ARPA ORDER NO.: 189-1
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July 1976

The Returns to Military and Civilian Training

Eva M. Norrblom

A report prepared for

DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Rand
SANTA MONICA, CA. 90406

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PREFACE

This report was prepared as part of Rand's DOD Training and Manpower Management Program, sponsored by the Human Resources Research Office of the Defense Advanced Research Projects Agency (ARPA). With manpower issues assuming an ever greater importance in defense planning and budgeting, the purpose of this research program is to develop broad strategies and specific solutions for dealing with present and future military manpower problems. This includes the development of new research techniques for examining broad classes of manpower problems, as well as specific problem-oriented research. In addition to providing analysis of current and future manpower issues, it is hoped that this research program will contribute to a better general understanding of the manpower problems confronting the Department of Defense.

One aspect of these issues is the extent to which the Department of Defense provides a transfer of real resources to the civilian sector by offering formal and informal training to first-term enlistees. This report examines the impact of this military training and of civilian training on the postservice opportunities of separatees.* The inclusion of both military and civilian training in the analysis allows their separate effects to be isolated and compared.

In the wake of recent increases in the pay of first-term enlisted men and the introduction of special pay systems, the cost of accessions and retention of first-term enlisted men has risen. Consequently, information on the civilian alternatives available to first-term enlistees and reenlistees with which the services must compete has become increasingly important to permit the services to make adjustments on a more selective basis. In addition to new incentives in military recruitment, assignment, and pay policies, further extensions are available to compete with the civilian sector or to adjust internally within the

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*A review of the relevant literature on the returns to military vocational training appears in Eva M. Norrblom, *An Assessment of the Available Evidence on the Returns to Military Training*, The Rand Corporation, R-1960-ARPA, forthcoming.

military sector on a more selective basis. These and other incentive extensions are likely to occur as additional information is made available allowing a more complete adjustment to the environment of an all-volunteer Armed Force.

SUMMARY

This report examines the economic effects of formal military vocational training and on-the-job training acquired while working in a military specialty. The hypothesis advanced is that investments in different types of military training have a significant effect on productivity and thus on wages *if* individuals are employed in civilian occupations in which they are able to use skills acquired during their military service.

The findings of the study support the economic and statistical significance of military training in explaining differences in the postservice wages of separatees. Formal vocational training in the military tends to have a significantly positive effect on postservice wages *if* individuals enter civilian occupations related to their military specialties.* On the other hand, on-the-job training in military specialties parallel to the current civilian occupations of separatees does not have a significantly positive effect on the postservice opportunities of separatees.

The report also offers evidence on several related issues. Using data on the type and amount of both civilian and military formal and informal vocational training acquired by individuals in the sample, the study evaluates the extent to which the returns to various types of training were overestimated or underestimated by previous studies. As a consequence of insufficient data on personal work histories, previous studies concluded that military vocational training does not have a significantly positive effect on the postservice earnings of veterans. In addition, the current study shows that the returns to academic training are significantly smaller and the returns to on-the-job training acquired in the civilian sector are significantly larger than indicated by past studies.

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*Formal training refers to skills acquired in academic or vocational institutions. Informal training applies to skills acquired while employed.

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The author gratefully acknowledges the continued encouragement offered by Gene H. Fisher of Rand. The advice and constructive criticisms provided by Arthur J. Alexander, Dennis N. DeTray, and Glenn A. Gotz are also appreciated. Finally, the author acknowledges a primary debt of gratitude to Richard V. L. Cooper and Gary R. Nelson for their guidance and assistance throughout the course of the study.

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TABLES

I. INTRODUCTION

Traditional attempts to explain the observed distribution of income on purely statistical grounds have been succeeded by numerous studies of the causal factors that determine income.* These subsequent presentations focus on various socioeconomic characteristics that are hypothesized to affect productivity and thus wages. The thrust of most of these research efforts is on the impact of training as an investment in human beings. That is, investments in training increase productivity and thereby raise future income.†

A number of analyses have focused on the economic effects of military or civilian training or both. Most of these studies indicate that, although formal and informal training in the civilian sector offers a subsequent return to employed individuals, training in the military does not. This conclusion is reached despite evidence that more than three-fourths of the specialties available to enlistees have direct civilian counterparts.‡

No existing study has fully addressed the issue of the economic returns to civilian or military training that accrue to individuals who enter occupations related to their acquired skills, compared with

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*For a review of literature in this area, see Jacob Mincer, "The Distribution of Labor Incomes: A Survey with Special Reference to the Human Capital Approach," *J. Econ. Lit.*, Vol. 8, March 1970, pp. 1-26.

†Some of the available studies also investigate the effects on wages of nonmarket factors such as discrimination. See, for example, Albert Wohlstetter and Sinclair Coleman, *Race Differences in Income*, The Rand Corporation, R-578-OEO, October 1970; and G. S. Becker, *The Economics of Discrimination*, University of Chicago Press, Chicago, 1959.

‡Harold F. Clark and Harold S. Sloan, *Classrooms in the Military*, Bureau of Publications, Teachers College, Columbia University, New York, 1964, pp. 103-107. Clark and Sloan indicate 85 percent of all enlisted personnel specialties have direct civilian counterparts and 60 percent of all military education and training is directly applicable to civilian life. Additionally, skilled individuals account for approximately 50 percent of all enlisted specialties. See also Paul A. Weinstein, "Occupational Crossover and Universal Military Training," in Sol Tax (ed.), *The Draft, A Handbook of Facts and Alternatives*, University of Chicago Press, Chicago, 1967, p. 28.

individuals who do not. Moreover, owing mainly to insufficient data, previous studies have not been able to observe the effects of formal and informal military vocational training while concurrently controlling for the effects of other factors that may influence their conclusions. These factors include, for example, skills acquired in the civilian sector that may be substitutes for or complements to military training. In the same context, when the military experience of individuals is viewed, in total, as simply the length of time spent in training, no consideration is given to the types of skills acquired or the intensity of formal as compared with informal military training.

This report considers the economic returns to military vocational training. It evaluates many issues not previously addressed by past studies or having little direct evidence from which to develop firm conclusions on the economic effects of military vocational training. These issues include the returns to specific types of training; the returns to formal compared with informal military training while concurrently considering the effects of civilian training; the returns to military training accruing to separatees who enter civilian occupations related to their military training compared with separatees who enter unrelated civilian occupations; and the consideration of military training as a complement to or substitute for civilian training.

Section II discusses the conceptual framework, the model, and the data used in the analysis, as well as evidence of the degree to which individuals in the sample use their military skills in postservice occupations. Section III defines the variables used in the analysis and describes the personal characteristics of individuals in the sample. A brief discussion of the limitations of the study is also included in this section. Next, tests of the hypothesis and the results are presented in Sec. IV, together with selected related issues. Finally, Sec. V offers concluding comments.

II. FRAMEWORK OF THE ANALYSIS

CONCEPTUAL FRAMEWORK

The recent literature on the economic value of training is a newly developed field in the sense that these studies take a relatively new approach to the subject of income distribution.* This approach does not rely on such institutional factors as unions or discrimination to explain the distribution of income. Although other factors such as ability are considered relevant, the human capital approach provides theoretical and empirical models in which investments in training are a central explanatory factor leading to the observed inequality of labor income. Training raises productivity and is acquired by individuals who expect the return to training to compensate for the cost of training.

Schultz, for example, suggests that differences in the amounts invested in training by workers may be the single most important factor accounting for differences in wages.† Other studies have also emphasized the investment component of training that enhances future individual earnings through its increase in skills and knowledge. In evaluating the returns to postschool investments in training, Mincer, for example, presents evidence on the economic effects of an alternative type of investment in training.‡ He concludes that the observed distribution of income results primarily from the costs of occupational training.

THE MODEL

The conceptual framework on which the empirical analysis is based derives from the body of theory discussed above and from extensions provided by subsequent empirical studies.** The human capital approach

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*Mincer, "Distribution of Labor Incomes."

†Theodore W. Schultz, *The Economic Value of Education*, Columbia University Press, New York, 1963.

‡Jacob Mincer, "On-the-Job Training: Costs, Returns, and Some Implications," *J. Pol. Econ.*, Vol. 70, No. 5, October 1962, pp. 50-79.

**Mincer, "Distribution of Labor Incomes."

views investing in human resources as a means of increasing the marginal productivity of labor in the production process. If training affects productivity, wages will depend, in part, on the type and amount of training individuals have acquired. Consequently, the observed wages of individuals are used to determine whether investments in various types and amounts of training yield private returns to recipients.

The available theory also indicates the qualitative relationship between wages and the determinants of wages. Several functional forms for relating wages to their hypothesized determinants are tested here. The results support the findings of a recent study by Heckman and Polacheck, which indicate that the logarithms of hourly wages yield stronger statistical fits than dollar wages when related to years of schooling or job experience.* Consequently, the following semilog function is used in the analysis:

$$\text{Wages} = e^{B_1X_1 + \ldots B_nX_n + u}.$$

Various nonlinearities and interaction terms are also tested and discussed in Sec. IV of this report, pp. 16-24.

SAMPLE SELECTION

The analysis is based on a cross-sectional sample of veterans surveyed by the Department of Defense, detailed in Table 1.† Separatees included in the survey were those who served one term of active duty

*James Heckman and Solomon A. Polacheck, "The Functional Form of the Income-Schooling Relationship," National Bureau of Economic Research, New York, 1972, unpublished.

†The data were obtained from the Post-service Information File, FY 1971 (tape), which was constructed by the Department of Defense, Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs), by merging the End-of-Service File with survey data on post-service civilian employment, occupation, and wages. The men selected for the survey represent approximately one-fourth of the total population of FY 1971 separatees who left military service after one term of active duty. See Eli S. Flyer, *Profile of DoD First-Term Enlisted Personnel Separating from Active Service during 1970 and 1971*, Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs), Washington, D.C., Manpower Research Notes 72-6 and 72-8, February 1972.

Table 1

SAMPLE SELECTION FROM THE FY 1971 POSTSERVICE FILE OF FIRST-TERM SEPARATEES

Survey Population			
Addressees not available		12,352	
Nonrespondents		53,791	
Respondents			
Inductees	67,265		
Enlistees	42,610		
Total respondents		109,875	
Total survey population			176,018
Enlistees with complete data			19,221
Enlistees employed 38-42 hr with over 32 mo active military duty			11,246
Selected sample, white Army separatees employed in			
Electronics		546	
Mechanics		566	
Medical care		218	
Total			1,330

and who completed their military service in FY 1971. Approximately two-thirds of the veterans contacted by the Department of Defense responded to the survey. Of these respondents, roughly one-third were enlistees.*

The sample of enlistees for the empirical analysis necessarily excludes respondents with incomplete data on race, employment status, and branch of service. The analysis also requires information on the postservice occupations and incomes of individuals. Consequently, only separatees employed during the time of the survey are included in the analysis. In addition, since individuals who are employed on a part-time basis are likely to be involved in temporary jobs while attending academic institutions, they also are excluded from the selected sample. The data do, in fact, indicate that approximately three-fourths of the white separatees who are working part time or who are not looking for

*Appendices A and B analyze the survey sample more completely.

work are involved in formal academic training programs. Individuals who served less than 32 months of active duty are also eliminated to exclude separatees who may have received medical or dishonorable discharges.

A subsample of the remaining individuals was then selected to permit the construction of a manageable number of observations with a complete work history for each respondent.* Since the construction of a complete work history for everyone in the sample requires extensive coding from individual records, this necessitated limiting the number of individuals in the data set. Because of this constraint, and because training in the Army, Air Force, and Navy differs for comparable military specialties, the analysis is confined to Army separatees rather than aggregated across branches of the service. Blacks were also excluded from the analysis, since past studies of the returns to human capital have shown significantly different results for whites and blacks, and since only a small sample size would be available for blacks for each occupational group.

Observations were then grouped by both military and civilian occupation. Three occupational groups were selected to allow a significant number of observations within each group. Moreover, occupations were selected in which the Army offers technical training in specialties parallel to civilian occupations in which a large number of the civilian labor force are employed. Hence, occupations in protective services, clerical work, construction, and domestic services were eliminated. The remaining groups on which the empirical analysis is based include electronics, mechanics, and medical care occupations.

Table 2 shows the distribution of the selected sample of Army separatees by military specialty and civilian occupation in the postservice period. Approximately two-thirds of the separatees employed in civilian medical care areas, one-third of those in civilian

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*Additional data on the preservice civilian employment, occupation, and training of separatees in the selected sample were obtained from the hard copy Enlistment Record (Form DA 20 and Form DD4) and from the Statement of Personal History (Form DD 398).

Table 2

PERCENTAGE DISTRIBUTION OF WHITE ARMY ENLISTEES BY POSTSERVICE CIVILIAN OCCUPATION

Military Specialty	Civilian Occupation						
	Electronics	Mechanics	Medical Care	Clerical	Construction	Domestic Services	Protective Services
Electronics	[74.2]	24.3	11.0	30.8	25.5	26.3	21.3
Mechanics	5.0	[32.9]	4.4	9.0	16.3	16.9	10.4
Medical care	2.1	4.6	[63.5]	9.3	2.9	6.3	7.9
Clerical	7.5	10.0	11.6	[30.0]	18.2	11.5	30.2
Carpenters and construction	1.8	3.6	.9	2.6	[7.5]	4.1	2.0
Cooks	1.8	8.4	2.8	5.7	8.5	[15.0]	5.0
Infantry	7.8	16.2	5.7	12.7	21.1	19.8	[23.3]
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sample Size	682	879	318	1330	730	1499	202

NOTE: The boxes indicate the percentages of separatees in each civilian occupation with related military training.

mechanics, and three-fourths of those in civilian electronics occupations received related training in the military.*

*Appendix C gives more detailed data on the selected sample.

III. VARIABLES AND CHARACTERISTICS OF THE SAMPLE

INTRODUCTION

The variables used in the analysis may be classified as general variables and variables describing different types of training acquired by individuals in the sample. This section discusses these two types of variables.

GENERAL VARIABLES

Table 3 lists the general variables used in the analysis. The logarithms of hourly earnings are used to estimate the effect of

Table 3

GENERAL VARIABLES

Variables	Mean	Standard Deviation
Dollar wages (reported weekly income/ hr worked/wk)	3.34	1.00
Logarithm of hourly wages	1.16	0.29
Age at time of survey	22.83	1.52
Academic education (years of schooling completed)	12.22	1.48
Armed Forces Qualification Test scores as measure of ability (percentile)	63.47	24.16
Involvement in on-the-job training (not undergoing on-the-job training=1; undergoing on-the-job training=0)	.19	.39
Marital status (married=1; single=0)	.62	.49
Region of employment (non-South=1; South=0)	.72	.45
Current civilian occupation (employed in electronics=1; employed in mechanics=1; employed in medical care=0)	.84	.37

training on the earnings of individuals. Hourly earnings are assumed to provide a better estimate than annual or weekly earnings, which are affected by fluctuations in unemployment and hours of work. Using annual or weekly income as the dependent variable could bias the coefficient of formal schooling, owing to the general tendency for those with more human capital to work a greater number of hours. Using annual or weekly earnings could overestimate the increase in the log of wages due to additional years of schooling by including the compensation received at the higher wage for the additional hours worked when wages increase.*

The remainder of the variables are defined and measured as in most previous studies. Performance on the Armed Forces Qualification Test (AFQT), for example, is given as a percentile score and, following most studies in which these data are available, is used as a measure of ability. Formal academic training is measured by the years of schooling completed by individuals. With the exception of age, the remaining general variables are discrete variables defined as one for individuals who are married, employed outside the South, not involved in on-the-job training, or employed in electronics or mechanics occupations; and zero otherwise.†

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*See C. M. Lindsay, "Measuring Human Capital Returns," *J. Pol. Econ.*, Vol. 79, No. 6, November/December 1971, pp. 1195-1215.

†Using dummy variables assumes that the same slope but different intercept terms exist. In other words, dummy variables eliminate the between-group variations. The coefficients of these dummy variables therefore show the deviation from the mean of those observations with values of zero and the mean of those with values of one. The coefficients for mechanics and electronics, for example, estimate the occupational effects relative to the medical care group. Similarly, individuals who are involved in on-the-job training are compared with those who are not. For empirical evidence reported by past studies using these variables, refer to Victor R. Fuchs, *Differentials in Hourly Earnings by Region and City Size*, Columbia University Press for the National Bureau of Economic Research, New York, 1967, pp. 21-35; Eric A. Hanushek, *Regional Differences in the Structure of Earnings*, Department of Commerce, Office of Economic Research, Economic Development Administration, Washington, D.C., 1972; and Mincer, "On-the-Job Training."

VOCATIONAL TRAINING VARIABLES

In both civilian and military sectors, two types of vocational training are available. The first is acquired on the job and is therefore referred to as informal vocational training, whereas the other is acquired through formal vocational training programs. Preservice civilian job experience, which is used as a measure of informal vocational training, is further defined as skilled and unskilled. Finally, formal military and civilian vocational training, military job experience, and civilian work experience in skilled jobs are identified as to whether the acquired skills are used in the current civilian occupation of each individual.*

SAMPLE CHARACTERISTICS

Table 4 presents the different types of vocational training variables used in the analysis. Of the total sample, only 13 percent of the individuals are not high school graduates whereas 31 percent have more than 12 years of schooling. Individuals in the sample have, on the average, more years of schooling than the average veteran, because the analysis concentrates on the more technical military specialties. Approximately 14 percent (181/1330) of the sample had acquired some preservice, post-high-school formal vocational training, whereas 29 percent (380/1330) had been employed in preservice skilled jobs.

Separatees who participated in preservice formal vocational training programs spent an average of 14 months in these programs. Those who held preservice civilian jobs averaged slightly over 13 months of skilled job experience and slightly less than 11 months of unskilled job experience. In contrast, for military training, the individuals in the sample acquired an average of 4.5 months of formal vocational training and 27 months of work experience.

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*Individuals currently employed in civilian electronics occupations, for example, who held preservice jobs in the same field have a value of one for the variable defining the relationship of the preservice civilian work experience to the current occupation, and a value of zero otherwise. Similar specifications are used to identify the comparability of postservice occupations to preservice formal vocational training and military training and job experience.

Table 4

VOCATIONAL TRAINING VARIABLES

Variables	Sample Size with Training	Months of Training		
		Mean	Standard Deviation	Range
Civilian preservice, post-high-school vocational training				
Formal vocational training				
Months of formal civilian vocational training used in current job	160	14.35	6.96	2-60
Months of formal civilian vocational training not used in current job	21	11.24	5.21	2-24
Total months of formal civilian vocational training	181	13.96	6.90	2-60
Civilian job experience (informal training)				
Months of skilled civilian experience in job comparable to current job	270	13.88	10.35	1-72
Months of skilled civilian experience in job not comparable to current job	110	12.01	9.05	1-48
Total months of skilled civilian job experience	380	13.34	9.89	1-72
Total months of unskilled civilian job experience	293	10.94	9.22	1-60
Military vocational training				
Formal vocational training				
Weeks of formal military vocational training used in current job	760	22.36	12.22	2-66
Weeks of formal military vocational training not used in current job	570	13.95	10.50	1-63
Total weeks of formal military vocational training	1330	17.90	12.81	1-66
Military job experience (informal training)				
Months of military job experience in military specialty comparable to current job	760	26.12	5.31	2-51
Months of military job experience in military specialty not comparable to current job	570	29.38	5.26	5-52
Total months of military job experience	1330	27.37	5.67	2-52

Of the separatees who had either formal preservice vocational training or work experience in skilled jobs, 75 percent (360/480) entered postservice occupations in which they could use their civilian-acquired skills, as shown by Table 5.* In contrast, fewer than 60 percent (760/1330) of the separatees without such training or experience

Table 5

UTILIZATION OF MILITARY AND CIVILIAN SKILLS

Survey Sample	Sample Size	Entered Related Postservice Occupations (%)
Total sample with prior training		
Preservice civilian	480	75.0
Military	1,330	57.1
Total sample with prior training minus individuals with *both* related military *and* preservice training[a]		
Civilian	230	48.3
Military	1,080	47.2

NOTE: Training refers to both formal vocational training and job experience.

[a]Of the total sample, 250 individuals had acquired *both* military *and* preservice civilian training or job experience in areas comparable to their current civilian occupations.

entered civilian occupations comparable to their military specialties.† When the effect of military training on occupational choice is neutralized by eliminating individuals with *both* civilian *and* military training related to their current occupations, the proportion of separatees who entered postservice occupations parallel to their preservice

*Of the separatees with preservice training or experience, 52.1 percent (250/480) were assigned to related military specialties.

†Appendix C shows the distribution of separatees by preservice, service, and postservice jobs across occupations.

training or work experience does not differ significantly from the proportion of those who entered postservice occupations parallel to their military specialties. Of those with preservice civilian training or job experience who did *not* receive comparable military training, 48.2 percent (111/230) entered civilian occupations in which they could use their preservice civilian skills. A similar proportion of the separatees, 47.2 percent (510/1080), who did not have preservice civilian training related to their postservice occupations entered civilian jobs comparable to their military specialties.

LIMITATIONS OF THE ANALYSIS

This analysis indicates the direction of the effect of obtaining formal vocational training and work experience in the military compared with the civilian sector. From this point of view, the analysis presents evidence that military training can be substituted for civilian, and shows the status of veterans compared with nonveterans. Since only data for veterans are available, however, it cannot be determined if military training conveys a *net* advantage to veterans compared with nonveterans. If such data were available, more could be said about the effect of military as opposed to civilian training on productivity.

Several other limitations should be noted. This study investigates the wage offers of separatees at just one point in time since longitudinal data are not available. Any attempt to extrapolate the analytical results over time should be done cautiously. Furthermore, the empirical analysis is based on a sample of young white males, aged 20 to 30 years, who served one term of military duty and entered the civilian labor force within 10 months of separation from the service.* The average term of service is approximately three years, with little variation in the term of service for the selected sample. Therefore, extrapolation of the results beyond the observed ranges should also be approached circumspectly.

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*Aging effects, for example, may be important for samples with greater variation in age. See Dennis DeTray, *Veteran Status and Civilian Earnings*, The Rand Corporation, R-1929-ARPA, forthcoming.

Another related issue became apparent in structuring the analysis--namely, the validity of generalizing the analysis to the total population of first-term enlistees. If only those enlistees with the highest civilian alternatives enter the civilian labor market, the effects of formal vocational training and job experience on the employment opportunities of labor force participants may be overestimated. This situation may occur if enlistees are aware of their civilian alternatives and base their reenlistment decision on these alternatives.* However, even if the present conclusions apply only to the young veteran population, this group is sizable and therefore of interest to both the military and the civilian sector.† In addition, it should be noted that the data are among the more accurate available on a large body of respondents. Moreover, the individual records constructed provide one of the most comprehensive files in that the entire work histories of the individuals included in the sample are available. These data, on which the empirical analysis presented in the next chapter is based, include information on the civilian and military training and job experience reported above in Table 4.

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*See Adele P. Massell, *An Imputation Method for Estimating Civilian Opportunities Available to Military Enlisted Men*, The Rand Corporation, R-1565-ARPA, July 1975.

†If separatees with the lowest civilian alternatives remain in the military, the use of observed wages as the dependent variable would tend to overestimate mean wages. Instead of showing the mean of a wage distribution, observed wages would reflect the mean of the distribution after the tail end of the distribution had been eliminated. The distribution may also be truncated at the upper end if unusually able men enter academic training programs rather than jobs.

IV. EMPIRICAL RESULTS

INTRODUCTION

Past studies have generally concluded that military training does not convey a subsequent economic advantage to separatees employed in the civilian sector. Most of these studies have found that, on the average, military training, as measured by the length of time spent in active duty, does not have a significantly positive effect on the post-service civilian wages of separatees. When the length of time spent in active duty is used as the measure of military training, no distinction is made between formal military vocational training and on-the-job training. Moreover, this specification does not consider the possibility that the effect military training has on wages may depend on whether or not individuals enter civilian occupations in which they can use their service-acquired skills.

This analysis argues that a significant return to training may exist *if* separatees enter civilian occupations comparable to their military specialties. In addition, the economic effect of formal military vocational training is hypothesized to differ from that of on-the-job training, as measured by the amount of time spent working in a military specialty.

THE ECONOMIC EFFECTS OF MILITARY VOCATIONAL TRAINING AND JOB EXPERIENCE

The specification of the variables used in this analysis test this hypothesis by distinguishing between formal vocational training acquired in a military specialty that is comparable to the separatee's current civilian occupation and formal vocational training in a military specialty that is *not* comparable to the separatee's current occupation. Similar specifications are also used for work experience in a military specialty, preservice work experience in a skilled civilian job, and preservice formal vocational training.

The empirical results presented in Table 6 support the hypothesis advanced in this study--that additional formal military vocational training does offer a subsequent return to individuals who enter

Table 6

REGRESSIONS OF THE LOG OF WAGES ON SELECTED VARIABLES WITH INSUFFICIENT MILITARY DATA

(t-statistics)

Variables	Equations (1)	(2)	(3)
General variables			
Armed Forces Qualification Test scores (percentile)	.0011 (3.07)	.0017 (5.11)	.0012 (3.56)
Years of formal academic schooling completed	.0136 (2.39)	.0159 (2.80)	.0137 (2.42)
Region of employment (non-South=1; South=0)	-.0934 (-5.72)	-.0936 (-5.66)	-.0932 (-5.69)
Marital status (married=1; single=0)	.0739 (4.89)	.0795 (5.19)	.0768 (5.07)
Current training status (not undergoing on-the-job training=1; undergoing on-the-job training=0)	-.0415 (-2.21)	-.0294 (-1.55)	-.0364 (-1.94)
Military training variables			
Formal military vocational training			
Amount of formal military vocational training in military specialty comparable to current occupation	.1182 (2.74)		
Amount of formal military vocational training in military specialty not comparable to current occupation	-.0825 (-1.25)		
Military job experience			
Amount of military job experience in military specialty comparable to current occupation	-.0182 (-.84)		
Amount of military job experience in military specialty not comparable to current occupation	.0663 (.22)		
Relationship of military specialty to current occupation			
Type of military training and work experience is in military specialty comparable to current occupation=1; other=0	.0765 (.79)		.0601 (.45)
Length of military service			
Amount of time spent in active duty		.0044 (.21)	
Amount of time spent in active duty in military specialty comparable to current occupation			.0179 (.64)
Amount of time spent in active duty in military specialty not comparable to current occupation			.0088 (.27)
Civilian training variables			
Formal preservice vocational training			
Amount of formal preservice training in field comparable to current occupation	.1572 (4.42)	.1538 (4.26)	.1509 (4.22)
Amount of formal preservice training in field not comparable to current occupation	-.0130 (-.23)	-.0251 (-.44)	-.0190 (-.33)
Type of formal preservice training is in field comparable to current occupation=1; other=0	-.1311 (-2.74)	-.1100 (-2.27)	-.1196 (-2.49)
Preservice job experience			
Amount of preservice job experience in skilled job comparable to current occupation	.0674 (3.59)	.0684 (3.60)	.0642 (3.41)
Amount of preservice job experience in skilled job not comparable to current occupation	.0222 (1.03)	.0284 (1.30)	.0249 (1.15)
Type of preservice job experience is in skilled job comparable to current occupation=1; other=0	.0805 (2.78)	.0757 (2.56)	.0789 (2.72)
Amount of preservice job experience in unskilled jobs	.0038 (.27)	.0056 (.39)	.0038 (.27)
R^2 (adjusted)	.20	.17	.19
F-statistic (Degrees of freedom)	19.98 (17/1312)	22.04 (13/1316)	21.57 (15/1314)

NOTE: All coefficients of the continuous variables are converted into fractions of years for the purpose of comparison.

postservice occupations comparable to their military specialties (Table 6, Eq. (1)). Such separatees receive 11.8 percent more an hour for an additional year of formal military vocational training than do those who did not acquire related military training. In comparison, formal military training in a military specialty that is not comparable to the postservice occupation has no similar positive effect on the wages of individuals.*

The empirical evidence also indicates that additional time spent working in a military specialty does not significantly increase the wages of individuals regardless of the relationship of their current occupations to their military specialties. This conclusion, however, may be affected by a problem of measurement. Since the actual amount of time spent in on-the-job training is not available, the amount of time spent working in a military specialty is used as a proxy for on-the-job training. In the absence of these data, firm conclusions on the economic effect of on-the-job training in a military specialty cannot be offered.†

DATA REQUIREMENTS FOR ACCURATE RESULTS

Comprehensive information on the military work histories of separatees is essential. When length of time spent in active duty is used as a proxy for military training, as in many previous studies, the

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*Although the F-statistic for the homogeneity of the slopes of the three occupational groups is not significant, the F-statistic for the homogeneity of the intercept terms is. Intercept effects for the current occupations of individuals are not, however, included in the equations in Table 6. This formulation allows a general test of the effect of military training that is not conditional on the choice of occupation. The present analysis does not treat the process of career choice; thus, little more can be said on this issue. For a framework in which such an analysis could be undertaken, refer to Theil's discussion, which adapts the linear logit model to allow for more than two alternatives: Henri Theil, "A Multinomial Extension of the Linear Logit Model," *Internat. Econ. Rev.*, Vol. 10, No. 3, October 1969, pp. 251-259.

†Interaction effects of military training with educational level and mental aptitude, as measured by AFQT scores, were also examined. The results indicate the effect of military training does not vary significantly with years of schooling or AFQT scores.

empirical results indicate that military training does not offer a subsequent advantage to separatees (Table 6, Eq. (1) versus Eq. (2)). Similar results are obtained even when data on both the relationship of an individual's military specialty to his current occupation *and* the amount of time spent in active duty are available (Eq. (1) versus Eq. (3)). It appears that an accurate assessment of the effect the military experience of individuals has on wages requires information on both the amount of formal vocational training and the relationship of that training to the current occupation.

In addition, insufficient data on the preservice work histories of individuals may also affect the conclusions discussed above. Therefore, the analysis includes an evaluation of the economic effects of various types of civilian training and the degree to which the conclusions are altered when the relevant data are not available.

Table 7 presents additional results for the purpose of evaluating the effects on wages of an individual's civilian experience. Separatees with preservice formal civilian vocational training in skills related to their current civilian occupations receive approximately 15.7 percent more an hour for an additional year of training than do individuals without related formal civilian training (Table 7, Eq. (1)).* This increment compares to 11.8 percent for an additional year of related formal *military* vocational training.†

Although the results indicate that work experience in military

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*Interaction terms for military and civilian formal vocational training and work experience indicate that civilian and military training and experience are complements to each other. Interaction effects for civilian training with years of schooling and with ability levels were also examined. As with military training, the returns to civilian training do not vary with ability levels as measured by AFQT scores or with years of schooling.

†The negative influence of having acquired formal civilian vocational training related to the current occupation of an individual indicates a negative intercept effect. Note that, since only 20 out of 181 individuals in the sample with formal preservice vocational training did not enter civilian occupations in which their training could be used, the negative intercept effect may be due to the small number of separatees in the sample against which the effect of acquiring related preservice vocational training is measured.

Table 7

REGRESSIONS OF THE LOG OF WAGES ON SELECTED VARIABLES WITH INSUFFICIENT CIVILIAN AND MILITARY DATA

(t-statistics)

Variables	Equations (1)[a]	(2)	(3)
General variables			
Armed Forces Qualification Test scores (percentile)	.0011 (3.07)	.0014 (3.67)	.0019 (5.41)
Years of formal academic schooling completed	.0136 (2.39)	.0379 (5.82)	.0414 (6.42)
Region of employment (non-South=1; South=0)	-.0934 (-5.72)	-.1039 (-6.15)	-.1040 (-6.09)
Marital status (married=1; single=0)	.0739 (4.89)	.0791 (5.09)	.0837 (5.33)
Current training status (not undergoing on-the-job training=1; undergoing on-the-job training=0)	-.0415 (-2.21)	-.0402 (-2.08)	-.0300 (-1.54)
Military training variables			
Reported formal military vocational training			
Amount of formal military vocational training in military specialty comparable to current occupation	.1182 (2.74)	.0650 (1.48)	
Amount of formal military vocational training in military specialty not comparable to current occupation	-.0825 (-1.25)	-.1171 (-1.71)	
Reported military job experience			
Amount of work experience in military specialty comparable to current occupation	-.0182 (-.84)	-.0120 (-.54)	
Amount of work experience in military specialty not comparable to current occupation	.0063 (.22)	.0071 (.24)	
Relationship of military specialty to current occupation			
Type of military vocational training and work experience is in military specialty comparable to current occupation=1; other=0	.0765 (.79)	.0797 (.80)	
Length of active military service			-.0006 (-.02)
Civilian training variables			
Reported formal preservice vocational training			
Amount of formal preservice training in field comparable to current occupation	.1572 (4.42)		
Amount of formal preservice training in field not comparable to current occupation	-.0130 (-.23)		
Type of formal preservice training is in field comparable to current occupation=1; other=0	-.1311 (-2.74)		
Reported preservice job experience			
Amount of preservice job experience in skilled job comparable to current occupation	.0674 (3.59)		
Amount of preservice job experience in skilled job not comparable to current occupation	.0222 (1.03)		
Type of preservice work experience is in field comparable to current occupation=1; other=0	.0805 (2.78)		
Amount of preservice job experience in unskilled jobs	.0038 (.27)		
Estimated preservice job experience			
Amount of preservice job experience		.0293 (4.52)	.0323 (4.94)
R^2 (adjusted)	.20	.14	.12
F-statistic (Degrees of freedom)	19.98 (17/1312)	20.47 (11/1138)	25.79 (7/1322)

NOTE: All coefficients of the continuous variables are converted into fractions of years for the purpose of comparison.

[a]This equation is the same as Eq. (1), Table 6.

specialties has no significant effect on the wages of separatees, they show that work experience in skilled preservice civilian jobs does (Eq. (1)). Individuals employed in the preservice period in skilled jobs related to their current occupations receive wages 8.0 percent higher than those without related preservice work experience. An additional year of related skilled job experience also contributes a significant 6.7 percent to the wages of these individuals.* On the other hand, preservice training and work experience in skills or occupations unrelated to the current occupation do not significantly affect postservice wages. Similarly, preservice job experience in unskilled positions does not benefit separatees employed in postservice civilian occupations.

Additional equations in Table 7 enable a comparison of the results obtained when data on the actual type and amount of civilian vocational training and job experience are not available (Eqs. (2) and (3)). Many studies have used a proxy for preservice experience in lieu of actual data because this information is not available. Estimates of experience have usually been computed by subtracting years of schooling and length of military service from individuals' ages.† Alternatively, some studies have used the average school-leaving age as a rough approximation for job experience.‡ A computed estimate of civilian experience is

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*A quadratic term for skilled preservice experience was also tested to consider the possibility that additional years of experience yield systematically different returns at different levels of experience. The insignificance of this variable is perhaps best explained by the very limited range of the amount of experience acquired by individuals in the sample. Although the functional relation between wages and age or experience may be curvilinear, the data correspond to individuals between the ages of 20 and 30 with only 1 to 3 years of experience. The linear approximation is used to explain the movements of wages within the region over which the linear approximation is assumed to be valid. See DeTray.

†Zvi Griliches and William M. Mason, "Education, Income and Ability," *J. Pol. Econ.*, Vol. 80, May-June 1972, pp. S74-S103; and Hanushek.

‡Giora Hanoch, "An Economic Analysis of Earnings and Schooling," *J. Human Res.*, Vol. 2, Summer 1967, pp. 310-329; and Jacob Mincer, *Schooling, Experience and Earnings*, Columbia University Press for the National Bureau of Economic Research, New York, 1974, p. 47.

constructed in this study by subtracting from the year of separation the year of birth, the number of years of school completed, and the average number of preschool years.* This value is then converted into months from which the length of active duty is subtracted. Note that the estimated average preservice civilian experience is over three times as large as the actual reported skilled and unskilled civilian experience acquired by separatees in the sample.†

Table 7 compares the results obtained when data on the type and amount of preservice formal vocational training and job experience are not available. Without data on individual preservice work histories, years of schooling appears to explain significantly more than it really does, and training or work experience in both the military and civilian sectors significantly less than it really does.‡ More specifically,

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*Estimated experience is used in this formulation since past studies have indicated that experience, not age, is the dominant factor determining earnings. If age is used as a proxy for experience, a specification bias is introduced. The extent of the bias depends on the coefficient of the omitted variables and their comovements with the included variables. Since the coefficient of age represents not only the influence of experience but the composite effect of all omitted variables that move with time, the observed effect of age cannot be attributed to only civilian job experience. On the other hand, in the case where only an estimate of experience is used and age is not included in the wage equation, an upward bias in the returns to schooling may be imparted if an aging effect exists. The empirical results indicate, however, that age is not a significant determinant of the log of wages and that including age in the equations does not significantly affect the estimates of the other independent variables. This result is most likely the consequence of the very limited age group used in this analysis. See DeTray; Mincer, *Schooling*, p. 84; and N. A. Tolles and E. Melichar, "Studies of the Structure of Economists' Salaries and Income," *Amer. Econ. Rev.*, Vol. 58, No. 5, Part 2, Supplement, December 1968.

†The correlation between real and estimated preservice experience is .29. The relationship between real and estimated preservice experience was evaluated using various functional forms including both linear and nonlinear specifications. No systematic relationship between the actual and estimated preservice civilian experience of individuals was found.

‡The estimated returns to formal academic training calculated by a number of previous studies indicate returns are higher at lower levels of schooling, implying that a quadratic term should be allowed for the schooling variables. In this study, however, the quadratic term for

using an estimated value for preservice job experience indicates that an additional year of civilian work experience contributes approximately 2.9 percent to the hourly wages of separatees (Table 7, Eq. (2)).* This is less than one-half the estimated percentage effect when the preservice work histories of individuals are available (Eq. (1) versus Eq. (2)). In addition, when the current analysis is limited to using the estimated rather than the actual type and amount of experience acquired by individuals in the civilian sector, the empirical results indicate an additional year of academic education adds 3.8 percent to hourly earnings (Eq. (2)).† In contrast, the estimated percentage effect attributable to an additional year of formal academic education, using complete information, is a little more than one-third of this amount (Eq. (1) versus Eq. (2)).

Insufficient data on preservice work histories affects the estimated value of military training in much the same way as the absence of data on the military work histories. When only an estimated value for the amount of preservice work experience is available, military

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education was found to be insignificant. Mincer has shown that differences in the amount of time worked fully account for the higher rates of return at the lower levels of schooling. Since this analysis controls for the amount of time spent working by constraining the sample to include only separatees employed 38 to 42 hours, it is not surprising to find that the quadratic form of the schooling variable is not significant. See Gary S. Becker, *Human Capital, A Theoretical and Empirical Analysis with Special Reference to Education*, Columbia University Press for the National Bureau of Economic Research, New York, 1964; Hanoch, "An Economic Analysis"; and Mincer, *Schooling*, pp. 53-55 and 92-93.

*This result is similar to the effect of an additional year of civilian work experience reported by previous studies that use estimates of preservice work experience. See Griliches and Mason, pp. S85-S91; and Hanushek, pp. 12-13.

†The effect on wages of an additional year of academic education reported by previous studies, which are limited to using an estimate of preservice job experience, ranges from 3.5 percent to 5.0 percent. In general, the effects on wages attributable to the remaining variables, such as AFQT scores, marital status, current on-the-job training status, and region of employment, are also comparable to those reported by other studies. The estimated effects of these variables also change as less information on the work histories of individuals is available, but the variations of the estimates are not significant. See Fuchs, pp. 21-35; Griliches and Mason, pp. S81-S91; Hanushek, pp. 7-14; and Mincer, *Schooling*, pp. 63-96.

vocational training does not appear to significantly affect postservice wages (Eq. (2)). That is, additional time spent acquiring formal military vocational training does not appear to contribute a significant amount to wages even if that training is in a military specialty comparable to the current civilian occupation of an individual. Similarly, the absence of data on the civilian *and* military work histories of individuals in the sample indicates that the military experience of separatees has no significant effect on postservice wages (Eq. (3)). This finding is, of course, contrary to the conclusion reported above, which is based on complete work histories of individuals in the sample (Eq. (1)).

V. CONCLUSIONS

Several significant conclusions pertaining to the effects on productivity of different types of investments in training may be derived from this study. The analysis indicates that wages do depend on the amount and type of training acquired by individuals. More specifically, an additional year of military vocational training contributes a significant 11.8 percent to the postservice wages of separatees who enter civilian occupations comparable to their military specialties. This conclusion is supported by the statistical results and offers some evidence that the Department of Defense may be providing a transfer of real resources to the civilian sector.

In addition, the amount of formal vocational training acquired by individuals in the civilian sector also has a significant effect on wages. An additional year of formal preservice vocational training in skills that are related to an individual's current occupation contributes approximately 15.7 percent to the wages of separatees. This is somewhat more than the percentage gain of 11.8 percent from formal military vocational training in the same occupation. Although the study shows that military and civilian training appear, to some degree, to be complements to each other, no conclusions on the *rate* of return to civilian as opposed to military training can be reached without additional data on the cost of obtaining training in each of these two sectors.

The findings also indicate that although the amount of military work experience in a specialty comparable to the current occupation of an individual has no significant effect on wages, preservice work experience in a related civilian job significantly increases the wages of separatees. On the other hand, neither civilian nor military training or work experience in jobs *not* parallel to the current occupations of separatees contributes to postservice wages.

The data available for the statistical analysis also produced several other conclusions. The most salient is that previous studies may have overestimated the effect of formal academic schooling on wages,

while underestimating that of civilian on-the-job training as measured by an estimate of the amount of time spent working in the civilian labor force. This problem derives from the insufficient data available to past studies. Similarly, when sufficient data on the military work histories of individuals are not available, the empirical results indicate formal vocational training in military specialties comparable to current occupations does not significantly add to the postservice wages of separatees. This study shows not only that separatees may benefit from their military experience, but also that detailed work histories are necessary to accurately assess the effect of military training on the postservice opportunities of separatees.

These conclusions and the availability of data on the work histories and current training and employment status of individuals would be particularly useful in an analysis focusing on the benefits from military training that accrue to separatees compared with nonveterans. Moreover, the analysis and data presented in this report would be useful to a study dealing with the factors that affect an individual's choice of occupations. Finally, if complete work histories for an extended sample of individuals could be constructed, a comparison of the effects of military training across various subgroups could be made. The additional data would enable a comparison of the effect military training has on postservice wages for blacks compared with whites, and across branches of the service, occupational groups, and levels of ability.

Appendix A
SAMPLE SELECTION AND DATA

CHARACTERISTICS OF THE SAMPLE IN RELATION TO THE POPULATION

The men in the Post-service Information File were drawn from the FY 1971 roster of separatees. They represent approximately one-fourth of all Army, Air Force, and Navy FY 1971 separatees who left military service after one term of active duty. Table A-1 shows the survey sample to be representative of the total population as indicated by the distribution of such personal characteristics as level of ability, years of schooling, and race. Sample respondents appear to have only slightly higher AFQT scores than the total population. Similarly, the sample distributions for race and education are somewhat more representative of whites and of separatees with more years of education.

On the other hand, the sample may not be representative of separatees in other years when the draft system was in effect. Although elimination of inductees decreases this difference, the inclusion of draft-induced enlistees may present some difficulty. To the extent that draft motivation is related to the personal characteristics of enlistees, such as educational level or ability, standardizing for these personal attributes indirectly controls for some of the differences resulting from the presence of draft-induced enlistees in the sample.

Data on response rates indicate the degree to which the analysis may be affected by nonresponse bias. Approximately three-fourths of the eligible separatees responded to the survey. Consequently, nonresponse bias is expected to be small. Response rates do, however, appear to be related to AFQT scores and years of schooling, as Table A-1 shows. This relationship implies, as indicated above, that the sample used in the analysis is more representative of groups with higher ability and more years of schooling than either the total veteran or the total civilian populations. Moreover, since lower ability groups are selected out by preinduction examinations, and since the sample is composed primarily of individuals from technical specialities,

Table A-1

CHARACTERISTICS OF THE SURVEY SAMPLE IN RELATION TO THE POPULATION

(In percentages)

Personal Characteristics	Veteran Population[a]				Postservice Survey[b]			
	1970		1971[c]		Respondents		Nonrespondents	
Race								
White	89.6		89.4		91.2		82.5	
Black	10.4		10.6		8.8		17.5	
AFQT scores	White	Black	White	Black	White	Black	White	Black
93-98	8.1	.2	8.2	.2	8.7	.3	9.3	.3
65-92	35.8	4.5	36.4	4.3	36.7	3.9	35.8	3.7
31-64	37.8	28.5	39.8	31.3	37.9	27.0	35.4	26.5
10-30	18.3	66.8	15.6	64.2	16.7	68.9	19.5	69.5
Educational level								
< High school	15.4	24.4	14.1	21.4	13.6	20.5	---	---
High school	62.7	65.4	61.6	66.7	60.1	67.4	---	---
> High school	21.9	10.2	24.3	11.9	26.2	12.2	---	---
Number of observations	610,745		398,720		108,383		53,791	

[a]Eli S. Flyer, *Profile of DoD First-Term Enlisted Personnel Separating from Active Service during 1970 and 1971*, Office of the Assistant Secretary of Defense, Manpower and Reserve Affairs, Washington, D.C., Manpower Research Notes 72-6 and 72-8, February 1972.

[b]U.S. Department of Defense, "Post-service Information File, FY 1971," Office of the Assistant Secretary of Defense, Manpower and Reserve Affairs, Washington, D.C., 1971, tape.

[c]Includes separatees for January through September only.

it is also likely to be even more representative of higher ability groups than the total veteran or civilian populations, as Table A-2 shows.

Table A-2

CHARACTERISTICS OF THE SELECTED SAMPLE IN RELATION TO THE POPULATION

(In percentages)

Personal Characteristics	Veteran Population of White Separatees		Selected Sample of White Separatees
	1970	1971	1971
AFQT scores			
93-98	8.1	8.2	11.3
65-92	35.8	36.4	40.2
31-64	37.8	39.8	36.8
10-30	18.3	15.6	11.7
Educational level			
< High school	15.4	14.1	13.2
High school	62.7	61.6	55.6
> High school	21.9	24.3	31.2
Number of observations	610,745	398,720	1,330

Appendix B
CHARACTERISTICS OF SEPARATEES BY EMPLOYMENT STATUS

For white enlistees, the probability of being employed full time in the postservice period varies negatively with years of education and level of ability, as indicated by AFQT scores, shown in Table B-1. This finding most likely reflects the tendency for separatees with more education and higher levels of ability to enter training programs when they separate from military service, as Table B-2 shows. In addition, separatees with higher levels of ability and more years of education also tend to have acquired more formal vocational training in the military, as Table B-3 shows.

Approximately 66.5 percent of the sample of white enlistees indicated they were working full time, whereas 10.6 percent were not seeking employment, as Table B-1 shows. The remainder of the respondents, however, cannot be considered to be involuntarily unemployed since over two-thirds of the separatees who were working part time or looking for employment were involved in educational or training programs, as Table B-4 shows. More precisely, approximately 40 percent of those looking for work, and 80 percent of those working part time or not looking for work, were involved in formal training programs. In comparison, of the separatees who reported they were employed full time, only 20 percent were involved in educational or vocational training programs. Some of the individuals who reported they were looking for work, therefore, may not have been actively seeking employment.

Table B-1

EMPLOYMENT STATUS BY AFQT SCORES AND EDUCATIONAL LEVEL FOR WHITE ARMY ENLISTEES

(In percentages)

Personal Characteristics	Number of Observations	Working Full Time	Working Part Time	Looking for Work	Not Looking for Work	Total
Educational level						
< High school	4,229	75.1	4.6	17.1	3.2	100.0
High school	24,367	69.9	10.3	11.1	8.7	100.0
> High school	9,675	54.0	17.6	9.7	18.7	100.0
AFQT scores						
10-30	5,367	74.5	5.3	15.2	5.0	100.0
31-64	12,558	71.8	9.1	11.6	7.4	100.0
65-92	15,685	63.0	13.9	10.4	12.7	100.0
93-98	4,661	54.4	16.9	9.9	18.7	100.0
Total	38,271	66.5	11.5	11.4	10.6	100.0

Table B-2

CURRENT TRAINING STATUS OF WHITE ENLISTEES IN THE POSTSERVICE PERIOD

(In percentages)

Educational Level	Sample Size	Not in Training	In Academic Program	In Formal Vocational Program	Involved in on-the-Job Training	Total
< High school	4,228	77.1	7.5	8.4	7.0	100.0
High school	24,362	54.7	25.5	8.3	11.6	100.0
> High school	9,675	35.9	47.6	4.2	12.4	100.0

Table B-3

AMOUNT OF FORMAL MILITARY VOCATIONAL TRAINING COMPLETED BY INDIVIDUALS IN THE SELECTED SAMPLE

(In percentages)

Personal Characteristics	Weeks of Formal Military Vocational Training			Total (1330)
	0-8 (N=429)	9-18 (N=375)	19-67 (N=536)	
Educational level				
< High school	73.7	20.0	6.3	100.0
High school	33.6	32.2	34.2	100.0
> High school	12.3	24.4	63.3	100.0
AFQT scores				
10-31	73.5	19.4	7.1	100.0
32-64	43.5	33.1	23.4	100.0
65-92	17.3	28.0	54.8	100.0
93-98	8.7	19.5	71.8	100.0

Table B-4

EMPLOYMENT AND TRAINING STATUS OF WHITE ENLISTEES
IN THE FY 1971 POSTSERVICE FILE

(In percentages)

Current Training Status	Working Full Time	Working Part Time	Looking for Work	Not Looking for Work	Total
In training					
Formal					
Academic	13.1	72.6	34.6	75.9	29.1
Vocational	6.4	9.3	8.6	9.0	7.3
Informal	13.9	5.3	6.0	6.6	11.3
Not in training	66.6	12.7	50.7	8.4	52.4
Sample size	25,437	4,407	4,366	4,061	38,271

Appendix C

CHARACTERISTICS OF SEPARATEES BY OCCUPATIONAL GROUPS

This appendix presents the distribution of separatees by occupational groups (Table C-1) and information on the utilization of previously acquired skills (Table C-2). In addition, the personal characteristics of the survey sample within occupations are also shown (Table C-3).

Table C-1

DISTRIBUTION OF SEPARATEES BY OCCUPATIONAL GROUPS

Postservice Occupation	Preservice Training or Job Experience	Military Specialty							
		Electronics	Mechanics	Medical Care	Infantry	Construction	Cooks	Clerical	Total
Electronics	None	233	22	5	33	9	4	24	330
	Electronics	131	7	2	7	4	1	9	161
	Other	47	1	1	0	0	2	4	55
	Total								546
Mechanics	None	82	128	14	77	16	32	47	396
	Mechanics	23	61	2	13	2	8	15	124
	Other	15	10	1	9	7	3	1	46
	Total								566
Medical	None	14	5	80	9	2	4	10	124
	Medical	7	2	58	3	1	1	4	76
	Other	3	0	12	1	0	0	2	18
	Total								218

Table C-2

UTILIZATION OF MILITARY AND CIVILIAN SKILLS

Total Sample with Training	Number of Observations	Relationship of Post-service Occupation to Prior Training (%)
Civilian training		
Electronics	216	74.4
Mechanics	170	72.9
Medical care	94	80.9
Total	480	75.2
Military training		
Electronics	546	75.3
Mechanics	566	35.2
Medical care	218	68.8
Total	1330	57.1
Total Sample with Training Excluding Individuals with *Both* Military *and* Preservice Training or Experience Comparable to Their Current Civilian Occupations		
Civilian training		
Electronics	85	35.3
Mechanics	109	57.8
Medical care	36	50.0
Total	230	48.2
Military training		
Electronics	415	67.5
Mechanics	505	27.3
Medical care	160	57.5
Total	1080	47.2

Table C-3

MEAN VALUES OF SELECTED CHARACTERISTICS OF ENLISTEES BY CIVILIAN AND MILITARY OCCUPATIONS

(Standard deviations)

Personal Characteristics	Electronics Trained in		Mechanics Trained in		Medical Care Trained in	
	Electronics (N=411)	Other (N=135)	Mechanics (N=199)	Other (N=367)	Medical Care (N=150)	Other (N=68)
Hourly wages	3.67 (.93)	3.18 (.90)	3.31 (.83)	3.23 (.95)	3.18 (1.14)	2.82 (1.16)
Years of schooling	12.72 (1.27)	11.87 (1.31)	11.61 (1.38)	11.75 (1.37)	12.91 (1.63)	12.69 (1.71)
AFQT scores	76.82 (17.78)	56.54 (25.56)	56.61 (22.18)	53.73 (25.19)	66.05 (19.08)	63.38 (26.52)
Months of skilled preservice job experience	4.16 (8.17)	3.36 (7.52)	4.55 (9.28)	3.20 (7.43)	4.01 (7.52)	3.31 (7.84)
Months of unskilled preservice job experience	2.64 (6.96)	2.78 (7.76)	2.23 (5.65)	2.39 (5.42)	2.33 (6.39)	1.10 (3.49)
Relationship of skilled preservice job experience to current occupation	.21 (.41)	.19 (.39)	.27 (.44)	.16 (.36)	.23 (.42)	.18 (.38)
Months of formal preservice vocational training	3.10 (6.48)	.95 (3.75)	.72 (3.05)	.61 (2.71)	3.83 (8.29)	2.65 (6.46)
Relationship of formal preservice vocational training to current occupation	.21 (.44)	.07 (.25)	.07 (.25)	.03 (.17)	.23 (.42)	.16 (.37)
Weeks of formal military vocational training	28.01 (10.39)	10.67 (8.66)	11.28 (4.90)	12.98 (11.01)	16.44 (13.50)	20.29 (17.14)
Months of military job experience	25.21 (5.35)	30.22 (4.93)	27.88 (4.31)	28.56 (6.34)	27.25 (4.45)	27.04 (6.34)

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