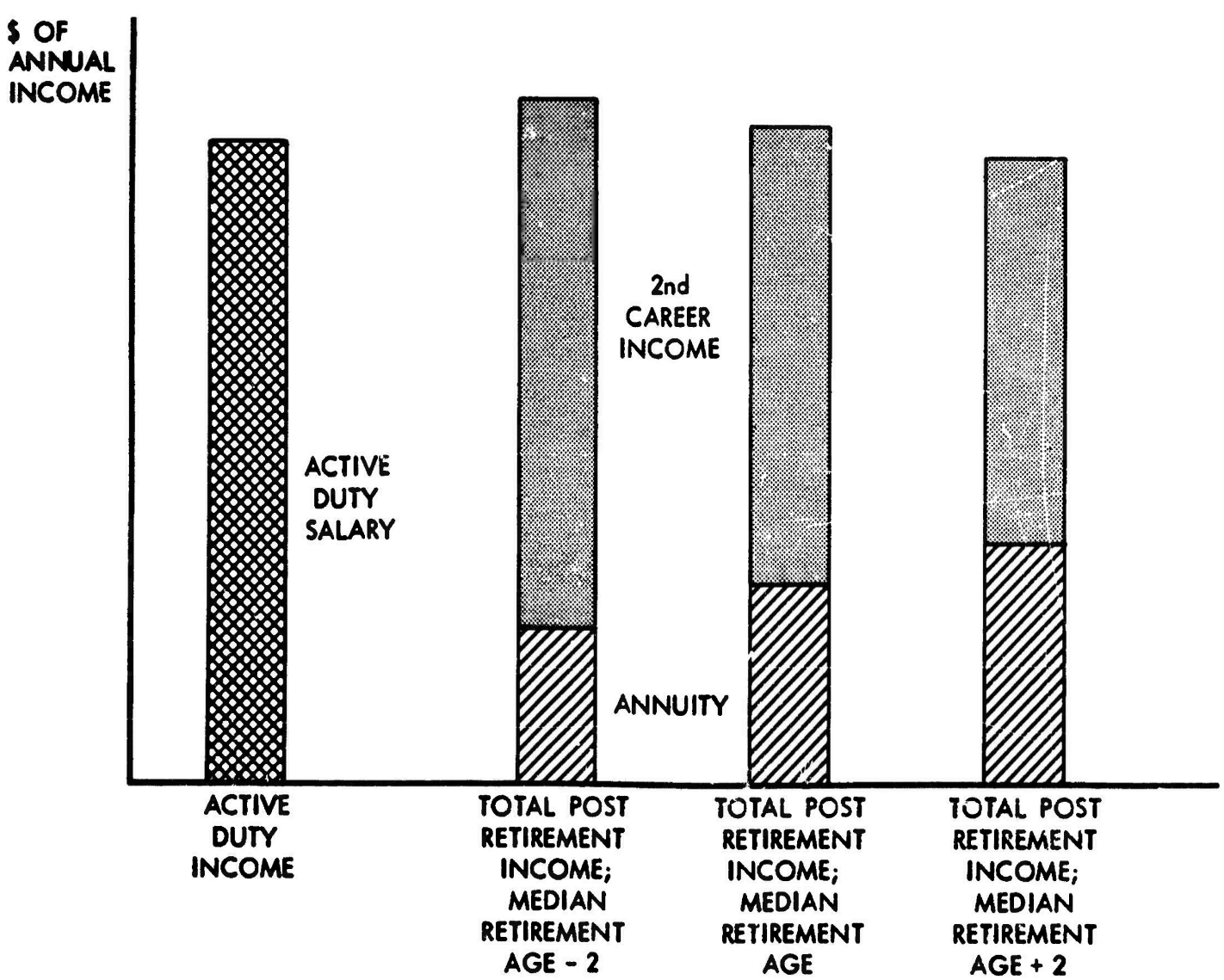


CHART IV - 2

ANNUAL ACTIVE DUTY INCOME vs. TOTAL ANNUAL POST MILITARY RETIREMENT INCOMES, USING RETIREMENT ANNUITY FORMULA WHICH CONSIDERS RETIREMENT AGE

(CONCEPTUAL)



formula of the present type, an age related formula:

- may have a positive effect in enhancing recruiting and retention of members older than the median age. This category includes most officers and personnel who enter the armed services with above average education or civilian developed work skills, and
- at any given length of retirement eligible service, will tend to increase the economic incentive for older members to retire and decrease the incentive of younger members to retire.

Third Issue: Complexity and Simplicity in constructing the retirement formula

Introduction of age into the military retirement formula unquestionably would increase its complexity. However, any efficient formula must necessarily drop several of those features that give an impression of simplicity to the present military formula. The result will be a formula that appears more complex. The inclusion of age would be only one factor contributing to that impression.

In itself, simplicity is not a meaningful objective for a retirement formula; it is useful only to the extent that it is compatible with achieving an efficient, credible formula in which both management and individual military members have confidence.

A comparison with the formulas used by other employers of large work forces indicates that a military formula that did include age at time of retirement could be constructed in a manner no more complex than the typical non-military formula. However, it would be a significant departure from the present formula, in which only years of service affect the multiplier.

Fourth Issue: Reaction of present members of the Armed Forces

Whether or not members would find inclusion of age in the annuity formula objectionable is difficult to predict. It would appear that

consideration of the member's retirement age should be as easy to justify and explain in a military retirement system as in a non-military system. Admittedly, however, resistance to change is a powerful obstacle. Notwithstanding the procedures other systems may use and despite any logical justification for the use of age, the present system does not consider age. Additionally, the present formula is popularly accepted by military members. There is little question but that military members are sufficiently sophisticated that, in a world in which retirement age is considered in every other major retirement program, the proper kind of education program could ultimately persuade them of the logic of a military formula that gave limited recognition to age. Further, to the extent that military members are currently unaware of the importance of their age at retirement in determining the lifetime value of their annuity, the military annuity, with its generally younger retirement ages, is currently being undervalued by military personnel. A formula giving limited recognition to the importance of age in setting annuity amounts would generate an awareness of age and the length of payment streams in establishing the real value of a lifetime military annuity. The inceased awareness could be expected to enhance the member's valuation of the military annuity compared with competitive non-military plans with later retirement ages.

Fifth Issue: Precedent

When the present military retirement system was originated, it did, in effect, consider age: either explicitly in setting eligibility for retirement, or implicitly by administratively limiting the number of personnel who could be placed on the retired rolls, thereby frequently

forcing long waits and attainment of advanced ages before one could be retired. In addition, the slow promotion rates of past periods effectively reduced the annuities of those who retired short of a full length career. (Patience, extended service, and hence advanced ages were generally required to achieve retirement in the higher grades.) Only recently, through changes in force management practices, has it become commonplace to achieve the ability to retire with the combination of relative youth and the larger annuities associated with a high retirement grade; for example, O-6 at age 45, E-8 at age 37, E-9 at age 39.1/ Design of the original annuity formula could not anticipate the force structure, the management needs, the 2-step career pattern, and the interface of military and civilian career opportunities existent in today's world. However, members of today's military force all have served under the non-age related retirement formula and, for the most part, view equity in terms of the retired pay per month rather than an expected lifetime value. To most members, precedent would seem to dictate a formula that does not explicitly recognize age at retirement.

1/ Note that the recently revised Canadian Military Retirement system described in Annex A effectively precludes the ability of members to retire with unreduced annuities at young ages and in the higher grades by:

(1) varying normal retirement ages by grade, with higher grades having higher retirement ages, and

(2) reducing the earned annuity by 5% for each year that the normal retirement age exceeds the member's actual retirement age.

In addition, Canadian enlisted career progression patterns do not permit a typical member to achieve the upper enlisted grades at 20 years of service.

Conclusion

A retirement formula that explicitly recognizes age of the retiree at the time of retirement is completely consistent with the concepts of second career income loss and a young and vigorous force, and provides maximum attainable equity among members. The traditional military method of basing retired pay only on years of service and pay grade can, however, be retained at a relatively small sacrifice in terms of equity. It is the method preferred by the military services, and, therefore, the one most likely to be preferred by most military members.

ANNEX A
TO
APPENDIX IV

SUMMARIES OF THE RETIREMENT SYSTEMS OF VARIOUS EMPLOYERS

U. S. FEDERAL CIVIL SERVICE

Basic Formula:

1 1/2% of high 5 year average salary x years of service 1 thru 5 plus

1 3/4% of high 5 year average salary x years of service exceeding 5, but not exceeding 10, plus,

2% of high 5 average salary times years of service exceeding 10. Maximum 80% of high 5 average salary.

Normal Retirement Age:

Age 55 with 30 years' service.

Age 60 with 20 years' service.

Early Retirement Age Reduction Factor:

(Early retirement is available only to some mandatory separatees who meet certain length of service and age requirements.) Normal retirement age annuity reduced by 1/6 of 1 per cent for each full month (2 per cent per year) the retiree is under age 55.

STATE OF CALIFORNIA

Basic Formula:

Annuity based on 1/90 of first $400 of final compensation and 1/60 of final compensation above $400 times years of credited service times age factor. Final compensation is monthly average of highest pay during any 3 consecutive years.

Normal Retirement Age: 60.

Retirement Age Adjustment Factor:

Age factor discounted for retirement below and improved for retirement above age 60. Varies according to sex.

STATE OF ILLINOIS

Basic Formula:

1/60 at age 60. 1/60 (1 2/3%) times years of credited service times average final compensation (average of highest salary during 5 consecutive years within the last 10).

Normal Retirement Age: 60.

Early Retirement Age Reduction Factor:

At age 55 with 30 or more years service, entitled to this formula reduced 1/2% for each month age at retirement is below 60.

STATE OF NEW JERSEY

Basic Formula:

Normal retirement at age 60 on guaranteed benefit of 1/60 for each year of credited service times "final compensation" (average of 5 years immediately proceeding retirement).

Normal Retirement Age:

Retirement ages minimum - none; normal - 60; compulsory - 70 unless waived by employer for "early retirement."

Early Retirement Age Reduction Factor:

(Prior to 60) 25 years of service credit required and normal allowance reduced by 1/2 of 1% for each month employee is under 60 (1/6 of 1% for each month under age 53).

Member Contribution:

% of contractual salary based on sex and age at enrollment.

STATE OF NEW YORK

Basic Formula:

Pension of 1/140th of "final average salary" (high 5 average) times years of member service, plus 1/70th of "final average salary" times years of "prior service" (service before employer provided coverage), plus pension for "increased-take-home pay" provided by employer contributions in lieu of member contributions[1/] plus annuity provided by member contributions. Social Security benefits in addition to retirement benefits. (System has approximately 314,000 active employee members.)

Member Contribution Rate:

Determined by entry age, sex and occupation.

Normal Retirement Age: 60.

Early Retirement Age Reduction Factor:

No early retirement provision.

1/ The employer may elect to pay part of the employee's contribution resulting in higher take home pay for the employer. The contribution will be returned in the form of a special pension.

CITY OF LOS ANGELES

Basic Formula:

Annuity based on own contributions (about 1/120 of highest 5 year average pay times years of service) plus pension which, when added to annuity, equals 1/60 of highest 5 year average pay times years of service.

Maximum: average pay over $6,000 per year limited to 60% of highest salary for any civil service position.

Minimum: $60 per month if retired at age 60 plus $4 for each year over 60 up to age 65.

Normal Retirement Age:

At age 60 after 10 years of service.

Early Retirement Age Reduction Factor:

At age 55 after 10 years - normal retirement age benefit actuarially reduced from benefit payable at age 60.

SUMMARIES OF THE RETIREMENT FORMULAS OF VARIOUS EMPLOYERS

AMERICAN AIRLINES

Basic Formula:

1.25% of monthly earnings subject to Social Security and 2% of monthly earnings exceeding such amount for each year of service, excluding the first year of service and service before age 25, or if larger, a retirement income equal to 1% of final average compensation subject to Social Security tax and 1.6% of final average compensation in excess of Social Security base multiplied by years of service at retirement or, if larger $100 per month (after 15 years of service).

Normal Retirement Age: 65.

Early Retirement Age Reduction Factor:

Normal retirement age benefit actuarially reduced.

LOCKHEED AIRCRAFT CORP.

Basic Formula:

[(1.5% of high 10 years average pay exceeding amount subject to Social Security tax) plus $2.00] times years of credited service.

Normal Retirement Age: 65.

Early Retirement Age Reduction Factor:

Reduced according to member's age at retirement. Examples are provided below.

Early Retirement Age	Male Percentage of Earned Normal Retirement Benefit (The percentages for women will be somewhat greater)
55	46.33%
56	49.53%
57	53.06%
58	56.94%
59	61.24%
60	66.02%
61	71.33%
62	77.28%
63	83.95%
64	91.48%

STANDARD OIL OF NEW JERSEY

Basic Formula:

For each year of service - 1.5 of average monthly earnings, and .75% of average monthly earnings exceeding amount subject to Social Security tax during 5 years immediately preceding retirement.

Normal Retirement Age: 65 (60 for women).

Early Retirement Age Reduction Factor:

At age 60 with 15 years service at workers request or age 55 with 15 years service with employer's consent - normal benefit reduced by 3% for each year under age 65 down to age 60 and reduced by 7% for each year below 60; plus a pre-Social Security annuity equal to .75% of average monthly earnings subject to Social Security tax during 5 years immediately preceding retirement for each year of service. Pre-Social Security annuity discounted on same basis as early retirement benefit.

CANADIAN MILITARY RETIREMENT SYSTEM

Basic Formula:

2% times years of service times "high six" wage. Maximum creditable service is 35 years.

Normal Retirement Age:

The Canadian system designates the normal retirement point by length of service, age, grade and occupation. For example:

Grade	Normal Retirement Length of Service	Normal Retirement Age		
		General Service	Specialists	Ex Enlisted Personnel
Officers:				
Brig Gen	30	55	60	55
0-6	30	55	58	55
0-5	28	51	55	50
0-4	28	47	55	50
0-3	28	45	50	50
Enlisted:				
Sgts & Above	30	50	50	--
Corporals & Privates	25	44	44	--

Early Retirement Age Reduction Factor:

Officer: Immediate annuity if he has served 25 or more years; annuity reduced by five per cent for each full year by which his age at the time of his retirement is less than the retirement age applicable to his rank.

Enlisted: Immediate annuity if he has served 20 or more years; annuity reduced by five per cent for each full year by which the period of his service is less than twenty-five years or for each full year by

which his age at the time of his retirement is less than the retirement age applicable to his rank, whichever is lesser.

SWEDISH MILITARY RETIREMENT SYSTEM

Basic Formula:

Voluntary Retirement: Determine the number of years service the individual would have if he served until mandatory retirement age and reduce the normal annuity that would be received at the mandatory retirement age by the proportion of the total number of possible years not served to the total possible number of years.

Normal Retirement Benefit: (At mandatory retirement age) 2/3 of base pay plus cost of living allowance dependent upon location of home.

Normal Retirement Age:

Mandatory Retirement Required:

Captains	-	Age 50 (except Ordnance & Quartermaster Capts: age 55)
Majors & LTCs	-	Age 55
Colonels & Brig Gen	-	Age 60 (Colonels on flying status: age 55)
Maj Gen and up	-	Age 65
Enlisted members	-	Age 50 (Senior Noncoms in Ordnance & Quartermaster: age 55)

Early Retirement Age Reduction Factor:

The basic formula effectively reduces for retirement below the normal (mandatory) retirement ages. (See above, "Voluntary Retirement") For example, two enlisted retirees, both with the same amount of service, but differing only in retirement age would receive annuities computed in the following manner:

	Entry Age	Years of Service	Retirement Age	Total Yrs. Service to Ret. Age	Reduction of Age 50 Annuity for Early Ret. 1/
Member A	20	20	40	30	1/3
Member B	25	20	45	25	1/5

Thus, in the above example, the 45 year old annuitant has his annuity reduced by 20% and the 40 year old annuitant has his normal retirement age annuity reduced by 33 1/3%.

1/ Fraction of mandatory retirement age annuity paid for voluntary retirement =

$$\frac{\text{\# years to mandatory retirement age not served}}{\text{Total possible \# years to mandatory retirement.}}$$

APPENDIX V - SHOULD THERE BE A COMPENSATION "X" FACTOR IN THE MILITARY RETIREMENT ANNUITY?

Purpose

In Chapter 3 of Part II of the study of The Military Estate Program, it was pointed out that the level of the military nondisability retirement annuity must be determined before the question of including compensation for an "X" factor in the retirement annuity could be answered satisfactorily. This Appendix presents in detail the reasoning that led to a conclusion that the "X" factor should not be compensated for in the military retirement annuity.

The idea that military compensation should pay more than the civilian wage standard for a given work level is founded in the generally accepted premise that military service has inherent in it certain rigors, hazards, and inconveniences that are not associated with Civil Service and other civilian careers. Some of these conditions of military service that support the concept of an "X" factor in military compensation include:

1. Extra hazardous duty:
   - combat
   - training
   - hazards of certain occupations
2. Rigorous duty: shipboard and field living conditions.
3. Frequent and long separations from family.
4. Frequent moves.
5. Irregular and long working hours.
6. Loss of freedom of choice because of mandatory military orders.
7. The existence of "military offenses" under UCMJ.

8. Involuntary retirement and necessity of a second career.

Equity

The first five conditions of service listed above are unevenly distributed among military members. Compensation for the "X" factor in the retirement annuity offers no reward for people who do not remain in military service until retirement. Insofar as they apply to career force members, even taking into consideration the average of conditions from 20 or more years of services, the unusual conditions of military service vary widely between members. For example, the extra hazards of military life depend on the particular branch of service of the member, his military occupation, his assignments, and whether or not the country is at war. Even in time of war, not every member with training in a hazardous skill is assigned to a billet where he is exposed to the hazards associated with that skill. Conversely, clerk-typists, food services personnel, and numerous other "non-combat" skilled personnel may serve in a war zone where the hazards are great.

The rigors of military life similarly vary widely, not only between individuals but between the services. Career infantrymen spend more time in the field than members trained in data processing or finance work. Most Air Force members will spend less time living in the field than typical Army and Marine Corps personnel.

Both Army and Air Force personnel normally are subject to less separation from family than are "sea-going sailors" and Marines. However, even within the Naval Service there are wide variances in the ratios of sea duty time to shore duty time. Those personnel who are boiler repairmen and enginemen can expect the great majority of their service will be

in shipboard assignments. Conversely, disbursing clerks and medical corpsmen may expect to serve larger portions of their careers in shore duty assignments more akin to that of the typical Army or Air Force assignment.

To cite frequent moves as a basis for an "X" factor in retirement pay is, in a way, anomolous. Recruiting literature assumes, correctly, that the opportunity for travel and the variety of geographical environments implicit in a military career are two of the stronger incentives to a military career. Yet "travel" and "moves" generally are inseparable. To have one is to accept the other. Probably few members view orders allowing accompanied moves to Berlin or London, or, for that matter, orders to most other overseas assignments that permit one to take along his dependents to be an inconvenience. Other moves may not be as pleasant. Some members may be rotated more rapidly than they expected when they selected a military career, and their duty locations may not match their hopes or expectations. Taken on a total career basis, however, both the frequency of moves and their desirability or undesirability vary widely between career members.

Similarly, even on a career average basis, length and irregularity of working hours vary widely between members. For example, those in administrative work performed primarily ashore tend to experience more regular hours than Navy boatswain's mates and gunner's mates who fill relatively fewer shore billets.

The sixth and seventh items (subject to orders - subject to UCMJ) appear to be evenly spread over all members of the career force; however, if extra compensation is justifiable for these conditions, it seems far more appropriate to pay for the condition at the time it is experienced

than to defer the payment until the member retires. Moreover, deferring the payment until retirement would benefit only those members who stay in the force until they are retirement eligible. Those who leave before retirement would never receive compensation for these conditions.

Recognition of the Involuntary Nature of Military Retirement

The eighth condition listed, "involuntary retirement," is a feature of a military career that is common to the majority of career military members. This feature of a military career must be recognized in the design of a military retirement system, rather than through an "X" factor payment. The retirement annuity payments can best recognize and compensate for a second career income loss through a system that uses the "net benefit" approach in setting the level of the military nondisability retirement annuity. The net benefit concept is discussed in some detail in Appendix V.

Value of An Assured CPI Adjusted Annuity and Other Benefits

Because of the focus on the amount of a military retirement annuity, it is easy to overlook or undervalue the security provided by an assured lifetime annuity. Even an annuity that exactly matched second career income loss would contain a substantial "X" factor reward because it is assured, CPI adjusted, and backed by the full faith and credit of the Government. A guaranteed lifetime income of, say $200 a month, for a 39 year old E-7 nondisability retiree provides him a guaranteed income that is $200 per month more than is available to a typical civilian cohort. Career civilians also are subject to "income loss;" their employers may go out of business, their skills may become obsolescent, their health may fail, or they may lack employment for any of a variety of reasons

that will not result in a guaranteed lifetime income for them. In addition, military retirees obtain lifetime medical benefits. These benefits can and should be considered as a compensation "X" factor. In analyzing their value, it should be noted that:

- The potential value of retirement medical benefits is not related to grade.
- The potential value of retirement medical benefits is inversely related to length of service, since younger, short career members can expect to receive more years and hence a greater total value of retirement medical benefits than do older, longer career retirees.

Efficiency

The efficiency of the retirement annuity as a means of compensating for conditions must also be considered in answering the "X" factor question. The study took the position that once the level of the military annuity has been decided by use of an objective standard, that level should not be exceeded, because additional retirement dollar expenditures are dollars inefficiently spent. By "inefficient" it is meant that a given number of dollars spent in active duty compensation will purchase a greater quantity and/or quality of the services of active duty personnel than that same number of dollars will produce if spent in retirement compensation. Likewise, fewer dollars need be spent in active duty pay to buy a given size and quality active force than would be the case if retired pay were used to get the same force. In fact, the time of retirement eligibility is so far in the future for such a large percentage of the military force that it is doubtful if any amount of retired pay could

attract and retain the quantity and quality of people required, as long as active duty pay and work satisfaction are perceived by the member to be "not enough."

Current dollars will buy more of the services the Government wants than retirement dollars with an equivalent present value. The technical reason for this is that the discount rate used (implicitly) by the member in translating future dollar entitlements into a present valuation of those future dollars exceeds the rate that the governmental manager uses to accomplish the same valuation.[1/] For example, the member's valuation of some stream of future payments might be, say $100, where the governmental valuation of the same stream of payments might be $140. In such a

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1/ The terms "discount rate" and "present value" may require some explanation. The present value of $1 received today is $1. However, the present value of $1 not receivable until, say five years from today, is less than $1 because the dollar available today can be invested so that five years from now it will have grown to more than $1. For example, $1 invested at 3½% compound annual interest will at the end of 5 years have grown to $1.19. Thus, by giving up $1 in the present, the investor could get back $1.19 five years later if the interest rate is 3½%. Thus, a present value of $1 grows to a future value of $1.19.

In valuing annuities, however, the problem is to translate future values into present values. Using the same example as cited above, but reversing the analysis, the $1.19 which is to be received five years from now has a present value of $1 if the "discount rate" is 3½%. (The term "interest rate" customarily describes the rate used to translate present values to future values, while the "discount rate" describes the rate used to translate future amounts to present values.)

Individuals do not necessarily consciously utilize a discount rate in making a choice between receipt of some present amount and a larger future amount. However, a specific discount rate is implied and can be calculated from any individual's preferences for receipt of present amounts vs. larger alternative future receipts.

situation the Government could pay $105 in current compensation, save money, and at the same time leave the individual happier than he is with the retirement pay stream.

It is difficult to prove beyond question that most individuals' "personal discount rates" are higher than those of the Government. Discount rates obviously vary between members, and it is impossible to define them precisely. Further, there is no standard and agreed upon governmental rate.[1/] However, both the evidence available and a logical analysis of how people value retirement led to the judgment that the discount rate of the typical individual is considerably higher than that of the Government. A Department of Defense study of discounting by military personnel at various ages[2/] confirms this judgment. Additionally, the study identifies an inverse correlation between age and the discount rate; i.e., younger members have higher discount rates than older members. Even the high discount rates indicated in that study probably do not indicate the full extent to which most military members discount the retirement annuity in translating it to terms of current dollars. Most individuals probably think of the retirement annuity in terms of the current pay scale, rather than in terms of the pay scale that will apply when they actually retire. In addition, they tend to exclude valuation of post retirement growth of the annuity due to Consumer Price Index changes. These tendencies lead to a severe undervaluation of the true worth of the retirement annuity

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1/ The rate currently used in some aspects of DOD decision making ranges from 8 to 10 percent.

2/ "Discounting By Military Personnel at Various Ages", Defense Study of Military Compensation, 700 Jackson Place, N. W., Washington, D. C., Final SGMC/MA-3, 5 October 1962.

compared to current dollars.

To illustrate, if the typical member values the retirement annuity by asking himself the question "If I were to retire today with X number of years of service, what would I receive as a retirement annuity?" and if he gets his answer from a current pay table, the member who is several years away from retirement eligibility does not correctly value the annuity payments he will receive. The amounts he will receive are likely to be considerably larger since, in the intervening years between the time he makes the evaluation and the time at which his annuity would begin, several wage increases are probable, and his annuity (related to the active duty wage) will similarly increase. In comparing the attractiveness of current compensation dollars with retirement dollars, unless he consciously assumes some wage growth rate, he grossly underrates the monthly annuity dollar amounts he will receive. The longer the period between the date of the evaluation and his retirement eligibility, the greater the annuity undervaluation will be.

Still further, it appears that few members assume in their valuation of the annuity any post retirement growth of monthly annuity payments caused by changes in the Consumer Price Index. Some degree of price inflation is and has been a fact of life in the American economy. Yet, an evaluation of the worth of this feature of the military annuity would require the exercise of a considerable degree of economic and mathematical sophistication--a degree of sophistication that the typical member does not possess.

Thus, it appears that the member generally excludes wage growth and the CPI feature from his evaluation of the worth of the retirement annuity.

Yet, the governmental employer pays retirement annuities in amounts that do include the effects of both. As a result, the active duty member undervalues his retirement benefit, weakening its ability to attract, retain, and motivate.

In summary, it appears that the member's evaluation of a retirement annuity vs. present dollars results in an effective discount rate very much higher than the governmental rate for three reasons:

- The member undervalues the monthly amount of the annuity he will ultimately receive by visualizing his annuity in terms of current pay rates.
- The member excludes CPI adjustments from the amounts he expects to receive.
- He applies a very high discount rate to a payment stream that is itself drastically understated for the reasons noted above.

Therefore, to the extent that dollars spent for retirement exceed the amounts required to meet needs of the retirees and the amounts required to compete with the retirement benefit levels offered by other employers, they are inefficient dollars. They do less to attract, retain, and motivate active duty personnel than active duty compensation dollars of comparable present value.

Flexibility

Even if it were possible to identify present conditions of service that should be recognized in military compensation, there is no assurance that future military members will experience these conditions. Future forces may not have the same requirements for youth and vigor as today's

force; in the future, different career patterns may be needed; the frequency of moves experienced by members of future forces may be greater or less than that experienced today; long separations from family may be more or less frequent, and so forth.

However, it is no easy job to change the retirement formula, and it is most unlikely that it could be changed in tempo with changing conditions of service. No other compensation method is as inflexible as retirement compensation, because retirement pay is payment made after service has already been performed. Changes in retirement laws affect not only the compensation for present and future service, but also may affect the retirement pay award for past service. As a result, in making changes in the retirement annuity it is difficult to avoid providing either an unexpected windfall to subsequent retirees (because of unexpected increases), or to avoid a charge of a "breach of faith" from subsequent retirees (because of unexpected reductions). The manager is not so much in control of a retirement system as he is controlled by it. As a result, retired pay is the most inefficient compensation tool a manager can use to compensate for conditions that may change. The larger the portion of total compensation devoted to retired pay, the more inflexible the compensation system and the more difficult it becomes to adapt to changing conditions.[1/]

1/ For example, the larger the portion of total pay represented by retired pay, the more difficult it becomes to accomplish unforeseen contractions of the force (in the length of service groups not yet retirement eligible) because managers hesitate to deprive members of the potential retired pay earned by the service they have already performed.

The use of retired pay as a positive, motivational compensation tool should therefore be minimized.[1/] From the employer's standpoint, retired pay should meet the defined needs of the members and no more. This generalization is probably more true of the military organization than of other large organizations because of the rapid expansions and contractions in size that have characterized the Armed Forces; yet, probably no other organization leans more heavily on the use of retirement as a career incentive than the military organization.

Summary and Conclusions

A significant compensation "X" factor (an amount in excess of needs as determined by a defined standard) should not be placed in the military retirement annuity, because:

- an X factor in the retirement annuity would reward only those members of the force who stayed until retirement;
- an X factor in the retirement annuity would be inequitable in that it would evenly distribute a reward for unusual conditions of military service that are not evenly distributed among active duty members; and
- an X factor in the military retirement annuity would be an inefficient method of rewarding for unusual conditions of service because:

1/ For the military, the minimum is satisfied by a formula that:

- compares favorably with the Civil Service annuity in amounts paid for "old age" period, and
- provides an adequate second career income supplement for short career retirees.

- - it provides all retirees the same reward, regardless of the degree to which they experienced the unusual conditions;
- - as a motivation to active duty service, members typically undervalue the retirement annuity, because they:
  - undervalue the actual amounts in their retirement annuity stream, and
  - apply a very high discount rate to these undervalued amounts.

- the conditions that might justify an "X" factor compensation payment are subject to change over time. However, retired pay is an inflexible compensation tool which is extremely difficult to alter to match changing compensation requirements.

APPENDIX VI - RATIONALE FOR SELECTING A "HIGH ONE" AVERAGE SALARY BASE

Purpose

This Appendix discusses in detail the reasons the study selected a "high one" salary base for use in computing the military nondisability retirement annuity. The Appendix also describes the impact of averaging on (a) retirements in "highest grade satisfactorily held" and (b) reserve (age 60) retirements.

Why the Military Should Use a "High One" Average

Retirement systems using average incomes in the annuity formula usually permit determination of the average income using a specified number of consecutive years of employment that will result in the highest average income during the specified number of years. Thus, a 5 year averaging period is popularly known as a "high five" average, a 2 year averaging period becomes a "high 2" average and so on.

The use of an average income in annuity computations is normal in both private and government plans; however, the length of the period used in the averaging process varies widely. The Federal Civil Service and the majority of state civil service plans use a five year averaging period. Several of the more progressive state plans use a 3 year period. Some plans use a "career average" in which lifetime earnings are averaged to determine an annual rate. Social Security retirement annuity entitlements use a modified "career average" (the lowest income 5 years are deleted from the calculation).

The following considerations were paramount in deciding how many years of high average salary should be used in calculating military retirement annuities:

- The military retirement system must force egress of most members after 20 to 30 years' service in order to attain the degree of youth and vigor required.
- Although it is often in the interest of good force management to permit retirement of military members with 20 years of service, the retirement system (in conjunction with other forms of compensation) should provide incentives to encourage members toward continued military service.
- A member's retirement date annuity should bear a reasonably consistent relationship to the retirement date active duty wage level, reflecting the effects of wage increases and a rising standard of living achieved during the member's active service. After retirement, the retirement date purchasing power of the annuity should be protected by increases that parallel upward movements in the Consumer Price Index.
- Inequities of the present system should be eliminated.

Compared with a system of computing retired pay on the basis of terminal basic pay, any averaging system will reduce retirement benefits. The incentive for continued service will be lessened to the extent that averaging dilutes the effect on the retirement annuity of prospective longevity increases, promotions, and general active duty wage level increases.

In addition, other things equal, the longer the averaging period, the greater the reduction of retirement benefits compared with use of a terminal method. Table VI-1 displays the relationships between alternative averaging periods under assumption of a 3.5% annual wage growth rate.

Also, a longer averaging period increases the chances that fluctuations

TABLE VI-1 - RELATIONSHIP OF TERMINAL ACTIVE DUTY INCOME TO AVERAGE ANNUAL INCOME, VARIOUS AVERAGING PERIODS[a]

Year Preceeding Retirement		Average Salary In Each Six Month Period[b] — Length of Averaging Period					
		5	4	3	2	1	Terminal
5	1st 6 mos.	.8554					
	2nd 6 mos.	.8704					
4	1st 6 mos.	.8856	.8856				
	2nd 6 mos.	.9011	.9011				
3	1st 6 mos.	.9169	.9169	.9169			
	2nd 6 mos.	.9330	.9330	.9330			
2	1st 6 mos.	.9493	.9493	.9493	.9493		
	2nd 6 mos.	.9659	.9659	.9659	.9659		
1	1st 6 mos.	.9828	.9828	.9828	.9828	.9828	
	2nd 6 mos.	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Ratio of Period Average to Terminal Income		.9260	.9418	.9580	.9745	.9914	1.0000

a/ Assumes a 3.5% annual wage growth rate compounded semiannually.

b/ Salary in each year preceding retirement, broken down into two 6 months periods. Since longevity steps, promotions, and general pay increases occur at various points throughout the year, breaking the annual salary into 6 month periods provides a better approximation of the gradual manner in which people actually receive pay increases than the use of one year periods.

in the relationship between the retirement date wage level and the retirement date annuity. Since a desired relationship between the retirement date wage level and annuity is established by the annuity formula, it is undesirable to have it fluctuate. Table VI-2 compares the relationships of various averaging period retirement annuities to the retirement date wage under alternative wage growth rate assumptions of 1.5%, 3.5%, and 5%.

TABLE VI-2 - COMPARISON OF TERMINAL AND AVERAGE INCOMES FOR VARIOUS AVERAGING PERIODS AND WAGE GROWTH RATES

Annual Wage Growth Rate	Ratio of Period Average to Terminal Income					
	5 Yr. Period	4 Yr. Period	3 Yr. Period	2 Yr. Period	1 Yr. Period	Terminal Income
1½%	.9672	.9743	.9816	.9889	.9968	1.0000
3½%	.9260	.9418	.9580	.9745	.9914	1.0000
5 %	.8971	.9187	.9410	.9640	.9878	1.0000

Assuming the 3.5% wage growth rate to be a norm, when the averaging period is lengthened the annuity percentage of terminal salary is lowered during periods of above average growth in the wage level (illustrated by the 5% assumption). Conversely, when wage growth rate is below the 3.5% "normal" rate, (the below normal situation is illustrated by the 1.5% wage growth rate) the annuity percentage of terminal salary increases. Thus, even though the CPI[1/] mechanism protects the purchasing power of a member's

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1/ Retirement annuities are adjusted according to a method activated when the Consumer Price Index has risen by 3% and remains at 3% increase (or more) for three consecutive months.

annuity after retirement, the combination of an extended averaging period and several years of inflation can deprive the member of that protection during the final years of his active duty. This inconsistency is present in any system using an extended averaging period. However, use of an extended averaging period would be particularly undesirable in the military system, for three reasons:

- many members must be retired involuntarily,
- the practice of recomputation has only recently been terminated, and
- terminal pay is presently used as the base for calculating annuities.

A "high five" averaging system may be more appropriate for the Civil Service or any employer where the retiree's normal retirement age is about 60 and employees have for the most part previously achieved their final promotions and longevity increases some years earlier. The primary purpose of the retirement systems of most other employers is to permit and encourage voluntary egress of members at a time of their convenience and choosing. Conversely, the military retirement system requires mandatory retirement of many members at relatively early ages, but must at the same time motivate continued service for others. As a result, promotions and longevity increases during the years immediately preceding military retirements are not uncommon.

A method that averages over the high one year (generally the last 12 months of active duty) will provide a greater incentive for continued service than any longer averaging period and will result in an exit date annuity that bears a reasonably consistent exit date relationship with

the active duty wage level. At the same time, however, use of a high one average will remove inequities (discussed in Chapter 3 of Volume IV) generated by the present terminal system, and is of sufficient length to preclude economically motivated erratic egress patterns.

The Impact of Averaging On

- Retirements in "Highest Grade Satisfactorily Held"
- Reserve (Age 60) Retirements

The use of income averaging will create some special administrative problems that must be carefully considered and provided for in laws relating to "highest grade satisfactorily held" and reserve (age 60) retirements.

Present laws permit members to retire in the "highest grade satisfactorily held," even if at the time of their retirement they are serving in a lower grade. Members retiring under this provision include some who have served in a higher grade but subsequently are reduced in grade for disciplinary or performance reasons. However, the group also includes enlisted personnel who are awarded battlefield or other temporary commissions, serve honorably and effectively (frequently in combat situations) and subsequently revert to enlisted status. It also has included from time to time personnel who have served the great bulk of their careers as reserve officers, but who are forced from active duty commissioned service shortly before retirement eligibility, and who then transfer to enlisted status to serve relatively short periods necessary to acquire eligibility for the 20 year retirement annuity. Under the present system, these "highest grade held" retirees have their retirement pay computed on the basis of retirement date basic pay rates of the highest grade satisfactorily held, rather than on the basic pay rates of the grade held on the

retirement date.

In most retirement systems using an average income in annuity calculations, the multiplier percentages are applied to the "highest average income" period of the individual's employment. Thus, where a one year averaging period is utilized, the income base is generally termed the "high one salary," i.e., the highest total salary for any 12 consecutive months of active duty. In most situations, where there is a rising wage level and where the individual is moving upward through the grade and longevity structure, the "high one" salary will, in fact, be the salary paid during the final 12 months of active service. However, this would not necessarily be the case with "highest grade held" retirees. Previous service in higher grades might well yield annuities that are larger than annuities derived from the final year's service in a lower grade.

In any event, unless specific provision is made to preserve the intent of the "highest grade held" retirement rule, institution of an income averaging system for annuity determination will impact far more heavily on this group of personnel than on other members. For example, using a hypothetical (but not unrealistic) illustration, suppose an Air Force reserve officer completes 17 years of commissioned service, achieving the grade of O-4, at which point a cutback in manpower requirements forces him from active duty. He then enlists as a sergeant in order to complete 20 years of service and become eligible for an immediate retirement annuity. Under the present terminal pay method he could retire at the grade of O-4 with his annuity entitlement determined on the basis of pay rates in effect for an O-4 on the date of his retirement. Under a "high one" concept, his high one wage would probably be the wage earned during the final

12 months of his service as an O-4 and his annuity would be computed on that basis. The effect would be to deprive him of the benefit of wage growth in the O-4 grade during the period of his final 3 years of service and to reduce his annuity entitlement compared to that which would result from application of present rules. The longer the period between the reduction in grade and the retirement date, the greater the impact on the annuity in similar situations. (Depending on active duty wage growth rates, the loss in annuity might approximate 3-5% per year of service in the reduced grade.)

Any change in rules for calculation of the annuity that would have the effect of removing the economic advantage of the existing "highest grade satisfactorily held" rule is contrary to the best interests of the service. If past history is any guide, the size and composition of the active force can be expected to expand and contract periodically, thereby occasionally necessitating individual reductions in grade unrelated to the quality of the member's performance. As a result, the retirement date grade is, in many instances, an imperfect index of the service the member has performed during the course of his career. Conversely, the highest grade held may also be an imperfect index of service in some cases. However, given the unusual needs of the military organization, if one must err it seems preferable to err in favor of the member. On balance it seems desirable to preserve the economic advantage of the "highest grade satisfactorily held" clause even after adoption of an income averaging system.

This objective can be achieved by permitting calculation of the annuity based on a "constructive wage of the highest grade held" for the

period immediately prior to the member's retirement.

Example: Member retires 30 June 1968 while holding grade of E-9 after 20 years, 6 months service, but previously held grade of O-5 for period of 2 years.

In this case the O-5 constructed basic pay for the 12 months prior to the member's retirement would be:

Grade	Longevity Step	Effective Date of Pay Rate	Rate Per Mo.	Period	# of Mo.	Total
O-5	(18)	1 Jul 66	$ 930.60	1 Jul 67-30 Sep 67	3	$2791.80
O-5	(18)	1 Oct 67	982.80	1 Oct 67-31 Dec 67	3	2948.40
O-5	(20)	1 Oct 67	1012.20	1 Jan 68-30 Jun 68	6	6073.20
					12	$11,813.40

and the retirement annuity would be based on the $11,813.40 sum.

Calculation of reserve (age 60) retirement annuities presents a similar problem. Reservists achieve entitlement at age 60 or later, but in most instances have no recent service for pay on which a "high one" calculation could be based. Current rules permit calculation of reservist annuities based on the active duty rates in effect at the time the member reaches age 60. Finding another (earlier) set of pay rates on which to base the annuity would be difficult and, in any event seems likely to be impractical. However, if the active duty force is to use an income averaging system, it would appear that reservist annuities should similarly use the averaging technique. A practical compromise appears to lie in use of a method similar to that described above for "highest grade satisfactorily held" retirees' this can be easily accomplished by "constructing"

an active duty wage for the applicable retirement grade and longevity step for the 12 months immediately preceding the reservist's 60th birthday.

Example: O-6

O-6 26 years and 6 months service for pay purposes

Reaches age 60 on 31 July 1968

Grade	Longevity Step	Effective Date of Pay Rate	Rate Per Mo.	Period	# of Mo.	Total
O-6	(22)	1 Jul 66	1121.40	1 Aug 67-30 Sep 67	2	$ 2242.80
O-6	(22)	1 Oct 67	1184.10	1 Oct 67-31 Jan 68	4	4736.40
O-6	(26)	1 Oct 67	1284.60	1 Feb 68-30 Jun 68	5	6423.00
O-6	(26)	1 Jul 68	1373.23	1 Jul 68-31 Jul 68	1	1373.23
					12	$14775.43

In this instance the retirement annuity would be based on the $14,775.43.

A review of the disability retirement system indicates that the use of income averaging will not create any special problems with respect to disability retirement annuities.

Conclusion

The use of a "high one" average salary base for computing military retired pay will solve the problems inherent in the present terminal basic pay method and will provide a greater incentive to continued service than would use of a longer averaging period.

APPENDIX VII - APPLICATION OF THE METHODOLOGY USED IN DEVELOPING THE INTEGRATED MILITARY RETIREMENT ANNUITY FORMULA

Purpose

This Appendix provides a detailed description of the methodology utilized in developing the nondisability Military Retirement Annuity formula. The methodology was employed to construct a revised formula that would correct the shortcomings of the present nondisability retirement system and be compatible with a revised active duty compensation (salary) system. A six-step procedure was employed that:

Step-1 - Established that the member would contribute toward defrayal of the costs of retired pay (including both the Social Security and DOD disbursed retirement annuities) and other Military Estate Program benefits stemming from military service by a single contribution that is a fixed percent of the military salary.1/

Step-2 - Established that the revised retirement annuity formula would integrate the Social Security retirement annuity from military service and the DOD disbursed retirement annuity into an integrated military retirement benefit stated by an "Integrated Military Retirement Annuity" (IMRA) formula.

Step-3 - Selected a contribution rate considered optimum for support of the Integrated Military Retirement Annuity and other elements of the Military Estate Program.

1/ Additional benefits of the proposed Military Estate Program include survivor benefits and return of contributions of members who leave active service before they are eligible for retired pay.

Step-4 - Designed a formula that equated gross Integrated Military Retirement Annuity payments and payments under the Civil Service Retirement formula.

Step-5 - Modified the Integrated Military Retirement Annuity formula to:

- equate the net annuity payments of "net benefit" from the Integrated Military Retirements Annuity with the retirement annuity "net benefits" from a Civil Service career, and
- meet the particular incentive and management needs of the military organization.

Step-6 - Established the method for determining the portion of the Social Security retirement annuity resulting from military service.

These six steps produced an annuity formula consistent with the "Common Employer Policy".1/ The formula provides equitable treatment to military members compared with Civil Service employees, and at the same time recognizes the differences in work conditions of the two groups and serves the best interests and unique needs of the military organization and military personnel.

Of central importance in the development and utilization of this methodology are:

- The finding that a portion of the military retirement annuity compensates the military retiree for a civilian employment second career income that is lower than that of civilian cohorts because of delayed entry of the military retiree into civilian employment. Compared with a civilian cohort, only that portion of the annuity above the military retiree's "second career income loss" is a net advantage or "net benefit" to the military retiree.

1/ The Common Employer Policy is discussed in Vol. I Modernizing Military Pay, 1 Nov 1967, Chap. 6, page 99.

- An assumption that the goal of equitable treatment of differing employee groups implicit in the common employer policy concept can, in the case of the retirement annuity, be met best by equating the net benefits to members under the two systems.

The subject of second career income loss is discussed in Chapter 2 and in Appendix II, Military Retirement and Second Career Income Loss. The "net benefit" concept is treated in Chapter 4 and Appendix VIII, The Importance of the Net Benefit Concept in the Development of the Military Retirement System.

Description of Methodology

Step-1 and Step-2 of the methodology were derived from Recommendation 4 of the study and provided the "givens" on which succeeding steps were based. Reworded in terms of Recommendation 4, Step-1 and Step-2 may be stated as follows:

- Step-1 The military member's contribution to his retirement will be a fixed percent of his comparability salary that includes his portion of the Social Security tax.
- Step-2 The military retirement annuity stated by the IMRA formula will include the portion of the member's Social Security retirement benefit resulting from his military service.
- Step-3 Selecting the assumed contribution rate

As a beginning point in the analysis, a contribution of 6.5% was assumed as the percent of salary that members would contribute as their share of the costs of the Integrated Military Retirement Annuity and other MEP benefits. Use of this percentage, the same as that contributed by the civil servant for his retirement system benefit, assumed that the IMRA annuity to be developed in remaining steps of the methodology would provide a military retiree a net retirement annuity benefit approximating that received by a civil service retiree who had a career of comparable length.

Comparable retirement system contributions for military and Civil Service personnel represent a logical extension of the common employer policy.

However, the Civil Service's contribution of 6.5% supports survivor benefits and return of contribution to members who leave before retirement in addition to the retirement annuity. Therefore, application of the common employer policy is not satisfied simply by an equation of the member contributions and the net benefit flowing from the two nondisability retirement annuities. Other benefits of the two systems must be similarly equated to satisfy the policy and justify the common 6.5% contribution rate.

This Appendix deals only with the development of the retirement annuity formula and the equation of Civil Service and military retirement annuity net benefits. Similar comparisons between other Civil Service and military benefits are made, where applicable, in applying the common employer concept in the development of other elements of the Military Estate Program.

Step 4 Designing a formula that equates gross military and Civil Service retirement benefits

Step 4 was the threshold that had to be crossed to arrive at a formula that would provide equality of retirement annuity payments for the military and civil service retirees. Identical military and Civil Service formulas were employed as a starting point in the analysis. The military formula would subsequently be altered (in Step-5) to provide equality of net benefits and to satisfy specific needs of the military organization.

Initially, the study investigated a method of equating the gross payments from the two systems by applying the Civil Service retirement formula without modification to the military comparability salary. However, a direct translation of the Civil Service retirement annuity formula to the military situation was not possible because of the differing length of service and age requirements of the two systems. The military and Civil Service age and length of service requirements for immediate nondisability retirement annuities are summarized below.

	Military	Civil Service
Voluntary Retirement	20 years service - any age	30 years at age 55, 20 years service at age 60 or 5 or more years of service at age 62.
Involuntary Retirement	20 years service - any age	Immediate annuity at any age after 25 years service, or after 20 years service at age 50. Annuity reduced by 2% for each year employee is under age 55.

Even under circumstances of involuntary retirement, an immediate annuity is possible for the civil servant only if he is age 50 or has 25 years of active service. In either event, his annuity is reduced when retirement occurs before age 55.

The lack of an immediate annuity for involuntary retirements prior to age 50 or prior to completion of 25 years' service presumably stems from lack of a need for the Civil Service organization to retire a significant portion of its personnel at early ages. The military organization does have a need for early retirements, and the majority of all military retirements are, in a real sense, involuntary in nature.

TABLE VII - 1

MILITARY RETIRED PAY PERCENTAGES OF HIGH ONE SALARY RESULTING
CIVIL SERVICE RETIREMENT ANNUITY FORMULA[a/]

LOS	Civil Service Formula	Equivalent Military "Hi-One" %[b/]	Retirement Age	38	39	40	41	42	43	44	45	46	47	4
			RET Age Factor[c/]	.66	.68	.70	.72	.74	.76	.78	.80	.82	.84	.8
20	36.25	34.08		22.5	23.2	23.9	24.5	25.2	25.9	26.6	27.3	27.9	28.6	29
21	38.25	35.96			24.5	25.2	25.9	26.6	27.3	28.0	28.8	29.5	30.2	30
22	40.25	37.84				26.5	27.2	28.0	28.8	29.5	30.3	31.0	31.8	32
23	42.25	39.72					28.6	29.4	30.2	31.0	31.8	32.6	33.4	34
24	44.25	41.60						30.8	31.6	32.4	33.3	34.1	34.9	35
25	46.25	43.48							33.0	33.9	34.8	35.7	36.5	37
26	48.25	45.36								35.4	36.3	37.2	38.1	39
27	50.25	47.24									37.8	38.7	39.7	40
28	52.25	49.12										40.3	41.3	42
29	54.25	51.00											42.8	43
30	56.25	52.88												45
31	58.25	54.76												
32	60.25	56.64												
33	62.25	58.52												

a/ Civil-Service formula modified to permit retirement at 20 years of service regardless of a
of salary converted to the "High One" equivalent for military use.

b/ "Hi-One" % of Salary = High 5 Civil Service % of Salary x .94

c/ Retirement age discount factor = (55 - Retirement age) x .02

TABLE VII - 1

RETIRED PAY PERCENTAGES OF HIGH ONE SALARY RESULTING FROM USE OF CIVIL SERVICE RETIREMENT ANNUITY FORMULA[a]

38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
.66	.68	.70	.72	.74	.76	.78	.80	.82	.84	.86	.88	.90	.92	.94	.96	.98	1.00
22.5	23.2	23.9	24.5	25.2	25.9	26.6	27.3	27.9	28.6	29.3	30.0	30.7	31.4	32.0	32.7	33.4	34.1
	24.5	25.2	25.9	26.6	27.3	28.0	28.8	29.5	30.2	30.9	31.6	32.4	33.1	33.8	34.5	35.2	36.0
		26.5	27.2	28.0	28.8	29.5	30.3	31.0	31.8	32.5	33.3	34.1	34.8	35.6	36.3	37.1	37.8
			28.6	29.4	30.2	31.0	31.8	32.6	33.4	34.2	35.0	35.7	36.5	37.3	38.1	38.9	39.7
				30.8	31.6	32.4	33.3	34.1	34.9	35.8	36.6	37.4	38.3	39.1	39.9	40.8	41.6
					33.0	33.9	34.8	35.7	36.5	37.4	38.3	39.1	40.0	40.9	41.7	42.6	43.5
						35.4	36.3	37.2	38.1	39.0	39.9	40.8	41.7	42.6	43.5	44.5	45.4
							37.8	38.7	39.7	40.6	41.6	42.5	43.5	44.4	45.4	46.3	47.2
								40.3	41.3	42.2	43.2	44.2	45.2	46.2	47.2	48.1	49.1
									42.8	43.9	44.9	45.9	46.9	47.9	49.0	50.0	51.0
										45.5	46.5	47.6	48.6	49.7	50.8	51.8	52.9
											48.2	49.3	50.4	51.5	52.6	53.7	54.8
												51.0	52.1	53.2	54.4	55.5	56.6
													53.8	55.0	56.2	57.3	58.5

t retirement at 20 years of service regardless of age. Civil Service High Five percent quivalent for military use.

vice % of Salary x .94

etirement age) x .02

Therefore, the study evaluated the usefulness of applying the Civil Service annuity formula to the military situation by modifying the formula to permit 20-year military retirements without regard to retirement age, but with a reduction in the annuity amount by 2% for each year by which 55 exceeded the retirement age.

Using this modification of the Civil Service retirement formula, the military and Civil Service retirement annuity gross payment benefits were made substantially equal by:

- using the Civil Service annuity formula to determine the Integrated Military Retirement Annuity (IMRA) percent of salary payable for various lengths of service, and
- applying to the resulting formula the Civil Service retirement system rule for reducing annuity payments for members retiring before age 55, the minimum Civil Service retirement age.

Table VII-1 provides a matrix of the results produced by this procedure. The matrix was obtained by first converting the Civil Service high five percent of salary to an equivalent percentage of a "high one" salary[1/] and multiplying the latter by an age adjustment factor used by the Civil Service Retirement System (2 percent reduction for each year under the "normal" retirement age of 55).

The effect of applying the adaptation of the Civil Service formula to the Military system was:

- to provide the military retiree the same gross actuarial value of receipts from his retirement annuity that would be received by a civil servant retiring at age 55 with an equivalent length of service[2/] and

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1/ The annuity formula as stated includes Social Security retirement benefits stemming from military service.

2/ Reducing the age 55 annuity entitlement by 2 percent for each year by which age 55 exceeds the retirement age does not provide an exact actuarial reduction. However, this is the reduction rule used by the civil service retirement system.

- to provide the military retiree the same gross receipts from his retirement annuity that would be provided a civil servant involuntarily retired before reaching age 55.

Using the formula described above and applying it to a comparability salary provided equality of Civil Service and military gross benefits. It did not provide equality of net benefits, however, because it did not give consideration to the economic loss experienced by military retirees in a delayed, middle-aged entry into civilian second careers. Additionally, because the formula was originally designed for Civil Service rather than military service use, it did not provide a career incentive pattern that met the needs of the military organization.

Step 5 Modifying the Integrated Military Retirement Annuity (IMRA) Formula to equate Military and Civil Service net benefits, to adjust the formula to fit military system needs, and to validate the selected member contribution rate.

The goal of the methodology was to derive a formula that would permit the Government to apply a common retirement benefit policy to employees who perform service in two elements of government having substantially different personnel needs and policies. In this instance, a "common policy" implies retirement annuities that are, insofar as it is possible to determine, of equal net benefit to each of the two employee groups. Where needs of the organizations, retirement ages, types of retirements and purposes of the retirement annuities of the two groups differ, however, a common policy does not imply a common formula for the two groups; on the contrary, identical formulas could not be applied to both groups and meet the compensation objectives of each.

To achieve the goal of a common retirement policy and equality of net benefits from this civil service and military retirement annuity,

it was necessary to further modify the formula developed in Step-4 above to:

- Recognize the second career income loss inherent in a military career and equate net benefits from the IMRA with those available to the civil servant.
- Serve the best interests of the military organization by increasing some annuities and decreasing others to provide adequate incentives to full-length military careers and to compensate appropriately for the involuntary nature of the vast majority of military retirements.

First, consideration was given to the definition and measurement of net benefits that accrue from the military and Civil Service retirement annuities. Because retirement for the civil servant is, generally speaking, not mandatory until age 70 and because Civil Service employees do not normally experience the necessity to enter a second career, the entire amount of the Civil Service retirement annuity payments can accurately be described as a "net benefit." However, for the military retiree the annuity payments must serve, in part, to offset second career income loss.

To permit calculation and comparisons of the "net benefit" produced by various proposed military formulas with the net benefit received by individual Civil Service retirees, the following generalized definitions of net benefit were adopted:

Civil Service Retirement Annuity Net Benefit = Total lifetime annuity payments received by a retiree

Integrated Military Retirement Annuity Net Benefit = Total lifetime annuity payments received by a retiree less amount of Second Career Income Loss

or where:

A= Annual Annuity Amount

2IL = Annual Second Career Income Loss for military retirees

civ = Civil Service

mil = Military

DA = Age at Death

MRA = Military Retirement Age

NB_{civ} = Net Benefit from a Civil Service retirement annuity

NB_{mil} = Net Benefit from a Military Service retirement annuity, including military service portion of OASDI annuity

NRA = Normal Retirement Age for withdrawal from the national labor force

In notation the formulas become:

$$NB_{civ} = (DA_{civ} - NRA_{civ}) \times A_{civ}$$

$$NB_{mil} = \left[(DA_{mil} - MRA)\right] \times A_{mil} - \left[2IL\ (NRA_{mil} - MRA)\right]$$

Choice of a normal retirement age was crucial in determining the net retirement annuity benefits resulting from both Civil Service and military retirement. Voluntary Civil Service retirement becomes possible as early as age 55. Because it would be based on payments for a longer period of time, a Civil Service net benefit calculation based on retirement at age 55 for a given length of service and wage level would yield a larger net benefit amount than would a calculation assuming a later retirement age. Similarly, the "normal retirement age" influences the calculated amount of net benefit from military retirement, because it determines the number of years of second career employment and the number of years of second career income loss that will enter into the calculation. For example, other things equal, an assumed normal retirement age of 65

results in a lower military net benefit solution than does an assumed age of 60, because the age 65 assumption increases the number of years of second career employment and second career income loss.

In calculating net benefit from the retirement annuities, the normal retirement age was assumed to be 65 (i.e., NRA = 65) in both the military and Civil Service equations, for the following reasons:

- Consistency of treatment requires the same normal retirement age in both sets of calculations.
- Age 65 is the generally accepted normal retirement age in the United States, and the age at which unreduced Social Security retirement benefits become available.
- Age 65 is the approximate age at which military retirees typically terminate their second career employment.
- Age 65 is the median age at which civil servants terminate their Civil Service careers.

In comparing Civil Service and military retirement annuity net benefits, the interest was in comparing retirement benefit streams resulting from alternative employment situations. Valid comparisons required that the benefit streams considered be those available to Civil Service and military age cohorts; i.e., military and Civil Service cohorts who have the same age and year of birth.

In an economy with a rising real wage level, the years between military retirement (military retirement typically occurs between ages 37 and 53) and Civil Service retirement (assumed to occur at age 65) required that the data be adjusted to reflect the differing wage levels under which the two payment streams for the military and Civil Service age cohorts are determined. The adjustment was accomplished by adjusting the Civil Service retirement annuity stream upward under the assumption of a specified rate of real wage growth. Over the past 15-20 years, the real

wage level has increased at a rate of about 3% per annum.[1] This rate was assumed in subsequent calculations of net benefit from Civil Service retirement.

The generalized "net benefit" formulas shown above thus became, in more specific form:

$$NB_{civ} = (DA_{civ} - 65) \times A_{civ} \times (1 + .03)^n$$

where n = the number of years between the assumed Civil Service retirement age (65) and the military retirement age, or, n = 65 - MRA

and,

$$NB_{mil} = \left[(DA_{mil} - MRA) \times A_{mil}\right] - \left[2IL\ (65 - MRA)\right]$$

Applying the formulas set forth above, a calculation of the net retired pay benefit received by a civil service retiree is shown in Table VII-2. Rather than attempting to translate military grades to Civil Service grades and wage scales, Table VII-2 applies the Table VII-1 military "high one" equivalent of the Civil Service "high five" formula to the military comparability salary for various military grades and lengths of service. (The military comparability salary is used as a proxy for the salary of a civil servant of equivalent grade.)

Col. (1) provides the Civil Service retirement multiplier (adjusted for the "high five" provision of Civil Service retirement), col. (2) the military comparability salary, and col. (3) the resulting annuity.

1/ The "real wage" excludes increases which simply match increases in the cost of living. The real wage will increase in any given time period if money wages, that is, dollars actually received, rise faster than the prices of goods and services on which incomes are spent. The real wage with reference to some earlier base period equals the current dollar wage divided by the ratio of prices for goods and services today to the prices of goods and services in the base period.

Col. (4) displays the military retirement age typically associated with each grade and length of service situation shown in the table; col. (5) indicates the number of years between the military retirement age and the age 65 assumed Civil Service retirement age. Col. (6) provides a "growth factor" based on assumption of a 3% annual growth rate; e.g., after the 12 years of wage growth between a military retirement age of 53 and the assumed age 65 Civil Service retirement age, the age 65 wage level would be 1.4258 times the age 53 wage level. Col. (7) is the product of Col. (6) x Col. (3). Column (8) is the adjusted expected lifetime annuity value, assuming an age 65 remaining life expectancy of nine years (Col. (7) x 9 years).

Thus, as shown by the table, an O-6 retiring at age 53 after 30 years of service would, at age 65, be drawing an annuity of $14,258, while a civil servant age cohort retiring 12 years later, but with a similar length of service and grade would retire with an annual annuity of $20,329.

The net benefit values appearing in Table VII-2 are the Civil Service net benefit standards against which the results of various military annuity formulas will be evaluated in subsequent comparisons in this Appendix.

The net benefits yielded by the present military retirement annuity formula are displayed in Table VII-3. The data support the following conclusions:

- Except for some enlisted men, the present combination of military and Social Security retirement benefits provides total lifetime retirement annuity net benefits less than those achieved by civil servant age and grade cohorts.

- On balance, the present retirement annuity is relatively more beneficial for enlisted personnel than for officer personnel.

- In some grades the net benefits from military retirement decrease as the member's length of service increases. Per year of service performed, short military careers provide a greater return than do longer military careers.

Using the previously derived formula for calculation of net benefit, Table VII-4 shows the net benefit to military members that would result from use of the adaptation of the Civil Service formula shown in Table VII-1 and the comparability salary.

From the standpoint of retirement annuity net benefit, the data in Table VII-2, VII-3, and VII-4 indicate that military retirement under this formula would be clearly inferior to that which the civil servant achieves. The inferiority stems from two causes:

- The large portion of the military retirement annuity required to compensate the military retiree for "second career income loss."

- Growth in the real wage level between the relatively early military retirement age and the "normal" retirement age at which the typical civil servant retires.

Therefore, without significant modification, the Civil Service formula could not be used to determine military retirement annuities. It would not provide military retirees net benefit levels comparable to those available to civil servants, and would fail to provide the incentive to full length careers that the military organization requires.

In order to bring the military net benefit up to the level of that realized by the civil servant, the military annuity formula could be altered in various ways. The most obvious method would be to alter the formula to provide larger percentages of the active duty wage than the Civil Service formula and to pay the resulting amounts for the entire

TABLE VII

CIVIL SERVICE RETIRED

Retirement Grade	Years of Service	Annuity Factor[b] (1)	Comparability Salary[c] (2)	Annual Annuity (3) (1)x(2)	Military Retireme Age (4)
O-6	24	.4160	$25,436	$10,581	47
	26	.4536	26,199	11,884	49
	28	.4912	26,962	13,244	51
	30	.5288	26,962	14,258	53
O-5	20	.3408	20,596	7,019	43
	22	.3784	21,214	8,027	45
	24	.4160	21,832	9,082	47
	26	.4536	22,450	10,183	49
O-4	20	.3408	17,946	6,116	43
	22	.3784	18,440	6,978	45
E-9	20	.3408	12,484	4,255	39
	22	.3784	12,734	4,819	41
	24	.4160	12,983	5,401	43
	26	.4536	13,233	6,002	45
	28	.4912	13,483	6,623	47
	30	.5288	13,483	7,130	49
E-8	20	.3408	10,420	3,551	39
	22	.3784	10,625	4,021	41
	24	.4160	10,829	4,505	43
	26	.4536	11,033	5,005	45
	28	.4912	11,238	5,520	47
	30	.5288	11,238	5,943	49
E-7	20	.3408	8,973	3,058	39
	22	.3784	9,146	3,461	41
	24	.4160	9,318	3,876	43
	26	.4536	9,491	4,305	45
	28	.4912	9,491	4,662	47
E-6	20	.3408	8,068	2,750	39
	22	.3784	8,068	3,053	41

a/ The net benefit from a civil service retirement was calculated usi described in the text

b/ The "high-one" equivalent of the Civil Service "high-five" percenta

c/ Comparability salary rate that would have been paid commencing 1 Ju

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TABLE VII - 2

CIVIL SERVICE RETIRED PAY NET BENEFIT[a]

rs rice	Annuity Factor[b] (1)	Comparability Salary[c] (2)	Annual Annuity (3) (1)x(2)	Military Retirement Age (4)	Number of Years to Age 65 (5)	Growth Factor at 3% Per Year (6)	Growth Adjusted Annuity (7) (6)x(3)	Lifetime Net Benefit (8) (7)x9 Yrs.
	.4160	$25,436	$10,581	47	18	1.7024	$18,013	$162,117
	.4536	26,199	11,884	49	16	1.6047	19,070	171,630
	.4912	26,962	13,244	51	14	1.5126	20,033	180,297
	.5288	26,962	14,258	53	12	1.4258	20,329	182,961
	.3408	20,596	7,019	43	22	1.9161	13,449	121,041
	.3784	21,214	8,027	45	20	1.8061	14,498	130,482
	.4160	21,832	9,082	47	18	1.7024	15,461	139,149
	.4536	22,450	10,183	49	16	1.6047	16,341	147,069
	.3408	17,946	6,116	43	22	1.9161	11,719	105,471
	.3784	18,440	6,978	45	20	1.8061	12,603	113,427
	.3408	12,484	4,255	39	26	2.1566	9,176	82,584
	.3784	12,734	4,819	41	24	2.0328	9,796	88,164
	.4160	12,983	5,401	43	22	1.9161	10,349	93,141
	.4536	13,233	6,002	45	20	1.8061	10,840	97,560
	.4912	13,483	6,623	47	18	1.7024	11,275	101,475
	.5288	13,483	7,130	49	16	1.6047	11,442	102,978
	.3408	10,420	3,551	39	26	2.1566	7,658	68,922
	.3784	10,625	4,021	41	24	2.0328	8,174	73,566
	.4160	10,829	4,505	43	22	1.9161	8,632	77,688
	.4536	11,033	5,005	45	20	1.8061	9,040	81,360
	.4912	11,238	5,520	47	18	1.7024	9,397	84,573
	.5288	11,238	5,943	49	16	1.6047	9,537	85,833
	.3408	8,973	3,058	39	26	2.1566	6,595	59,355
	.3784	9,146	3,461	41	24	2.0328	7,036	63,324
	.4160	9,318	3,876	43	22	1.9161	7,427	66,843
	.4536	9,491	4,305	45	20	1.8061	7,775	69,975
	.4912	9,491	4,662	47	18	1.7024	7,937	71,433
	.3408	8,068	2,750	39	26	2.1566	5,931	53,379
	.3784	8,068	3,053	41	24	2.0328	6,206	55,854

fit from a civil service retirement was calculated using the formula $NB_{civ} = (DA_{civ} - 65) \times A_{civ} \times (1 + .03)^n$
the text

" equivalent of the Civil Service "high-five" percentage. See Table VII -1.

salary rate that would have been paid commencing 1 July 1968.

TABLE VII - 3

MILITARY RETIRED PAY NET BENEFIT[a] RESULTING FROM THE PRES

Retirement Grade	Years of Service	Military Retirement Age	Annual 2nd Career Income Loss (1)	Present Formula Annual Annuity[b] (2)	Lifetime Total Military Ret. Pay (3)	Life Total Soc. Annu (4)
O-6	24	47	$12,473	$ 9,113	$252,430	$14,8
	26	49	13,208	10,710	278,460	16,6
	28	51	14,644	11,534	280,276	18,6
	30	53	15,747	12,358	280,527	20,8
O-5	20	43	7,875	6,493	202,582	11,2
	22	45	9,734	7,393	218,094	12,9
	24	47	10,016	8,065	223,401	14,8
	26	49	12,762	8,738	227,188	16,6
O-4	20	43	7,447	5,621	175,375	11,2
	22	45	9,123	6,184	182,428	12,9
E-9	20	39	3,375	3,856	134,189	6,5
	22	41	5,069	4,465	147,345	8,2
	24	43	5,482	4,871	151,975	9,6
	26	45	6,240	5,789	170,776	11,4
	28	47	7,696	6,234	172,682	13,2
	30	49	6,001	6,680	173,680	15,0
E-8	20	39	2,293	3,380	117,624	6,5
	22	41	2,774	3,938	129,954	8,2
	24	43	3,400	4,296	134,035	9,6
	26	45	3,877	5,171	152,545	11,4
	28	47	4,357	5,569	154,261	13,2
	30	49	4,741	5,967	155,142	15,0
E-7	20	39	547	2,983	103,808	6,5
	22	41	1,216	3,501	115,533	8,2
	24	43	1,798	3,819	119,153	9,6
	26	45	2,246	4,654	137,293	11,4
	28	47	2,351	5,012	138,832	13,2
E-6	20	39	706	2,624	91,315	6,5
	22	41	1,227	2,887	95,271	8,2

a/ Net benefit calculated using the formula $NB_{mil} = \left[(DA_{mil} - MRA) \times A_{mil}\right]$

b/ Annual annuity calculated using 1 July 1968 Basic Pay Rates.

TABLE VII - 3

BENEFIT[a] RESULTING FROM THE PRESENT MILITARY RETIREMENT ANNUITY FORMULA

l areer e	Present Formula Annual Annuity[b] (2)	Lifetime Total Military Ret. Pay (3)	Lifetime Total Soc. Sec. Annuity (4)	Lifetime Total Military + Soc. Sec. Annuity (5) (3) + (4)	Lifetime Total 2nd Career Income Loss (6)	Lifetime Total Military Net Benefit (7) (5)-(6)	% of Annuity Payments to Offset Loss (8) (6)/(5)x100%
73	$ 9,113	$252,430	$14,830	$267,260	$224,514	$ 42,746	84.0%
08	10,710	278,460	16,687	295,147	211,328	83,819	71.6
44	11,534	280,276	18,622	298,898	205,016	93,882	68.6
47	12,358	280,527	20,814	301,341	188,964	112,377	62.7
75	6,493	20?,582	11,210	213,792	173,250	40,542	81.0
34	7,393	218,094	12,915	231,009	194,680	36,329	84.3
16	8,065	223,401	14,830	238,231	180,288	57,943	75.7
62	8,738	227,188	16,687	243,875	204,192	39,683	83.7
47	5,621	175,375	11,210	186,585	163,834	22,751	87.8
23	6,184	182,428	12,915	195,343	182,460	12,883	93.4
75	3,856	134,189	6,576	140,765	87,750	53,015	62.3
69	4,465	147,345	8,200	155,545	121,656	33,889	78.2
82	4,871	151,975	9,629	161,604	120,604	41,000	74.6
40	5,789	170,776	11,477	182,253	124,800	57,453	68.5
96	6,234	172,682	13,289	185,971	138,528	47,443	74.5
01	6,680	173,680	15,026	188,706	96,016	92,690	50.9
93	3,380	117,624	6,576	124,200	59,618	64,582	48.0
74	3,938	129,954	8,200	138,154	66,576	71,578	48.2
00	4,296	134,035	9,629	143,664	74,800	68,864	52.1
77	5,171	152,545	11,477	164,022	77,540	86,482	47.3
57	5,569	154,261	13,289	167,550	78,426	89,124	46.8
41	5,967	155,142	15,026	170,168	75,856	94,312	44.6
47	2,983	103,808	6,576	110,384	14,222	96,162	12.9
16	3,501	115,533	8,200	123,733	29,184	94,549	23.6
98	3,819	119,153	9,629	128,782	39,556	89,226	30.7
46	4,654	137,293	11,477	148,770	44,920	103,850	30.2
51	5,012	138,832	13,289	152,121	42,318	109,803	27.8
06	2,624	91,315	6,576	97,891	18,356	79,535	18.8
27	2,887	95,271	8,200	103,471	29,448	74,023	28.5

ula $NB_{mil} = [(DA_{mil} - MRA) \times A_{mil}] - [2IL\ (65 - MRA)]$ described in the text.

y 1968 Basic Pay Rates.

lifetime of the retiree. However, increasing the net benefit simply by increasing the annuity percent of salary has several disadvantages, including the following:

- A level stream lifetime annuity cannot provide the desired pattern of incentives and cannot overcome the "slope" and "level" problems described in Appendix IX, Some Considerations in Designing the Military Nondisability Retirement Formula.
- A level stream lifetime annuity cannot recognize efficiently the differing circumstances of the two different phases of the military retirement period (second career period; old age period).

An alternative method of setting the annuity to satisfy the unusual needs of a military retirement program, a two-step method, can provide a lower payment amount to the retiree during his second career years and a higher amount when he reaches a normal retirement age. The Civil Service formula offered a basis for constructing a two-step retirement annuity stream by employing the following procedure:

- During his second career years, pay the retiree the reduced (adjusted by retirement age) percent of salary indicated by the adaptation of the Civil Service formula to the military situation. (See Table VII-1.)
- Later, when the retiree reaches a designated "normal" retirement age, pay him the percent of salary annuity indicated by the Civil Service formula, without reduction for his earlier retirement age.

A formula that provides payments in two steps is, of course, a significant departure from the Civil Service practice. Civil servants who are involuntarily retired before age 55 receive reduced annuities over their full life spans. A two-step application of the Civil Service formula to military retirement will make the military annuity payments quite different (and larger in total) than those made to civil servants retiring at similar ages and years of service, even if the years of service multiplier factors are identical. In fact, the two-step version of the Civil Service

TABLE VII-4

MILITARY RETIRED PAY NET BENEFIT RESULTING FROM USE OF THE
ANNUITY PERCENT OF SALARY ADJUSTED FOR RETIREMENT AGE - AGE ADJUSTED /

Retirement Grade	Years of Service	Annual 2nd Career Income Loss (1)	Annual Age Adjusted Annuity[b] (2)	Total Lifetime Pay (3)	Total Lifetime 2nd Career Income Loss (4)	Lif Net Ben (3)
O-6	24	$12,473	$ 8,877	$245,893	$224,514	$ 2
	26	13,208	10,453	271,778	211,328	6
	28	14,644	12,187	296,144	205,016	9
	30	15,747	13,697	310,922	188,964	12
O-5	20	7,875	5,334	166,421	173,250	-
	22	9,734	6,428	189,626	194,680	-
	24	10,016	7,619	211,046	180,288	3
	26	12,762	8,958	232,908	204,192	2
O-4	20	7,447	4,648	145,018	163,834	- 1
	22	9,123	5,587	164,817	182,460	- 1
E-9	20	3,375	2,896	100,781	87,750	1
	22	5,069	3,464	114,312	121,656	-
	24	5,482	4,103	128,014	120,604	
	26	6,240	4,804	141,718	124,800	1
	28	7,696	5,568	154,234	138,528	1
	30	6,001	6,270	163,020	96,016	6
E-8	20	2,293	2,417	84,112	59,618	2
	22	2,774	2,890	95,370	66,576	2
	24	3,400	3,422	106,766	74,800	3
	26	3,877	4,005	118,148	77,540	4
	28	4,357	4,641	128,556	78,426	5
	30	4,741	5,226	135,876	75,856	6
E-7	20	547	2,082	72,454	14,222	5
	22	1,216	2,488	82,104	29,184	5
	24	1,798	2,944	91,853	39,556	5
	26	2,246	3,445	101,628	44,920	5
	28	2,351	3,920	108,584	42,318	6
E-6	20	706	1,872	65,146	18,356	4
	22	1,227	2,194	72,402	29,448	4

a/ Age adjusted percentages of salary used in annuity calculations are those shown i
using the formula $NB_{mil} = [(DA_{mil} - MRA) \times A_{mil}] - [2IL\ (65-MRA)]$ described in tex

b/ Based on 1 July 1968 comparability salary and age adjusted percentages shown in T

TABLE VII-4

TARY RETIRED PAY NET BENEFIT RESULTING FROM USE OF THE CIVIL SERVICE FORMULA WITH
OF SALARY ADJUSTED FOR RETIREMENT AGE - AGE ADJUSTED ANNUITY PAID FOR RETIREMENT LIFETIME[a]

reer Loss	Annual Age Adjusted Annuity[b] (2)	Total Lifetime Pay (3)	Total Lifetime 2nd Career Income Loss (4)	Lifetime Net Benefit (5) (3)-(4)	Percent of Payments to Offset Loss (6) (4)/(3)x100%
3	$ 8,877	$245,893	$224,514	$ 21,379	91.3%
8	10,453	271,778	211,328	60,450	77.8
4	12,187	296,144	205,016	91,128	69.2
7	13,697	310,922	188,964	121,958	60.8
5	5,334	166,421	173,250	- 6,829	104.1
4	6,428	189,626	194,680	- 5,054	102.7
6	7,619	211,046	180,288	30,758	85.4
2	8,958	232,908	204,192	28,716	87.7
7	4,648	145,018	163,834	- 18,816	113.0
3	5,587	164,817	182,460	- 17,643	110.7
5	2,896	100,781	87,750	13,031	87.1
8	3,464	114,312	121,656	- 7,344	106.4
2	4,103	128,014	120,604	7,410	94.2
0	4,804	141,718	124,800	16,918	88.1
6	5,568	154,234	138,528	15,706	89.8
1	6,270	163,020	96,016	67,004	58.9
3	2,417	84,112	59,618	24,494	70.9
4	2,890	95,370	66,576	28,794	69.8
0	3,422	106,766	74,800	31,966	70.1
7	4,005	118,148	77,540	40,608	65.6
7	4,641	128,556	78,426	50,130	61.0
1	5,226	135,876	75,856	60,020	55.8
7	2,082	72,454	14,222	58,232	19.6
8	2,488	82,104	29,184	52,920	35.5
8	2,944	91,853	39,556	52,297	43.1
5	3,445	101,628	44,920	56,708	44.2
1	3,920	108,584	42,318	66,266	39.0
6	1,872	65,146	18,356	46,790	28.2
7	2,194	72,402	29,448	42,954	40.7

of salary used in annuity calculations are those shown in Table VII-1. Net benefit calculated $[(DA_{mil} - MRA) \times A_{mil}] - [2IL\ (65\text{-}MRA)]$ described in text

rability salary and age adjusted percentages shown in Table VII-1.

formula is so significantly different from the Civil Service use of the formula as to be most accurately described as amounting to use of a different formula. However, identity of formulas for the two groups was not an objective and is not compatible with achieving equality of benefits and design of a military retirement formula that meets the particular management effectiveness and just treatment objectives of the military organization.

On the other hand, payment of the annuity in a two-step form does meet the unusual needs of the military organization. The step-1 payments recognize the average circumstances of retirees at the time of retirement and during their second career years. The step-2 payments recognize the average circumstances of retirees in old age. Viewed in this light, a two-step version of the Civil Service formula is an adaptation required to meet the management effectiveness and just treatment objectives of the military retirement system.

The "normal" retirement age at which the unreduced amount is paid can be determined in several ways. However, in order to conform with Civil Service rules as closely as practical, and in recognition of retirement annuities available to military reserve personnel who earn military retirement under Section 1331 of title 10, U. S. Code,1/ the formula was constructed to pay unreduced annuities (Step-2 annuities) at ages determined by the member's length of service and according to the following formula:

1/ Reserve retirements are discussed in Chapter 6 of this report.

30 years of active service:	reduced (Step-1) annuity until age 55--full (Step-2) annuity at age 55 and thereafter.[1]
20 years of active service:	reduced (Step-1) annuity until age 60--full (Step-2) annuity age 60 and thereafter[2]
21 thru 29 years of active service:	the full (Step 2) annuity would commence between ages 55 and 60 according to the following formula:

$$\text{Full (Step-2) Annuity Age} = \frac{60 \text{ minus } (\text{Length of Service} - 20)}{2}$$

Tables VII-5 and VII-6 show the dollar amounts of annuities that would be paid using this version of the Civil Service formula adapted to "high-one" average salary, and modified to a two-step formula. Table VII-5 shows the step-1 annuities resulting from use of the Table VII-1 "Age Adjusted percentage of Salary" multipliers, while Table VII-6 shows the step 2 annuities resulting from use of the Table VII-1 "Hi one" multiplier with no adjustment for age. In both instances, the multipliers were applied to the 1968 comparability salary and the resulting amounts are compared with those that were actually paid to 1968 retirees under the present formula.

Table VII-7 provides an analysis of the net benefits that would result from the same adaptation of the Civil Service formula to two steps. Table VII-8 compares these amounts with those that would be received by a civil servant retiring at age 65 with comparable wages and lengths of service.

1/ Civil servants who have completed 30 years of service can retire with unreduced annuities at age 55.

2/ Civil servants who have completed 20 years service can retire with unreduced annuities at age 60.

TABLE VII-5

COMPARISON OF 2 STEP MODIFICATION OF CIVIL SERVICE FORMULA WI
STEP - 1 AMOUNTS VS PRESENT ANNUITY AMOUNTS

RETIREMENT GRADE		YEARS OF SERVICE 20	21	22	23	24	25
O-8	PRESENT $						
	PROPOSED (REDUCED)$						
	DIFFERENCE $						
	PROPOSED ÷ PRESENT						
O-6	PRESENT $	7178	7537	8354	8733	9113	9493
	PROPOSED (REDUCED)$	6193	6695	7476	8043	8877	9513
	DIFFERENCE $	-980	-842	-878	-690	-236	20
	PROPOSED ÷ PRESENT	.863	.888	.895	.921	.974	1.002
O-5	PRESENT $	6493	6817	7393	7729	8065	8402
	PROPOSED (REDUCED)$	5334	5767	6428	6916	7619	8165
	DIFFERENCE $	-1159	-1050	-965	-813	-446	-237
	PROPOSED ÷ PRESENT	.822	.846	.869	.895	.945	.972
O-4	PRESENT $	5621	5902	6184	6465	6746	7027
	PROPOSED (REDUCED)$	4648	5025	5587	6011	6608	7081
	DIFFERENCE $	-973	-877	-597	-454	-138	54
	PROPOSED ÷ PRESENT	.827	.851	.903	.930	.980	1.008
E-9	PRESENT $	3856	4048	4465	4668	4871	5074
	PROPOSED (REDUCED)$	2896	3146	3464	3744	4103	4401
	DIFFERENCE $	-960	-902	-1001	-924	-768	-673
	PROPOSED ÷ PRESENT	.751	.777	.776	.802	.842	.867
E-8	PRESENT $	3380	3549	3938	4117	4296	4475
	PROPOSED (REDUCED)$	2417	2626	2890	3124	3422	3671
	DIFFERENCE $	-963	-923	-1048	-993	-874	-804
	PROPOSED ÷ PRESENT	.715	.740	.734	.759	.797	.820
E-7	PRESENT $	2983	3132	3501	3660	3819	3978
	PROPOSED (REDUCED)$	2082	2261	2488	2689	2944	3159
	DIFFERENCE $	-901	-871	-1013	-971	-875	-819
	PROPOSED ÷ PRESENT	.698	.722	.711	.735	.771	.794
E-6	PRESENT $	2624	2756	2887	3018	3149	3281
	PROPOSED (REDUCED)$	1872	2033	2194	2372	2574	2735
	DIFFERENCE	-752	-723	-693	-646	-575	-546
	PROPOSED ÷ PRESENT	.713	.738	.760	.786	.817	.834

a/ Proposed formula amounts based on 1 July 1968 Comparability Salary. Present an

TABLE VII-5

VII

OF 2 STEP MODIFICATION OF CIVIL SERVICE FORMULA WITH PRESENT FORMULA
STEP - 1 AMOUNTS VS PRESENT ANNUITY AMOUNTS[a]

	YEARS OF SERVICE									
)	21	22	23	24	25	26	27	28	29	30
								15100	15636	16178
								16617	17610	18676
								1517	1974	2498
								1.100	1.128	1.154
178	7537	8354	8733	9113	9493	10710	11122	11534	11946	12358
193	6695	7476	8043	8877	9513	10453	11135	12187	12915	13697
80	-842	-878	-690	-236	20	-257	13	653	969	1339
63	.888	.895	.921	.974	1.002	.976	1.001	1.057	1.081	1.108
93	6817	7393	7729	8065	8402	8738	9074	9410	9746	10082
34	5767	6428	6916	7619	8165	8958	9541	10147	10754	11405
59	-1050	-965	-813	-446	-237	220	467	737	1008	1323
22	.846	.869	.895	.945	.972	1.025	1.051	1.078	1.103	1.131
21	5902	6184	6465	6746	7027	7308	7589	7870	8151	8432
48	5025	5587	6011	6608	7081	7555	8047	8558	9069	9618
73	-877	-597	-454	-138	54	247	458	688	918	1186
27	.851	.903	.930	.980	1.008	1.034	1.060	1.087	1.113	1.141
56	4048	4465	4668	4871	5074	5729	6012	6234	6457	6680
96	3146	3464	3744	4103	4401	4804	5121	5568	5919	6270
60	-902	-1001	-924	-768	-673	-985	-891	-666	-538	-410
51	.777	.776	.802	.842	.867	.830	.852	.893	.917	.939
80	3549	3938	4117	4296	4475	5171	5370	5569	5768	5967
17	2626	2890	3124	3422	3671	4005	4270	4641	4933	5226
63	-923	-1048	-993	-874	-804	-1166	-1100	-928	-835	-741
15	.740	.734	.759	.797	.820	.775	.795	.833	.855	.876
83	3132	3501	3660	3819	3978	4654	4833	5012	5191	5370
32	2261	2488	2689	2944	3159	3445	3673	3920	4167	4413
01	-871	-1013	-971	-875	-819	-1209	-1160	-1092	-1024	-957
98	.722	.711	.735	.771	.794	.740	.760	.782	.803	.822
94	2756	2887	3018	3149	3281	3412	3543	3674	3805	3937
72	2033	2194	2372	2574	2735	2929	3122	3332	3542	3752
52	-723	-693	-646	-575	-546	-483	-421	-342	-263	-185
13	.738	.760	.786	.817	.834	.858	.881	.907	.931	.953

d on 1 July 1968 Comparability Salary. Present amounts based on 1 July 1968 Basic Pay rates.

TABLE VII-6

COMPARISON OF 2 STEP MODIFICATION OF CIVIL SERVICE FORMULA WITH PRESEI
STEP - 2 AMOUNTS VS PRESENT ANNUITY AMOUNTS[a]

RETIREMENT GRADE		YEARS OF SERVICE 20	21	22	23	24	25	26
O-8	PRESENT $							
	PROPOSED $							
	DIFFERENCE $							
	PROPOSED ÷ PRESENT							
O-6	PRESENT $	7178	7537	8354	8733	9113	9493	10710
	PROPOSED $	8149	8598	9336	9800	10581	11060	11884
	DIFFERENCE $	971	1061	982	1067	1468	1567	1174
	PROPOSED ÷ PRESENT	1.135	1.141	1.118	1.122	1.161	1.165	1.110
O-5	PRESENT $	6493	6817	7393	7729	8065	8402	8738
	PROPOSED $	7019	7406	8027	8426	9082	9493	10183
	DIFFERENCE $	526	589	634	697	1017	1091	1445
	PROPOSED ÷ PRESENT	1.081	1.086	1.086	1.090	1.126	1.130	1.165
O-4	PRESENT $	5621	5902	6184	6465	6746	7027	7308
	PROPOSED $	6116	6453	6978	7324	7877	8233	8588
	DIFFERENCE $	495	551	794	859	1131	1206	1280
	PROPOSED ÷ PRESENT	1.088	1.093	1.128	1.133	1.168	1.172	1.175
E-9	PRESENT $	3856	4048	4465	4668	4871	5074	5709
	PROPOSED $	4255	4489	4819	5058	5401	5645	6002
	DIFFERENCE $	399	441	354	390	530	571	213
	PROPOSED ÷ PRESENT	1.103	1.109	1.079	1.084	1.109	1.113	1.037
E-8	PRESENT $	3380	3549	3938	4117	4296	4475	5171
	PROPOSED $	3551	3747	4021	4220	4505	4708	5005
	DIFFERENCE $	171	198	83	103	209	233	-166
	PROPOSED ÷ PRESENT	1.051	1.056	1.021	1.025	1.049	1.052	.968
E-7	PRESENT $	2983	3132	3501	3660	3819	3978	4654
	PROPOSED $	3058	3227	3461	3633	3876	4051	4305
	DIFFERENCE $	75	95	-40	-27	57	73	-349
	PROPOSED ÷ PRESENT	1.025	1.030	.989	.993	1.015	1.018	.925
E-6	PRESENT $	2624	2756	2887	3018	3149	3281	3412
	PROPOSED $	2750	2901	3053	3205	3356	3508	3660
	DIFFERENCE $	126	145	166	187	207	227	248
	PROPOSED ÷ PRESENT	1.048	1.053	1.057	1.062	1.066	1.069	1.073

a/ Proposed formula amounts based on 1 July 1968 Comparability Salary. Present amounts bas

TABLE VII-6

ON OF 2 STEP MODIFICATION OF CIVIL SERVICE FORMULA WITH PRESENT FORMULA
STEP - 2 AMOUNTS VS PRESENT ANNUITY AMOUNTS[a]

YEARS OF SERVICE										
20	21	22	23	24	25	26	27	28	29	30
								15100	15639	16178
								18058	18750	19441
								2958	3111	3263
								1.196	1.199	1.202
7178	7537	8354	8733	9113	9493	10710	11122	11534	11946	12358
8149	8598	9336	9800	10581	11060	11884	12376	13244	13751	14258
971	1061	982	1067	1468	1567	1174	1254	1710	1805	1900
135	1.141	1.118	1.122	1.161	1.165	1.110	1.113	1.148	1.151	1.154
6493	6817	7393	7729	8065	8402	8738	9074	9410	9746	10082
7019	7406	8027	8426	9082	9493	10183	10605	11027	11450	11872
526	589	634	697	1017	1091	1445	1531	1617	1704	1790
081	1.086	1.086	1.090	1.126	1.130	1.165	1.169	1.172	1.175	1.178
621	5902	6184	6465	6746	7027	7308	7589	7870	8151	8432
116	6453	6978	7324	7877	8233	8588	8944	9300	9656	10012
495	551	794	859	1131	1206	1280	1355	1430	1505	1580
088	1.093	1.128	1.133	1.168	1.172	1.175	1.179	1.182	1.185	1.187
856	4048	4465	4668	4871	5074	5789	6012	6234	6457	6680
255	4489	4819	5058	5401	5645	6002	6251	6623	6876	7130
399	441	354	390	530	571	213	239	389	419	450
103	1.109	1.079	1.084	1.109	1.113	1.037	1.040	1.062	1.065	1.067
380	3549	3936	4117	4296	4475	5171	5370	5569	5768	5967
551	3747	4021	4220	4505	4708	5005	5212	5520	5731	5943
171	198	83	103	209	233	-166	-158	-49	-37	-24
51	1.056	1.021	1.025	1.049	1.052	.968	.971	.991	.994	.996
83	3132	3501	3660	3819	3978	4654	4833	5012	5191	5370
58	3227	3461	3633	3876	4051	4305	4484	4662	4840	5019
75	95	-40	-27	57	73	-349	-349	-350	-351	-351
25	1.030	.989	.993	1.015	1.018	.925	.928	.930	.932	.935
24	2756	2887	3018	3149	3281	3412	3543	3674	3805	3937
50	2901	3053	3205	3356	3508	3660	3811	3963	4115	4266
26	145	166	187	207	227	248	268	289	310	329
08	1.053	1.057	1.062	1.066	1.069	1.073	1.076	1.079	1.081	1.084

on 1 July 1968 Comparability Salary. Present amounts based on 1 July 1968 Basic Pay rates.

TABLE VII-7

MILITARY RETIRED PAY NET BENEFIT RESULTING FROM USE OF THE CIVIL SERVICE FO

Retirement Grade	Years of Service	Annual 2nd Career Income Loss (1)	Annual Reduced Annuity Step 1[b] (2)	Annual Full Annuity Step 2[b] (3)	Total Lifetime Pay (4)	Total 2nd Career Income Loss (5)	Lif Net Ben (4)
O-6	24	$12,473	$ 8,877	$10,581	$274,350	$224,514	$ 4
	26	13,208	10,453	11,884	297,536	211,328	8
	28	14,644	12,187	13,244	316,544	205,016	11
	30	15,747	13,697	14,258	322,535	188,964	13
O-5	20	7,875	5,334	7,019	190,348	173,250	1
	22	9,734	6,428	8,027	214,411	194,680	1
	24	10,016	7,619	9,082	235,478	180,288	5
	26	12,762	8,958	10,183	254,958	204,192	5
O-4	20	7,447	4,648	6,116	165,863	163,834	
	22	9,123	5,587	6,978	186,377	182,460	
E-9	20	3,375	2,896	4,255	119,535	87,750	3
	22	5,069	3,464	4,819	134,637	121,656	1
	24	5,482	4,103	5,401	149,041	120,604	2
	26	6,240	4,804	6,002	162,683	124,800	3
	28	7,696	5,568	6,623	173,962	138,528	3
	30	6,001	6,270	7,130	180,220	96,016	8
E-8	20	2,293	2,417	3,551	99,761	59,618	4
	22	2,774	2,890	4,021	112,335	66,576	4
	24	3,400	3,422	4,505	124,311	74,800	4
	26	3,877	4,005	5,005	135,648	77,540	5
	28	4,357	4,641	5,520	144,993	78,426	6
	30	4,741	5,226	5,943	150,216	75,856	7
E-7	20	547	2,082	3,058	85,922	14,222	7
	22	1,216	2,488	3,461	96,699	29,184	6
	24	1,798	2,944	3,876	106,951	39,556	6
	26	2,246	3,445	4,305	116,678	44,980	7
	28	2,351	3,920	4,662	122,459	42,316	8
E-6	20	706	1,872	2,750	77,262	18,356	5
	22	1,227	2,194	3,053	85,287	29,448	5

a/ Age adjusted percentages of salary used in annuity calculations are those shown in Tabl using the formula $NB_{mil} = [(DA_{mil} - MRA) \times A_{mil}] - [2IL\ (65\text{-}MRA)]$ described in text.

b/ Based on 1 July 1968 comparability salary and age adjusted percentages shown in Table V

TABLE VII-7

) PAY NET BENEFIT RESULTING FROM USE OF THE CIVIL SERVICE FORMULA ADAPTED TO TWO STEPS[a]

;r ;ss	Annual Reduced Annuity Step 1[b] (2)	Annual Full Annuity Step 2[b] (3)	Total Lifetime Pay (4)	Total 2nd Career Income Loss (5)	Lifetime Net Benefit (6) (4)-(5)	% of Annuity Payment to Offset Loss (7) (5)/(4)x100%
	$ 8,877	$10,581	$274,350	$224,514	$ 49,836	81.8%
	10,453	11,884	297,536	211,328	86,208	71.0
	12,187	13,244	316,544	205,016	111,528	64.8
	13,697	14,258	322,535	188,964	133,571	58.6
	5,334	7,019	190,348	173,250	17,098	91.0
	6,428	8,027	214,411	194,680	19,731	90.8
	7,619	?,082	235,478	180,288	55,190	76.6
	8,958	10,183	254,958	204,192	50,766	80.1
	4,648	6,116	165,863	163,834	2,029	98.8
	5,587	6,978	186,377	182,460	3,917	97.9
	2,896	4,255	119,535	87,750	31,785	73.4
	3,464	4,819	134,637	121,656	12,981	90.4
	4,103	5,401	149,041	120,604	28,437	80.9
	4,804	6,002	162,683	124,800	37,883	76.7
	5,568	6,623	173,962	138,528	35,434	79.6
	6,270	7,130	180,220	96,016	84,204	53.3
	2,417	3,551	99,761	59,618	40,143	59.8
	2,890	4,021	112,335	66,576	45,759	59.3
	3,422	4,505	124,311	74,800	49,511	60.2
	4,005	5,005	135,648	77,540	58,108	57.2
	4,641	5,520	144,993	78,426	66,567	54.1
	5,226	5,943	150,216	75,856	74,360	50.5
	2,082	3,058	85,922	14,222	71,700	16.6
	2,488	3,461	96,699	29,184	67,515	30.2
	2,944	3,876	106,951	39,556	67,395	37.0
	3,445	4,305	116,678	44,920	71,758	38.5
	3,920	4,662	122,459	42,318	80,141	34.6
	1,872	2,750	77,262	18,356	58,906	23.8
	2,194	3,053	85,287	29,448	55,839	34.5

alary used in annuity calculations are those shown in Table VII-1. Net benefit calculated A_{mil} - MRA) x A_{mil}] -[2IL (65-MRA)] described in text.

ility salary and age adjusted percentages shown in Table VII-1.

TABLE VII-8

COMPARISON OF NET BENEFIT FROM PRESENT MIL
THE CIVIL SERVICE FORMULA, AND TWO CIVIL SERVICE

Retirement Grade	Years of Service	Present Military Net Benefits (1) Table VII-3 Col (7)	Civil Service Adap Net Benefits Level Annuity (2) Table VII-4 Col (5)	T
O-6	24	$ 42,746	$ 21,379	
	26	83,819	60,450	
	28	93,882	91,128	
	30	112,377	121,958	
O-5	20	40,542	- 6,829	
	22	36,329	- 5,054	
	24	57,943	30,758	
	26	39,683	28,716	
O-4	20	22,751	- 18,816	
	22	12,883	- 17,643	
E-9	20	53,015	13,031	
	22	33,889	- 7,344	
	24	41,000	7,410	
	26	57,453	16,918	
	28	47,443	15,706	
	30	92,690	67,004	
E-8	20	64,582	24,494	
	22	71,578	28,794	
	24	68,864	31,966	
	26	86,482	40,608	
	28	89,124	50,130	
	30	94,312	60,020	
E-7	20	96,162	58,232	
	22	94,549	52,920	
	24	89,226	52,297	
	26	103,850	56,708	
	28	109,803	66,266	
E-6	20	79,535	46,790	
	22	74,023	42,954	

TABLE VII-8

COMPARISON OF NET BENEFIT FROM PRESENT MILITARY FORMULA
THE CIVIL SERVICE FORMULA, AND TWO CIVIL SERVICE FORMULA ADAPTATIONS

Present Military Net Benefits (1) Table VII-3 Col (7)	Civil Service Adaptation Net Benefits Level Annuity (2) Table VII-4 Col (5)	Civil Service Adaptation Net Benefits 2 Step Annuity (3) Table VII-7 Col (6)	Civil Service Net Bene Retirement at Age 6 (4) Table VII-2 Col (8
$ 42,746	$ 21,379	$ 49,836	$162,117
83,819	60,450	86,208	171,630
93,882	91,128	111,528	180,297
112,377	121,958	133,571	182,961
40,542	- 6,829	17,098	121,041
36,329	- 5,054	19,731	130,482
57,943	30,758	55,190	139,149
39,683	28,716	50,766	147,069
22,751	- 18,816	2,029	105,471
12,883	- 17,643	3,917	113,427
53,015	13,031	31,785	82,584
33,889	- 7,344	12,981	88,164
41,000	7 410	26,437	93,141
57,453	16,918	37,883	97,560
47,443	15,706	35,434	101,475
92,690	67,004	84,204	102,978
64,582	24,494	40,143	68,922
71,578	28,794	45,759	73,566
68,864	31,966	49,511	77,688
86,482	40,608	58,108	81,360
89,124	50,130	66,567	84,573
94,312	60,020	74,360	85,833
96,162	58,232	71,700	59,355
94,549	52,920	67,515	63,324
89,226	52,297	67,395	66,843
103,850	56,708	71,758	69,975
109,803	66,266	80,141	71,433
79,535	46,790	58,906	53,379
74,023	42,954	55.839	55,854

The two-step adaptation of the Civil Service formula provided results preferable to the single step version, in that it moved the military net benefit closer to the Civil Service net benefit. However, the net retirement annuity reward from a full length military career was still in most cases considerably less than that realized by the civil servant. In addition, the modified Civil Service formula had other shortcomings as a retirement annuity formula for the military organization.

First, full length military careers should be more economically attractive than shorter length careers. The unique grade and length of service involuntary retirement provisions of the military personnel system necessitate a formula that differs considerably from the Civil Service formula if the best qualified military personnel are to be economically motivated to serve until involuntarily retired; for example, grade O-5 officers are generally involuntarily retired after 26 years of service and grade O-6 officers at 30 years of service. In the face of second career problems that increase with an advancing military retirement age, there must be a significant financial incentive to motivate continued service until the involuntary retirement date. The Civil Service formula, designed for a situation in which retirement is not mandatory until age 70, provides inadequate recognition of second career problems and the particular needs of the military personnel system.

Second, the years of service multipliers used in the modified Civil Service formula are those resulting from translating the Civil Service's "High five" formula to a military "High one" equivalent. The conversion produces decimal percentage factors (for example, 34.08% for 20 years of service) that would complicate formula description and presentation.

Finally, consideration must be given to the multiplier percentages that should apply for lengths of service less than 20 years. (These multipliers affect reserve and disability retirement annuity calculations.) At least over the years of service span during which it is desired to encourage continued service, it is desirable to use multipliers that provide incrementally larger rewards for the later years of service than those which result from the earlier years of service. The Civil Service formula provides 1½% of salary for the first five years of service, 1 3/4% for the next five years and 2% for each subsequent year of service. This progression does not meet the needs of the military organization. Rather, the progression must show sharper increases during the 20 - 30 years of service range and a somewhat slower rate of increases during the 1 through 19 years of service range.

For the several reasons noted above, the modified Civil Service formula was altered further in order to satisfy the needs of the military organization. This modification resulted in the basic retirement annuity formula recommended for the military organization:

Years of Service	Per Year of Service Step-2 Percent of "high one" Salary
1 thru 8	1.5%
9 thru 20	1.75 1/
21 thru 22	2.0
23 thru 24	2.5
25 thru 30	3.0
31 & Over	1.5

Maximum, 75 of "High One" Salary

1/ The percentage increase from 1.5 to 1.75 creates an incentive for reserve participation.

Percents of salary resulting from the Civil Service "high five" formula, the military "high one" equivalent, and the revised military formula are shown below for selected lengths of service.

Length of Service	Civil Service "High 5" % of Salary	"High One" Equivalent of Civil Service Formula (% of Salary)	Integrated Military Retirement Annuity Formula (% of Salary)
20	36.25	34.08	33.0
21	38.25	35.96	35.0
22	40.25	37.84	37.0
23	42.25	39.72	39.5
24	44.25	41.60	42.0
25	46.25	43.48	45.0
26	48.25	45.36	48.0
27	50.25	47.24	51.0
28	52.25	49.12	54.0
29	54.25	51.00	57.0
30	56.25	52.88	60.0
31	58.25	54.76	61.5
32	60.25	56.64	63.0
33	62.25	58.52	64.5
34	64.25	60.40	66.0

The annuity percents of salary that would result from use of an IMRA formula with the step-1 percentages determined in part by the individual retiree's retirement age are shown in Table VII-9. Tables VII-10 and VII-11 show the dollar amounts of the annuities that would be paid of this initial version of the integrated military retirement annuity and the multiplier percentages in Table VII-9 were applied to the 1968 comparability salary without a "save pay" or transition plan. Table VII-10 shows the resulting step-1 annuities and compares them with annuities provided by the present formula and 1 July 1968 basis pay rates. Table VII-11 makes a similar comparison between the resulting step-2 annuities and annuities provided by the present formula.

The net benefits that result from the initial version of the IMRA formula are shown in Table VII-12.

TABI

THE INTEGRATED MILITARY RETIREMENT AN
INITIAL VERSION: STEP-1 PERCENTAGE

Step-1 Retirement Pay Per Cent of High One Salary[a/]

Age at Completion of Active Service	20	21	22	23	24	25	26	27	
36	20.5								
37	21.1	22.4							
38	21.8	23.1	24.4						
39	22.4	23.8	25.2	26.9					
40	23.1	24.5	25.9	27.7	29.4				
41	23.8	25.2	26.6	28.4	30.2	32.4			
42	24.4	25.9	27.4	29.2	31.1	33.3	35.5		
43	25.1	26.6	28.1	30.0	31.9	34.2	36.5	38.8	
44	25.7	27.3	28.9	30.8	32.8	35.1	37.4	39.8	42
45	26.4	28.0	29.6	31.6	33.6	36.0	38.4	40.8	43
46	27.1	28.7	30.3	32.4	34.4	36.9	39.4	41.8	44
47	27.7	29.4	31.1	33.2	35.3	37.8	40.3	42.8	45
48	28.4	30.1	31.8	34.0	36.1	38.7	41.3	43.9	46
49	29.0	30.8	32.6	34.8	37.0	39.6	42.2	44.9	47
50	29.7	31.5	33.3	35.6	37.8	40.5	43.2	45.9	48
51	30.4	32.2	34.0	36.3	38.6	41.4	44.2	46.9	49
52	31.0	32.9	34.8	37.1	39.5	42.3	45.1	47.9	50
53	31.7	33.6	35.5	37.9	40.3	43.2	46.1	49.0	51
54	32.3	34.3	36.3	38.7	41.2	44.1	47.0	50.0	52
55 & Over	33.0	35.0	37.0	39.5	42.0	45.0	48.0	51.0	54
Step-2 Retirement Pay Per Cent of High One Salary:	33.0	35.0	37.0	39.5	42.0	45.0	48.0	51.0	54
Step-2 Retirement Pay Age:	60	59½	59	58½	58	57½	57	56½	56

a/ Step-1 portion of annuity is paid from date of completion of active

TABLE VII-9

D MILITARY RETIREMENT ANNUITY: STEP-1 AND STEP-2 RETIREMENT PAY ENTITLEMENTS
SION: STEP-1 PERCENTAGES DETERMINED BY MEMBERS' RETIREMENT AGE

ry[a]

24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
.4																
.2	32.4															
.1	33.3	35.5														
.9	34.2	36.5	38.8													
.8	35.1	37.4	39.8	42.1												
.6	36.0	38.4	40.8	43.2	45.6											
.4	36.9	39.4	41.8	44.3	46.7	49.2										
.3	37.8	40.3	42.8	45.4	47.9	50.4	51.7									
.1	38.7	41.3	43.9	46.4	49.0	51.6	52.9	54.2								
.0	39.6	42.2	44.9	47.5	50.2	52.8	54.1	55.4	56.8							
.8	40.5	43.2	45.9	48.6	51.3	54.0	55.4	56.7	58.1	59.4						
.6	41.4	44.2	46.9	49.7	52.4	55.2	56.6	58.0	59.3	60.7	62.1					
.5	42.3	45.1	47.9	50.8	53.6	56.4	57.8	59.2	60.6	62.0	63.5	64.9				
.3	43.2	46.1	49.0	51.8	54.7	57.6	59.0	60.5	61.9	63.4	64.8	66.2	67.7			
.2	44.1	47.0	50.0	52.9	55.9	58.8	60.3	61.7	63.2	64.7	66.2	67.6	69.1	70.6		
.0	45.0	48.0	51.0	54.0	57.0	60.0	61.5	63.0	64.5	66.0	67.5	69.0	70.5	72.0	73.5	75.0
0	45.0	48.0	51.0	54.0	57.0	60.0	61.5	63.0	64.5	66.0	67.5	69.0	70.5	72.0	73.5	75.0
	57½	57	56½	56	55½	55	55	55	55	55	55	55	55	55	55	55

of completion of active service until Step-2 annuity eligibility age.

TABLE

COMPARISON OF INITIAL VERSION OF INTEGRATED MI
STEP-1 AMOUNTS VS PRE

GRADE		20	21	22	23
O-8	PRESENT $				
	PROPOSED $				
	DIFFERENCE $				
	PROPOSED ÷ PRESENT				
O-6	PRESENT $	7178	7537	8354	8733
	PROPOSED $	6001	6527	7303	7994
	DIFFERENCE $	-1177	-1010	-1051	- 739
	PROPOSED ÷ PRESENT	.836	.866	.874	.915
O-5	PRESENT $	6493	6817	7393	7729
	PROPOSED $	5170	5623	6279	6873
	DIFFERENCE $	-1323	-1194	-1114	- 856
	PROPOSED ÷ PRESENT	.796	.825	.849	.889
O-4	PRESENT $	5621	5902	6184	6465
	PROPOSED $	4504	4899	5458	5975
	DIFFERENCE $	-1117	-1003	- 726	- 490
	PROPOSED ÷ PRESENT	.801	.830	.883	.924
E-9	PRESENT $	3356	4048	4465	4668
	PROPOSED $	2796	3059	3387	3718
	DIFFERENCE $	-1060	- 989	-1078	- 950
	PROPOSED ÷ PRESENT	.725	.756	.759	.796
E-8	PRESENT $	3380	3549	3938	4117
	PROPOSED $	2334	2553	2826	3103
	DIFFERENCE $	-1046	- 996	-1112	-1014
	PROPOSED ÷ PRESENT	.691	.719	.718	.754
E-7	PRESENT $	2983	3132	3501	3660
	PROPOSED $	2010	2198	2433	2671
	DIFFERENCE $	- 973	- 934	-1068	- 989
	PROPOSED ÷ PRESENT	.674	.691	.695	.730
E-6	PRESENT $	2624	2756	2887	3018
	PROPOSED $	1807	1977	2146	2356
	DIFFERENCE $	- 817	- 779	- 741	- 662
	PROPOSED ÷ PRESENT	.689	.717	.743	.781

a/ Proposed formula amounts based on 1 July 1968 comparability sa

TABLE VII-10

VERSION OF INTEGRATED MILITARY RETIREMENT ANNUITY WITH PRESENT FORMULA
STEP-1 AMOUNTS VS PRESENT ANNUITY AMOUNTS[a]

YEARS OF SERVICE									
21	22	23	24	25	26	27	28	29	30
							15100	15639	16178
							18272	19706	21176
							3172	4067	4998
							1.210	1.260	1.309
7537	8354	8733	9113	9493	10710	11122	11534	11946	12358
6527	7303	7994	8979	9844	11056	12025	13100	14452	15530
1010	-1051	- 739	- 134	351	346	903	1866	2506	3172
.866	.874	.915	.985	1.037	1.032	1.081	1.162	1.210	1.257
6817	7393	7729	8065	8402	8738	9074	9410	9746	10082
5623	6279	6873	7707	8449	9474	10305	11158	12033	12931
1194	-1114	- 856	- 358	47	736	1231	1748	2287	2849
.825	.849	.889	.956	1.006	1.084	1.136	1.186	1.235	1.283
5902	6184	6465	6746	7027	7308	7589	7870	8151	8432
4899	5458	5975	6684	7327	7990	8691	9410	10149	10906
1003	- 726	- 490	- 62	300	682	1102	1540	1998	2476
.830	.883	.924	.991	1.043	1.093	1.145	1.196	1.245	1.293
4048	4465	4668	4871	5074	5789	6012	6234	6457	6680
3059	3387	3718	4142	4557	5081	5531	6121	6607	7119
- 989	-1078	- 950	- 729	- 517	- 708	- 481	- 113	150	439
.756	.759	.796	.850	.898	.878	.920	.982	1.023	1.066
3549	3938	4117	4296	4475	5171	5370	5569	5768	5967
2553	2826	3103	3454	3801	4237	4612	5102	5507	5931
- 996	-1112	-1014	- 842	- 674	- 934	- 758	- 467	- 261	- 36
.719	.718	.754	.804	.849	.819	.859	.916	.955	.994
3132	3501	3660	3819	3978	4654	4833	5012	5191	5370
2198	2433	2671	2972	3271	3645	3967	4309	4651	5011
- 934	-1068	- 989	- 847	- 907	-1009	- 866	- 703	- 540	- 359
.691	.695	.730	.778	.822	.783	.821	.860	.896	.933
2756	2887	3018	3149	3281	3412	3543	3674	3805	3937
1977	2146	2356	2574	2832	3098	3372	3663	3953	4269
- 779	- 741	- 662	- 575	- 449	- 314	- 171	- 11	148	343
.717	.743	.781	.817	.863	.908	.952	.997	1.039	1.082

[a] ly 1968 comparability salary. Present amounts based on 1 July 1968 basic pay rates.

TABLE VII-

COMPARISON OF INITIAL VERSION OF INTEGRATED MILIT
STEP-2 AMOUNTS VS PRESENT

GRADE		20	21	22	23	Y
O-8	PRESENT $					
	PROPOSED $					
	DIFFERENCE $					
	PROPOSED ÷ PRESENT					
O-6	PRESENT $	7178	7537	8354	8733	
	PROPOSED $	7890	8369	9129	9746	
	DIFFERENCE $	712	832	775	1013	
	PROPOSED ÷ PRESENT	1.099	1.110	1.093	1.116	
O-5	PRESENT $	6493	6817	7393	7729	
	PROPOSED $	6797	7209	7849	8380	
	DIFFERENCE $	304	392	456	651	
	PROPOSED ÷ PRESENT	1.047	1.058	1.062	1.084	
O-4	PRESENT $	5621	5902	6184	6465	
	PROPOSED $	5922	6281	6823	7284	
	DIFFERENCE $	301	379	639	819	
	PROPOSED ÷ PRESENT	1.054	1.064	1.103	1.127	
E-9	PRESENT $	3856	4048	4465	4668	
	PROPOSED $	4120	4369	4712	5030	
	DIFFERENCE $	264	321	247	362	
	PROPOSED ÷ PRESENT	1.068	1.079	1.055	1.078	
E-8	PRESENT $	3380	3549	3938	4117	
	PROPOSED $	3439	3647	3931	4197	
	DIFFERENCE $	59	98	- 7	80	
	PROPOSED ÷ PRESENT	1.017	1.028	.998	1.019	
E-7	PRESENT $	2983	3132	3501	3660	
	PROPOSED $	2961	3141	3384	3613	
	DIFFERENCE $	- 22	9	- 117	- 47	
	PROPOSED ÷ PRESENT	.993	1.003	.967	.987	
E-6	PRESENT $	2624	2756	2887	3018	
	PROPOSED $	2662	2824	2985	3187	
	DIFFERENCE	38	68	98	169	
	PROPOSED ÷ PRESENT	1.014	1.025	1.034	1.056	

a/ Proposed formula amounts based on 1 July 1968 comparability salary.

TABLE VII-11

ERSION OF INTEGRATED MILITARY RETIREMENT ANNUITY WITH PRESENT FORMULA
STEP-2 AMOUNTS VS PRESENT ANNUITY AMOUNTS[a]

				YEARS OF SERVICE					
1	22	23	24	25	26	27	28	29	30
							15100	15639	16178
							19853	20955	22058
							4753	5316	5880
							1.315	1.340	1.363
537	8354	8733	9113	9493	10710	11122	11534	11946	12358
369	9129	9746	10683	11446	12576	13361	14559	15368	16177
832	775	1013	1570	1953	1866	2239	3025	3422	3819
110	1.093	1.116	1.172	1.206	1.174	1.201	1.262	1.286	1.309
817	7393	7729	8065	8402	8738	9074	9410	9746	10082
209	7849	8380	9169	9824	10776	11450	12123	12797	13470
392	456	651	1104	1422	2038	2376	2713	3051	3388
058	1.062	1.084	1.136	1.169	1.233	1.262	1.288	1.313	1.336
902	6184	6465	6746	7027	7308	7589	7870	8151	8432
281	6823	7284	7952	8520	9088	9656	10224	10792	11360
379	639	819	1206	1493	1780	2067	2354	2641	2928
064	1.103	1.127	1.179	1.212	1.244	1.272	1.299	1.324	1.347
048	4465	4668	4871	5074	5789	6012	6234	6457	6680
369	4712	5030	5453	5842	6352	6749	7281	7685	8090
321	247	362	582	768	563	737	1047	1228	1410
079	1.055	1.078	1.119	1.151	1.097	1.123	1.168	1.190	1.211
549	3938	4117	4296	4475	5171	5370	5569	5768	5967
647	3931	4197	4548	4873	5296	5627	6069	6406	6743
98	- 7	80	252	398	125	257	500	638	776
028	.998	1.019	1.059	1.089	1.024	1.048	1.090	1.111	1.130
132	3501	3660	3819	3978	4654	4833	5012	5191	5370
141	3384	3613	3914	4193	4556	4840	5125	5410	5695
9	- 117	- 47	95	215	- 98	7	113	219	325
003	.967	.987	1.025	1.054	.979	1.001	1.023	1.042	1.061
756	2887	3018	3149	3281	3412	3543	3674	3805	3937
824	2985	3187	3389	3631	3873	4115	4357	4599	4841
68	98	169	240	350	461	572	683	794	904
025	1.034	1.056	1.076	1.107	1.135	1.161	1.186	1.209	1.230

1968 comparability salary. Present amounts based on 1 July 1968 basic pay rates.

The previous five steps produced the initial version of an Integrated Military Retirement Annuity formula satisfying the common employer concept and designed to meet the particular needs of the military organization. However, after a thorough review by the individual services and within the Department of Defense, it was determined that acceptability and suitability of the formula could be improved by deleting consideration of the individual's retirement age in calculation of individual step-1 annuity percent of salary entitlements. The result of this change would be to pay all retirees with a given amount of service the same step-1 annuity percentage regardless of their age at time of retirement. This decision was made for two reasons:

- to permit a simpler, easier to understand Integrated Military Retirement Annuity formula, and
- to permit continuation of the traditional method of paying the same per period retired pay to military retirees with equivalent lengths of service, and "high one" average salaries.

The decision to simplify the initial version of the IMRA formula resulted in a formula that approximates the results obtained from the original formula, but does not explicitly consider age in calculation of the step-1 annuity. This was accomplished by establishing the 20-year step-1 annuity percentage at a percent that typically would have resulted from use of the original, age related formula. Twenty-year retirements typically occur at age 39 for enlisted personnel and age 43 for officers. The average of the two ages is 41, an age providing a step-1 annuity of 23.8 percent of salary under the original version of the IMRA (see Table VII-9). Rounding to the nearest whole percentage to achieve maximum simplicity, a translation of the original formula provides a step-1 multiplier of 24 percent of salary at 20 years of

TABLE VII-12

MILITARY RETIRED PAY NET BENEFIT[a/] RESULTING FROM THE INTEGRATED MILITARY R

Retirement Grade	Years of Service	Annual 2nd Career Income Loss (1)	Annual Reduced Annuity Step 1[b/] (2)	Annual Full Annuity Step 2 (3)	Total Lifetime Annuity Payments (4)
O-6	24	$12,473	$ 8,979	$10,683	$277,175
	26	13,208	11,056	12,576	314,816
	28	14,644	13,400	14,559	347,989
	30	15,747	15,530	16,177	365,924
O-5	20	7,875	5,170	6,797	184,407
	22	9,734	6,279	7,849	209,565
	24	10,016	7,707	9,169	237,899
	26	12,762	9,474	10,776	269,760
O-4	20	7,447	4,504	5,922	160,660
	22	9,123	5,458	6,823	182,168
E-9	20	3,375	2,796	4,120	115,572
	22	5,069	3,387	4,712	131,646
	24	5,482	4,142	5,453	150,469
	26	6,240	5,081	6,352	172,132
	28	7,696	6,121	7,281	191,244
	30	6,001	7,119	8,090	204,514
E-8	20	2,293	2,334	3,439	96,472
	22	2,774	2,826	3,931	109,833
	24	3,400	3,454	4,548	125,488
	26	3,877	4,237	5,296	143,524
	28	4,357	5,102	6,069	159,408
	30	4,741	5,934	6,743	170,464
E-7	20	547	2,010	2,961	83,072
	22	1,216	2,433	3,384	94,554
	24	1,798	2,972	3,914	107,987
	26	2,246	3,645	4,556	123,470
	28	2,351	4,309	5,125	134,618
E-6	20	706	1,807	2,662	74,683
	22	1,227	2,146	2,985	83,403

a/ Net benefit calculated using the formula $NB_{mil} = [(DA_{mil} - MRA) \times A_{mi}$

b/ Annual annuity calculated using 1 July 1968 basic pay rates.

TABLE VII-12

ING FROM THE INTEGRATED MILITARY RETIREMENT ANNUITY - TWO STEP ANNUITY FORMULA (INITIAL VERSION)

nnual educed nnuity tep 1[b] (2)	Annual Full Annuity Step 2 (3)	Total Lifetime Annuity Payments (4)	Total Lifetime 2nd Career Income Loss (5)	Lifetime IMRA Net Benefit (6) (4)-(5)	% of Annuity Payments to Offset Loss (7) (5)/(4)x100%
8,979	$10,683	$277,175	$224,514	$ 52,661	81.0%
11,056	12,576	314,816	211,328	103,488	67.1
13,400	14,559	347,989	205,016	142,973	58.9
15,530	16,177	365,924	188,964	176,960	51.6
5,170	6,797	184,407	173,250	11,157	93.9
6,279	7,849	209,565	194,680	14,885	92.9
7,707	9,169	237,899	180,288	57,611	75.8
9,474	10,776	269,760	204,192	65,568	75.7
4,504	5,922	160,660	163,834	- 3,174	102.0
5,458	6,823	182,168	182,460	- 292	100.2
2,796	4,120	115,572	87,750	27,822	75.9
3,387	4,712	131,646	121,656	9,990	92.4
4,142	5,453	150,469	120,604	29,865	80.2
5,081	6,352	172,132	124,800	47,332	72.5
6,121	7,281	191,244	138,528	52,716	72.4
7,119	8,090	204,514	96,016	108,498	46.9
2,334	3,439	96,472	59,618	36,854	61.8
2,826	3,931	109,833	66,576	43,257	60.6
3,454	4,548	125,488	74,800	50,688	59.6
4,237	5,296	143,524	77,540	65,984	54.0
5,102	6,069	159,408	78,426	80,982	49.2
5,934	6,743	170,464	75,856	98,208	44.5
2,010	2,961	83,072	14,222	68,850	17.1
2,433	3,384	94,554	29,184	65,370	30.9
2,972	3,914	107,987	39,556	68,431	36.6
3,645	4,556	123,470	44,920	78,550	36.4
4,309	5,125	134,618	42,318	92,300	31.4
1,807	2,662	74,683	18,356	56,327	24.6
2,146	2,985	83,403	29,448	53,955	35.3

ormula $NB_{mil} = [(DA_{mil} - MRA) \times A_{mil}] - [2IL(65-MRA)]$ described in the text.

July 1968 basic pay rates.

service, regardless of the retirement age.

The step-2 multiplier for 20 years of service in the initial version of the IMRA is 33 percent, (see Table VII-9), 9 percentage points larger than the 24 percent step-1 multiplier selected for the revised version of the IMRA. Maintaining this 9 percentage point interval, the step-1 multipliers for service exceeding 20 years were then determined by subtracting 9 percentage points from the step-2 amounts in the original version of the formula. The revised, final version of the IMRA formula appears in Table VII-13.

Tables VII-14 and VII-15 show the step-1 and step-2 dollar amounts of annuities that would result from the application of this final version of the IMRA to the 1968 comparability salary without a "save pay" or transition plan.

The net benefits that result from the final version of the IMRA are shown in Table VII-16.

Setting the step-1 percentages 9 points below the step-2 percentages in all lengths of service simplifies the formula by providing a constant interval between the step-1 and step-2 multipliers. It also insures that each additional year of service brings the same incremental increase in both the step-1 and step-2 multipliers, adding another feature of simplicity.

Additionally, for many lengths of service the uniform 9 point difference between the step 1 and step 2 annuity percents of salary is larger than would result from use of the initial version of the IMRA formula. In these instances, the final version of the formula provides a smaller incentive to immediate retirement than the initial version.

TABLE VII-13

THE INTEGRATED MILITARY RETIREMENT ANNUITY:
STEP-1 AND STEP-2 RETIREMENT PAY ENTITLEMENTS
(Final Version)

Length of Service	Step-1 Retired Pay Per Cent of "High One" Salary[a/]	Step-2 Retired Pay Per Cent of "High One" Salary[b/]	Step-2 Retired Pay Begins at Age:
20	24.0	33.0	60
21	26.0	35.0	59½
22	28.0	37.0	59
23	30.5	39.5	58½
24	33.0	42.0	58
25	36.0	45.0	57½
26	39.0	48.0	57
27	42.0	51.0	56½
28	45.0	54.0	56
29	48.0	57.0	55½
30	51.0	60.0	55
31	52.5	61.5	55
32	54.0	63.0	55
33	55.5	64.5	55
34	57.0	66.0	55
35	58.5	67.5	55
36	60.0	69.0	55
37	61.5	70.5	55
38	63.0	72.0	55
39	64.5	73.5	55
40	66.0	75.0	55

NOTE: Transition and "save pay" provisions assure that, in every case, retired pay will be equal to or more than the retired pay of a similar retiree as of the time that transition to the new formula begins. Where the percentage of salary would result in fewer dollars, "save pay" will be used. As wage levels rise in the future, save pay will gradually phase out. Chapter 5 discusses transition procedures in detail.

a/ Step-1 portion of annuity is paid from date of completion of active service until step-2 annuity eligibility age.

b/ Step-2 percentages of salary are nine percentage points higher than step-1.

TABLE VII-1

COMPARISON OF STEP-1 INTEGRATED MILITAR

GRADE		20	21	22	23
O-8	PRESENT $				
	PROPOSED $				
	DIFFERENCE $				
	PROPOSED ÷ PRESENT				
O-6	PRESENT $	7178	7537	8354	8733
	PROPOSED $	5738	6217	6908	7525
	DIFFERENCE $	-1440	-1320	-1446	-1208
	PROPOSED ÷ PRESENT	.799	.825	.827	.862
O-5	PRESENT $	6493	6817	7393	7729
	PROPOSED $	4943	5355	5940	6470
	DIFFERENCE $	-1550	-1462	-1453	-1259
	PROPOSED ÷ PRESENT	.761	.786	.903	.837
O-4	PRESENT $	5621	5902	6184	6465
	PROPOSED $	4307	4666	5163	5624
	DIFFERENCE $	-1314	-1236	-1021	- 841
	PROPOSED ÷ PRESENT	.766	.791	.835	.870
E-9	PRESENT $	3856	4048	4465	4668
	PROPOSED $	2996	3246	3566	3884
	DIFFERENCE $	- 860	- 802	- 899	- 784
	PROPOSED ÷ PRESENT	.777	.802	.799	.832
E-8	PRESENT $	3380	3549	3938	4117
	PROPOSED $	2501	2709	2975	3241
	DIFFERENCE $	- 879	- 840	- 963	- 876
	PROPOSED ÷ PRESENT	.740	.763	.755	.787
E-7	PRESENT $	2983	3132	3501	3660
	PROPOSED $	2154	2333	2561	2790
	DIFFERENCE $	- 829	- 799	- 940	- 870
	PROPOSED ÷ PRESENT	.722	.745	.732	.762
E-6	PRESENT $	2624	2756	2887	3018
	PROPOSED $	1936	2098	2259	2461
	DIFFERENCE $	- 688	- 658	- 628	- 557
	PROPOSED ÷ PRESENT	.738	.761	.782	.815

a/ Proposed formula amounts based on 1 July 1968 comparability sal

TABLE VII-14

N OF STEP-1 INTEGRATED MILITARY RETIREMENT ANNUITIES AND PRESENT ANNUITY AMOUNTS[a]

YEARS OF SERVICE									
21	22	23	24	25	26	27	28	29	30
							15100	15639	16178
							16544	17647	18750
							1444	2008	2572
							1.096	1.128	1.159
7537	8354	8733	9113	9493	10710	11122	11534	11946	12358
6217	6908	7525	8394	9157	10218	11004	12133	12942	13751
-1320	-1446	-1208	- 719	- 336	- 492	- 118	599	996	1393
.825	.827	.862	.921	.965	.954	.989	1.052	1.083	1.113
6817	7393	7729	8065	8402	8738	9074	9410	9746	10082
5355	5940	6470	7205	7860	8756	9429	10103	10776	11450
-1462	-1453	-1259	- 860	- 542	18	355	693	1030	1368
.786	.803	.837	.893	.935	1.002	1.039	1.074	1.106	1.136
5902	6184	6465	6746	7027	7308	7589	7870	8151	8432
4666	5163	5624	6248	6816	7384	7952	8520	9088	9656
-1236	-1021	841	- 498	- 211	76	363	650	937	1224
.791	.835	.870	.926	.970	1.010	1.048	1.083	1.115	1.145
4048	4465	4668	4871	5074	5789	6012	6234	6457	6680
3246	3566	3884	4284	4674	5161	5558	6067	6472	6876
- 802	- 899	- 784	- 587	- 400	- 628	- 454	- 167	15	196
.802	.799	.832	.879	.921	.892	.924	.973	1.002	1.029
3549	3938	4117	4296	4475	5171	5370	5569	5768	5967
2709	2975	3241	3574	3898	4303	4634	5057	5394	5731
- 840	- 963	- 876	- 722	- 577	- 868	- 736	- 512	- 374	- 236
.763	.755	.787	.832	.871	.832	.863	.908	.935	.960
3132	3501	3660	3819	3978	4654	4833	5012	5191	5370
2333	2561	2790	3075	3354	3701	3986	4271	4556	4840
- 799	- 940	- 870	- 744	- 624	- 953	- 847	- 741	- 635	- 530
.745	.732	.762	.805	.843	.795	.825	.852	.878	.901
2756	2887	3018	3149	3281	3412	3543	3674	3805	3937
2098	2259	2461	2662	2904	3147	3389	3631	3873	4115
- 658	- 628	- 557	- 487	- 377	- 265	- 154	- 43	68	178
.761	.782	.815	.845	.885	.922	.957	.988	1.018	1.045

1 July 1968 comparability salary. Present amounts based on 1 July 1968 basic pay rates.

TABLE VII-1

COMPARISON OF STEP-2 INTEGRATED MILITARY RETIRE

GRADE		Y 20	21	22	23
O-8	PRESENT $				
	PROPOSED $				
	DIFFERENCE $				
	PROPOSED ÷ PRESENT				
O-6	PRESENT $	7178	7537	8354	8733
	PROPOSED $	7890	8369	9129	9746
	DIFFERENCE $	712	832	775	1013
	PROPOSED ÷ PRESENT	1.099	1.110	1.093	1.116
O-5	PRESENT $	6493	6817	7393	7729
	PROPOSED $	6797	7209	7849	8360
	DIFFERENCE $	304	392	456	631
	PROPOSED ÷ PRESENT	1.047	1.058	1.062	1.084
O-4	PRESENT $	5621	5902	6184	6465
	PROPOSED $	5922	6281	6823	7284
	DIFFERENCE $	301	379	639	819
	PROPOSED ÷ PRESENT	1.054	1.064	1.103	1.127
E-9	PRESENT $	3856	4048	4465	4668
	PROPOSED $	4120	4369	4712	5030
	DIFFERENCE $	264	321	247	362
	PROPOSED ÷ PRESENT	1.068	1.079	1.055	1.078
E-8	PRESENT $	3380	3549	3938	4117
	PROPOSED $	3439	3647	3931	4197
	DIFFERENCE $	59	98	- 7	80
	PROPOSED ÷ PRESENT	1.017	1.028	.998	1.019
E-7	PRESENT $	2983	3132	3501	3660
	PROPOSED $	2961	3141	3384	3613
	DIFFERENCE $	- 22	9	- 117	- 47
	PROPOSED ÷ PRESENT	.993	1.003	.967	.987
E-6	PRESENT $	2624	2756	2887	3018
	PROPOSED $	2662	2824	2985	3187
	DIFFERENCE	38	68	98	169
	PROPOSED ÷ PRESENT	1.014	1.025	1.034	1.056

a/ Proposed formula amounts based on 1 July 1968 comparability salary.

TABLE VII-15

INTEGRATED MILITARY RETIREMENT ANNUITIES AND PRESENT ANNUITY AMOUNTS[a]/

YEARS OF SERVICE									
21	22	23	24	25	26	27	28	29	30
							15100	15639	16178
							19855	20955	22058
							4753	5316	5880
							1.315	1.340	1.363
537	8354	8733	9113	9493	10710	11122	11534	11946	12358
369	9129	9746	10683	11446	12576	13361	14559	15368	16177
832	775	1013	1570	1953	1866	2239	3025	3422	3819
110	1.093	1.116	1.172	1.206	1.174	1.201	1.262	1.286	1.309
817	7393	7729	8065	8402	8738	9074	9410	9746	10082
209	7849	8380	9169	9824	10776	11450	12123	12797	13470
392	456	651	1104	1422	2038	2376	2713	3051	3388
058	1.062	1.084	1.136	1.169	1.233	1.262	1.288	1.313	1.336
902	6184	6465	6746	7027	7308	7589	7870	8151	8432
281	6823	7284	7952	8520	9088	9656	10224	10792	11360
379	639	819	1206	1493	1780	2067	2354	2641	2928
064	1.103	1.127	1.179	1.212	1.244	1.272	1.299	1.324	1.347
048	4465	4668	4871	5074	5789	6012	6234	6457	6680
369	4712	5030	5453	5842	6352	6749	7281	7685	8090
321	247	362	582	768	563	737	1047	1228	1410
079	1.055	1.078	1.119	1.151	1.097	1.123	1.168	1.190	1.211
549	3938	4117	4296	4475	5171	5370	5569	5768	5967
647	3931	4197	4548	4873	5296	5627	6069	6406	6743
98	- 7	80	252	398	125	257	500	638	776
028	.998	1.019	1.059	1.089	1.024	1.048	1.090	1.111	1.130
132	3501	3660	3819	3978	4654	4833	5012	5191	5370
141	3384	3613	3914	4193	4556	4840	5125	5410	5695
9	- 117	- 47	95	215	- 98	7	113	219	325
003	.967	.987	1.025	1.054	.979	1.001	1.023	1.042	1.061
756	2887	3018	3149	3281	3412	3543	3674	3805	3937
824	2985	3187	3389	3631	3873	4115	4357	4599	4841
68	98	169	240	350	461	572	683	794	904
025	1.034	1.056	1.076	1.107	1.135	1.161	1.186	1.209	1.230

a/ 1968 comparability salary. Present amounts based on 1 July 1968 basic pay rates.

However, maintaining the 9 percent gap between step-1 and step-2 multipliers results in a 51 percent of salary step 1 multiplier for 30 years of service, whereas extension of the "typical retirement age" concept to 30-year retirements would produce a typical retirement age of 51, an age that would have resulted in a step-1 annuity percentage of some 55.2 percent under the original version of the formula (see Table VII-9). Use of an average age in setting the step-1 annuity for 20 years of service does not, however, demand that the same criterion be applied to setting the step-1 annuity for 30 year retirees. In the original formula, second career income loss was a crucial consideration in setting the step-1 annuity for 20 year retirees. The step-2 percentage for twenty years of service had to be established at a level that would provide an adequate old age income but also at a level such that, after discounting the step-2 percentage in consideration of the individual's retirement age, the resulting step-1 annuity would provide an adequate second career income supplement during the many years until the retiree reached age 60, at which time the step 2 amount would be paid. However, in setting the annuity for 30 year retirees, second career income loss was not a crucial parameter in establishing either the step-1 or step-2 annuity percentage of salary. Rather, for full career members, the annuities paid by other employers with liberal retirement plans provided the basic standard for the step-2 percentage adopted. The step-2 amount is of primary importance to full career retirees, since they will typically begin to draw it shortly after they have retired and since it is the annuity they will receive during most of their retired lifetime. Thus, in the original version of the formula for full career

TABLE VII-16

NET BENEFIT FROM THE INTEGRATE
RETIREMENT ANNUITY - TWO STEP ANNU

Retirement Grade	Years of Service	Annual 2nd Career Income Loss (1)	Annual Reduced Annuity Step 1 b/ (2)	Annual Full Annuity Step 2 b/ (3)	Total Annuity Payments (4)
O-6	24	$12,473	$ 8,394	$10,683	$270,740
	26	13,208	10,218	12,576	308,112
	28	14,644	12,133	14,559	341,654
	30	15,747	13,751	16,177	326,366
O-5	20	7,875	4,943	6,797	180,548
	22	9,734	5,940	7,849	204,820
	24	10,016	7,205	9,169	232,377
	26	12,762	8,756	10,776	264,016
O-4	20	7,447	4,307	5,922	157,311
	22	9,123	5,163	6,823	178,039
E-9	20	3,375	2,996	4,120	119,772
	22	5,069	3,566	4,712	134,868
	24	5,482	4,284	5,453	152,599
	26	6,240	5,161	6,352	173,092
	28	7,696	6,067	7,281	190,758
	30	6,001	6,876	8,090	203,056
E-8	20	2,293	2,501	3,439	99,979
	22	2,774	2,975	3,931	112,515
	24	3,400	3,574	4,548	127,288
	26	3,877	4,303	5,296	144,316
	28	4,357	5,057	6,069	159,003
	30	4,741	5,731	6,743	169,246
E-7	20	547	2,154	2,961	86,096
	22	1,216	2,561	3,384	96,858
	24	1,798	3,075	3,914	109,532
	26	2,246	3,701	4,556	124,142
	28	2,351	4,271	5,125	134,277
E-6	20	706	1,936	2,662	77,392
	22	1,227	2,259	2,985	85,437

a/ Age adjusted percentages of salary used in annuity calculations are th
using the formula $NB_{mil} = [(DA_{mil} - MRA) \times A_{mil}] - [2IL\ (65-MRA)]$ descr

b/ Based on 1 July 1968 comparability salary and age adjusted percentages

TABLE VII-16

NET BENEFIT FROM THE INTEGRATED MILITARY
REMENT ANNUITY - TWO STEP ANNUITY FORMULA[a]

a y[b]	Annual Full Annuity Step 2[b] (3)	Total Annuity Payments (4)	Total 2nd Career Income Loss (5)	Lifetime MCRB Net Benefit (6) (4)-(5)	% of Annuity Payments to Offset Loss (7) (5)/(4)x100%
4	$10,683	$270,740	$224,514	$ 46,226	82.9%
8	12,576	308,112	211,328	96,784	68.6
3	14,559	341,654	205,016	136,638	60.0
1	16,177	326,366	188,964	173,402	52.1
8	6,797	180,548	173,250	7,298	96.0
0	7,849	204,820	194,680	10,140	95.0
5	9,169	232,377	180,288	52,089	77.6
6	10,776	264,016	204,192	59,824	77.3
7	5,922	157,311	163,834	- 6,523	104.1
8	6,823	178,039	182,460	- 4,421	101.9
6	4,120	119,772	87,750	32,022	73.3
6	4,712	134,868	121,656	13,212	90.2
4	5,453	152,599	120,604	31,995	79.0
1	6,352	173,092	124,800	48,292	72.1
7	7,281	190,758	138,528	52,230	72.6
6	8,090	203,056	96,016	107,040	47.3
1	3,439	99,979	59,618	40,361	59.6
5	3,931	112,515	66,576	45,939	59.2
4	4,548	127,288	74,800	52,488	58.8
3	5,296	144,316	77,540	66,776	53.7
7	6,069	159,003	78,426	80,577	49.3
1	6,743	169,246	75,856	93,390	44.8
4	2,961	86,096	14,222	71,874	16.5
1	3,384	96,858	29,184	67,674	30.1
5	3,914	109,532	39,556	69,976	36.1
1	4,556	124,142	44,920	79,222	36.2
1	5,125	134,277	42,318	91,959	31.5
6	2,662	77,392	18,356	59,036	23.7
9	2,985	85,437	29,448	55,989	34.5

n annuity calculations are those shown in Table VII-1. Net benefit calculated
$x A_{mil}] - [2IL (65-MRA)]$ described in text.

y and age adjusted percentages shown in Table VII-1

retirees the step-1 amount, payable only for a few years before the member reaches age 55, was an age discounted by-product of the primarily important step-2 amount, rather than an amount strongly influenced by second career income supplement considerations.

Nevertheless, it should be noted that the adopted 51 percent multiplier does provide annuities more than adequate to offset the average second career income loss of enlisted men with 30 years of service, who are typically age 49 at time of retirement, with 6 years of step-1 payments until reaching age 55. At the same time, for older retirees, the role of the step 1 annuity as a second career income supplement is relatively unimportant because of the very few years remaining until the large step-2 annuity will begin. (The typical officer retiree, retiring at age 53, would receive the step-1 annuity for only two years before the step-2 annuity commences.)

In summary, a 51 percent step 1 multiplier for 30 years of service is not inconsistent with the principles employed in developing the initial age related version of the IMRA formula and does provide an annuity adequate to offset second career income loss of those younger members of the 30-year retiree group--members who will receive the step-1 annuity for several years before they reach age 55 and become entitled to the step-2 payment.

Finally, the 51 percent step-1 multiplier provides members of all retirement ages just treatment in comparison with the annuities offered by other liberal retirement systems. For example, the civil servant 30-year retiree receives 56.25 percent of his "high five" salary at age 55. However, the "high one" equivalent of this percentage is only

52.88 percent of salary (see Table VII-1). An age 49 Civil Service involuntary retiree with 30 years service would have his annuity discounted by 2 percent for each of the six years remaining until he reaches age 55, thereby receiving only 88 percent of the age 55 annuity or 46.53 percent of his "high one" salary. Similarly, a civil servant involuntarily retired with thirty years service at age 53 would receive only 96 percent of the age 55 entitlement, or 50.76 percent of the "high one" salary. In both cases the reduced Civil Service annuity would be payable for the remaining lifetime, without the prospect of an increase at age 55.

In computing retired pay under the present formula, members obtain credit for a full additional year of service for any fraction of a year of service exceeding one-half (e.g., 20 years, 6 months and 1 day of service gives 21 years for computation of retired pay). The present system thus can be inequitable in the sense that some members may be involuntarily retired just short of eligibility for an additional year of retired pay credit, while others may voluntarily retire as soon as they achieve the minimum fractional portion of a year's service required to obtain credit for an additional year. The opportunities for such inequities would become more serious under the revised retirement formula, since it grants relatively larger rewards for an additional year of service in some instances.

The IMRA formula increases the annuity percentage of salary by 2.5 percent for each year of service 23 through 24 and by 3.0 percent for each year of service 25 through 30. Annuities should be calculated by rounding fractional portions of a year to the nearest month and interpolating, where necessary, between the years of service percentages

shown in Table VII-13 to determine the exact percent of salary entitlement.

For example, 26 years, 7 months and 16 days of service for retired pay purposes would be equivalent to 26 years and 8 months. Interpolating between the step-1 values for 26 years (39.0 percent) and 27 years (42.0 percent) yields a step-1 annuity percentage of 41.0 percent. Similar interpolations would be performed to obtain the step-2 annuity percentages.

Table VII-17 compares the military retired pay net benefit resulting from the final version of the IMRA formula with the results stemming from alternative formulas discussed in the development process.

Step 6 Determining the Portion of Social Security Attributable to Military Service

Determination of the portion of the Social Security retirement annuity attributable to military service will directly affect the total of benefits received by the retiree and the cost of the military retirement annuity to the government. The formula used to make the determination is thus a matter of considerable importance. The typical military retiree enters second career employment also covered by Social Security; the full amount of the Social Security benefits ultimately received does not stem entirely from military employment. For these retirees who do have non-military employment covered by Social Security, integration of the military and Social Security retirement annuities should not result in reduction of the military annuity by the full amount of the Social Security retirement annuity.

Since, under the concept followed by this method, the military employee contributes a fixed percent of salary in order to obtain an

TABLE VII-17

COMPARISON OF NET BENEFITS FROM PRESE
ALTERNATIVE FORMULAS ADAPTED FROM C
IMRA FORMULA, AND CIVIL SE

Grade	Years of Service	Present Military Net Benefits (1) [Table VII-3 Col (7)]	Civil Service Adaptation Net Benefits	
			Level Annuity (2) [Table VII-4 Col (5)]	2 Step Annui (3) [Table VII-7 Col (6)]
O-6	24	$ 42,746	$ 21,379	$ 49,836
	26	83,819	60,450	86,208
	28	93,882	91,128	111,528
	30	112,377	121,958	133,571
O-5	20	40,542	- 6,829	17,098
	22	36,329	- 5,054	19,731
	24	57,943	30,758	55,190
	26	39,683	28,716	50,766
O-4	20	22,751	-18,816	2,029
	22	12,883	-17,643	3,917
E-9	20	53,015	13,031	31,735
	22	33,889	7,344	12,981
	24	41,000	7,410	28,437
	26	57,453	16,918	37,883
	28	47,443	15,706	35,434
	30	92,690	67,004	84,204
E-8	20	64,582	24,494	40,143
	22	71,578	28,794	45,759
	24	68,864	31,966	49,511
	26	86,482	40,608	58,108
	28	89,124	50,130	66,567
	30	94,312	60,020	74,360
E-7	20	96,162	58,232	71,700
	22	94,549	52,920	67,515
	24	89,226	52,297	67,395
	26	103,850	56,708	71,758
	28	109,803	66,266	80,141
E-6	20	79,535	46,790	58,906
	22	74,023	42,954	55,839

TABLE VII-17

OF NET BENEFITS FROM PRESENT MILITARY FORMULA
VE FORMULAS ADAPTED FROM CIVIL SERVICE FORMULA,
IMRA FORMULA, AND CIVIL SERVICE FORMULA

Civil Service Adaptation Net Benefits		IMRA Initial Version Net Benefits	IMRA Final Version	Civil Service Net Benefit Retirement at Age 65
el Annuity (2) ble VII-4 ol (5)]	2 Step Annuity (3) [Table VII-7 Col (6)]	(4) [Table VII-12 Col (6)]	(5) [Table VII-16 Col (6)]	(6) [Table VII-2 Col (8)]
21,379	$ 49,836	$ 52,661	$ 46,226	$162,117
60,450	86,208	103,488	96,784	171,630
91,128	111,528	142,973	136,638	180,297
121,958	133,571	176,960	173,402	182,961
6,829	17,098	11,157	7,298	121,041
5,054	19,731	14,885	10,140	130,482
30,758	55,190	57,611	52,089	139,149
28,716	50,766	65,568	59,824	147,069
18,816	2,029	-3,174	-6,523	105,471
17,643	3,917	- 292	-4,421	113,427
13,031	31,785	27,822	32,022	82,584
7,344	12,981	9,990	13,212	88,164
7,410	28,437	29,865	31,995	93,141
16,918	37,863	47,332	48,292	97,560
15,706	35,434	52,716	52,230	101,475
67,004	84,204	108,498	107,040	102,978
24,494	40,143	36,854	40,361	68,922
28,794	45,759	43,257	45,939	73,566
31,966	49,511	50,688	52,488	77,688
40,608	58,108	65,984	66,776	81,360
50,130	66,567	80,982	80,577	84,573
60,020	74,360	98,208	93,390	85,833
58,232	71,700	68,850	71,874	59,355
52,920	67,515	65,370	67,674	63,324
52,297	67,395	68,431	69,976	66,843
56,708	71,758	78,550	79,221	69,975
66,266	80,141	92,300	91,959	71,433
46,790	58,906	56,327	59,036	53,379
42,954	55,839	53,955	55,989	55,854

annuity combination (Social Security + military) that is a fixed percent of salary, and since the military employer retains only that portion of the retirement contributions that exceeds the Social Security contribution requirement, the military employer is justified in deducting from the military annuity the full amount of the portion of the Social Security annuity stemming from military service. However, this reasoning still leaves unresolved the method of determining the portion of the Social Security benefit attributed to military service.

Social Security records maintained on individual employees contain the total covered Social Security wages earned by the employee. It is possible for military finance offices to determine an individual's total lifetime Social Security covered earnings in military employment. These amounts provide a logical basis for determining the portion of the subsequent Social Security annuity attributable to military service; i.e.,

$$\text{Portion of Social Security annuity attributable to military service} = \frac{\text{Military Employment Social Security Covered Earnings}}{\text{Lifetime Social Security Employment Covered Earnings}}$$

Two additional policy determinations on integration of Social Security will affect member benefits and employer costs:

- Will the military annuity be reduced by reason of Social Security
  - when the member elects to begin receipt of Social Security or,
  - when entitlement to Social Security commences, whether or not the member elects to commence receipt of Social Security?
- Will the reduction be made against total (family) Social Security entitlements or against individual member (Primary Insurance Amount) entitlements?

Eligibility for Social Security payments does not mean that an individual is receiving the payments. Retirement from civilian employment at the age of eligibility for the Social Security annuity is optional, not mandatory. The potential beneficiary may elect to continue employment beyond the normal retirement age. Many do.

However, whether or not the individual chooses to withdraw from the labor force and take advantage of his entitlement to Social Security retirement annuity payments is not of central importance. Other retirement annuity systems that are built on the combination of Social Security plus employer annuity payments invariably reduce the employer annuity payment at the age of eligibility for unreduced Social Security annuity payments, or at the age at which the member begins to draw a reduced annuity, whichever occurs earlier. In fact, this is true of the present military retirement system. A member's Social Security retirement annuity stems, at least in part, from his military service. It is a benefit he receives from military service. However, if he continues working beyond age 65 he foregoes receipt of that benefit. Thus, his military retirement benefit is, in effect, reduced by a decision to continue work beyond age 65. The proposed system will do the same; i.e., the total annuity benefit received by the member after 65 will be reduced by a decision to continue work beyond age 65.

If the reduction in the employer annuity were contingent on employee withdrawal from the national work force and actual receipt of Social Security, the size of the employer payment would be contingent on a unilateral action of the employee--an action not related to the employment relationship between the annuity paying military employer and the

retired (from the military organization) employee.[1/]

In summary, whether one is to use either a "cost to the government," "needs of the individual," or "benefit to the individual" rationale as a basis for accomplishing a reduction in the military annuity, the individual's entitlement to the Social Security retirement benefit rather than actual receipt of the payments provides a better and more equitable basis for making the offset than relating it to payments actually received. The latter procedure might well result in applying the reduction in the military annuity to those who could least afford it (the disabled and involuntarily unemployed) and failing to reduce the annuities of those who are still actively employed and thus probably have a larger total income.

The study therefore found that the reduction in the military portion should occur with commencement of entitlement to the Social Security annuity (at the normal retirement age) or at the time the military member actually begins to draw his Social Security annuity, if he elects the option of commencing its payment before age 65.

The reduction in the military annuity should be related only to the primary insurance benefit and should not be assessed against the total

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1/ The method of allowing military service credit for Civil Service retirement annuities follows the same reasoning. While military service is creditable toward Civil Service retirement under certain conditions, Section 8332(j) of Title 5, U. S. Code, excludes from service creditable toward Civil Service military service performed after 1956, if the member or his widow is or would be eligible for old age and survivor insurance benefits under the Social Security Act. The reduction in a Civil Service retirement annuity because of this provision is effective on the first day of the month in which the employee becomes 62 years of age, i.e., at the age the member becomes eligible for a reduced Social Security annuity whether or not he in fact is drawing that annuity.

benefit for which an individual or family unit may be eligible. (Additional benefits would include those for wife, dependent children, etc.) An offset that relates to total benefit eligibility would be improper, in that the amount of the IMRA is invariant with respect to the number of dependents. Further, if the military annuity reduction were related to the total family benefit, changes in the offset amount would be required with each change in the total benefit eligibility; i.e., with each change in dependency status.

APPENDIX VIII - THE IMPORTANCE OF THE NET BENEFIT CONCEPT IN THE DEVELOPMENT OF THE MILITARY RETIREMENT SYSTEM

Comparisons of military and Civil Service compensation have been frequent in the past and are inevitable in the future. As the common employer of two separate employee groups, it is natural that the Federal Government should compare the compensation it affords both groups and attempt to achieve the maximum practical degree of similarity of treatment of both.

One standard and often accepted method of making comparisons is through an evaluation of the "total compensation" paid to each group. Total compensation generally is defined to include not only "salary" but additional elements such as military special pays, civilian overtime pay, military commissary and exchange benefits, sickness and health benefits, and survivor benefits. However, the single largest non-salary element in these comparisons is retired pay.

For both military and civil service employees, the value of the retirement benefit included in total compensation comparisons is usually the "current service normal cost accrual;" that is, an actuarially determined estimate of the present value of future retirement disbursements that will result from employee service performed during the current year.

Generally speaking, the military retirement accruals are a larger part of total military compensation than similar accruals in Civil Service total compensation, thereby acting to produce a more favorable impression of military compensation compared with Civil Service compensation than would result from a comparison of the military "salary" against Civil Service

salaries. However, certain cautions must be applied to the use of "normal cost" estimates as a tool in comparing benefits received by the members of differing organizations.

Normal Cost Accruals As a Basis For Comparing the Relative Value of Military and Civil Service Retirement System Benefits

The use of normal cost accruals results in a highly imperfect representation of the relative value of military vs. civil service retirement system benefits for several reasons. First of all, care must be taken to insure that the accruals are calculated for both systems using the same estimating techniques and interest rates. Then the comparisons must be made by applying the accrual amounts to similarly defined active duty compensation bases. These problems and limitations of the normal cost accrual method are discussed in Chapter 11.

In addition to these problems, however, normal cost accruals are a poor measure of the retirement benefit received by individual members of the system for other reasons. Normal cost accrual is simply a method of estimating total system cost; it gives little indication of the value of the benefits provided to individual members of the system. An individual retiree is not necessarily more generously rewarded by a retirement system with a normal cost of, say, 15 percent of salary than another individual who retires under a retirement system with a normal cost of 10 percent of salary.

This concept is basic: a misunderstanding of the normal cost concept and the use of normal cost accruals will lead to erroneous conclusions concerning military retirement benefit levels and the percent of salary that military members should contribute toward defraying the cost of their retirement system. For example, the normal cost of the Civil Service Retirement system is about 13.86 percent of the civil service payroll dollar.

Civil servants contribute 6.5 percent of their salaries to the Civil Service retirement fund and can therefore be said to bear approximately 46.9 percent of the normal cost of Civil Service retirement.[1/] Bearing in mind the common employer policy, the argument has been advanced that when military personnel are paid a comparability salary, they should contribute from that salary a similar portion of the normal cost of military retirement. The argument is invalid, because "normal cost" is a system cost. It is not an accurate measure of the benefits to be received by the individual members of the system. Rather, normal cost is only in part a product of the benefit formula that determines the amounts individuals will receive from their retirement system. A principal cause of high costs of the military system is the early age at which military personnel typically retire and the relatively long annuity payment streams that stem from early retirements. However, there are myriad reasons that would cause the normal costs of Civil Service and military retirement systems to diverge, even if the benefit formulas of the two systems provided actuarially equivalent lifetime benefits. Reasons for cost divergencies include:

- Differences in career lengths. Other things equal, shorter career lengths produce higher normal costs, even where retirement age and average annuity payment lengths are held constant. Military career lengths are, on average, several years shorter than those of civil servants, thus tending to increase the normal cost of military retirement.

1/ As noted in Chapter 11, the civil servant actually bears far less than half of the real cost of the civil service retirement system, since normal cost accruals tend to understate grossly the actual costs of a retirement system in an economy with a rising wage and price level.

- Differences in disability retirement costs. Disability retirement is an important factor in determining retirement system costs. Physical standards for initial entry into the civil service and military organizations differ. Similarly, entry ages, occupational hazards, and the standards that determine ability to continue employment in the two organizations differ considerably. Cost differences stemming from the differing standards and requirements of the disability retirement needs of the two organizations are, therefore, a poor measure of the "benefit" received by members and an imperfect basis for determining the contribution required from the individual members of each organization.
- Differences in retention rates. For every 100 new employees of age 25 entering Civil Service employment, only about 7 may be expected to remain in Civil Service until retirement. For each 100 enlisted men entering military service, about 9 may be expected to remain until retirement, while about 18 of each 100 officer entrants will serve until retirement. The smaller the portion of members remaining until retirement, the lower the normal cost of retirement. The different needs of the civil service and military organizations dictate different personnel retention rates for best results in each organization.
- The fallacy of reliance on normal cost as a basis of determining member contribution rates can be illustrated by examining how changes in retention rates would affect contribution rates. If the individual member's contribution rate in the military

system were justifiably related to normal cost, a future increase in the portion of members remaining until retirement would increase normal cost and argue for an increase in the individual contribution rate. Similarly, a decrease in retention rates would decrease costs and imply a decrease in the contribution rate. Yet, neither change in normal cost would imply a change in the annuity benefit for individual annuitants.

- Salary Progression Rate Differences. Salary progression throughout a typical career under the military system can be more readily predicted to follow a fairly tight pattern of increasing responsibility and remuneration than is the case under Civil Service employment. The military system utilizes an "up from the bottom" personnel system, relying on a greater degree of vertical movement of personnel within the organizational structure than is true in the Civil Service. This, plus the fact that a large portion of the total military force is being paid on a residual income basis, tends to lower the average military salary and the base on which "normal costs" are calculated, raising the normal cost per cent for the military system. On the average, Civil Service employment salaries at age 55 are only about 1.6 times those earned at age 25. Under the present compensation system, an enlisted man completing 30 years of service would egress at a basic pay approximately 5 times his entry level wage, and officers would egress at about 3 times their entry wage.

Further, the normal cost of military retirement is an inaccurate measure of the benefit it provides to individual members of the system, because it reflects the cost of the system rather than the economic net value of the retirement annuity. The military organization requires the vast majority of its members to retire at an age when a civilian second career is necessary. During that second career they are employed at incomes lower than those of civilian cohorts of comparable age and education. That portion of the retirement annuity required to offset this second career employment loss is not a net advantage to the retiree, but rather a payment required to offset an economic disadvantage induced upon him by the "youth and vigor" and "early retirement" requirements of the Armed Forces. Therefore, while the whole of the military retirement annuity represents a cost to the military retirement system, military members should not be required to contribute toward defrayal of costs that the military system induces on them, nor should other than the net advantage or "net benefit" of a military retirement annuity be considered in comparisons of the benefits of military retirement with those offered by other systems.

The "Net Benefit" Concept as a Basis for a 6½% Contribution Rate for the Military Combined Retirement Benefit

Linkage of military salary scales with those of Civil Service implies acceptance of a contributory retirement system similar to that of Civil Service. In view of the salary linkage with Civil Service and because of other advantages, a contributory military retirement system appears most desirable and has been recommended in this report and in the report concerning active duty pay.

Civil servants contribute 6.5% of their salaries toward defraying the cost of their retirement and survivor benefit system. This 6.5% contribution is approximately 1/2 of the "Current Service Normal Cost" of the Civil Service System. As a result, the civil servant is popularly (though inaccurately) considered to "pay half the costs of his retirement."

Faced with the accepted view that civil servants pay half the cost of their retirement, it is often held that military members should similarly "pay half the cost of their retirement" when a contributory system is adopted. However, because the normal cost accrual percentage of salary is a grossly inaccurate measure of the retirement system benefits received by individual members, it would be incorrect, inequitable and against the best interests of the military organization to interpret the "common employer policy" as requiring that military members contribute half the normal cost of the military retirement system simply because civil servants make such a contribution toward the costs of their retirement system.

To provide a more correct means of implementing the common employer policy, the study has introduced a new concept and a new method of analyzing the military retirement annuit -- the "net benefit" concept. Briefly stated, net and gross benefits from the military retirement annuity can be defined as follows:

Military Retirement Annuity Gross Benefit = Total lifetime/annual annuity payments.

Military Retirement Annuity Net Benefit = Total lifetime/annual annuity payments less lifetime/annual second career income loss.

Under the net benefit concept, system cost is discarded as an indicator of the worth of a retirement system to individual members and focus of the analysis is on the economic value of the payments received by the individual, rather than on system cost. Following the net benefit concept of analysis, the study has recommended:

- an Integrated Military Retirement Annuity (the combination of the military retirement annuity and the portion of the Social Security annuity stemming from military service) formula that provides individual military retirees a "net benefit" approximately equal to that stemming from a Civil Service career of comparable length, and
- a combined (military retirement plus Social Security) contribution of 6½% of the military salary as the military member's contribution toward the costs of his retirement benefit.

The logic of the recommendations is simple and straightforward, but important; if a common employer of two employee groups provides individual members of those two groups comparable active duty pay and retirement net benefits that are equal, consistency demands that they should make equal percent of salary contributions toward defrayal of the costs of those benefits. Thus, the study designed an annuity formula that provided individual retirees a net benefit equal to that available from a Civil Service career, but at the same time met the unique needs of the military organization. Equality of active duty salary and retired pay net benefits then permits an equality of contribution rates as a percent of salary. A net benefit higher than that available to the civil servant would require a contribution rate higher than that made by the civil servant. Other things

equal, the larger the net benefit to the individual, the larger the contribution. Where an employer maintains two different retirement systems (as does the Federal Government) similar net benefits received by individual members of the two systems should imply similar percent of salary contributions from the members of each system, regardless of differences in cost of the two systems.

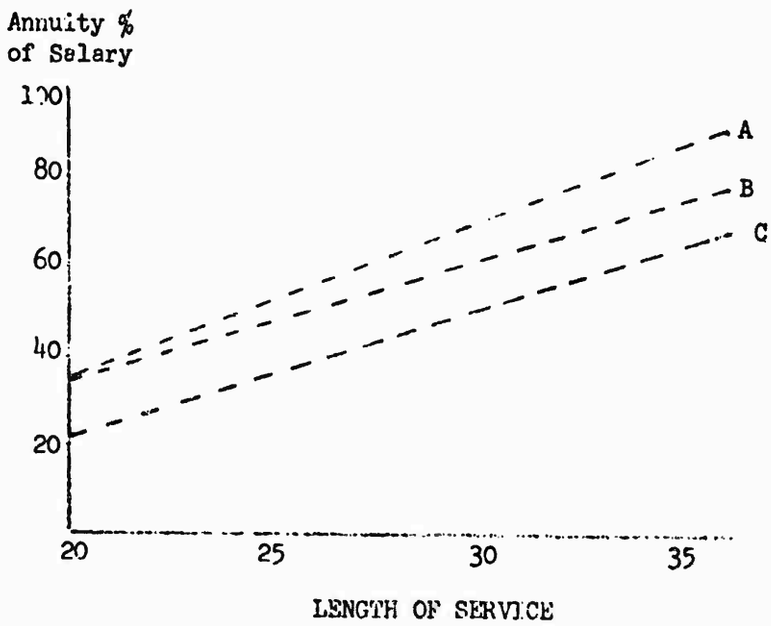
It should be noted that one of the assumptions upon which the study of military retirement is based is that a comparability salary will be used to pay active force career members. Accordingly, focus is on "salary comparability" and linkage of military and Civil Service salaries, and this focus has tended to de-emphasize total compensation comparisons. However, there is no assurance that this de-emphasis will persist. If, in the future, total compensation comparisons again return to favor, it is important that the existence of military second career income loss be recognized, that the full amount of military retirement accruals not be considered as compensation, and that only the portion of such accruals required to finance the net benefit portion of the military annuity be included in total compensation comparisons. Thus, the "net benefit" concept of the military retirement annuity is important, whether or not the salary system is adopted and whether or not the military retirement annuity formula is altered from its present form.

APPENDIX IX - SOME CONSIDERATIONS IN DESIGNING THE MILITARY NONDISABILITY RETIREMENT FORMULA

Purpose

Chapters 3 and 4 of Part II of Volume IV concerning the Military Estate Program provide some of the major considerations that led to development of the nondisability retirement annuity formula proposed by the study. However, there were manifold additional considerations, constraints, and technical problems not described in the main body of the report that were important influences in development of the formula. This Appendix summarizes, in conceptual terms, some of the more important considerations leading to the design of the formula proposed in chapter 4.

Chart IX-1
ALTERNATIVE RETIREMENT ANNUITIES AS A
PERCENT OF THE COMPARABILITY SALARY
(Conceptual)



DEFINITIONS:

We refer to the line formed by connecting a plot of the annuity percent of salary relationships for various lengths of service as the "annuity line".

- The rate at which the annuity percent of salary increases with additional service is graphically indicated by the "slope" of the annuity line. Thus, slope and rate of increase of line A > B.a/

- The "level" of the annuity line is a graphic indicator of the size of the annuity percent of salary for the indicated years of service. Thus, slope of B = slope of C, but level of B > level of C, and level of A ≠ level of B except at 20 year point.b/

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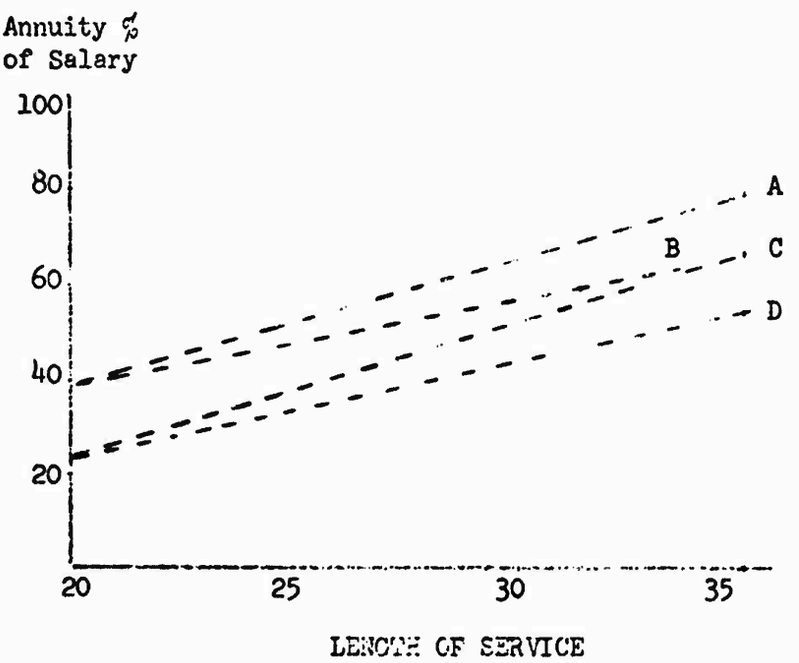
a/ > is the mathematical notation for "is greater than."

b/ ≠ is the mathematical notation for "is not equal to."

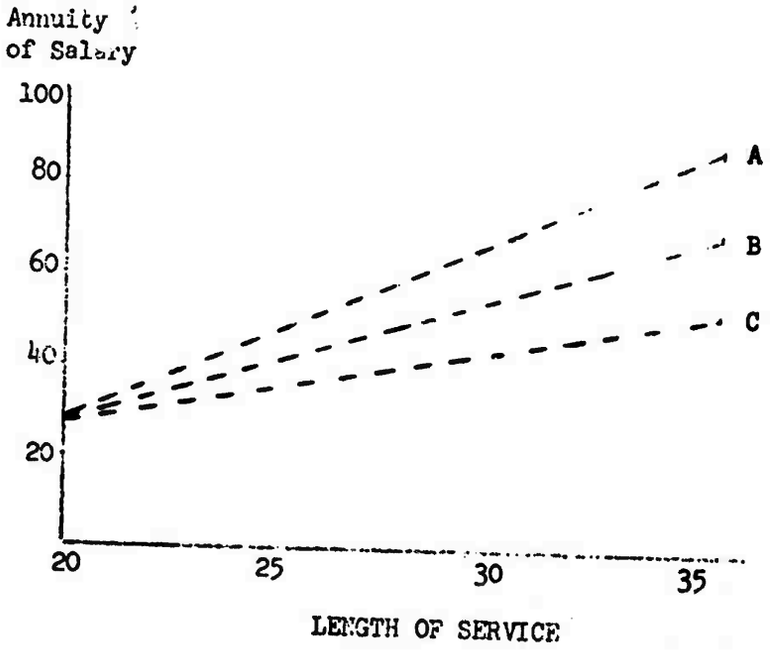
Chart IX-2
ALTERNATIVE RETIREMENT ANNUITIES AS A
PERCENT OF THE COMPARABILITY SALARY
(Conceptual)



INCENTIVE TO ENTER A MILITARY CAREER:

- In considering the retirement annuity as an incentive to choose a military career, both the level and the slope of the annuity line are important.
- Career decision incentive of line A > B > C > D.

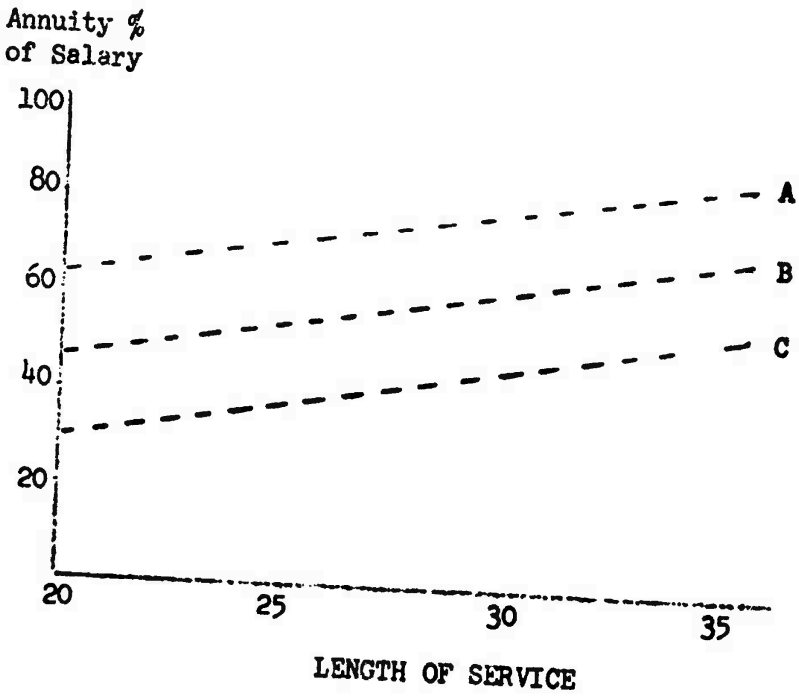
Chart IX-3
ALTERNATIVE RETIREMENT ANNUITIES AS A
PERCENT OF THE COMPARABILITY SALARY
(Conceptual)



INCENTIVE TO CONTINUED SERVICE AFTER RETIREMENT ELIGIBILITY:

- Slope of annuity line is important in determining incentive to continued service after retirement eligibility.
- Incentive to continued service increases as slope of annuity line increases.
- Continued service incentive of A>B>C.

Chart IX-4
ALTERNATIVE RETIREMENT ANNUITIES AS A PERCENT OF THE COMPARABILITY SALARY
(Conceptual)



INCENTIVE TO CONTINUED SERVICE:

- Level of annuity line is important in determining incentive to continued service after retirement eligibility.
- Incentive to continued service decreases as level of annuity line is raised because portion of active duty income lost by retiring decreases as level of annuity is increased.
- At any given retirement eligible length of service, continued service incentive of annuity line A<B<C.a/

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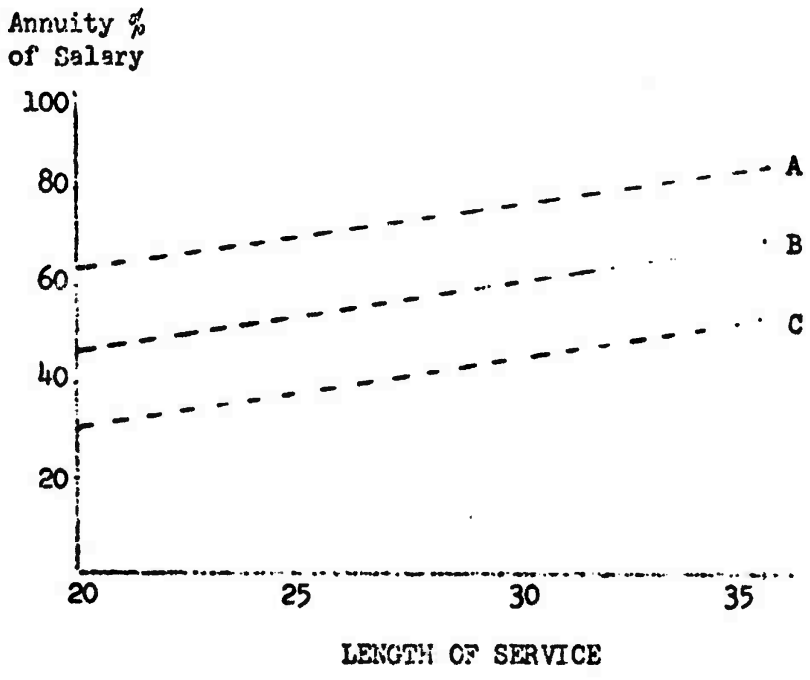
a/ < is the mathematical notation for "is less than."

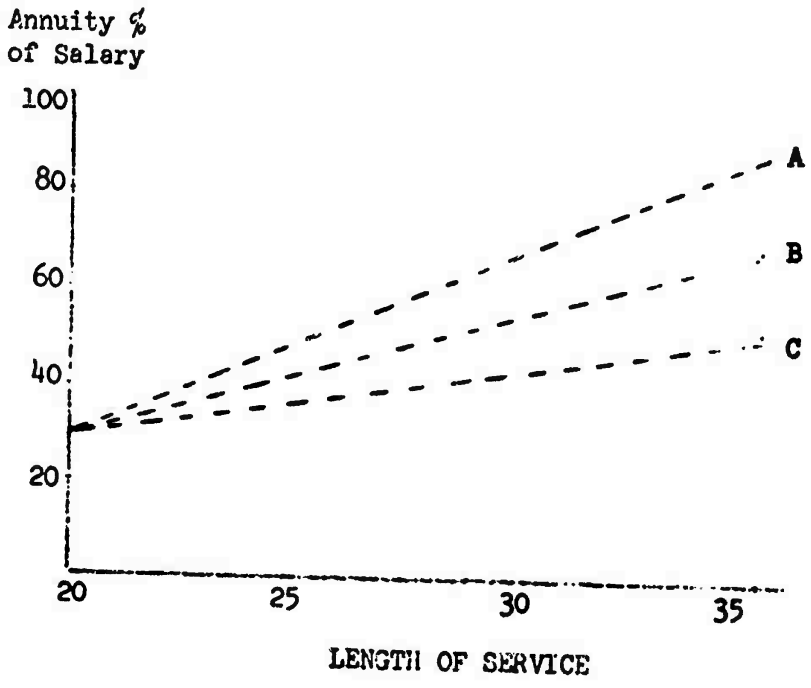
Chart IX-5
ALTERNATIVE RETIREMENT ANNUITIES AS A
PERCENT OF THE COMPARABILITY SALARY
(Conceptual)



COST OF THE RETIREMENT SYSTEM:

- Other things equal, cost of system increases as level of the annuity line increases.
- Cost of annuity line A > B > C.

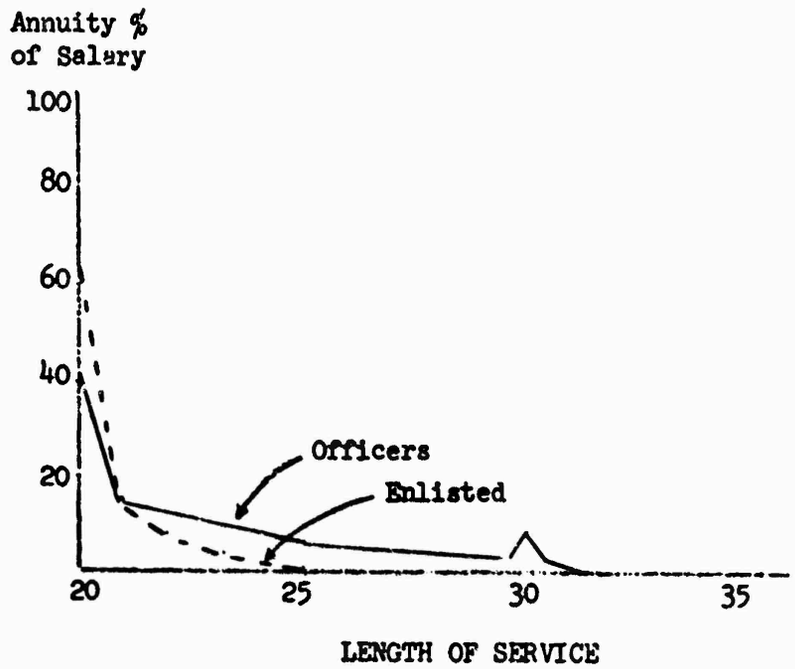
Chart IX-6
ALTERNATIVE RETIREMENT ANNUITIES AS A
PERCENT OF THE COMPARABILITY SALARY
(Conceptual)



COST OF THE RETIREMENT SYSTEM:

- Other things equal, cost of system increases as slope of annuity line increases.
- Cost of annuity line A>B>C.

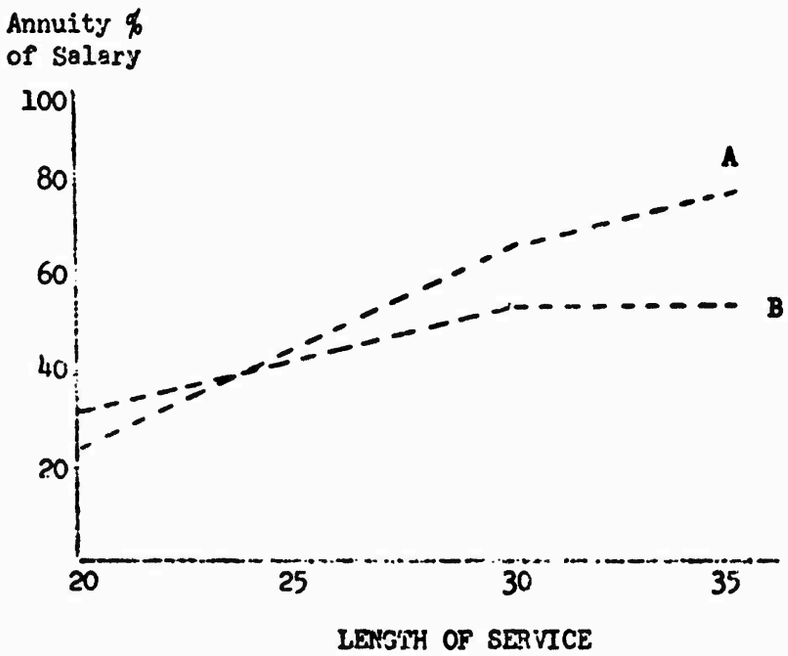
Chart IX-7
PERCENT OF NONDISABILITY RETIREMENTS
BY LENGTH OF SERVICE



COST OF RETIREMENT SYSTEM:

- Great majority of military retirements occur shortly after completion of 20 years service.
- System cost is very sensitive to level of annuities for shorter length careers, because of the large number of retirees and their long remaining life expectancy.
- System cost is less sensitive to slope of annuity line after 20 year point.
- System cost is less sensitive to level of annuities for longer military careers.

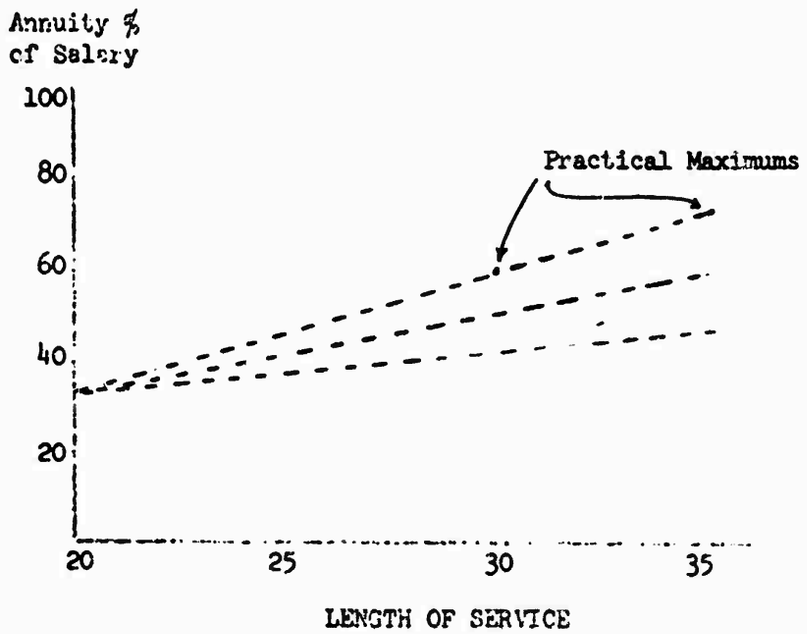
Chart IX-8
ALTERNATIVE RETIREMENT ANNUITIES AS A
PERCENT OF THE COMPARABILITY SALARY
(Conceptual)



COST OF RETIREMENT SYSTEM:

- Because of cost sensitivity of the military retirement system to the short career annuity, annuity line A produces a lower system cost than annuity line B. (Line B approximates the present annuity relationship with the comparability salary.)

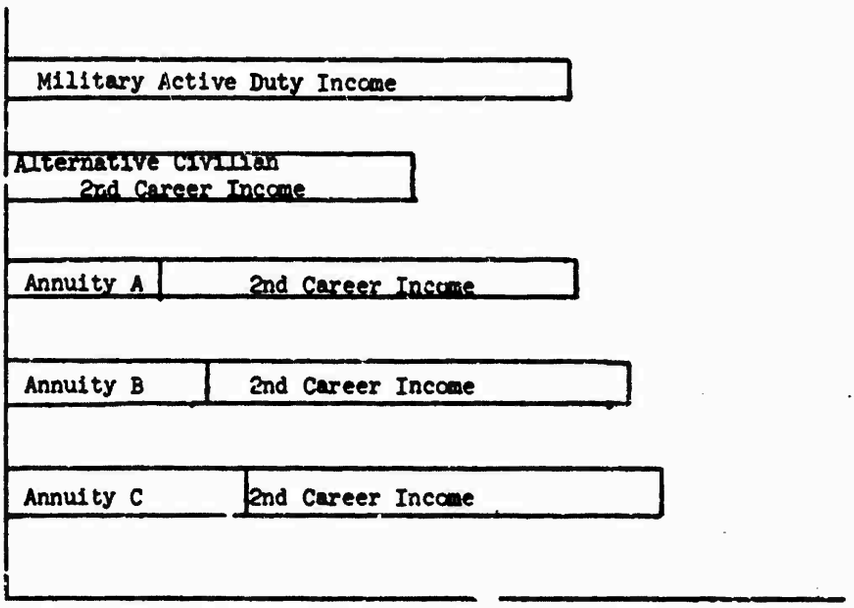
Chart IX-9
ALTERNATIVE RETIREMENT ANNUITIES AS A
PERCENT OF THE COMPARABILITY SALARY
(Conceptual)



CONSTRAINING FACTORS IN SETTING THE ANNUITY LINE - LEVEL FOR FULL LENGTH CAREERS:

- Maximum percent of salary that can be paid for full length careers is limited by -
  - Psychological and practical considerations.
  - Incentive effects on retirement at years before maximum entitlements.
  - Cost considerations (relatively less important than for short career retirees because of the small number of long career retirees in the military system).
- Practical maximums are probably about
  - 80 percent for 40 years' service.
  - 60 percent for 30 years' service.

Chart IX-10
TOTAL ANNUAL INCOMES, ACTIVE DUTY VS. RETIRED,
VARIOUS RETIREMENT ANNUITY LEVELS
(Conceptual)



Both slope of the annuity line and the level of the line for short careers are particularly important in the Military Retirement System for the following reasons:

. The military system has no age requirement for retirement eligibility. Retirement can occur as early as age 37.

. Because of their relative youth on completion of a military career, most military retirees enter civilian second careers after military retirement.

. The military system's early retirement feature and civilian second career expectations create a unique income maximization problem for every military careerist. For some, total income after military retirement (retirement pay plus second career income) may be greater than active duty income.

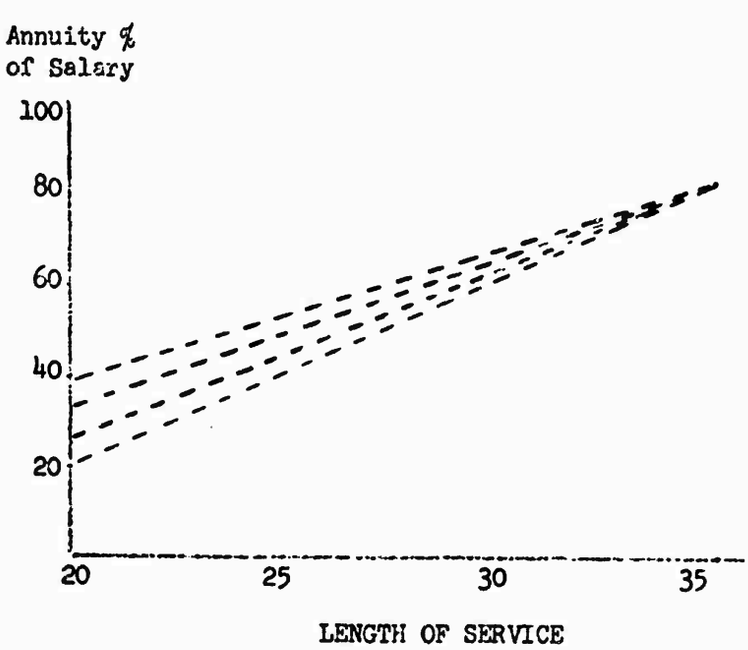
. Because of second career opportunities, the higher the annuity level for any given length of service, the greater the economic incentive to leave military active duty service.

. Unless incremental gain of additional service is significant, early military retirement is economically more attractive than additional service.

. Other systems seldom permit retirement before age 60. Their retirees generally do not work elsewhere after retirement. There is usually no economic incentive to retire. Rather, the economic incentive in other systems is to continue service beyond the point of retirement eligibility. The major incentive to retire is usually a physical inability to work or a desire for leisure.

. The study found no other major retirement system with comparable problems in providing an incentive to continued service.

Chart IX-11
ALTERNATIVE RETIREMENT ANNUITIES AS A
PERCENT OF THE COMPARABILITY SALARY
(Conceptual)



CONSTRAINING FACTORS IN SETTING THE ANNUITY LINE - LEVEL FOR SHORT CAREERS:

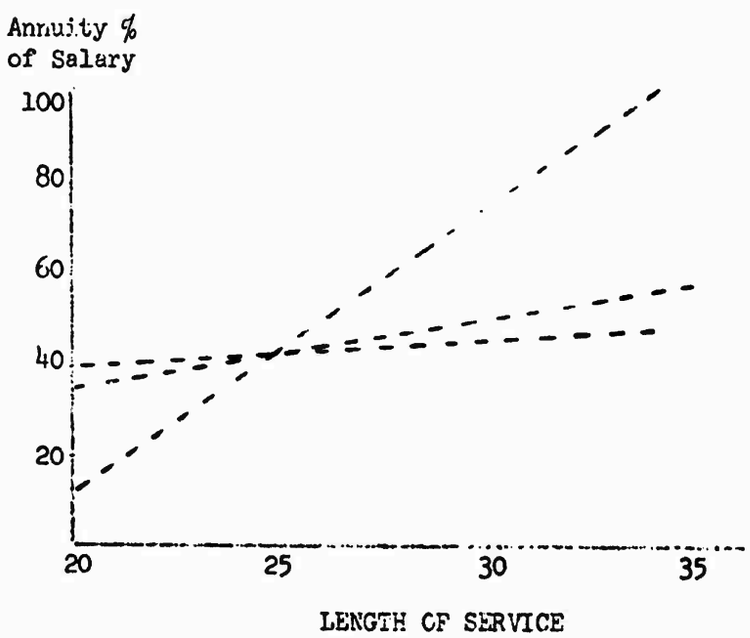
- The upper limit on annuity percent of salary which can be paid for short careers is set by:

  .. Incentive considerations - the higher the payment at any given length of service, the greater the incentive to retire and the less steep the slope of the formula line (constrained at the full length career points) can be.

  .. System cost considerations - Small variations in the short career annuity levels have a significant cost impact.

  The lower limit on short career annuity percent of salary is set by incentive considerations. Below some minimum point the annuities would lack credibility and usefulness as a recruiting aid and career incentive, and would not provide just treatment of members.

Chart IX-12
ALTERNATIVE RETIREMENT ANNUITIES AS A
PERCENT OF THE COMPARABILITY SALARY
(Conceptual)

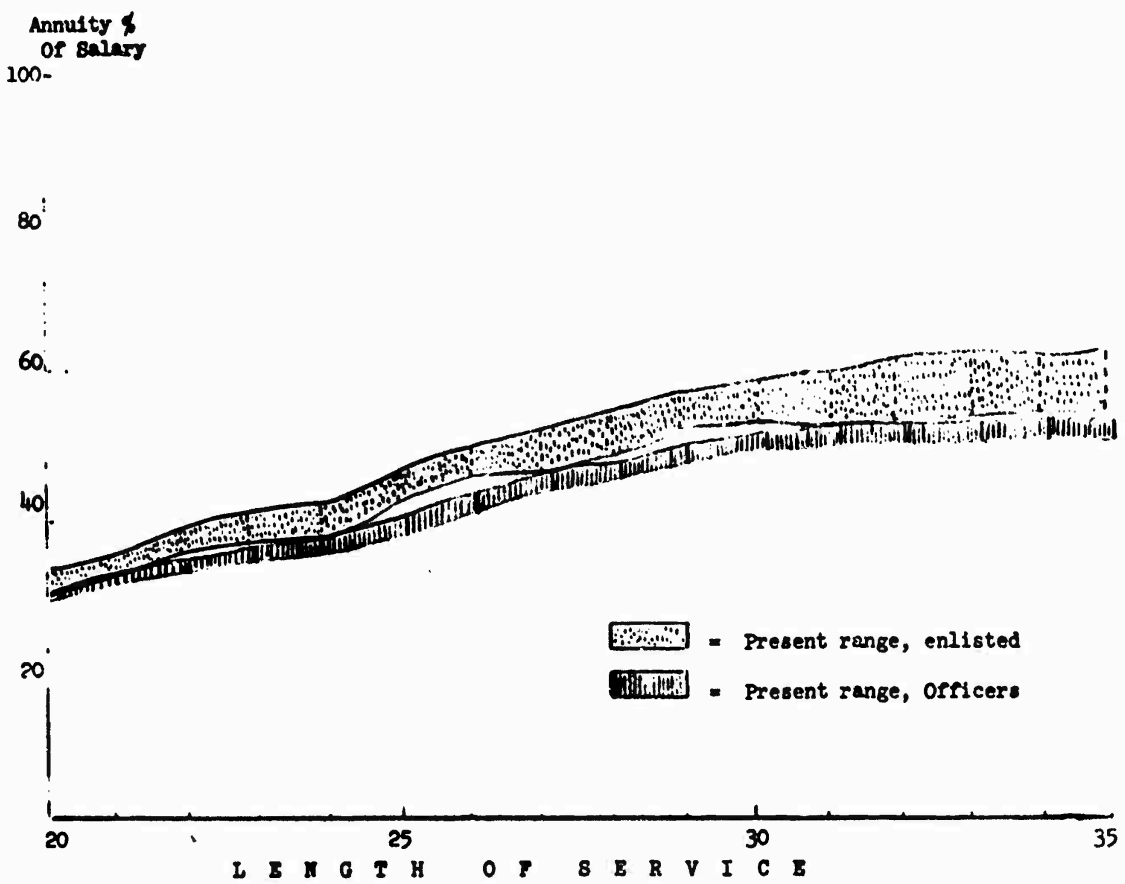


CONSTRAINING FACTORS ON SETTING THE ANNUITY LINE - SLOPE:

- Practical considerations (practices in other retirement systems - rules to which legislators are conditioned) limit the steepness of the formula line (the percent of salary that can be offered for an additional year of service). Few systems offer more than 2 percent of salary for a single year of service.

- Regardless of organizational needs and theoretical justification, it is probable that any incremental year of service reward of more than about 3 percent will receive close scrutiny in the legislative process, and may influence the decision on the retirement formula adopted.

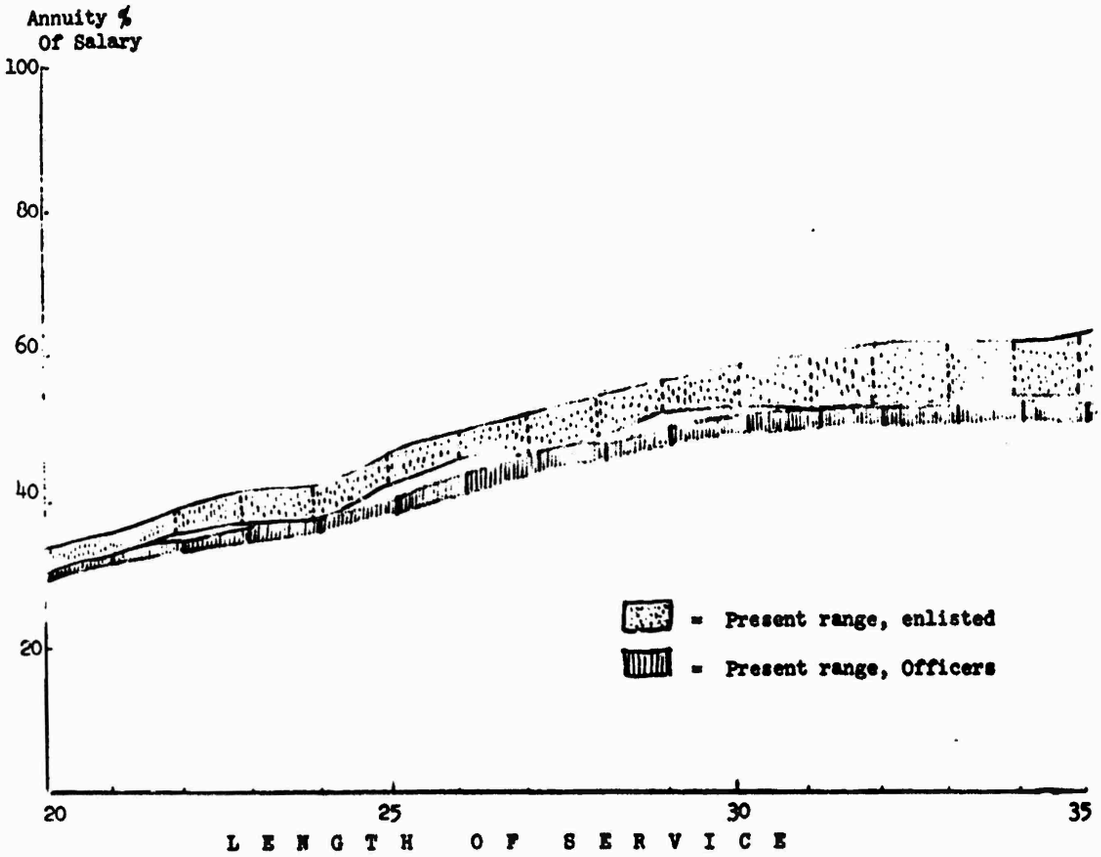
Chart IX-13
ANNUITIES FROM THE PRESENT FORMULA, AS A PERCENT OF THE PROPOSED COMPARABILITY SALARY



THE PRESENT FORMULA:

- Provides annuities which, as a percent of salary have varied over time (level of annuities has tended to increase).
- Provides annuities which, as a percent of the present salary, vary between grades.
- Because of these factors, cannot be translated exactly to the comparability salary.

Chart IX-14
ANNUITIES FROM THE PRESENT FORMULA, AS A PERCENT OF THE PROPOSED COMPARABILITY SALARY



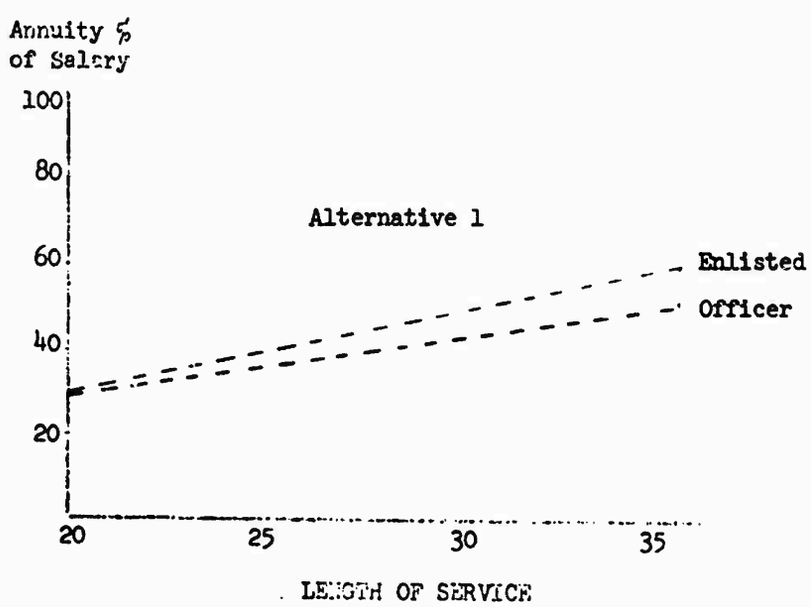
INCENTIVE PROBLEMS OF PRESENT FORMULA:

- High level of annuities for short careers provides incentive to retire soon after 20 years service.
- Slope of the annuity line is inadequate to motivate continued service.
- Level of annuities increases over time as bulk of pay increases go into basic pay. Thus, economic incentive to early retirement increases over time.
- No additional reward in annuity for service after 30 years.
- Inter-grade differentials in annuity as a percent of salary.
- Slope of officer annuity line is more shallow than slope of enlisted annuity line.
- Level of officer annuities generally lower than that of enlisted personnel. (as a percent of the comparability salary).

COST PROBLEMS OF PRESENT FORMULA:

- Despite failure to adequately reward the relatively few long career members, the system has a high cost because of high level of payments to many short career members. Cost increases more rapidly than total compensation costs, as basic pay portion becomes a consistently larger portion of total "salary".

Chart IX-15
ALTERNATIVE RETIREMENT ANNUITIES AS A
PERCENT OF THE COMPARABILITY SALARY
(Conceptual)



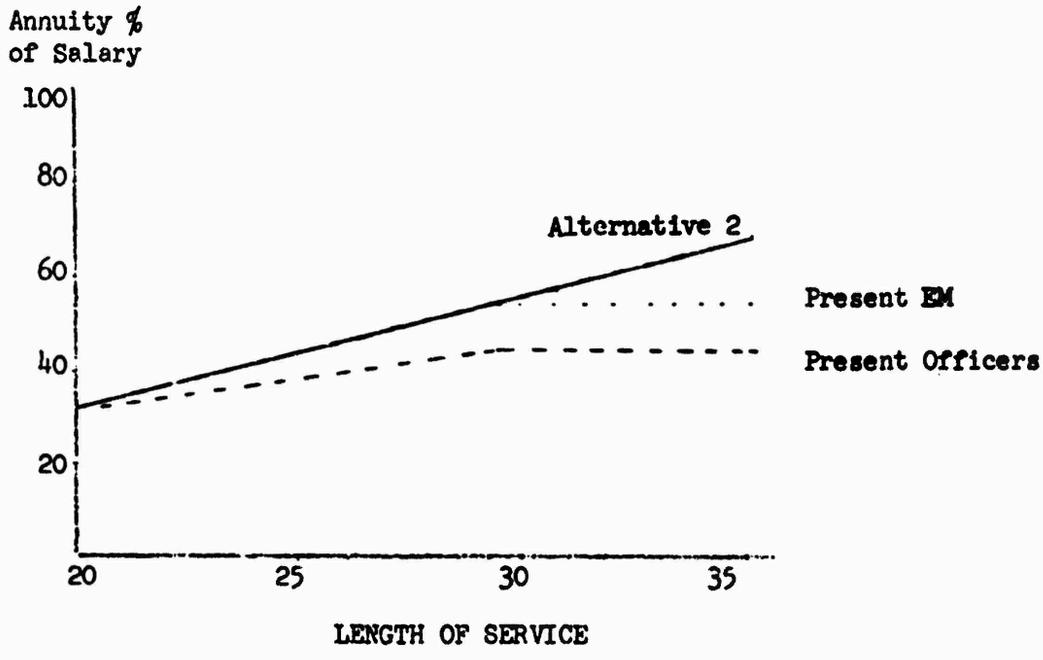
ALTERNATIVES TO PRESENT FORMULA:

Alternative 1: Use two formulas related to salary; one for enlisted, one for officers, approximately preserving the present relationships, except that additional reward is offered. This would increase system cost only slightly, but - -

Problems:

- Continued service incentive still inadequate.
- Annuity would continue to be more advantageous to enlisted personnel than to officers since:
  - .. They would receive a higher annual annuity percent of salary, and
  - .. Because of their generally lower average retirement ages, they would receive the annuity for a longer number of years than would officers.
  - .. Because of lower average retirement ages and relatively greater transferability of skills, enlisted personnel suffer relatively smaller second career income loss than officers.
- Difficult to justify separate formulas for officers and enlisted men unless age, lengths of service, or other retirement eligibility criteria differ.

Chart IX-16
ALTERNATIVE RETIREMENT ANNUITIES AS A
PERCENT OF THE COMPARABILITY SALARY
(Conceptual)

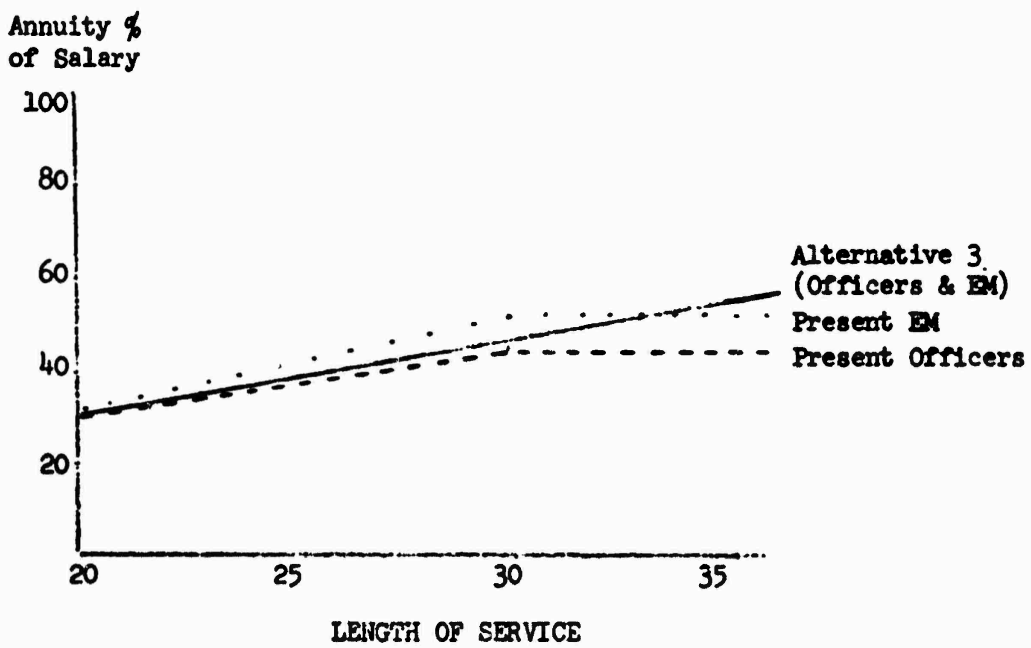


ALTERNATIVES TO THE PRESENT FORMULA:

Alternative 2: Set annuity line at upper limits of range of present enlisted annuities, extend line to provide reward for service beyond 30 years.

Problems:
- Still inadequate incentive to full length career. Slope of line still too shallow. Level of annuity for short careers still too high.
- Increases already high system costs without generating required incentives.

Chart IX-17
ALTERNATIVE RETIREMENT ANNUITIES AS A
PERCENT OF THE COMPARABILITY SALARY
(Conceptual)



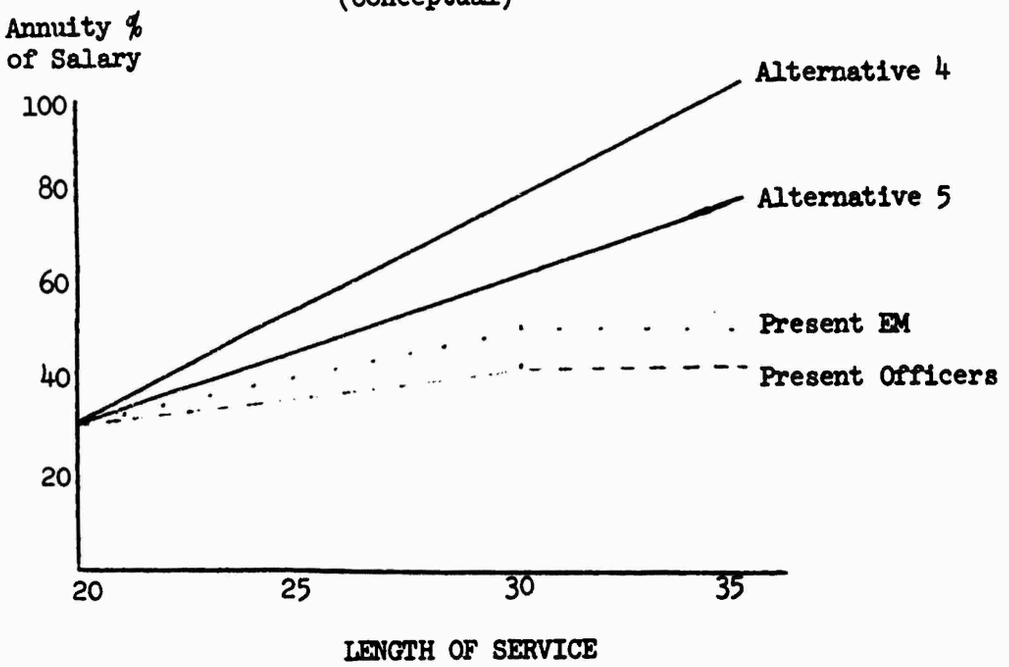
ALTERNATIVES TO THE PRESENT FORMULA:

Alternative 3: Use a single formula and annuity line. Hold system cost approximately constant by using an annuity line set at approximate mid-point of the range of existing officer-enlisted percentages of salary. Extend annuity line for service beyond 30 years.

Problems:

- Still inadequate incentive to continued service. Slope too shallow. Payoff for longer careers still inadequate. Level of payment for short careers still too high.
- Second career opportunity differentials related to retirement age not recognized.
- Age differential between members not recognized. Youngest retirees receive greatest reward for a given amount of service.

Chart IX-18
ALTERNATIVE RETIREMENT ANNUITIES AS A PERCENT OF THE COMPARABILITY SALARY
(Conceptual)



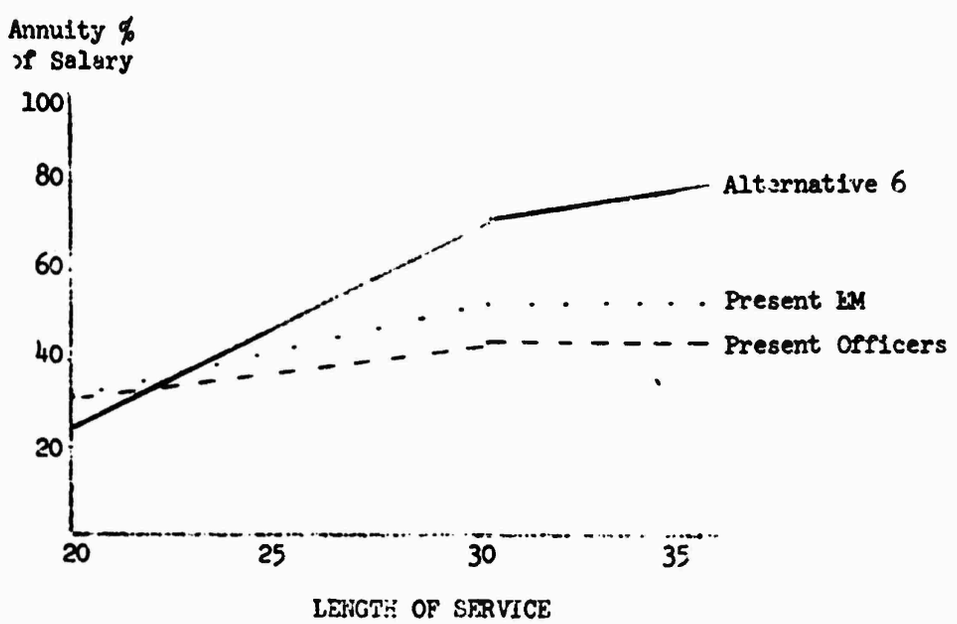
ALTERNATIVES TO THE PRESENT FORMULA:

Alternatives 4 & 5: Use a single formula and annuity line. Retain approximate present percent of salary relationship for short careers, but increase slope of line to provide greater incentive for longer careers.

Problems:

- Both alternatives 4 and 5 increase system costs beyond present high costs.
- Both alternatives have a high level at 20 year point - provide disincentive to continued service - motivate early retirement.
- There is a practical upper limit on the retirement annuity percent of salary that can be paid (probably about 60 percent for 30 years of service). Alternative 4 provides an attractive slope, but exceeds practical limits for maximum payments.
- Alternative 5 stays within practical limits for maximum payments, but has shallow slope by reason of high level at 20 year point.

Chart IX-19
ALTERNATIVE RETIREMENT ANNUITIES AS A
PERCENT OF THE COMPARABILITY SALARY
(Conceptual)



ALTERNATIVES TO THE PRESENT FORMULA:

Alternative 6: Use single annuity line for both officer and enlisted. Decrease level for short careers. Increase slope of formula line to provide adequate reward for and incentive to, longer careers.

Such a change can lower or hold constant system costs, provide an annuity reward more closely related to length of service and a stronger incentive to a longer military career.

Basically, this is what the study found to be necessary. However, alternative 6 still is a level stream annuity; that is, a level of payments is determined at the time the annuity starts and paid for the remainder of the retiree's lifetime.

PROBLEMS OF A REVISED LEVEL STREAM LIFETIME ANNUITY:

- A level stream lifetime annuity cannot efficiently recognize the differing circumstances of the two phases of the retirement lifetime of a short career military retiree:
  - an annuity adequate for the "old age" period
    - .. overcompensates the retiree for the second career income loss experienced during the civilian employment period following military retirement, and
    - .. motivates early retirement - discourages longer careers;
  - an annuity just sufficient to compensate for second career income loss would be inadequate for the "old age" period; and
  - a compromise annuity (more than required to offset second career income loss - less than required for "old age")
    - .. would not effectively meet the circumstances of either the "second career" or "old age" period, and
    - .. would still tend to motivate early retirements - discourage longer careers.
- Using a level stream annuity to get sufficient slope in the annuity line and at the same time hold costs within tolerable limits, level of payments at 20 year point may be too low to provide sufficient incentive to follow a military career.
- Using a level stream annuity to get sufficient slope in the annuity line, incremental per year of service reward might have to be larger than practice will permit; e.g., if 25 percent of salary were offered for 20 years' service and 60 percent for 30 years' service, the average incremental reward for each of the last 10 years would be 3.5 percent.
- To resolve these problems, a final alternative was examined: the "two-step annuity."

SOLUTION:

To meet the unique requirements of the military organization and to overcome many of the restrictions and shortcomings that a level stream annuity encounters when applied to the military situation, the study found a special type of retirement annuity formula to be optimal. The retirement annuity proposed is a "2 step annuity"; i.e., an annuity consisting of two portions:

- A "step 1 retired pay" the retiree receives from the day he leaves active duty until the age of which he is eligible for "step 2 retired pay."
- "Step 2 retired pay" received after reaching the specified step 2 age.

ADVANTAGES OF THE 2 STEP ANNUITY:

- For the short career retirees, the 2 step annuity provides a much larger annuity after member reaches the step 2 annuity age than does the single step "same cost" alternative. Yet in step 1 percentages it is only slightly lower than the alternative single step annuity line. The step 2 annuity thus provides an opportunity to emphasize the larger percentages in the 2nd step of the annuity formula in recruiting and retention presentations.
- Compared to a same cost single step alternative annuity percent of salary, the lower step 1 annuity percent of salary increases the immediate incremental gain of continued service and thus reduces the incentive to early retirement.
- The 2 step annuity provides a means of achieving a sharp "slope" in the annuity line without exceeding practical limits. Because of the large incremental year of service increases a single step "same cost" alternative would require, it would probably not be a viable proposal. The 2 step formula provides sharp gains for additional service but does not display all of these gains in the basic "length of service" multiplier.
- The 2 step annuity provides a kind of "recomputation" that compensates in part for the "relative deterioration" of the military annuity between the time the member leaves military service and the time at which he reaches an age at which he will withdraw from the national work force. (Note that the second step of the annuity provides a much larger base against which the CPI adjustment will apply than does the single step alternative). Provision of such a feature is important if the retirement system is to meet the needs of the member as an old age annuity, while at the same time satisfying his needs in the years immediately following departure from the active duty force.

- The 2 step annuity provides a larger age 65 military annuity from which the deduction for military social security will be made than would a "same cost" single step alternative.

- The 2 step alternative does a better job of matching the size of payments to the actual needs of the members than does the single step alternative. The younger, short career retirees will find it necessary to work after military retirement and will have second career incomes. The 2 step annuity appears to be the best method of simultaneously motivating continued service, but at the same time compensating for second career income loss and providing an adequate old age annuity.

APPENDIX X - COMPARISON OF PROPOSED RESERVE RETIREMENT ANNUITIES WITH CIVIL SERVICE RETIREMENT ANNUITIES

There were three important considerations that influenced the development of the Reserve Retirement formula recommended in Chapter 6.

- The Management Effectiveness and Just Treatment objectives of Reserve retirement.
- The utilization of a formula that would be compatible with the formula used in the keystone subsystem of nondisability retirement.
- The application of a common employer policy.

A comparison of the Civil Service retired pay levels and those proposed for retirees provided an additional method of measuring the degree to which the Reserve retirement system meets the objectives of management effectiveness and just treatment of members. In Chapter 6 it was noted that Reserve retirees do not incur second career income loss. The entire amount of the Reserve retirement annuity is a "net benefit" as defined in Appendix VIII, The Importance of the Net Benefit Concept in the Development of the Military Retirement System. This fact, plus a similarity of the age in which the two plans commence annuity payments for very short (less than 20 years service) careers, permits a useful comparison of Reserve and Civil Service retired pay by comparing annuity percentages provided by the two formulas for given lengths of service. Table X-1 presents such a comparison. The percentage comparisons, however, are subject to the following qualifications:

- Civil servants cannot retire with less than five years of service. It is theoretically possible for reservists to receive an annuity with less than the equivalent of five years of active service. However, this would occur only in relatively few cases where the reservist had no credit for active duty service to add to the retirement credits resulting from his Reserve career.
- Reserve retirement annuities commence at age 60. Civil Service retirement annuities for less than 20 years of service do not commence until age 62.
- Typical Reserve retirement annuities award the member for from four to eight years of service. Unless the reservist has served several years in the Active Duty Force, Reserve retirement annuities in the 10 - 19 years of service range are unattainable. The most useful comparisons, therefore, are in the four to eight year range.

In the four to eight years of service range where comparisons are most relevant, the proposed Reserve annuity formula and the Civil Service formula yield results that are nearly identical and provide evidence of application of a common policy to two different groups of employees by their common governmental employer.

Conclusion

The Reserve retirement system can meet its objectives by paying at age 60 the (Step 2) annuity recommended in the proposed nondisability retirement plan.

TABLE X-1 - COMPARISON OF CIVIL SERVICE AND PROPOSED FORMULA RESERVE RETIREMENT ANNUITY PERCENTAGES OF THE COMPARABILITY SALARY

Length of Svc. for Retirement Annuity Calculation	C.S. Annuity % of "High Five" Salary	"High One" [a/] Equivalent of C.S. % of "High Five" Salary	Military Reservist Annuity % of "High One" Salary
4	Not Eligible	Not Applicable	6.0
5	7.5	7.05	7.5
6	9.25	8.70	9.0
7	11.00	10.34	10.5
8	12.75	11.98	12.0
9	14.50	13.63	13.75
10	16.25	15.28	15.5
11	18.25	17.16	17.25
12	20.25	19.04	19.0
13	22.25	20.92	20.75
14	24.25	22.80	22.5
15	26.25	24.68	24.25
16	28.25	26.56	26.0
17	30.25	28.44	27.75
18	32.25	30.32	29.5
19	34.25	32.20	31.25
20	36.25	34.08	33.0

a/ The "High Five" percentage was converted to a "High One" equivalent percentage by multiplying the "High Five" percentage by a factor of .94 - see Appendix VI, Rationale for Selecting a "High One" Average Salary Base.

APPENDIX XI - OTHER EMPLOYER DISABILITY RETIREMENT PROVISIONS

What Constitutes Just Treatment? The Relevance of Other Employer Practices.

The most difficult issue in design of a disability retirement system is the selection of a standard or a formula for determining payments that will provide "just treatment" to individual members. One method of attempting to measure contemporary social judgment of just treatment is to analyze the practices followed by other employers in disability retirements.

The practices followed by the Federal Civil Service, the State Civil Services and U. S. private employers are summarized in this Appendix. In comparing the disability retirement benefits available to military personnel with those offered by other employers, the following differences are significant:

- Most other employers have length of service requirements that must be satisfied before the member is eligible for disability retirement benefits.
- Most, but not all, other employer disability benefit programs differentiate between an "employment related" disability and a "non-employment related" disability, offering higher payment levels and earlier eligibility to the individual disabled as a result of his employment.
- Few non-military systems attempt to compensate on a "percentage of disability" basis. Rather, payments are generally related only to the length of service, with

stated maximum and minimum levels of payment. Payments to non-military Federal employees, however, are based on the individual's loss of earning power.

- Most other employers relate the amount of the payment to the employee's wage level, rather than providing flat payment amounts which disregard the active employment income of the individual. (The VA payment schedule disregards active employment income.)

Federal Civil Service System

Protection of disabled Federal Civil Service employees stems from two sources:

- non-work related disabilities - benefits from the Civil Service Retirement system, and
- work related disabilities - coverage under the Federal Employee's Compensation Act (FECA).

A Civil Service employee is eligible for disability retirement benefits from the Civil Service Retirement system after completion of five years of civilian service if he becomes incapable, physically or mentally, of performing the duties of his position or a comparable one; he need not be disabled for all kinds of work either in his agency or in the labor market.

The Civil Service Retirement system annuity benefit is:

> the amount computed by application of the general formula based on salary and years of service, with no reduction for receipt of the benefit before the normal retirement age, except that the minimum payment shall be the lesser of
>
> 1) 40% of the employee's high five average salary (equivalent to about 22 years of service), or

2) the amount computed by the general formula after increasing the employee's service by the number of years between his age at time of separation and the normal retirement age of 60 years.

If the employee's disability is caused by his job, he may elect FECA benefits. For total or partial disability, the Bureau of Employees' Compensation pays 66 2/3% of the employee's loss of earnings capacity; if he has dependents, the benefit is raised to 75%. The maximum monthly payment is three-fourths of the highest monthly pay level for a GS-15 of the General Schedule of the Classification Act. The minimum payment will not be less than three-fourths of the lowest monthly pay level for Grade GS-2. Specific injuries such as the loss of an eye or a limb, are compensated for at the same rates for scheduled periods up to 312 weeks.

An employee who is eligible for disability benefits under both the Civil Service Retirement system and FECA must make an election between the two systems.

State Civil Service Plans[1/]

State governments vary widely in the terms and liberality of their disability pension plans. However, the 1963 report by the National Association of State Retirement Administrators showed that all but two states provided disability pensions.

Eligibility requirements under State plans tended to be more liberal than in private plans, although somewhat less liberal than those of the Federal Civil Service Retirement system. None of the State systems specifies a minimum age requirement. The typical service requirement is

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1/ Extracted from op.cit., Federal Staff Retirement Systems, p. 178.

ten years, specified by 28 states. However, eight required up to 15 years, and five followed the Federal policy of requiring only five years of service.

Definitions of disability likewise vary between inability to perform any work at all and incapacity for the employee's usual work. Here again, however, public jurisdictions are more liberal than private sector employers. Over half of those reported in a recent study made by the Social Security Administration used the test of ability to perform the usual job, and only 20% required complete inability to work as the criterion.1/

Generally, the level of benefits depends on a percentage of final average salary multiplied by years of service. This base is sometimes adjusted by providing guaranteed minimums or by reducing the amount on an actuarial basis in relation to age.

Table XI-1 summarizes the Disability Retirement Benefit formulas of several of the larger states, and Table XI-2 summarizes private employer disability retirement plans.

1/ Joseph Krislov, "State and Local Government Retirement Systems Covered by Social Security, 1965", Social Security Bulletin.

TABLE XI-1 - EXAMPLE STATE GOVERNMENT DISABILITY RETIREMENT FORMULAS AND REGULATIONS

	Non-Work Related Disability	Work Related Disability
California	Member must have over $500 accumulated contributions or have at least 10 years' credited service besides meeting certain physical and mental requirements to qualify. Monthly allowance based on years of service and "final compensation" of member; 100% of service retirement if age 60 or over; 90% of 1/60 benefit if under age 60. Guarantee of 33-1/3% of "final compensation" if member has over 10 years credited service, in most cases.	For most categories of members, same benefits as non-occupational benefits. Special membership categories (Patrol, Forestry, Warden, etc.) covered under occupational provisions; member receives monthly allowance of 50% of "final compensation" if disabled in line of duty - no age or service requirements.
New Jersey	Must be member 10 years, under 60 years of age and member must prove to satisfaction of three member medical panel that he is physically or mentally incapacitated for performance of duty. Benefit of 1½% for each year of credited service x "final compensation", with minimum of 40% in most cases.	2/3 of salary at time of accident plus annuity based on member's contributions if medical panel satisfied that member is permanently and totally disabled as a direct result of a traumatic event occuring during and as a result of the performance of his regular duties. No age or service requirements.
New York	Must have 10 years of total service to qualify. Benefit is equal to 1/60th of "final average salary" x years of total service. Minimum benefit in most cases is 1/3 of "final average salary." If retiring member has attained age 60, service retirement benefit is paid.	If member under age 60 is disabled as result of accident in the performance of duty, pension is equal to 3/4 of "final average salary" less payments under Workmen's Compensation Law, plus pension for "increased take home pay" provided by employer contributions in lieu of member contributions plus annuity provided by member contributions.
Ohio	No distinction between occupational and non-occupational. Only test is minimum 5 years of credit and medical proof of inability to perform service required of member's position.	Benefit formula (annual): 1.75% of 5 highest years annual earnings x the sum of the years of service credit plus the number of years from the onset of disability to age 60, but not to exceed 60% of final average salary.

TABLE XI-2 - PRIVATE EMPLOYER DISABILITY RETIREMENT

Private Pension Plans[1/]

About 25 million workers, 35% of the labor force, are covered by private pension plans. The Bureau of Labor Statistics (BLS), in its study of 16,000 plans, found that 52% of them, covering 70% of the active members, included benefits for disability. The National Industrial Conference Board, Inc. (NICB), in a study of 1,200 private plans in manufacturing firms, banks, trade firms, utilities, and insurance companies, found that 57% had disability provisions, and that these were particularly common in plans negotiated with unions.

Disability provisions in private pension plans set rather conservative standards for eligibility, first, in terms of age and service and, second, in their definition of disability. The NICB study found that over 90% of the plans with disability provisions had age-service requirements. A small number specified age only, two-thirds of them using age 50 as a minimum. Nearly 60% specified service only, with three-quarters requiring at least 15 years. Over 30% set both age and service limits, again usually age 50 and 15 years' service.

A study published by the Social Security Administration reviews the definitions of disability which are used by the plans identified in the BLS survey--8,200 of them included disability benefits. More than half (52.6%) used the Social Security definition of disability, or a definition peculiar to the plan but no less strict. A considerable number (17.6%) left the determination to the discretion of the company. The remaining 30% varied from something close to inability to perform any job (as under Social Security) to inability to perform the employee's usual job (as under CSR).

The level of benefits for disability retirement was reviewed by the NICB report. About half the plans (51.9%) provided the earned normal benefit (using the normal benefit formula but counting only actual service) with additional provisions for either a guaranteed minimum benefit or an additional amount when the employee is not eligible for Social Security. The remainder provided for payment of only the earned normal benefit (27%), or for less than that amount (21%), typically the earned benefit reduced actuarially in accordance with the age of the employee. Of all the plans, 63% paid benefits with no offset in cases where the employee also received Social Security benefits.

1/ Extracted from op.cit., Federal Staff Retirement Systems, p. 177.

APPENDIX XII - EXAMPLES OF THE APPLICATION OF TRANSITION AND SAVE PAY PLAN

This Appendix provides examples illustrating the manner in which transition from the present to the recommended retirement annuity formulas will be accomplished and the manner in which the save pay provision will function. The illustrative calculations are based on several assumptions concerning the growth of wage rates, increases in the cost of living, the length of the transition period and the implementation date. Usefulness of the proposed method is not contingent upon accuracy of the assumptions employed in the illustration. The assumptions made in the example are:

- Comparability salary is achieved on 1 July 1969 and transition to the new formula begins on that date.
- The transition period is five years.
- Active duty salary levels rise at 4 percent per year.
- Cost of living increases 3 percent the first year, and 1½ percent every year thereafter.
- The last Consumer Price Base Index prior to the implementation of the new system is 123.4.

Illustrations of three annuities calculated at different times during the transition period are provided for grades E-7 and O-6. Examples for these grades demonstrate how the procedure would function in those instances where the step-1 portion of the annuity will decrease as a percentage of salary, as well as in those instances where the annuity will increase as a percentage of salary.

Tables XII-1 and XII-2 display wage and annuity information for

various points in time. The following expansion of columnar captions is provided to aid in interpreting the displays:

Column (1): A projection of the high one average salary base that would be in effect for a person retiring on the first day of the fiscal year, assuming that active duty salaries increase by 4 percent on the first day of each fiscal year.

Column (2): The last Consumer Price Base Index established prior to the first day of the fiscal year. The consumer price index usually changes each month. A base index is established when the CPI increases by 3 percent above its previous base and maintains that 3 percent increase for 3 consecutive months. The new base index is the highest of the 3 indices in that 3 month period. Retired pay is then adjusted upward by the percent that the new base index exceeds the previous base index.

Column (3): The save pay base below which no future annuity will be paid to a retiree with comparable characteristics. It is determined by calculating the retired pay of a person with comparable characteristics who retired immediately prior to 1 July 1969 under the present retirement law and the basic pay rates that became effective on 1 July 1968. The present law provides that those retiring on or before 30 June 1969 will receive a partial CPI adjustment equal to the

percentage that the new base index exceeds the index in June 1968, the month before the last increase in basic pay. Accordingly, the FY 70 save pay base was adjusted by 2 percent above the present annuity in recognition of the partial CPI adjustment for pre-1 July 1969 retirees. The save pay base was also adjusted upward in FY 70 and subsequent years by the percentage that CPI is expected to increase.

Columns 4-7, 8-11, and 12-15 respectively present data for 1 August 1969, 1 July 1971, and 1 July 1974 retirees.

Columns 4, 8, 12 show the age of the retiree during the indicated fiscal year.

Columns 5, 9, 13 show the basic annuity entitlement in annual dollars to which the retiree is entitled <u>exclusive</u> of any CPI adjustment.

Columns 6, 10, 14 show the dollar amount of the CPI adjustment to the annuity stemming from the post retirement date CPI growth shown in Column (2)

Columns 7, 11, 15 show the total annual annuity amount (basic annuity + CPI adjustment) to which the member is entitled.

<u>FIRST EXAMPLE: E-7, 20 Years' Service - Table XII-1</u>

<u>E-7 - 1 August 69 Retiree (FY 70)</u>

The save pay base is first established by calculating the retired pay of an E-7 with 20 years of service who retires before 1 July 1969.

Annual Basic Pay rate for computation of save pay of an E-7 with 20 years of service retiring after implementation of salary system =

$5,965.20[1/].

Present annuity is:

$2\frac{1}{2}$%/yr x 20 yrs x $5,965.20 = $2,983.

But this is adjusted upward by partial CPI adjustment of 2.0 percent, so save pay base is:

$2,983 x 1.02 = $3,043.

Since the 1 August 1969 retiree has served one month under the new system his step 1 and step 2 retired pay is calculated according to the recommended transition procedures. With a transition period of 60 months (5 years), 1/60 of the annuity percent of high one salary is determined by the proposed annuity percentages and 59/60 by the percentage that the pre-implementation date annuity is of the 1 July 1969 proposed comparability salary. The proposed step 1 and step 2 percentages are 24 percent and 33 percent respectively, and the 30 June 1969 present annuity of $3,043 is 32.21 percent of the proposed 1 July 1969 comparability salary for an E-7 with 20 years of service.

Step 1 calculations:

Step 1 percentage = 1/60 x (proposed Step 1 percent) + 59/60 x (implementation date percent of salary)

= .02 x 24% + .98 x 32.21%

= 0.48% + 31.57% = 32.05%

Step 1 annuity = 32.05% of $9,447[2/] = $3,028.

1/ The Basic Pay Rate is that in effect on 30 June 1969, the day before the assumed date of implementation of the new system.

2/ Having only received comparability salary for one month, the high one salary would be the salary received for that month times 12 to put it on an annual basis.

Step 2 calculations:

Step 2 percentage = 1/60 x (proposed Step 2 percent) + 59/60 x (implementation date percent of salary)

= .02 x 33% + .98 x 32.21%

= 0.66% + 31.57% = 32.23%

Step 2 annuity = 32.23% of $9,447[1/] = $3,045.

Since the save pay base is higher than the Step 1 annuity, the 1 August 1969 retiree receives the save pay annuity until age 60, and then a slightly higher Step 2 thereafter. When he attains age 65 he may experience a very small Social Security offset, but in no event would he receive less than the save pay base.

E-7 - 1 July 1971 Retiree (FY 72)

Member has served 24 months under the new system. Therefore, in a transition period of 60 months, 24/60 of the annuity percent of high one salary is determined by the proposed annuity percentages and 36/60 by the percentage that the pre-implementation date annuity is of the 1 July 1969 proposed comparability salary. The proposed Step 1 percent of salary for 20 years' service is 24 percent of salary and the 30 June 1969 present annuity is 32.21 percent of the 1 July 1969 comparability salary.

Step 1 calculations:

1/ Having only received comparability salary for one month, the high one salary would be the salary received for that month times 12 to put it on an annual basis.

Step 1 percentage = 24/60 x (proposed Step 1 percent) + 36/60 x (implementation date percent of salary)

= .4 x 24% + .6 x 32.21%

= 9.6% + 19.33% = 28.93%

Step 1 annuity = 28.93% of 1 July 1971 high one salary

= 28.93% of $9,825 = $2,842.

But $2,842 is less than the FY 72 save pay base of $3,134 ($3,043 on 30 June 1969 plus $91 CPI adjustment) being received by a comparable member who retired immediately before commencement of transition. Therefore, save pay is invoked for Step 1. During the Step 1 period, the 1 July 1971 retiree receives the same $3,134 amount (and subsequent CPI adjustments) as is received by the 1 August 1970 retiree.

Step 2 calculations:

However, in FY 93 at age 60, the 1 July 1971 retiree becomes eligible for Step 2 of the new annuity formula. At this point the Step 2 transition percent of salary is:

24/60 x (proposed Step 2 percent) + 36/60 x (pre-implementation percent of salary), or .4 x 33.0% + .6 x 32.21% =

13.20 + 19.33% = 32.53%

Unadjusted Step 2 annuity = 32.53% of $9,825 (the 1 July 71 high one salary) = $3,196

CPI adjusted Step 2 annuity = $\frac{\text{(FY 93 CPI Base)}}{\text{FY 72 CPI Base}}$ x Unadjusted annuity = $\frac{175.8}{127.1}$ x $3,196 = $4,420

At age 65, the military annuity is reduced in recognition of Social Security old age benefits attributable to member's military service.

However, reductions in the military annuity would consider only those years of military service after implementation of the revised retirement system and only the Primary Insurance Amount (PIA) of the member's entitlement. Thus, for the 1 July 1971 (FY 72) retiree, who has served two years under the revised retirement annuity formula,

$$\text{Military Annuity Reduction} = \frac{\text{Military Social Security Covered Earnings FY 70-71}}{\text{Total Lifetime Social Security Covered Earnings}} \times \text{Primary Insurance Amount (PIA) Entitlement}$$

The amount of the reduction in the military annuity will vary depending on the portion of the total social security annuity stemming from military employment. Because so many variables are involved, it is impossible to determine in advance exactly how much the military annuity would be reduced by reason of the social security entitlement. However, some generalized examples are provided in the final section of this Appendix. In no event will the annuity be reduced below the CPI adjusted save pay base.

E-7 1 July 1974 (FY 75) Retiree

Member has served five years under the new system and retires at the end of the transition period. Therefore, all of the annuity percent of active duty salary is determined by the revised annuity formula.

Step 1 calculations:

24 percent of 1 July 1974 high one salary of $11,053 or $2,653. But, $2,653 is less than the FY 75 save pay base of $3,323 ($3,043 on 30 June 1969 plus $280 CPI adjustment); therefore, save pay is invoked and 1 July 1974 retiree receives same

$3,323 annuity and subsequent CPI adjustments as is being received by the 1 August 1969 and 1 July 1971 retirees.

Step 2 calculations:

In FY 96 at age 60 the FY 75 retiree becomes eligible for the Step 2 annuity.

Unadjusted Step 2 annuity = 33% of $11,053 (the 1 July 1974 high one salary) = $3,647

CPI adjusted Step 2 annuity = $\frac{\text{FY 96 CPI Base}}{\text{FY 75 CPI Base}}$ x (unadjusted annuity) = $\frac{181.1}{134.8}$ x $3,647 = $4,898

The 1 July 1974 (FY 75) retiree has served five years under the revised retirement system. Thus, at age 65 the reduction in his military retirement annuity by reason of his entitlement to Social Security is determined by the following formula:

$$\text{Military Annuity Reduction} = \frac{\text{Military Social Security Covered Earnings FY 70-74}}{\text{Total Lifetime Social Security Covered Earnings}} \times \text{Primary Insurance Amount (PIA) Entitlements.}$$

Some generalized examples of the amount of the Social Security offset are provided in the final section of this Appendix. In no event will the annuity be reduced below the CPI adjusted save pay base.

SECOND EXAMPLE: 0-6, 30 Years' Service - Table XII-2
0-6 1 August 1969 Retiree (FY 70)

The save pay base is first established by calculating the retired pay of an 0-6 with 30 years of service who retires before 1 July 1969.

Annual base pay rate for use in computation for members retiring

after implementation of salary system = $16,477.20.[1]

Present annuity is:

$2\frac{1}{2}$%/yr x 30 Yrs x $16,477.20 = $12,358.

But this is adjusted upward by partial CPI adjustment of 2.0 percent, so save pay base is:

$12,358 x 1.02 = $12,605.

Since the 1 August 1969 retiree has served one month under the new system his Step 1 and Step 2 retired pay is calculated according to the recommended transition procedures. With a transition period of 60 months (5 years), 1/60 of the annuity percent of high one salary is determined by the proposed annuity percentages and 59/60 by the percentage that the pre-implementation date annuity is of the 1 July 1969 proposed comparability salary. The proposed Step 1 and Step 2 percentages are 51 percent and 60 percent respectively, and the 30 June 1969 present annuity of $12,605 is 45.86 percent of the proposed 1 July 1969 comparability salary for an O-6 with 30 years of service.

Step 1 calculations:

Step 1 percentage = 1/60 x (proposed Step 1 percent) + 59/60 x (implementation date percent of salary)

= .02 x 51% + .98 x 45.86%

= 1.02% + 44.94% = 45.96%

Step 1 annuity = 45.96% of $27,483[2] = $12,631.

1/ The assumed Basic Pay rate is that in effect on 30 June 1969, the day before the assumed implementation date for the new system.

2/ Having only received comparability salary for one month, the high one salary would be the salary received for that month times 12 to put it on an annual basis.

Step 2 calculations:

Step 2 percentage = 1/60 x (proposed Step 2 percent) + 59/60 x (implementation date percent of salary)

= .02 x 60% + .98 x 45.86%

= 1.20% + 44.94% = 46.14%

Step 2 annuity = 46.14% of $27,483[1/] = $12,680.

Since both Step 1 and Step 2 annuities are higher than the save pay base, save pay is not invoked. When he attains age 65 he may receive a small Social Security offset, but in no event will he receive less than the save pay base.

0-6 1 July 1971 (FY 72) Retiree

Member has served 24 months under the new system. Therefore, in a transition period of 60 months, 24/60 of the annuity percent of high one salary is determined by the new proposed annuity percentages and 36/60 by the percentage that the pre-implementation date annuity is of the 1 July 1969 proposed comparability salary.

The proposed Step 1 percent of salary for 30 years' service is 51 percent of salary and the 30 June 1969 present annuity is 45.86 percent of the 1 July 1969 comparability salary.

Step 1 calculations:

1/ Having only received comparability salary for one month, the high one salary would be the salary received for that month times 12 to put it on an annual basis.

Step 1 percentage = 24/60 x (proposed Step 1 percent) + 36/60 x (implementation date percent of salary)

= .4 x 51% + .6 x 45.86%

= 20.40% + 27.52% = 47.92%

Step 1 Annuity = 47.92% of FY 72 high one salary

= 47.92% of $28,582 = $13,696.

The $13,696 amount of the Step 1 annuity calculated by the transition procedures exceeds the FY 72 save pay base of $12,983. Therefore, the "save pay" feature is not invoked and the 1 July 1971 retiree receives the annuity calculated using the transition formula.

Step 2 calculations:

In FY 74, at age 55, the annuitant becomes eligible for the Step 2 annuity.

$$\text{Step 2 Percentage} = (24/60) \times \begin{pmatrix}\text{Proposed Step 1}\\ \text{Percentage}\end{pmatrix} + (36/60)\begin{pmatrix}\text{Pre-implementation}\\ \text{Percent of Salary}\end{pmatrix}$$

$$= .4 \times 60\% + .6 \times 45.86\%$$

$$= 24.00\% + 25.52\% = 51.52\%$$

$$\text{Unadjusted Step 2 Annuity} = 51.52\% \text{ of } \$28,582 \begin{pmatrix}\text{the 1 July 71 "High}\\ \text{One Salary"}\end{pmatrix}$$

$$= \$14,725$$

$$\text{CPI adjusted Step 2 annuity} = \frac{\text{FY 74 CPI Base}}{\text{FY 72 CPI Base}} \times \text{unadjusted annuity}$$

$$= \frac{130.9}{127.1} \times \$14,725 = \$15,165$$

The 1 July 1971 retiree has served two years under the new system. Thus, at age 65, the reduction in his military annuity because of his entitlement to the Social Security retirement annuity is determined by the formula.

$$\text{Military Annuity Reduction} = \frac{\begin{matrix}\text{Military Social Security Covered}\\ \text{Earnings FY 70-71}\end{matrix}}{\begin{matrix}\text{Total Lifetime Social Security}\\ \text{Covered Earnings}\end{matrix}} \times \begin{matrix}\text{Primary Insurance Amount}\\ \text{(PIA) Entitlement}\end{matrix}$$

Some generalized examples of the Social Security offset are provided in the final section of this Appendix. In no event will the annuity be reduced below the CPI adjusted save pay base.

0-6 1 July 1974 (FY 75) Retiree

Member has served five years under the new system and retires at the end of the transition period. Therefore, all of the annuity percent of active duty salary is determined by the revised annuity formula.

Step 1 calculations:

Step 1 annuity percent of salary for a 30 years' service is 51 percent of high one salary. Thus,

$$\text{Step 1 annuity} = \frac{\text{Step 1}}{\text{percent}} \times \frac{\text{1 July 1974}}{\text{high one salary}}$$

$$= 51\% \times \$32,155 = \$16,399.$$

This amount is higher than the FY 75 save pay base, so save pay is unnecessary.

Step 2 calculations:

In FY 77, at age 55, the FY 75 retiree becomes eligible for the Step 2 annuity.

Unadjusted Step 2 annuity = 60% of \$32,155 (the 1 July 1974 high one salary) = \$19,293

CPI adjusted Step 2 annuity = $\frac{\text{FY 77 CPI Base}}{\text{FY 75 CPI Base}}$ x (unadjusted annuity) = $\frac{138.8}{134.8}$ x \$19,293 = \$19,872

The 1 July 1974 (FY 75) retiree has served five years under the revised retirement system. Thus, at age 65 the reduction in his military retirement annuity because of his entitlement to Social Security is determined by the following formula:

$$\text{Military Annuity Reduction} = \frac{\text{Military Social Security Covered Earnings FY 70-74}}{\text{Total Lifetime Social Security Covered Earnings}} \times \text{Primary Insurance Amount (PIA) Entitlement}$$

Some generalized examples of the Social Security offset are provided in the final section of this Appendix. In no event will the annuity be reduced below the CPI adjusted save pay base.

ILLUSTRATIVE EXAMPLES CONCERNING CALCULATION OF THE OFFSET IN THE MILITARY RETIREMENT ANNUITY FOR MILITARY MEMBER'S SOCIAL SECURITY ENTITLEMENT

The amount of the reduction in the military annuity to be made in recognition of the entitlement to the Social Security retirement annuity stemming from military employment is to be determined by the formula:

$$\text{Military Annuity Age 65 Reduction} = \frac{\text{Military Social Security Covered Earnings After Formula Revision}}{\text{Total Lifetime Social Security Covered Earnings}} \times \text{Primary Insurance Amount (PIA) Entitlement}$$

Because of the large number of variables involved (changing Social Security contribution rates, covered wage bases, benefit levels, etc., and varying lengths and wage levels of military retiree second career employment), it is impossible to predict exactly how large the reduction for Social Security will be. However, certain generalizations can be drawn and some indications of the size of the offset can be given. Following are some generalizations concerning the offset:

- The offset applies only to the Primary Insurance Amount (PIA) entitlement (the entitlement for the member only). It excludes consideration of entitlements for wives and children (the addi-

tional benefit for a wife at the eligible age is 50 percent of the member's PIA).

- For any individual who has military Social Security covered employment before institution of the proposed formula or any non-military covered employment (either before or after the implementation of the revised formula), the age 65 reduction in the military annuity will be only a fraction of the Social Security Primary Insurance Amount (PIA).
- In an economy with a rising wage level, it is likely that both the Social Security contribution rate and the covered wage base will continue to increase over time. The military employment portion of an employment lifetime occurs early in that employment lifetime, and thus under a contribution rate and covered wage base that will be lower than the lifetime average on which the PIA entitlement will be determined. In a situation where the first 20 years of employment is in the military organization and the individual has 20 years of subsequent covered civilian employment, the fraction:

$$\frac{\text{Military Social Security Covered Earnings}}{\text{Total Lifetime Social Security Covered Earnings}}$$

is likely to be smaller than the fraction:

$$\frac{\text{Number of years military employment}}{\text{Number of years total covered employment}}$$

Therefore, the resulting reduction in the military annuity is likely to be less than $\frac{1}{2}$ of the PIA.

- Until the revised annuity formula has been in use many years, reductions because of the Social Security annuity entitlement

will be, at most, only small fractions of the PIA entitlement. For example, a 39 year old retiree with a total of 40 years' covered employment (civilian and military) and five years' service under the revised military annuity formula would probably have a reduction fraction of about 5/40 (1/8), or less, of the PIA.

- Ultimately, after the system has been in operation for many years, those with longer military careers (and shorter periods of civilian employment) will normally have reductions that are larger fractions of the PIA entitlement than short career personnel, who will tend to have longer periods of covered civilian employment.
- Ultimately, many years in the future, there may be individuals who have no Social Security covered employment other than military employment occurring after implementation of the proposed military annuity formula. These individuals, though they are likely to be few in number, would have a military annuity reduction equivalent to the full amount of the Social Security PIA, but would not have their military annuities reduced because of entitlements for wives or children.
- Unless the member has no non-military Social Security covered employment and unless all covered military employment occurs after the implementation of the revised formula the age 65 Social Security annuity entitlement earned by civilian employment and military employment prior to implementation of the formula will provide military retirees an increased total

(military plus Social Security) age 65 retirement annuity entitlement.

Social Security benefit levels have been increased intermittently in the past, and there appears to be a strong likelihood that they will experience similar increases in the future. Similarly, however, military retirement annuity dollar amounts can be expected to increase over time, because of pre-retirement date increases in the general wage level and Consumer Price Index increases occurring after the member's retirement date. Current annual entitlements for various average yearly Social Security covered earnings levels are shown in Table XII-3.

Examples of Military Annuity Age 65 Reduction

E-7, 20 years military employment under revised retirement annuity formula with 25 years covered civlian employment. Estimated reduction in the Step 2 military retirement annuity equals approximately 1/4 to 1/3 of PIA.

If average Social Security covered earnings were $6,600, annual PIA = $2,279, the military annuity reduction at age 65 might equal about 1/3 of $2,279 or $760.

Using the proposed retirement annuity formula, 1 July 1968 comparability salary rates and current Social Security benefit rates,[1/] where the Step 2 annuity for an E-7 equals 33.0% of $8,973 or $2,961, the relationship would apply:

1/ The military annuity values used in the calculations ignore CPI increases in the military annuity that probably would have occurred between the retirement age and age 65. Similarly, however, the Social Security benefit level would probably have increased during this time. The effect of using values all in the current time frame is roughly equivalent to assuming that both the CPI and the Social Security benefits will change at approximately the same rate.

Annual payment, Step 2 military annuity, age 60-64 = $2,961

Annual payment, Step 2 military annuity, age 65 and over = (Military annuity - Social Security offset) = ($2,961 - $760)= $2,201

Total entitlement, Social Security plus military annuity, age 65 and over:

Military annuity	= $2,201	
plus Social Security	= 2,279	
Total	=	$4,480

Plus entitlements for wife's Social Security (if wife age 65) $1,140

Plus second career employer retirement plan benefits.

0-6, 30 years military employment under the new system, 10 years of Social Security covered second career employment after military retirement. Estimated reduction in the Step 2 retirement annuity at age 65 equals approximately 3/4 to 3/5 of PIA.

If average covered earnings were $7,800, annual PIA equals $2,616, and military annuity reduction at age 65 might equal about 3/4 of $2,616 or $1,962.

Using 1 July 1968 comparability salary rates, where the Step 2 annuity for 0-6 equals 60.0% of $26,962 or $16,177, the following relationships would apply:

Annual payment, Step 2 military annuity, age 55-64 = $16,177

Annual payment, Step 2 military annuity, age 65 and over = (Step 2 military annuity - Social Security offset) = ($16,177 - $1,962) = $14,215

Total entitlement, Social Security plus military annuity, age 65 and over =

Military	= $14,215	
Plus Social Security	= 2,616	
Total	=	$16,831

Plus entitlements for wife's Social Security (if wife age 65) $ 1,260

Plus second career employer retirement plan benefits.

0-6, 30 years military employment occurring after revision of the formula; no other employment covered by Social Security. The reduction in the Step 2 retirement annuity at age 65 would be all of the PIA.

However, because the retiree has only 30 years of Social Security covered employment and approximately 10 years of work life span not covered by Social Security, his lifetime earnings average will necessarily be lower than that of an age and retirement date cohort who did have post retirement covered employment. On a lifetime average basis, a 30 year 0-6 with no civilian Social Security covered earnings might be expected to have a Social Security lifetime average earnings approximately 3/4 that of a cohort who had 10 years of post military retirement Social Security covered employment.

In the example:

Average earnings = 3/4 x $7,800 = approximately $5,800,

and annual PIA = $2,089.

Using current comparability salary values, where the Step 2 annuity for 0-6 equals 60.0 percent of $26,962 or $16,177, the following relationships would apply:

Annual payment, Step 2 military annuity, age 55-64 = $16,177

Annual payment, Step 2 military annuity, age 65 and over = (Step 2 annuity - Social Security offset) = ($16,177 - $2,089) = $14,088

Total entitlement, Social Security plus military annuity, age 65 and over =

Military	=	$14,088
Plus Social Security	=	2,089
Total		$16,177

Plus entitlements for wife's Social Security (if wife age 65)	$1,040
Plus second career employer retirement plan benefits.1/	

1/ Most, but not all second career employment is covered by social security. Examples of non-covered employment include Federal Civil Service and many state and local government employment situations.

TABLE XII-1 - ILLUSTRATIVE EXAMPLES OF E-7 RETIREMENT ANNUITY TRANSITION
(20 Years Service)

Transition Date Present Annuity $ 9,981 % of Comp Salary 39-21%	(1) Annual High One Salary a/	(2) CPI Index	(3) Save Pay Base	1 August 1969 Retiree (4) Member Age	(5) Basic Annuity	(6) CPI Adjust	(7) Total Annuity	1 July 1971 Retiree (8) Member Age	(9) Basic Annuity	(10) CPI Adjust	(11) Total Annuity	1 July 1974 Retiree (12) Member Age	(13) Basic Annuity	(14) CPI Adjust	(15) Total Annuity
FY 1970	$ 9,447	123.4	$ 3,043	39	$ 3,043	0	$ 3,043								
FY 1971	9,447	127.1	3,134	40	3,043	91	3,134								
FY 1972	9,825	127.1	3,134	41	3,043	91	3,134	39	$ 3,043	91	$ 3,134				
FY 1973	10,222	130.9	3,229	42	3,043	186	3,229	40	3,043	186	3,229				
FY 1974	10,628	130.9	3,229	43	3,043	186	3,229	41	3,043	186	3,229				
FY 1975	11,053	134.8	3,323	44	3,043	280	3,323	42	3,043	280	3,323	39	$ 3,043	280	$ 3,323
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.															
.															
FY 1980		143.0	3,527	49	3,043	484	3,527	47	3,043	484	3,527	44	3,043	484	3,527
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.															
.															
FY 1985		156 2	3,852	54	3,043	809	3,852	52	3,043	809	3,852	49	3,043	809	3,852
.															
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.															
FY 1990		165.7	4,087	59	3,043	1,044	4,087	57	3,043	1,044	4,087	54	3,043	1,044	4,087
FY 1991		170.7	4,208	60	3,045	1,167	4,212								
.															
FY 1993		175.8	4,336					60	3,196	1,224	4,420				
.															
FY 1995		181.1	4,467												
FY 1996		181.1	4,467	65	3,045	1,424	4,469					60	3,647	1,251	4,898
FY 1997		186.5	4,598					65	3,198	1,493	4,689				
.															
.															
FY 2000		192.1	4,738												
FY 2001		197.9	4,881									65	3,647	1,707	5,354

a/ High one salary on 1 July of fiscal year based on salary in previous fiscal year.

TABLE XII-2 - ILLUSTRATIVE EXAMPLES OF O-6 RETIREMENT ANNUITY TRANSITION
(30 Years Service)

Transition Date Present Annuity $12,358 % of Comp Salary 45.96%	(1) Annual High One Salary a/	(2) CPI Index	(3) Save Pay Base	1 August 1969 Retiree (4) Member Age	(5) Basic Annuity	(6) CPI Adjust	(7) Total Annuity	1 July 1971 Retiree (8) Member Age	(9) Basic Annuity	(10) CPI Adjust	(11) Total Annuity	1 July 1974 Retiree (12) Member Age	(13) Basic Annuity	(14) CPI Adjust	(15) Total Annuity
FY 1970	$27,483	123.4	$12,605	53	$12,631	0	$12,631								
FY 1971	27,483	127.1	12,983	54	12,631	$ 379	13,010								
FY 1972	28,582	127.1	12,983	55	12,680	390	13,060	53	$13,696	0	$13,696				
FY 1973	29,737	130.9	13,374	56	12,680	771	13,451	54	13,696	$ 409	14,105				
FY 1974	30,918	130.9	13,374	57	12,680	771	13,451	55	14,725	440	15,165				
FY 1975	32,155	134.8	13,765	58	12,680	1,172	13,852	56	14,725	892	15,617	53	$16,399	0	$16,399
FY 1976		134.8	13,765									54	16,399	0	16,399
FY 1977		138.8	14,181									55	19,293	579	19,872
.															
.															
FY 1980		143.0	14,609												
.															
FY 1982		147.3	15,050	65	12,680	2,456	15,136								
.															
FY 1984		151.7	15,492												
FY 1985		156.2	15,958					65	14,725	2,850	17,573				
.															
FY 1987		160.9	16,437												
.												65	19,293	3,743	23,036
.															
FY 1990		165.7	16,929												
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.															
FY 1995		181.1	18,504												
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.															
FY 2000		192.1	19,626												

a/ High one salary on 1 July of fiscal year based on salary in previous fiscal year.

TABLE XII-3 - EXAMPLES OF ANNUAL SOCIAL SECURITY RETIREMENT BENEFIT PAYMENTS ($)

Average Yearly Earnings After 1950	$800 & Less	$1,800	$3,000	$3,600	$4,200
Retirement at 65 (PIA)	660	1,060	1,380	1,525	1,685
Wife's Benefit at 65, member 65	330	530	690	763	842
Child's Benefit, member 65	330	530	690	763	842
Maximum Family	990	1,591	2,429	2,880	3,370

Average Yearly Earnings After 1950	$4,800	$5,400	$6,600	$7,800
Retirement at 65 (PIA)	1,843	1,980	2,279	2,616
Wife's Benefit at 65, member 65	922	990	1,140	1,260
Child's Benefit, member 65	922	990	1,140	1,308
Maximum Family	3,989	4,253	4,747	5,213

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