Final Report
83-24
(Revised June 1984)
HumRRO
FR-PRD-83-24

HumRRO

Screening for Service:

Aptitude and Education Criteria for Military Entry

by
Mark J. Eitelberg
Janice H. Laurence
Brian K. Waters
with
Linda S. Peréiman

HUMAN RESOURCES RESEARCH ORGANIZATION
1100 South Washington Street • Alexandria, Virginia 22314-4499

June 1984

Sponsored by:
Office of the Assistant
Secretary of Defense
Directorate for Accession Policy

Monitored by:
Office of Naval Research
Arlington, Virginia 22217

This report was prepared under the Navy Manpower R&D Program of the Office of Naval Research under Contract N00014-82-K-0637.

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER: FR-PRD-83-24	2. GOVT ACCESSION NO. AD-A142167
3. RECIPIENT'S CATALOG NUMBER	
4. TITLE (and Subtitle): SCREENING FOR SERVICE: Aptitude and Education Criteria for Military Entry	5. TYPE OF REPORT & PERIOD COVERED: Final Report, 1 July 1982 - 1 July 1983
6. PERFORMING ORG. REPORT NUMBER	
7. AUTHOR(s): Mark J. Eitelberg, Janice H. Laurence, Brian K. Waters, With Linda S. Perelman	8. CONTRACT OR GRANT NUMBER(s): N00014-82-K-0637
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Human Resources Research Organization (HumRRO), 1100 South Washington Street, Alexandria, Virginia 22314	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: 6.27
11. CONTROLLING OFFICE NAME AND ADDRESS: Office of the Assistant Secretary of Defense (OASD/MI&L), Directorate for Accession Policy, Room 2B271, The Pentagon	12. REPORT DATE: June 1984
	13. NUMBER OF PAGES: 238
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office): Office of Naval Research, 800 North Quincy Street, Arlington, Virginia 22217	15. SECURITY CLASS. (of this report): Unclassified
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

aptitude testing	qualification for enlistment
enlistment standards	selection criteria
military selection	military participation
Profile of American Youth	Military Accession Policy

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The report is presented in four sections. Section 1 reviews briefly the history, purpose, and conceptual foundation of aptitude screening for enlistment. Section 2 traces military testing trends over the past several decades and describes the relationship between applicant behavior, selected recruiting market conditions, and the average aptitude level of new recruits. The main body of research details the eligibility and participation rates

....continued on next page

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

20. (Continued)

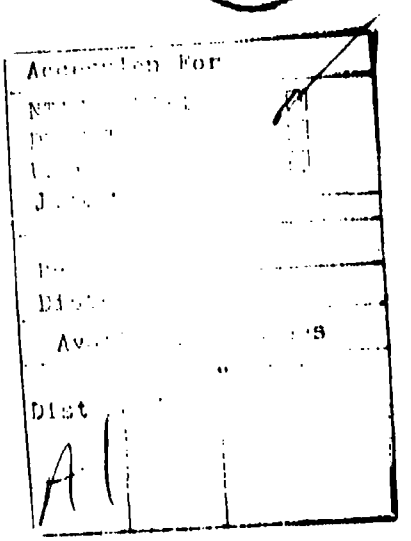
and enlistment experiences of American youth and appears in Section 3. In Section 4, the authors discuss the implications of "eligibility" and "participation" research for military testing and the establishment of appropriate entry criteria. An extensive reference list and appendices are included.

Final Report
83-24
(Revised June 1984)
HumRRO
FR-PRD-83-24

HumRRO

Screening for Service:

Aptitude and Education Criteria for Military Entry



by
Mark J. Eitelberg
Janice H. Laurence
Brian K. Waters
with
Linda S. Pereiman

HUMAN RESOURCES RESEARCH ORGANIZATION
1100 South Washington Street • Alexandria, Virginia 22314-4499

June 1984

Sponsored by:
Office of the Assistant Secretary of Defense
Directorate for Accession Policy

Monitored by:
Office of Naval Research
Arlington, Virginia 22217

This report was prepared under the Navy Manpower R&D Program of the Office of Naval Research under Contract N00014-82-K-0637.

Foreword

In 1980, the Office of the Secretary of Defense and the Military Services, in cooperation with the Department of Labor, sponsored a large-scale research project to assess the vocational aptitudes of American youth. A national probability sample of approximately 12,000 young men and women, selected from participants in the National Longitudinal Survey (NLS) of Youth Labor Force Behavior, was given the military's enlistment and job placement test, the Armed Services Vocational Aptitude Battery (ASVAB). This research endeavor, known as the "Profile of American Youth," marked the first time that a military qualification test--or <u>any</u> vocational aptitude test--had been given to a nationally representative sample. The "Profile Study" thus offers an opportunity to evaluate the "cross-sectional character" of military enlistees based on a national measure of vocational test performance.

This report describes the results of a research effort that evolved from the "Profile Study." Since the "Profile Study" sample was nationally representative, and it incorporated the scores of contemporary youth on a version of the ASVAB parallel to that currently used to screen military applicants, it was possible to estimate the numbers and proportions of American youth who would be expected to qualify for military enlistment under existing standards. The military "participation rates" of American youth could also be computed using enlistment eligibility rates for the general population in combination with information on enlistment behavior.

The analysis of eligibility and participation rates in the all-volunteer military represents an effort to put the "Profile Study" results in an applied, operational context. This research provides the defense community

with accurate information on the "quality" or "fitness" of American youth to serve in the military; it also displays, in statistical terms, the impact of aptitude standards on the employment opportunities of young men and women from varied backgrounds. In addition, the data on participation present a picture of the attractiveness of military service for minority youth over the past several years.

Screening for Service is intended for a general audience, though one which has a basic understanding of the standards of acceptance in the military and civilian working environments. This document can be used by technical personnel and policymakers alike, for it contains a wealth of information and data upon which to draw.

The report is presented in four sections. Section 1 reviews briefly the history, purpose, and conceptual foundation of aptitude screening for enlistment. Section 2 traces military testing trends over the past several decades and attempts to uncover the relationship between applicant behavior, selected recruiting market conditions, and the average aptitude level of new recruits. The main body of research details the eligibility rates and enlistment experiences of American youth and appears in Section 3. In Section 4, the authors discuss the implications of "eligibility" and "participation" research for military testing and the establishment of appropriate entry criteria.

Dr. Mark J. Eitelberg served as principal analyst and primary author of the report. Dr. Eitelberg was a Senior Scientist with HumRRO when the work was first undertaken, and is presently an Adjunct Professor in the Department of Administrative Sciences at the Naval Postgraduate School,

Monterey, California. Ms. Janice H. Laurence, a HumRRO Research Scientist, served as associate analyst; she gathered, compiled, documented, and reviewed most of the historical information that appears in Section 1 and was a major contributor to all phases of the research effort. Dr. Brian K. Waters, Manager of HumRRO's Manpower Analysis Program, directed the research project, ensured the factual integrity of the data, and was a primary contributor to Section 2. Ms. Linda S. Perelman, a HumRRO Research Associate, participated in the data collection, and in the presentation of results from Sections 1 and 2. The report also benefits from the editorial recommendations of Dr. Barbara M. Means. Mr. Gus C. Lee provided valuable suggestions on the draft document. Ms. Emma E. King and Ms. Dana E. Doran typed the manuscript and provided invaluable secretarial assistance throughout the project. Graphic and type-setting support were provided by Mrs. Alice H. Thompson and her staff in HumRRO's Publication Support Group.

The authors express their appreciation to the Defense Manpower Data Center (DMDC), under the guidance of Mr. Kenneth C. Scheflen, Director, and Mr. Robert J. Brandewie, Deputy Director. Gratitude is extended especially to Ms. Helen T. Hagan of DMDC for analytical and programming support during the analysis of data from the "Profile of American Youth"; and to Mr. Leslie W. Willis for his help in retrieving information on the aptitude test scores of military applicants and recruits. In addition, the authors are grateful for the cooperation of the following individuals who assisted in the compilation of historical information on aptitude and education standards: Mr. Louis A. Ruberton, Headquarters, Department of the Army; Mr. Charles R. Hoshaw, Office of the Chief of Naval Operations; Maj. Larry R. Jurica, Headquarters, U.S. Marine Corps; and Lt. Colonel James E. Watson, Headquarters, U.S. Air Force.

A special note of appreciation is offered to Dr. W. S. Sellman of the Office of the Assistant Secretary of Defense (Manpower, Installations, and Logistics) for his wise counsel and generous support during the course of the research.

The research contract was supported by the Office of the Assistant Secretary of Defense (Manpower, Installations, and Logistics) under Office of Naval Research contract N00014-82-K-0637. The views, opinions, and findings presented in this report are solely those of the authors and should not be construed as an official position, policy, or decision of any Government department or agency, unless so designated by other official documentation.

TABLE OF CONTENTS

	Page
FOREWORD	ii
INTRODUCTION	xii
SECTION 1. Entry Standards in the Modern Military: A Brief Historical Review	1-1
The Evolution of Current Aptitude and Education Screens	1-11
- Aptitude Screening	1-11
- Education Screening	1-17
Some General Concepts and Principles	1-18
War and Peace: Effects on Military Selection Criteria, 1940-1973	1-26
SECTION 2. Standards and Recruiting Outcomes: The Quality of Military Examinees and New Recruits Under Various Conditions	2-1
The Military Selection Process for Enlisted Personnel	2-2
Military Examinees: Test Score Trends	2-4
Military Accessions: Test Score Trends	2-10
Test Score Trends in Historical Context	2-13
Some General Observations	2-20
SECTION 3. American Youth and Military Service: Qualification and Participation	3-1
The "Profile of American Youth": Summary of the Study and Selected Results	3-14
Methodology Employed in the Present Study	3-19
Study Results	3-25
- Eligibility for Enlistment: Selected Subgroups	3-25
- Eligibility for Enlistment: Regional Differences	3-38
- Military Participation Rates	3-49

Table of Contents, Continued:

	Page
SECTION 4. Study Implications: Looking Ahead	4-1
Other Factors In Eligibility for Enlistment	4-2
Military Selection and Classification Standards for Minorities and Women: Some Problems and Issues	4-8
Test Bias and Differential Validity: Evaluating the ASVAB	4-14
Selection Testing in Our Society	4-17
Ability Levels and the Changing Military	4-19
- Multiple Aptitude Standards for Selection	4-21
- The High School Diploma in Fact and Fiction	4-24
Screening for Service in the Years Ahead	4-29
REFERENCES	4-33
APPENDICES	
A. Chronological Track of Aptitude Standards for Induction and Enlistment of Males (Army, Navy, Marine Corps, Air Force)	A-1
B. Aptitude Trends of Military Examinees	B-1
C. States Within the U.S. Census Regions & Divisions	C-1
D. Qualification for Enlistment in the Navy and Marine Corps Under Revised (1983) Aptitude Standards	D-1
E. Qualification for Enlistment Under Various Alternative or "Simulated" Standards	E-1

LIST OF TABLES

Table		Page
1.	Military Service Rejection Rates During Selected Periods.....	1-6
2.	Armed Forces Qualification Test Category Ranges and World War II Reference Population Distribution.....	1-21
3.	Comparison of Minimum Aptitude/Education Standards for Enlistment by Service During Two Periods: October 1965 (Vietnam Transition) and July 1966 (Vietnam Early Mobilization).....	1-30
4.	Percent of Male Examinees Who Achieved AFQT Percentile Scores of 50 or Higher by Service, FY 1964-83.....	2-6
5.	Median Percent of Male Examinees Who Scored AFQT 50 or Higher, FY 1964-73 and FY 1974-83.....	2-7
6.	Percent Distribution of Male Examinees by AFQT Category, FY 1972-83.....	2-9
7.	Percent of Male Recruits Who Achieved AFQT Percentile Scores of 50 or Higher by Service, FY 1952-83.....	2-11
8.	Percent Distribution of Male Recruits (All Services Combined) by AFQT Category, FY 1952-83.....	2-14
9.	Percent Distribution of Male Recruits (All Services Combined) and the General Population of Male Youth by AFQT Category.....	2-21
10.	Median Percent of Male Recruits (Nonprior Service) Who Scored AFQT 50 or Higher by Service, FY 1964-73 and FY 1974-83.....	2-22
11.	1960 AFQT Category Distribution of White and Black Preinductees.....	3-5
12.	Percentage Distribution of Preinductees by AFQT Category During Selected Time Periods, 1958-72.....	3-6
13.	Percentage of Preinductees Who Achieved AFQT Percentile Scores of 10 or Higher During Initial Examination by Race, FY 1953-71....	3-7
14.	Percentage of Preinductees Who Achieved AFQT Percentile Scores of 10 or Higher During Initial Examination by Race and Census Region and Division, FY 1953-71.....	3-9
15.	Percent of Men Qualified for Military Service Under Selected Minimum Standards by Race and Census Region and Division, FY 1971.....	3-10

List of Tables, Continued:

Table		Page
16.	Percentage Distribution of American Youth (17-24 Years) by Educational Level and AFQT Category, Sex, and Race, 1974-76.....	3-13
17.	Mean AFQT Standard Scores of American Youth (18-23 Years) by Sex, Racial/Ethnic Group, and Educational Level.....	3-18
18.	Mean AFQT Standard Scores of American Youth (18-23 Years) by Sex, Racial/Ethnic Group, and Geographic Region.....	3-19
19.	Fiscal Year 1981 Minimum Aptitude Standards for Enlistment by Service, Sex, and Educational Level.....	3-21
20.	Base Population Used to Derive Qualification Rates by Racial/Ethnic Group, Sex, and Educational Level.....	3-26
21.	Estimated Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment By Educational Level, Racial/Ethnic Group, and Sex (ARMY).....	3-27
22.	Estimated Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment By Educational Level, Racial/Ethnic Group, and Sex (NAVY).....	3-28
23.	Estimated Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment By Educational Level, Racial/Ethnic Group, and Sex (MARINE CORPS).....	3-29
24.	Estimated Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment By Educational Level, Racial/Ethnic Group, and Sex (AIR FORCE).....	3-30
25.	Estimated Number of American Youth (18-23 Years) Who Would Qualify for Enlistment By Educational Level, Racial/Ethnic Group, and Sex (ARMY).....	3-31
26.	Estimated Number of American Youth (18-23 Years) Who Would Qualify for Enlistment By Educational Level, Racial/Ethnic Group, and Sex (NAVY).....	3-32
27.	Estimated Number of American Youth (18-23 Years) Who Would Qualify for Enlistment By Educational Level, Racial/Ethnic Group, and Sex (MARINE CORPS).....	3-33
28.	Estimated Number of American Youth (18-23 Years) Who Would Qualify for Enlistment By Educational Level, Racial/Ethnic Group, and Sex (AIR FORCE).....	3-34

List of Tables, Continued:

Table		Page
29.	Estimated Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment by Census Region and Division, and Military Service	3-40
30.	Estimated Number of American Youth (18-23 Years) Who Would Qualify for Enlistment by Census Region and Division, and Military Service	3-41
31.	Estimated Number and Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment by Educational Level, Sex, and Census Division (ARMY)	3-43
32.	Estimated Number and Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment by Educational Level, Sex, and Census Division (NAVY)	3-44
33.	Estimated Number and Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment by Educational Level, Sex, and Census Division (MARINE CORPS)	3-45
34.	Estimated Number and Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment by Educational Level, Sex, and Census Division (AIR FORCE)	3-46
35.	Estimated Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment Under Actual and Lower Standards	3-48
36.	Previously Estimated Percent of Male Population Scoring in AFQT Categories I-III	3-50
37.	Previously Estimated Percent of Male Population in AFQT Categories I-III Who Enlisted in the Military	3-51
38.	Previously Estimated "Military Participation Rates" for Males (18-21 Years) by Racial/Ethnic Group and Education	3-52
39.	Base Population Used to Derive Participation Rates by Racial/Ethnic Group, Educational Level, and Military Service	3-54
40.	Military Participation Rates of Male Youth Born 1957 Through 1962 by Racial/Ethnic Group and Educational Level (ARMY)	3-55
41.	Military Participation Rates of Male Youth Born 1957 Through 1962 by Racial/Ethnic Group and Educational Level (NAVY)	3-56
42.	Military Participation Rates of Male Youth Born 1957 Through 1962 by Racial/Ethnic Group and Educational Level (MARINE CORPS)	3-57

List of Tables, Continued:

Table		Page
43.	Military Participation Rates of Male Youth Born 1957 Through 1962 by Racial/Ethnic Group and Educational Level (AIR FORCE).....	3-58
44.	Military Participation Rates of Male Youth Born 1957 Through 1962 by Racial/Ethnic Group and Educational Level (ALL SERVICES).....	3-59
45.	Military Participation Rates of Male Youth Born Between 1957 through 1962 by Racial/Ethnic Group and Educational Level.....	3-62
46.	Estimated Percent of American Male Youth (18-23 Years) Who Would Qualify for Assignment to Selected Occupational Specialties in the Army, By Racial/Ethnic Group and Educational Level.....	4-7
47.	Estimated Percent of American Male Youth (18-23 Years) Who Would Qualify for Enlistment Under AFQT, Composite, and Combined Minimum Aptitude Requirements by Service and Educational Level.....	4-23
48.	Treatment of Secondary School Educational Credentials for Enlistment Purposes During FY 1983, by Service.....	4-28

LIST OF FIGURES

Figure		Page
1.	Simplified Model of the Interaction Between Manpower Determinants, Military Policy, Selection Standards, and Recruiting Outcomes.....	1-25
2.	Military Enlisted Selection Process.....	2-3
3.	Percent of Male Recruits and Examinees Who Achieved AFQT Percentile Scores of 50 or Higher By Selected Historical Event, FY 1952-83.....	2-16
4.	Percent High School Diploma Holders and AFQT Category I-IIIAs Among Male Examinees and Recruits Compared With National Unemployment Rate for Males (Ages 18-24), FYs 1952-83.....	2-19

Introduction

The "Profile of American Youth" was a landmark study for both the Armed Services and the general scientific and research community. In 1980, the Armed Services Vocational Aptitude Battery (ASVAB) was administered to a nationwide probability sample of approximately 12,000 young men and women. The "Profile Study," as it has come to be known, resulted from the cooperative efforts of the Departments of Defense and Labor, the Military Services, several independent agencies, and many individuals. The study was subjected to the most careful scrutiny of some of the nation's leading experts in sample design, psychometrics and general statistics, educational and psychological testing, survey research, population demography, and public policy analysis. The ASVAB itself was thoroughly examined by independent scholars, and was found to equal or surpass the quality, fairness, and overall suitability of commercial tests used to measure aptitude and achievement.

The "Profile Study" was the result of many years of planning and diligent execution. It was a major research endeavor in its scope, objectives, and final product, as well as its value to military manpower policy and the social and behavioral sciences. The "Profile Study" marks the first time that a vocational aptitude battery has been given to a nationally representative sample. Up to this time, such research has not been possible because of the great difficulty in obtaining data on a nationwide scale and the prohibitive costs.

The idea for producing the present monograph was first conceived in early 1981 during the initial analysis of results from the "Profile of American Youth." Since the primary function of the ASVAB is "screening for

service" and job placement in the military, an evaluation of population eligibility for enlistment and assignment appeared as a logical, early application of the new data base.

In the process of conducting the follow-up analyses of population eligibility for enlistment, it was necessary for the researchers to first delve into the modern history of applicant screening and to compile information from the military's archives. It was during this preliminary research phase that the authors discovered a need for a single document that would bring together the historical records and recent statistics on personnel selection for military service.

Screening for Service presents the results of a particular analysis of population eligibility and participation in the nation's military. However, this monograph was additionally created to stand as a reference or source of historical information for those who may wish to pursue the study of enlistment standards and the tested abilities of persons examined for military service.

The monograph begins with a brief review of the modern history, purpose, and conceptual foundation of aptitude screening for enlistment. The evolution of current aptitude and education screens is examined and some general concepts and principles are defined. Finally, in Section 1, the effects of war and peace on military selection are explored and discussed.

Section 2 follows with an examination of recruiting outcomes under various sets of historical standards. This section presents a brief review of the characteristics of people who have been screened by the military during recent

years. The test score trends of those who have taken military examinations are traced in an effort to gain a better understanding of the relationship between minimum standards and recruit "quality." The discussion also attempts to explore the relative influence of standards, compared with environmental factors and other external conditions, on the qualitative character of new recruits.

Section 3 presents the background, methodology, and results of the analysis of population eligibility for military service, based on the "Profile Study" data and recent aptitude and education standards applied by each of the Armed Services. This section also presents the results of a related study of military participation. Using the enlistment eligibility rates for various segments of the general population in combination with information on enlistment behavior from the Defense Department's manpower data files, it was possible to compute the military "participation rates" of the so-called "qualified and available" groups. This new statistic, available through the "Profile Study," offers a striking picture of the attractiveness of military service for minority youth over the past several years.

In Section 4, the authors discuss the implications of "eligibility" and "participation" research for military testing and the establishment of appropriate entry criteria. Several varied, yet integrated issues are treated--including other considerations used in determining enlistment eligibility, problems related to the selection and classification of women and minorities, ability levels and the future needs of the military, the effects of using multiple aptitude standards, problems associated with the use of educational standards, and the prospects for improvements in screening for service.

Several appendices are offered for those readers who wish to use the monograph as a technical resource for further research. Appendix A contains a description of the minimum aptitude and education standards employed by each of the Armed Services over the past several decades. This information was reviewed by the Services for accuracy, and it chronicles the flexible nature of entry standards during the post-World War II period. Appendix B presents historical statistics on the aptitude test scores of persons examined for military service, with data extending back to the early 1950s. Apendix C describes the geographical variables used in the analysis, and Appendix D provides a summary of population eligibility for the Navy and Marine Corps under their revised (1983) aptitude standards. In Appendix E, a brief supplemental study is presented that analyzes population eligibility for enlistment under various alternative or "simulated" sets of standards. Here, the reader can see the effects of either raising or lowering aptitude standards (under defined limits) on the eligibility rates of population subgroups.

Screening for Service represents an early attempt to put the "Profile of American Youth" results in an applied, operational context. This research offers the defense community accurate information on the "quality" or "fitness" of American youth to serve in the military. In addition, the eligibility rates and participation rates reveal, in statistical terms, the powerful influence of aptitude standards on the employment and training opportunities of young men and women from varied backgrounds. This study holds importance for military manpower policymakers and social planners alike. This study also demonstrates the practical utility of a new data base that will hopefully improve our understanding of human potential, fairness, and opportunity in the military and society.

SECTION 1

Entry Standards in the Modern Military: A Brief Historical Review

Minimum standards for acceptance into the American military are flexible gates that open and close in reaction to the shifting needs of national defense and manpower recruitment. Like finely engineered dams, constructed to regulate the flow of a river and form temporary reservoirs, the military's entry standards are designed to take the best available men and women in the required quantities. Certain circumstances, such as a recruiting drought or a need for mass mobilization, typically necessitate less stringent physical standards, lower education and ability criteria, and more lenient eligibility requirements in other areas. Conversely, during periods of peace when the standing army is streamlined to function as a "caretaker," or during periods of high unemployment when military "jobs" are relatively more attractive to the youthful workforce, the Armed Services are usually able to be more selective and the qualitative barriers to entry are strengthened.[1]

One reason for personnel screening by the Army during the period just prior to World War II was a reduction in the number of potential pensioners (that is, men who were unfit physically for active duty and who might claim Government compensation for a disability acquired while serving in the military). The fundamental purpose of entry screening, however, was the elimination of "bad risks" or men who could not meet the "severe demands of

[1]At the same time, standards are affected indirectly by the prevailing method of recruitment: in general, a military that depends largely on conscription has greater flexibility in how it decides to apply acceptance standards (assuming that draft deferments or exemptions do not severely reduce the size of the manpower reservoir).

war," and the selection of those who could be trained in the shortest possible time.2 The Army General Classification Test (AGCT) of World War II was thus described as a test of "general learning ability," aimed at "reliably sorting new arrivals according to their ability to learn quickly the duties of a soldier" while "keeping at a minimum items greatly influenced by amount of schooling and by cultural inequalities."[3]

The Military Services of the Second World War formally applied four screens to those who were designated by the Selective Service as eligible for induction: physical examination, aptitude testing, psychiatric evaluation, and administrative review (moral character and history of arrest).[4] The specific criteria within the four categories were all subject to modification, depending on the state of the war effort and the military's capacity to accept less capable performers. Indeed, as pointed out in Marginal Man and Military Service, expediency has periodically influenced the Armed Services to draw from "marginal manpower," or those individuals who may not meet the desired minimum qualifications, but are still capable of serving in some (usually limited) position:

> Experience in World War I, World War II, and to a less extent, Korea, demonstrated that when a shortage of manpower developed, those responsible for procurement and maintenance of a proper replacement stream for combat and combat support forces have turned to whatever resources might prove productive. Where existing

---

[2]Eli Ginzberg et al., The Lost Divisions (New York: Columbia University Press, 1959), pp. 30-31.

[3]Staff, Personnel Research Section (The Adjutant General's Office), "The Army General Classification Test," Psychological Bulletin 42 (December 1945): 760.

[4]See Ginzberg et al., The Lost Divisions, p. 33.

> standards left large numbers of physically and mentally limited men in the civilian population, standards were altered to obtain the numbers required. Even prison populations were combed.[5]

The World War II mobilization perhaps provides the best example of how entry standards can be shaped to cope with the particular circumstances and needs of the military. When the nation's first peacetime draft law was enacted in September 1940, for instance, the only literacy screen for new draftees was the "ability to comprehend simple orders given in the English language." Several months later--with about 66,000 illiterate inductees and many unanticipated training problems--the War Department standard was amended to prohibit the induction of those "who do not have the capacity of reading and writing the English language as prescribed for the fourth grade in grammar school."[6] The fourth-grade reading requirement, an operational criterion of "literacy," was relaxed somewhat in August 1942, so that a small percentage of the illiterate pool could be inducted. By May 1943, over 100,000 illiterate men had been added to the Army's rank and file. The following month, the policy on literacy was modified once again, and the minimum aptitude requirement was set at a "capacity above the lower three-fifths of Grade V," the lowest aptitude category (a percentile score of about 5.5) on the AGCT. By the end of September 1945, records showed that over 217,000 illiterate men (and another 82,000 scoring in AGCT Grade V) had been drafted for wartime duty.[7]

---

[5]Department of the Army, Marginal Man and Military Service (Washington, D.C.: Department of the Army, December 1965), p. 31.

[6]Ibid., pp. 59-60.

[7]Ibid., pp. 74-75, 236.

Needless to say, selection and classification procedures and methods have evolved considerably over the past forty years. Broad education and aptitude standards have given way to varying combinations of interrelated requirements--incorporating aptitude subtests and composites and diverse education credentials and, in some cases, a range of background characteristics--that have been identified as important correlates of "successful" service. Just as the changing demands of current military occupations and the rising levels of education have operated to modify and fragment aptitude criteria, advances in technology, shifting job requirements, and the generally improved health of the American people have resulted in some minor changes in medical or physical standards.[8] Even in the area of "moral qualifications," the Armed Services apply a number of different criteria for eligibility based on the particular type of arrest or violation, the severity of the offense, and the frequency of conviction.[9]

It is probably true that the flexibility of standards--or the ability of the Armed Services to stretch or contract certain entry criteria to the practical limits--has been constrained since the advent of all-volunteer recruitment in 1973. In theory, each of the Armed Services is permitted to establish its own entry standards based on its own manpower supply and

---

[8]Gus C. Lee, Review of Enlisted Medical Standards for Entry Into Military Service, FR-MPAD-82-3, (Alexandria, VA: HumRRO, June 1982.)

[9]As observed in Marginal Man: "The history of admission of the morally marginal individual into the Army follows fairly closely the manpower demands made upon the Army at any one period. In times of less stress, particularly during the absence of war, policies remained exclusive. When emergency manpower measures became necessary, searches even extended to convicts who could be paroled from penal institutions for induction into the military service." See ibid., p. 211, and the entire chapter on "The Morally Marginal Soldier" (pp. 211-219) for a summary of the early history and policies concerning moral standards.

demand considerations. However, assorted critics of the all-volunteer military have been constantly on the prowl for evidence to prove that the Armed Services are incapable of attracting enough "quality" personnel without conscription. The "volunteer experiment" is directed and held under the microscopic glass of critics, legislators, the popular media, and other public watch dogs with each passing year and periodic release of recruiting statistics. Congress has reacted recurrently to indications of declining quality by imposing its own minimum standards or guidelines for screening applicants. In the fiscal year (FY) 1981 Defense Authorization Act, for example, Congress responded to revelations that the Armed Forces Qualification Test (AFQT) had been misnormed since 1976 (and, as a consequence, many applicants in the below-average aptitude range were inadvertently permitted to enlist) by placing a ceiling on the annual proportion of recruits without high school diplomas and with below-average test scores.[10]

The results of military entrance examinations, as expressed in terms of acceptances or rejections, are often grouped together within a particular historical context and then compared over time and national circumstance (such as war or peace, strength build-up or reduction). Table 1, which shows the military service "rejection rates" for six distinct periods beginning with World War I, exemplifies this type of comparison. The data,

[10]The standards required that all Services (combined) enlist no more than 25 percent of new recruits in AFQT Category IV (percentile score range of 10 through 30) during FY 1981. In FY 1982, each Service (separately) was allowed to have no more than 25 percent of its new recruits in AFQT Category IV; and the Category IV quota was lowered to 20 percent of annual intake during FY 1983 and succeeding years. Despite such Congressional limitations, there have been few, if any, periods in recent history when the nation's legislators were altogether pleased with the military's standards and the quality of new recruits.

Table 1

Military Service Rejection Rates During Selected Periods

Reason for	Percent of Persons Examined Who Were Rejected										
	World War I[a]	World War II[b]	Korean Conflict[c]	Peacetime Draft[d]	Vietnam Conflict[e]	All Volunteer Force					
	1914-18	1939-45	1950-53	1959-62	1968-72	1973	1979	1980	1981	1982	1983
Below Minimum Aptitude or Education Standards	0.9	4.0	16.6	17.1	9.5	13.3	25.6	22.4	32.4	21.9	13.9
Medical or Physical Disqualification	15.1	24.7	14.4	26.5	33.4	11.5	9.4	12.0	9.9	9.6	10.7
Other Deficiency	0.4	0.5	0.8	1.9	1.5	0.1	0.8	0.6	0.6	0.6	3.0
All Reasons	16.4	29.2	31.8	45.5	44.4	24.9	35.8	35.0	42.9	32.1	27.6
Number of Persons Examined (in thousands)	5,000	18,000	3,500	1,348	4,309	414	609	769	835	786	736

Sources: Statistics on World Wars I and II were extracted from Eli Ginzberg et al., The Lost Divisions (New York: Columbia University Press, 1959), pp. 142-43. Korean Conflict data are from Bernard D. Karpinos, "Fitness of American Youth for Military Service," Milbank Memorial Fund Quarterly 38 (July 1960): 220. Data on the peacetime draft period and Vietnam Conflict are from Summary of Registrant Examination for Induction (RCS MED-66-Office of the Surgeon General). Department of the Army, FYs 1959-62 and 1968-1972. Data for 1973 are from Bernard D. Karpinos, Applicants for Enlistment: Results of Examination for Military Service(FYs 1972 and 1973), SR-ED-75-5 (Alexandria, VA: HumRRO, April 1975), p. 9; all other statistics for the All-Volunteer Force were derived from data provided by the Defense Manpower Data Center.

[a]World War I population includes primarily men aged 19-36 in 1918. Persons examined are comprised of all men inducted, enlisted, rejected, or deferred as morally unfit.

[b]World War II population includes men aged 18-37 as of 1 August 1945.

[c]Korean Conflict population includes men who underwent a preinduction examination for the first time during July 1950 through July 1953. The data do not account for enlistments or other manpower procurement apart from inductions. The aptitude test failure category includes some persons who were also medically disqualified.

[d]Peacetime draft population includes men who underwent a preinduction examination for the first time during July 1959 through June 1962. The data do not account for voluntary enlistments. The aptitude test failure category includes some men who were also medically disqualified.

[e]Vietnam conflict population includes men who underwent a preinduction examination for the first time during July 1968 through June 1972. The data do not account for voluntary enlistments. The aptitude test failure category includes some men who were also medically disqualified.

when presented in this manner, are intended to point out movements in policy or the shifting importance placed on different categories of screening criteria from one era to the next. One may conclude from Table 1, for instance, that eligibility for military service was determined more by tests of brawn than brains throughout the earlier times of limited technology. This conclusion is drawn from both the comparative data and the observation that minimum education and aptitude standards were all but nonexistent until forty years ago (and very lenient for some time thereafter).

There are limits, however, on the extent to which comparative statistics regarding rejections or acceptances may be used, especially when the data are spread out over long periods of time. The rejection rates displayed in Table 1, for example, generally do not allow the identification of specific trends for at least four major reasons:

(1) The characteristics of populations examined for military service may be quite disparate from one era to another. Policies during World Wars I and II placed quota restrictions on the proportion of blacks permitted to enter the military. Similar quotas on female recruitment were applied in differing magnitude during each of the periods depicted. In addition, Selective Service deferments and exemptions, as well as local draft board practices, operated to modify the demographic characteristics (e.g., socioeconomic status, race, age) of the segment of the population required to take the preinduction examination. Different methods of recruitment also have affected the population of examinees: in the all-volunteer situation, for instance, self-selection will

usually create a more homogeneous group of applicants than the more randomized mechanism of a Selective Service draft (assuming there is equal liability of service for the general population).

(2) Military manpower needs may vary markedly across time with concomitant effects on recruit quality. During mobilization for expansive war--or any situation where the demand for manpower strains the limits of population supply--the Armed Services are usually compelled to trade some quality for quantity. The size of the recruiting (or strength) objectives, combined with the manner of recruitment and definition of the eligible population, have a powerful influence on the requirements that are established for filling the ranks. And the size of the recruiting objectives for the periods shown in Table 1 are often quite dissimilar: in June 1945, there were almost eleven million enlisted personnel on active duty; one year later, military strength stood at less than three million; today, there are fewer than two million men and women in the active duty enlisted force.

(3) The size of the traditional, "age eligible" manpower pool (18-23-years old) has fluctuated considerably over the seventy years portrayed in Table 1. Other population changes, such as an increase in the median level of education, have also affected the size of the manpower pool deemed eligible for military service during a given era. In the case of education, an entry standard applied in 1960 may be relatively less stringent than a requirement applied during 1980--but, because of an enlargement in the size of the age-eligible population and a rise in the average

level of education, the higher standard of 1980 may actually result in a larger pool of eligible applicants. If a similar education requirement were applied in both 1960 and 1980, the rejection rate would probably be higher in 1960 because the median level of education was lower at that time. Nevertheless, the number of individuals in the eligible pool would probably be larger in 1980 than in 1960, regardless of the quality restrictions used, merely because of the gross differences in population size. For example, the complete elimination of all aptitude and education requirements in 1960 would have resulted in an eligible pool of about 14 million men and women (18-23 years old); in 1980, if eligibility were limited to high school graduates only with aptitude test scores above the 20th percentile, it is estimated that approximately 15 million men and women in the same age category would have qualified for military service.

(4) Different policies and procedures may be used during separate periods concerning the categorization of disqualified examinees, and it is not clear that the sequence of the several examinations is consistent over time. For instance, at present, aptitude testing normally precedes physical examination and, hence, individuals who fail both screens are recorded as disqualified on the basis of their performance on the aptitude test. In previous eras, physical (or medical) screening was often conducted prior to aptitude testing. Thus, the order in which the examinations are conducted and the way in which the results are recorded may influence the historical statistics and limit the comparison of data from different recruiting years.

Table 1 serves the purpose of illustrating why certain comparisons of enlistment screening results should not be made over time--unless, of course, one also considers population demography, the various recruiting or induction policies, and the particular screens in effect during the separate periods being studied. A rigorous analysis of historical data is beyond the scope of this effort. Still, an evaluation of historical records--along with an understanding of the changing nature of warfare and military jobs--suggests that the primary focus of enlistment screening has gradually shifted from physical/medical criteria to measures of aptitude and education. Advances in science and technology have transformed the structure and function of the military and added an ever-expanding need for persons with mental as well as physical prowess. During World War II, the average footslogger could probably get through training if he could scale a wall, lug a fifty-pound pack, shoot straight, keep his nose clean, and salute at the proper moment. The "grunts" of the 1980s still have to be physically fit and morally straight, but they may also be called upon to operate sophisticated weaponry and perform duties that demand comparatively greater skill in mechanical comprehension, arithmetic reasoning, problem solving, and verbal fluency.

The statistics on military rejection rates may also reflect the fact that the nation as a whole is in better physical condition than it was a half-century ago[11]--but, even though the median level of education has increased, there is no evidence that the intellectual ability of the general populace has evolved to any higher stage. Indeed, median scores on

[11]United States Department of Health and Human Services, Health, United States 1980, DHHS Publicaton No. (PHS)81-1232. (Hyattsville, MD: United States Department of Health and Human Services, December 1980), pp. 137, 271.

standardized aptitude and achievement tests dropped steadily from the mid-1960s through 1981;[12] and the implication is that average ability (as measured by the tests) of the nation's younger generations has likewise been in descent.

The Evolution of Current Aptitude and Education Screens

Concise historical treatments of the military's aptitude and education screens are available in a number of official Armed Service and Defense Department documents, textbooks on aptitude testing, and technical research reports.[13]

Aptitude Screening

The American military was a pioneer in the field of aptitude testing during World War I. In 1917 and 1918, the Army Alpha and Army Beta tests were developed so that (1) military commanders could have some measure of the ability of their men, and (2) personnel managers could have some

[12]Brian K. Waters, The Test Score Decline: A Review and Annotated Bibliography, Technical Memorandum 81-2. (Washington, D.C.: Office of the Secretary of Defense, August 1981).

[13]The following represent a sample of available sources:

ASVAB Working Group, History of the Armed Services Vocational Aptitude Battery (ASVAB) 1974-1980, A Report to the Principal Deputy Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics] March 1980).

Department of the Army, Marginal Man and Military Service (Washington, D.C.: Department of the Army, December 1965).

Arthur R. Jensen, Bias in Mental Testing (New York: The Free Press, 1980).

Kwan H. Kim, et al., Research of the Proportion of the Total Youth Population Which is Physically and Mentally Unfit for Military Service, NOSC-7229-KK/MS/RS (Bethesda, MD: Mathtech, Inc., December 1978).

objective means for assigning the new recruits. The Army Alpha test was a verbal, group-administered test used principally by the Army for selection and placement. The test consisted of eight subtests--including verbal ability, numerical ability, ability to follow directions, and information--and served as a prototype for several subsequent group-administered intelligence tests. The Army Beta test was a non-verbal, group-administered counterpart to the Army Alpha test. It was used to evaluate the aptitude of illiterate, unschooled, or non-English-speaking draftees. The Army Beta test is recognized as one of the first important non-language paper-and-pencil tests. (Some of its items still appear in present-day intelligence tests.)

As observed in The Lost Divisions, the education screens of World War II were designed to "select individuals for military service whose intellectual capacity was sufficient to enable them to adjust to the Army, absorb military training, and thereafter perform effectively." The tests used during the course of the war varied, but they were all "geared to distinguish those who could read, write, and do sums at a fourth-grade level from those who could not." Special tests were also used for illiterates to determine whether they could reach the fourth-grade standard with twelve weeks of special instruction.[14]

The Army General Classification Test (AGCT) of World War II largely replaced the tests of World War I. The AGCT was described as a test of "general learning ability" and was intended to be used in basically the same manner as the Army Alpha (i.e., an aid in assigning new recruits to

[14]Ginzberg et al., The Lost Divisions, p. 151.

military jobs). The so-called "rapid learners" (those achieving a standard score of 130 or above) were ranked at the top in Army Grade I: the slowest learners (those with a standard score of 69 or below) were placed in Grade V.[15]

The AGCT was standardized in September of 1940 on white male military personnel and civilian Conservation Corps enrollees between the ages of 20 and 29. To ensure that this sample was representative of the civilian manpower pool; age, education, and geographic region distributions of the general population were estimated from the 1930 census.[16]

After the conclusion of World War II, the Military Services developed their own separate aptitude tests for selection. As Karpinos observes: "Though different in structure, primarily with respect to cut-off scores, the tests were essentially the same with respect to content areas, relying on the time-honored items of vocabulary, arithmetic, and spatial relationships."[17]

In 1948, the Military Services convened a working group for the purpose of developing a uniform aptitude test that could be used for enlisted selection and classification by all components. The following four points were established as the basic requirements of the test:

---

[15]After 15 July 1942, Army Grade V was narrowed by extending the limits of Grade IV an additional half standard deviation downward (from standard score 70-89 to 60-89). The standard score limits for Grade V were thus changed from 0-69 to 0-59. Although this change had no effect upon the distribution of scores, it did alter the grade distribution considerably.

[16]Staff, Personnel Research Section, "The Army General Classification Test," p. 761.

[17]Bernard D. Karpinos, Male Chargeable Accessions: Evaluation by Mental Categories (1953-1973), SR-ED-75-18 (Alexandria, VA: HumRRO, January 1977, p. V.

1. The test should represent a "global" measure of ability.

2. The test should contain items in vocabulary, arithmetic reasoning, and spatial relations.

3. The test should minimize the importance of speed so that slow performers would not be penalized.

4. The test should minimize the difficulty of verbal instruction relating to test items.[18]

Through the combined efforts of the Military Services, the Armed Forces Qualification Test (AFQT) was developed and introduced operationally in July 1950, in conjunction with the reinstitution of the Selective Service draft.[19] The new test was modeled after the AGCT and statistically linked with its predecessor in the following manner:

1. In 1949, the AGCT was administered to representative samples of groups of youths (voluntary applicants) at various recruiting stations throughout the nation.

2. A subsample was then selected from the representative groups with a score distribution that corresponded to

[18]Bernard D. Karpinos, "The Mental Qualification of American Youths for Military Service and Its Relationship to Educational Attainment," in Proceedings, The American Statistical Association, 1966, p. 96. (reprint)

[19]The 1950 Selective Service Act reestablished military conscription after a brief period of all-volunteer recruitment that began in January 1949.

the World War II "mobilization distribution" used in standardizing the AGCT.

3. The matched subsample was subsequently tested with the new AFQT.

4. Finally, the AGCT and AFQT distributions were equated (using an equipercentile method) so that AFQT scores would relate to the World War II mobilization population (the presumed pool of civilians available to serve in the military).[20] A given AFQT percentile score therefore describes aptitude level relative to the 1944 mobilization population rather than to a current youth population.

Unlike the AGCT and the aptitude tests of World War I, the AFQT was specifically designed to be used as a screening device. Thus, the AFQT was established for the purpose of both (a) measuring the "examinee's general mental ability to absorb military training within a reasonable length of time, so as to eliminate those who do not possess such ability"; and (b) providing "a uniform measure of the examinee's potential general usefulness in the service, if qualified on the tests."[21]

---

[20]Bernard D. Karpinos, "The Mental Qualification of American Youths for Military Service and Its Relationship to Educational Attainment," in Proceedings, The American Statistical Association, 1966, p. 96. (reprint)

[21]Ibid., p. 96. See also J.E. Uhlaner and D.J. Bolanovich, Development of the Armed Forces Qualification Test and Predecessor Army Screening Tests, 1946-1950, PRS Report 976 (Washington, D.C.: Personnel Research Section, Department of the Army, 7 November 1952).

Since its introduction in 1950, the AFQT has undergone several modifications in both its character and usage. For example, the original version (as noted) included items to test verbal skills, arithmetic reasoning, and spatial relations; a tool functions subtest was added in 1953 and then dropped in 1973; and, since 1980, the AFQT no longer includes spatial relations, but places increased emphasis on verbal and quantitative items. Further, the number of items comprising the AFQT has varied over time, and scoring procedures and the ordering of items have changed.

In the course of the past thirty years, the Military Services have also used a variety of other aptitude screening tests for the supplementary evaluation of applicants and draftees. The Army Classification Battery (ACB) and a subsequent, shorter version, the Army Qualification Battery (AQB), were used from the late 1950s to early 1970s by all Services except the Air Force. The Air Force, in the late 1950s, introduced the Airman Qualification Examination (AQE) as an enlistment screening device. The Navy has used the Applicant Qualification Test (AQT), the Short Basic Test Battery (SBTB), and the Basic Test Battery (BTB) for the same purpose. All of the Services have also used and continue to use the Enlistment Screening Test (EST), an abbreviated AFQT as needed, for preliminary screening at recruiting stations (prior to formal examination). In addition, alternative tests have been used for a "special aptitude testing" of female applicants. The Armed Forces Women's Selection Test (AFWST), for example, was administered to female applicants in lieu of the AFQT from 1956 to 1974.

Each Service was permitted to develop conversion tables from its own test battery as a basis for estimating an individual's AFQT score from

1973-1975. In 1974, the Department of Defense decided that all of the Armed Services should use a single test battery both for screening enlistees and for assigning them to military occupations. By combining selection and classification testing, the testing process was made much more expedient. It enabled the Services to improve the matching of applicants with available job positions, and allowed job guarantees for those qualified. The Armed Services Vocational Aptitude Battery (ASVAB) was selected for this purpose since (a) it was already being used in the Department of Defense High School Testing Program, and (b) at the time, the Air Force and the Marine Corps were administering a parallel form of the ASVAB in their own operational testing programs. A revised form of the ASVAB was installed as the DoD-wide aptitude test of enlistment eligibility on January 1, 1976.

Education Screening

Minimum aptitude standards that differed according to educational attainment were first introduced on a trial basis by the Air Force in June 1950. High school dropouts were required to have a higher minimum AFQT score than their counterparts who finished high school. In November of the same year, the Air Force discontinued formal use of a separate education requirement and returned to a minimum aptitude score standard for all applicants. Ten years later, in consideration of research showing a substantially greater rate of first-term attrition among men who failed to complete high school, the Air Force reintroduced the education differential: high school graduates were required to score no lower than 26 on the AFQT; nongraduates were required to have an AFQT score of at least 31.[22]

[22]See Eli S. Flyer, Factors Relating to Discharge for Unsuitability Among 1956 Airman Accessions to the Air Force, WADC-TN-59-201 (Lackland AFB, TX: Personnel Laboratory, Wright Air Development Center, December 1959).

The Army started to combine education and aptitude criteria in 1962: high school graduates with an AFQT score of at least 31 were "fully qualified"; graduates who scored between 21 and 30 could qualify if they had standard scores (mean of 100 and standard deviation of 20) of 90 or higher in three AQB aptitude areas; and nongraduates were required to have AFQT scores of 31 or greater. Education differentials based on high school graduation were likewise established as entry standards for the Marine Corps and the Navy in 1965. Varying aptitude standards continue to be linked with high school graduation status in all Services. In the Army, Navy, and Air Force, separate aptitude criteria (higher than graduates, but lower than nongraduates) have also been established for applicants with General Educational Development (GED) certificates of high school equivalency.

The formal aptitude and education standards (for male applicants without prior service) applied by the military appear in Appendix A, arranged by Service over the following periods: Army, 1946 to present; Navy, 1953 to present; Marine Corps, 1953 to present; Air Force, 1946 to present; and general military induction, 1940 to 1973. The points at which each Service introduced different aptitude standards based on education, age, and length-of-enlistment (for the Army) are highlighted.

Some General Concepts and Principles

The fundamental objectives of military "quality" standards are summarized in a recent Department of Defense report to Congress:

> Proper enlistment screening and job placement are prerequisites for efficiencies in training, retention of skilled personnel, and mission performance. Any deficiencies in the selection and classification system

> lead to increased training times and cost, dissatisfied personnel with concomitant decreases in morale, productivity, and retention, and critical shortages of skills caused by failure to achieve optimal assignment of available manpower into the various occupations.[23]

The military's task in screening potential recruits is complicated by the fact that the available manpower pool is composed predominantly of young men and women who have never held a "permanent," full-time job. The median age of new recruits each year is just over 19 years, and most of the individuals who are screened for enlistment are recent high school graduates or dropouts. In civilian employment selection, past job performance and specialized postsecondary training are important criteria in evaluating applicants. But military applicants, for the most part, do not have job histories of any length, and the Services must depend mainly on indicators of potential performance such as relevant aptitudes, level of education, background characteristics, attitudes and interests, personal interviews, and evaluations or recommendations from various sources.[24]

The current aptitude test used for screening applicants (ASVAB) is administered yearly to nearly two million applicants and high school students, making it the largest-volume employment test in the United States. With the exception of school-level, state-administered proficiency examinations, only the Scholastic Aptitude Test (SAT) and the American

---

[23]Department of Defense, Department of Defense Efforts to Develop Quality Standards for Enlistment, A Report to the House and Senate Committees on Armed Services (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], December 1981), p. 5.

[24]See Ibid., p. 7.

College Testing Program (ACT), which account for virtually all undergraduate college admissions testing, even approach the annual volume of ASVAB tests.[25]

The ASVAB is also used by the Military Services in assigning new recruits to jobs and placing them in the appropriate skill-training courses. Because the military encompasses a wide range of occupations, the ASVAB consists of ten subtests that measure a variety of abilities.[26] Four of the ASVAB subtests--Word Knowledge, Paragraph Comprehension, Arithmetic Reasoning, and Numerical Operations--are currently combined to produce the AFQT score. The four Services use various combinations of ASVAB subtest scores to develop aptitude composites (e.g., mechanical, clerical, general-technical) for assigning new recruits to specific training courses.

For reporting purposes, scores on the AFQT traditionally have been grouped into five broad AFQT categories (formerly called "mental categories"). Persons who score in Categories I and II tend to be above average in trainability; those in Category III, average; those in Category IV, below average; and those in Category V, markedly below average (and typically not eligible for enlistment). The range of percentile scores for

---

[25]Approximately 1.5 million young men and women take the SAT at least once each year, and just under 1 million take the ACT. Many college-bound high school students take both tests. See Rodney Skager, "On the Use and Importance of Tests of Ability in Admission to Postsecondary Education," Ability Testing: Uses, Consequences, and Controversies, Part II, edited by A.L. Wigdor and W.R. Garner (Washington, D.C.: National Academy Press, 1982), pp. 286-314.

[26]The ten subtests appearing in the 1983 versions (Forms 8, 9, and 10) are Arithmetic Reasoning, Numerical Operations, Paragraph Comprehension, Word Knowledge, Coding Speed, General Science, Mathematics Knowledge, Electronics Information, Mechanical Comprehension, and Automotive-Shop Information.

the AFQT categories and the percentage of the "World War II reference population" with scores in each category are as follows:

Table 2

Armed Forces Qualification Test Category Ranges and World War II Reference Population Distribution

AFQT Category	Percentile Score Range	World War II Reference Population Distribution* (Percent)
I	93-100	8
II	65-92	28
III	31-64	34
IV	10-30	21
V	1-9	9
		100

Source: Department of Defense, 1982.

*The "World War II reference population" approximates the aptitude score distribution of males on active duty (including 12 million officers and enlisted personnel) as of 31 December 1944.

In addition to assessing recruit quality via AFQT categories, educational level is also used to indicate quality--albeit on a different dimension. As noted, high school graduation status has been used by the Military Services in combination with aptitude test standards for over twenty years. High school graduation is not viewed in this context as evidence of an individual's intellectual capacity, nor is it perceived as a surrogate measure of aptitude. The AFQT is used to measure aptitudes. Education level evolved as a screening tool mainly because of its recognized value in predicting a new recruit's chances for "adapting to military life." The personal attributes that allow or encourage certain teenagers

to follow through and finish high school--whether maturity, motivation, ambition, strength of character, determination or persistence, or, as some contend, the ability to tolerate boredom and routine--apparently help to make them more successful members of the nation's military.

The Armed Services thus place a high premium on completion of high school, since "possession of a high school diploma is the best single measure of a person's potential for adapting to life in the military."[27] Male enlistees who have not completed high school (at time of entry), for example, are about twice as likely as are high school graduates to leave the military before finishing their full first-term of active duty. In addition, non-high school graduates characteristically experience more disciplinary, administrative, and retraining actions.[28] Consequently, "the active force recruiting programs have concentrated on enlisting high school diploma graduates" through the use of recruiting quotas, educational benefits and enlistment bonuses (in specific occupational categories), and other special incentives;[29] and "the Services compensate for the high attrition rates of high school non-graduates by requiring that they achieve higher test scores to qualify for enlistment."[30]

---

[27]Department of Defense, America's Volunteers (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], December 1978), p. 30.

[28]See Department of Defense, Defense Manpower Quality Requirements, Report to the Committee on Armed Services of the U.S. Senate (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], January 1974); and General Accounting Office, Problems Resulting From Management Practices in Recruiting, Training, and Using Non-High School Graduates and Mental Category IV Personnel, FPCD-76-24 (Washington, D.C.: General Accounting Office, 12 January 1976).

[29]Department of Defense, America's Volunteers, p. 30.

[30]Department of Defense, Efforts to Develop Quality Standards, p.2.

It should be observed at this point that the minimum education and aptitude standards established by the Armed Services each year represent the formal limits (or absolute "floor") used in determining applicant eligibility. As a rule, informal limits can be raised at any time, however, to reduce further the pool of eligible applicants and focus recruiting efforts on those with higher test scores and special abilities. During an especially good recruiting year, for example, the Services may find that the number of above-average applicants is large enough to warrant the establishment of "tighter" eligibility standards. The administrative workload can thus be reduced by limiting enlistment eligibility to, say, only high school graduates or only those who are able to score above the 30th percentile on the AFQT.

Consequently, the formal minimum standards instituted by the Armed Services during any particular period may not be a true reflection of the actual "operational standards" used for determining who gets in and who stays out. The minimum "cutting" score on the military's enlistment test may be adjusted up or down (but not below the formal minimum requirements) in response to periodic changes in manpower retention and the recruiting market. These temporary modifications are intended to increase recruiting efficiency by regulating the flow of applicants and skimming only the cream of the crop of otherwise qualified recruits. The impermanence and changeable nature of operational criteria have usually functioned to keep them from general public view.

"Cutting scores" are established on the basis of three major factors: (1) the manpower quantity needs of the Armed Services; (2) the manpower quality needs of the Armed Services: and (3) determination of the status of

the recruiting market and the ability of the Armed Services to draw from the available supply of qualified youth. In addition, "cutting scores" may be influenced directly by the actions of Congress. In the past, for instance, Congress has enacted minimum eligibility requirements on entrance test scores (e.g., no enlistees or draftees with scores below the 10th percentile) and restrictions on the proportion of below-average recruits during a given year (e.g., no more than 25 percent of all new enlistees with scores between the 9th and 31st percentiles).

External factors (such as manpower supply) and organizational needs (such as manpower demand) largely determine Department of Defense policies and the minimum standards established by the Armed Services. Recruiting outcomes and reenlistments are then monitored closely to ascertain whether the operational standards should be modified in some manner. Numerical and quality needs are obviously affected by the success or failure of previous recruiting efforts, as well as ongoing programs to retain capable personnel. Congressional actions (such as changes in budget levels or the imposition of "quality" restrictions and quotas) are likewise influenced by recruiting results and manpower retention from one year to the next.

A simplified model showing the interaction of the principal factors (policy, standards, and outcomes) is presented below (Figure 1). It should be noted that the various determinants of Congressional action and the perceived needs of the military are not enumerated here. A complex arrangement of economic, social, political, and organizational factors, both in the domestic and international domain, may be said to determine the size and content of the nation's Armed Forces. A complete treatment of these factors and their relative influence on enlistment standards is

beyond the scope of this volume. However, one major aspect of the environment--that is, movement between states of war and peace and the concomitant effects on enlistment eligibility--is examined more closely to illustrate the relationship between external factors, defense requirements, and military selection criteria.

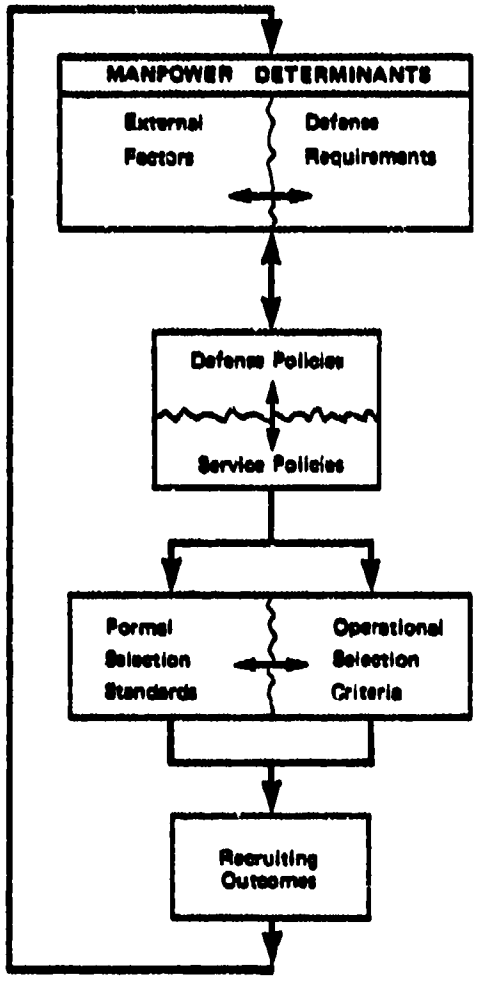


Figure 1. Simplified Model of the Interaction Between Manpower Determinants, Military Policy, Selection Standards, and Recruiting Outcomes

War and Peace: Effects on Military Selection Criteria, 1940-1973

Wartime mobilization typically gives priority to abundant manpower quantity over manpower quality; the old adage of conventional war is that strength lies in numbers. So, with each mobilization for war or other national emergency, voluntary enlistment and induction standards usually have been lowered.[31] When the minimum aptitude standard was raised from "ability to comprehend simple orders in the English language" to "ability to read and write English at the fourth grade level" just prior to World War II, there was some uneasiness about the overly restrictive elimination of illiterate manpower. Concern over possible manpower shortages, coupled with pressure from certain southern Congressmen (whose constituents were being rejected at relatively high rates), eventually led to a softening of the aptitude restriction and an allowance for the induction of some (10 percent) illiterates.[32]

Following the end of the Second World War, the draft tapered off and peacetime enlistment standards were raised. All inductions were halted between November 1945 and October 1948. In 1948, new Selective Service legislation was enacted to bolster America's defense. The draft law established an aptitude standard that was somewhat more restrictive than before: conscripts were required to achieve a standard score of at least 70 on the AGCT. (This corresponds to a percentile score of 13 on the AFQT.) The new

[31]The reader is reminded that a full description of the minimum aptitude and education standards (formal limits) for each Service over selected periods can be found in Appendix A.

[32]Harold Wool, The Military Specialist: Skilled Manpower for the Armed Force (Baltimore, MD: The Johns Hopkins Press, 1968).

aptitude standard for draftees was the same as the standard being applied for Army enlistees, and it operated to "weed out" many men who would have qualified for induction during the earlier mobilization.

Just prior to the Korean Conflict, the minimum aptitude standard for voluntary enlistment in the Army was set at a percentile score of 31 (or standard score of 90) on the AFQT. In July 1950, the minimum required AFQT percentile score was lowered to 13 (standard score of 70); and, then again, one year later the minimum percentile score was reduced to 10 (standard score of 65), affirming the nation's commitment to Korea and full involvement in the Cold War. The aptitude standard for induction similarly fell from an AFQT percentile score of 13 to a score of 10, in an effort to widen the pool of potential conscriptees.

The Department of Defense adopted a "qualitative distribution policy" from 1951 through 1958, so that low-aptitude personnel would not be concentrated in the Army (the only Service using the draft). This policy set all voluntary enlistment standards at the same level as those for induction and additionally directed that each Service establish a quota for new recruits in AFQT Categories I through IV. Over the period of the qualitative distribution program the quotas for low aptitude personnel (AFQT Category IV) ranged from a high of 27 percent to a low of 12 percent of all new recruits.

The standards for draftees were relatively lenient at this time so that the widest pool of eligible recruits could be assembled. In addition, for reasons of "equity," all but the most "untrainable" were deemed acceptable for service; a citizen's duty to defend his country, it was felt, should be a universal principle that reaches into <u>all</u> strata of society

(notwithstanding draft deferments, which are a subject for treatment elsewhere). The shorter tours of duty required of men who were conscripted provided some assurance that the so-called marginal performers would not compromise the long-term quality of the enlisted force (though it also assured that bright draftees wouldn't serve very long, either).

The years between Korea and Vietnam were comparatively calm, and manpower strength gradually declined throughout this period. Minimum aptitude standards were set under Department of Defense oversight in accordance with the particular needs of the Services. The trend at this time was to gradually raise the caliber of new recruits by reducing the percentage of persons in AFQT Category IV that the Services were required to take. After 1958, the standards were somewhat more "sophisticated," with supplemental test requirements and other criteria added to filter further the pool of eligible recruits. In the early 1960s the Cold War intensified, the nation's collective consciousness of defense issues was again aroused, and the Berlin Crisis along with Soviet actions in Cuba prompted an expansion of the military's active-duty force (as well as substantial Reserve recalls).[33] The Navy, Marine Corps, and Air Force lowered their standards slightly (Army induction standards were already sufficiently relaxed), and end strength increased.

In August 1964, Congress approved the Gulf of Tonkin Resolution, authorizing the President to take necessary steps to "maintain peace" in Vietnam. Approximately 23,000 American "advisors" were committed to combat during the summer of 1965; six months later, the number of U.S. troops

[33]Department of Defense, Reference Materials Department of Defense Study of the Draft (Washington, D.C.: Office of the Assistant Secretary of Defense (Manpower), July 1966), p. 1.b.

exceeded 184,000, and all signs pointed to an even greater involvement in the Asian conflict.

In the fall of 1965 the Department of Defense directed that Army and Marine Corps aptitude standards for voluntary enlistment be set at about the same level as the standards for induction. This move was intended to promote volunteer recruitment for the Vietnam mobilization. Supplementary test requirements--such as the minimum scores on aptitude composites or subtests for high school graduates with AFQT percentile scores between 16 and 30--were also waived. By 1968, the U.S. had over 500,000 troops stationed in Vietnam, and the active duty enlisted force reached a post-Korean-era peak of 3.1 million, an increase of 45 percent over the enlisted strength levels at the turn of the decade.

During the course of the Vietnam war, aptitude and education standards for induction were lowered four times, and all Services except the Air Force loosened their formal minimum requirements for volunteers. In addition, "Project 100,000" opened the doors to military service for many young men who did not qualify under existing standards. "Project 100,000" was related to President Lyndon Johnson's "War on Poverty" program. It was created to provide "a more equitable sharing of the opportunities and obligations for military service among the nation's youth,"[34] and it called for the recruitment of about 100,000 "New Standards Men" (as they were later named) each year. The Department of Defense concurrently directed that each Service admit an annual quota of recruits with test

[34]Department of Defense, Project 100,000: Characteristics and Performance of "New Standards" Men (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower and Reserve Affairs], December 1969).

scores in AFQT Category IV (ranging from a high of 25 percent in the Army to 15 percent in the Air Force).

Table 3

Comparison of Minimum Aptitude/Education Standards for Enlistment by Service During Two Periods: October 1965 (Vietnam Transition) and July 1966 (Vietnam Early Mobilization)

SERVICE	October 1965 (Vietnam Transition)			July 1966 (Vietnam Early Mobilization)		
	Minimum AFQT Score*	Additional Testing Required*	Education Required	Minimum AFQT Score*	Additional Testing Required*	Education Required
Army	31	None	Any level	31	None	Any level
	21-30	AQB (3 areas)	High school graduate	16-30	AQB (2 areas) and GT	Any level
				16-30	None	High school graduate
Navy	31	None	Any level	31	None	Any level
	21-30	None	High school graduate	16-30	AQB (2 areas) and GT	
				21-30	None	High school graduate
Marine Corps	31	None	Any level	31	None	Any level
	21-30	AQB (3 areas)	Any level	16-30	AQB (2 areas)	Any level
				16-30	None	High school graduate
Air Force	31	AQE (1 area)	Any level	31	AQE (1 area)	Any level
	21	AQE (1 area)	High school graduate	21	AQE (1 area)	High school graduate

*NOTE: AFQT is the Armed Forces Qualification Test. AQB is the Army Qualification Battery. GT is the General-Technical composite of the enlistment test battery. AQE is the Airman Qualifying Examination. Minimum AFQT standards are expressed in percentile scores.

Source: United States Congress, Review of the Administration and Operation of the Selective Service System (No. 75), Hearings before the Committee on Armed Services, House of Representatives, Eighty-Ninth Congress, 1966.

The extent of the initial reduction in aptitude and education standards during the Vietnam mobilization is illustrated in Table 3. In October 1965, as troop levels in Vietnam were just beginning to increase, the Army

considered high school graduates with AFQT percentile scores of at least 31 as "fully qualified" for enlistment; those with scores between 21 and 30 could qualify if they also achieved an acceptable score in one of three Army Qualification Battery (AQB) aptitude areas. By the start of the next fiscal year (July 1966) high school graduates with AFQT percentile scores of 16 could meet the Army's aptitude standards without additional test requirements. At the same time, the Army's minimum standard for nongraduates was lowered from an AFQT score of 31 (in October 1965) to either (a) a score of 31 for full qualification or (b) a score between 16 and 30 with acceptable scores on the General-Technical aptitude component and two other aptitude areas from the AQB. The minimum aptitude and education standards in the Navy and Marine Corps were similarly lowered during the early stages of the Vietnam mobilization.

As the war in Vietnam subsided during the early 1970s, quantitative manpower requirements dropped, active duty enlisted strength was cut, and the military's entry standards were again raised. "Project 100,000" officially ended in December 1971. The last draftees were delivered by Selective Service in December 1972, as the nation's defense establishment initiated the "all-volunteer experiment."

SECTION 2

Standards and Recruiting Outcomes: The Quality of Military Examinees and New Recruits Under Various Conditions

The history of aptitude and education standards is not complete without a brief review of the types of people who have been screened by the military during recent years. Section 1 focused primarily on the minimum requirements for entrance over time, including the conceptual premise for aptitude screens and the dependence of eligibility criteria on the defined needs (mostly in terms of strength objectives) of the military at any particular moment. This section traces the test score trends of those who have taken military examinations in an effort to gain a better understanding of the relationship between minimum standards and recruit "quality." What is the average ability of these candidates for military service? Who among those examined, minimum standards notwithstanding, is able to gain entry? What is the relative influence of standards, compared with environmental factors and other external conditions, on the qualitative character of new recruits?

The answers to these questions are sought in Department of Defense data on the test scores of "examinees" and "accessions,"[35] along with some speculative reasoning about the effects on recruiting of selected factors such as mobilization, unemployment, and the presence of conscription. Before reviewing military test score data, however, it is important that the reader be acquainted with the selection process and certain technical terms used by the Armed Services.

---

[35]"Examinees" include all persons (unless otherwise restricted) who are examined for the purpose of induction (as a draftee) or enlistment (as a volunteer) into military service, regardless of acceptance or rejection. "Accessions" are new recruits (enlistees or inductees) without prior military service.

The Military Selection Process for Enlisted Personnel

Figure 2 depicts the military enlisted selection process. The manpower pool consists of men and women between the ages of about 17 and 35. The "primary" or "preferred" pool is generally limited to "military-age youth," or young men and women in their late teens to early twenties. At times, the manpower pool is improperly referred to as the "mobilization population." The mobilization population is that portion of the general population (or manpower pool) that could be called for military duty in time of national emergency. This group commonly includes only men of appropriate age, since women are barred from combat-related occupations and excluded from participating in the draft. It should be noted that the figures and tables in this section (as well as most of the data presentations in the following sections) include data on males only. Since females were not inducted and generally comprised such a minuscule proportion of recruits prior to the AVF, quality trends are statistically more pure and more easily analyzed and interpreted when the data are limited to males only.

Historically, as shown in Figure 2, members of the manpower pool can enter the enlistment selection process as either (1A) pre-inductees who have been directed to undergo examination for military induction (during time of draft), or (1B) applicants for voluntary enlistment. Local draft boards typically determine the eligibility of pre-inductees, and recruiters provide initial screening for applicants. Individuals who pass the preliminary screening may continue in the examination process. Those who progress to step 2 of Figure 2--the complete assessment of medical and moral fitness, aptitude, education, and other qualifications for military service--are called "examinees." "Examinees" may be either accepted or rejected at this point; those

who are found to be fully qualified for military service are then inducted or permitted to enlist voluntarily. Currently, persons who are eligible for enlistment may postpone entry into active duty for up to a year through the Delayed Entry Program (DEP). Stage 4 signifies formal entry into active duty or "accession" status.

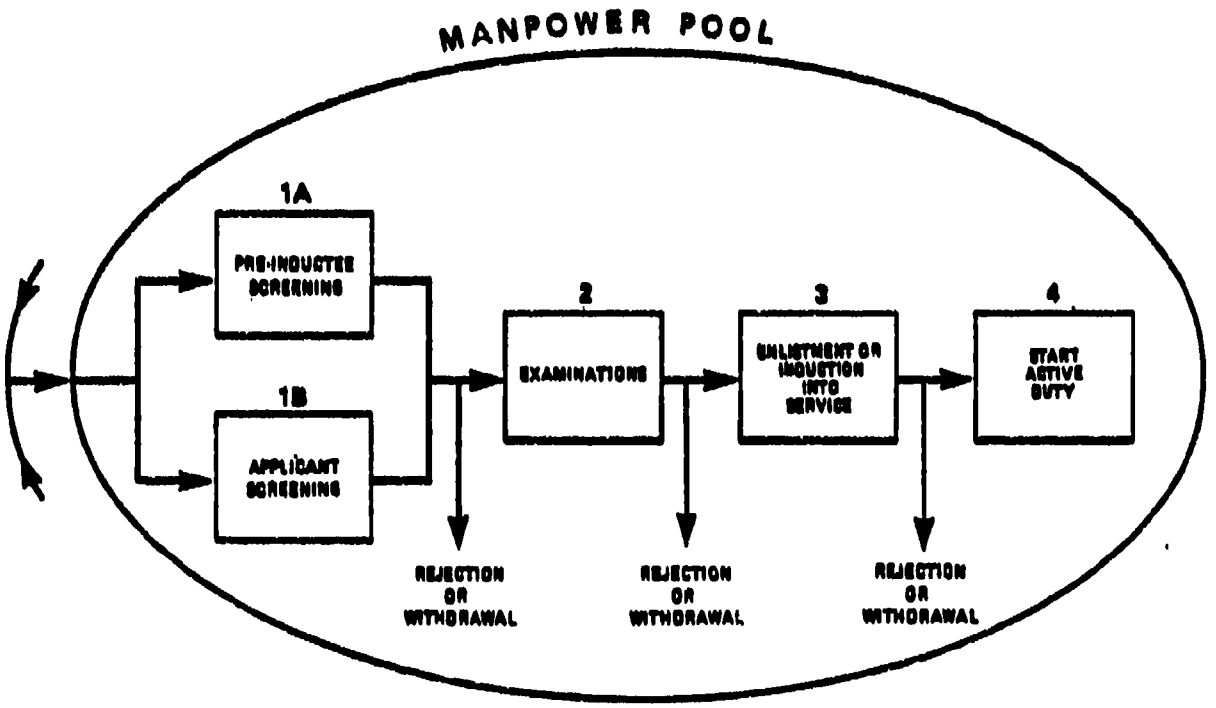


Figure 2. Military Enlisted Selection Process

It should be noted that some persons who successfully pass the examination phase never follow through with induction or enlistment. Selective Service registrants, for example, may still be deferred from military service at a point following the examination. Similarly, volunteers may decide to withdraw their application for enlistment after being examined; even those who decide to enlist under the DEP may renege on their agreement and never actually enter active duty. The fact that a large segment of those who qualify for enlistment never enlist (37 percent in 1977) and a number of people who enlist never enter active duty (4 percent in 1977) should be kept in mind when comparing examinee and accession data.[36]

Military Examinees: Test Score Trends

Since the early 1950s, intellectual aptitude, or military "trainability," has been measured by the Armed Services with a composite of verbal and quantitative subtests (spatial and tool knowledge subtests were also used formerly) known as the Armed Forces Qualification Test (AFQT). Scores on the AFQT are traditionally reported as percentiles; and, as observed in Section 1, they are statistically related to the aptitude score distribution of men on active duty during World War II. The use of a World War II "reference population" provides the Armed Services with a baseline for comparing and evaluating the test scores of individuals over time. In this manner, military psychologists have attempted to hold constant the relative aptitude of an individual with a particular percentile score, even though the tests used to calculate AFQT scores have changed frequently over the past 40 years. Consequently, it

[36]Sue E. Berryman, Robert M. Bell, and William Lisowski, The Military Enlistment Process: What Happens and Can It Be Improved? (Santa Monica, CA: The Rand Corporation, May 1983).

is presumed that individuals who earn AFQT percentile scores of 50 in, say, 1983 would also earn percentile scores of approximately 60 on whatever test was used during any period since World War II.

Table 4 shows the percentage of male examinees (without prior military service) who achieved AFQT percentile scores of 50 or higher while processing for induction or enlistment between FY 1964 and FY 1982. The 50th percentile --or the median of the reference population score distribution--is often used as a dividing line of aptitude "quality" by the Armed Services. Indeed, the Army currently separates AFQT Category III into two subcategories for administrative and reporting purposes: AFQT IIIA includes percentile scores from 50 to 64, and Category IIIB includes scores between 31 and 49 inclusive. For convenience, then, individuals who score in AFQT Categories I through IIIA (particularly high school graduates) are frequently combined and simply called the "top half" (of the population), the "high quality" group, "preferred recruits," or the like.

It can be seen in Table 4 that the annual percentage of male examinees who score at or above the 50th percentile on the AFQT has generally declined during the past decade. In fact, the data suggest the existence of two distinct periods: the Vietnam-era draft, when the annual proportion of examinees in the AFQT 50-and-above range (for all Services combined) approximated 50 percent; and the all-volunteer era, when the annual proportion of male examinees in this score range was usually below 40 percent.

Table 4

Percent of Male Examinees Who Achieved AFQT
Percentile Scores of 50 or Higher (Categories I-IIIa)
by Service, FY 1964-83

Fiscal Year	Percent Who Scored AFQT 50 or Higher[a]				
	Army	Navy[b]	Marine Corps[b]	Air Force[b]	Total DoD
1964	39.7	--	--	--	41.9
1965	41.3	--	--	--	43.7
1966	48.0	--	--	--	48.2
1967	49.5	--	--	--	49.6
1968	47.3	--	--	--	47.8
1969	43.0	--	--	--	44.6
1970	51.4	--	--	--	51.0
1971	50.0	--	--	--	50.0
1972	49.8	50.9	33.6	55.0	49.7
ALL-VOLUNTEER FORCE TRANSITION[c]					
1973	51.5	50.3	31.2	57.5	51.8
1974	39.6	56.3	39.3	51.6	45.1
1975	37.3	45.2	36.5	54.9	41.7
1976	32.2	39.7	40.3	42.5	36.4
1977	25.1	42.3	33.2	48.4	34.8
1978	26.5	46.6	33.7	49.8	37.4
1979	23.3	46.1	31.7	47.4	34.7
1980	23.0	50.6	36.9	50.7	37.2
1981	26.2	48.9	40.5	51.7	38.1
1982	36.4	49.3	41.4	52.1	43.3
1983	43.7	55.8	49.2	59.7	50.1

Sources: Data for years 1964-71 are based upon adjusted preinduction examinee scores reported in Office of the Surgeon General, Form 1043, Results of Preinduction Examinations Summary and Armed Forces Examining & Entrance Station Qualitative Distribution Report of Male Enlistments, Induction, and Rejections, RCS DD-M(M)-663 (Form 1042) (Washington, D.C.: Office of the Surgeon General, 1964-71). Data for years 1972-83 were provided by the Defense Manpower Data Center.

[a]Percentages appear according to the Armed Service that tested the examinee. Examinees include only males without prior military service who were tested for the purpose of enlistment or induction.

[b]Separate data on examinees tested by these Services are not available for the period 1964-71.

[c]The official end of the draft occurred on 30 June 1973. The drawdown began in July 1972, with the last draft call issued in December 1972.

The average aptitude of young men tested for enlistment eligibility ncreased considerably during FY 1982 and particularly during FY 1983, but his sudden shift upward may be an anomaly rather than the start of a new, ong-term trend. Closer study of the data in Table 4, for example, reveals a istinctly dramatic drop in the average aptitude of young men tested by the rmy over the past ten years. During the Vietnam era, no fewer than two out f every five Army examinees scored at least 50 on the aptitude test. In

contrast, only about one out of three or four Army examinees typically scored in the "top half" of the population distribution during the all-volunteer era. The nadir was reached in 1979 and 1980, when 23 percent of all young men applying for enlistment in the Army attained a percentile score of 50 or higher--compared with a peak level of almost 52 percent during the transition to all-volunteer recruitment. The aptitude level differences between the draft and All-Volunteer force periods may be partially explained by the fact that the former period was a time of high draft calls and restricted deferments. A higher aptitude force would be expected under such draft conditions, particularly since there tends to be a greater proportion of college educated persons who enter the screening process than under all-volunteer conditions.

The change that occurred in the average aptitude level of examinees after the end of the draft is emphasized in Table 5, which contrasts the median percentage of male examinees who scored at or above AFQT 50 during the 1964-72 and 1974-83 periods.

Table 5

Median Percent of Male Examinees Who Scored AFQT 50 or Higher, FY 1964-72 and FY 1974-83[a]

Service in Which Tested	Vietnam-Era Draft (FY 1964-72)	All-Volunteer Force (FY 1974-83)
Army	48.0	32.2
All Services Combined	48.2	38.1

[a] Excludes FY 1973, the AVF transition year.

Unfortunately, separate statistics are not available on examinees tested by the Navy, Marine Corps, and Air Force between 1964 and 1971. However, the data for these Services after 1971 reveal general consistency in the annual proportion of male examinees who score AFQT 50 or above. For instance, during the eleven-year period (1972-82) shown in Table 4, between 45 and 50 percent of all young men applying for enlistment in the Navy characteristically scored at or above the 50th percentile. The Marine Corps experienced somewhat more variability from year to year, but the annual proportion still remained in a range between 30 and 40 percent. Young men examined for enlistment by the Air Force tended to have higher average scores than those examined by the other Services; but the annual proportion of "high quality" examinees during the five-year period of 1977 through 1981 was consistently around 50 percent. A large increase in all Services' percentages occurred in FY 1983.

Table 6 offers a different view of the aptitude test performance of male examinees (all Services combined). The consistency in test performance from one year to the next is even more apparent when examinees are arranged according to AFQT Category. With amazing regularity, the annual proportion of examinees within each AFQT category hardly varies--even though there are sizeable differences in the number of applicants for enlistment each year. The AFQT category distributions for 1977 through 1981 display virtually no variance. Indeed, a difference of only one percentage point in Categories IIIB and V distinguishes the distribution of 1978 from that of 1980; yet, the number of examinees jumped from 453,000 in 1978 to 612,000 in 1980 (an increase of 35 percent).[37]

[37]The percentage distributions of male examinees by AFQT category were tabulated for each of the Military Services (FY 1972-82) and appear in Appendix B.

Table 6

Percent Distribution of Male Examinees
by AFQT Category, FY 1972-83

AFQT CATEGORY	Percent Distribution of Male Examinees[a]											
	All-Volunteer Force Transition[b]				All-Volunteer Force							
	1972		1973		1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
	Registrants	Applicants	Registrants	Applicants										
I	6	4	6	3	2	2	4	3	3	3	3	2	3	3
II	32	25	36	25	25	25	24	21	21	19	21	22	26	29
IIIA	17	18	19	20	20	22	14	14	14	14	14	14	16	18
IIIB	18	21	20	23	28	30	22	18	18	18	19	20	21	22
IV	17	26	15	25	20	16	26	35	35	37	35	33	29	24
V	9	5	9	4	5	5	10	9	9	9	6	9	5	2
TOTAL Percent	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Number[c] (In thousands)	323	483	344	422	431	366	441	583	453	466	612	664	636	699

Source: Derived from data provided by the Defense Manpower Data Center.

[a]Includes male examinees without prior military service who were tested for the purpose of induction or enlistment by the Armed Forces during the indicated fiscal year. AFQT distributions for FY 1976-80 incorporate renormed scores.

[b]The last selective service draft call was issued in December 1972 (the middle of FY 1973), but some inductions also occurred during the subsequent months.

[c]Unknown cases were deleted from calculations. The AFQT scores for approximately 14 percent of all examinees during 1975 and 1976 were unknown. Unknown cases for other years averaged about 3 percent of examinees.

The data on AFQT test scores of male examinees suggest two general conclusions: (1) there are discernible differences in average aptitude between young men examined during the Vietnam era and those who have applied (so far) for enlistment under the all-volunteer format; and (2) there is a remarkable consistency or similarity in the aptitude levels of those who were examined within each of the two periods. At the same time, the statistics on examinees imply that the Vietnam-era draft brought a "higher quality" group of potential recruits to the doors of the military: since conscription was phased out in 1972-73, the average aptitude of examinees (primarily in the Army) has declined, and it has remained at a relatively lower level throughout most of the all-volunteer period.

The main reason for observed differences in the average aptitude of examinees during these two periods probably lies in several external

(or environmental) factors and in the types of people who are inclined to volunteer without the threat of conscription. Still, it is astounding to find so much consistency in the aptitude levels of examinees within the two periods--and especially during the All-Volunteer Force, when changes in enlistment inducements, military budgets, and national economic trends so strongly influenced the quantity of military applicants.

Military Accessions: Test Score Trends

Most military manpower studies disregard AFQT data on examinees and deal with quality considerations only as they relate to new recruits or "accessions." After all, it is observed, the quality level of applicants is inconsequential as long as the Military Services are able to enlist enough young men and women in the desired numbers and cross section of ability.

As shown in Table 7, there is a relationship between the average aptitude of new recruits and that of examinees (see Table 4) with corresponding increases and decreases from year to year. Generally, "better" examination years result in "better" accession years. However, many applicants for enlistment enter the DEP and hence may not begin active military service during the same fiscal year in which they were examined; thus, year-by-year comparisons of examinee and accession data should be made cautiously. The following example illustrates the problem in comparing test score data for examinees and accessions on a yearly basis:

- It is assumed that the degree of improvement in the test scores of recruits over those of examinees between 1973 and 1983 is dependent largely on the total number of young men who apply for entry--since a larger pool of applicants generally means that the Military Services have a greater

Table 7

Percent of Male Recruits Who Achieved AFQT Percentile Scores of 50 or Higher by Service, FY 1952-83

Fiscal Year	Percent Who Scored AFQT 50 or Higher[a]				
	Army	Navy	Marine Corps	Air Force	Total DoD
1952	39.8	50.2	39.0	48.3	43.2
1953	42.7	56.0	42.8	54.7	45.8
1954	50.8	56.7	40.8	52.1	50.6
1955	51.9	47.0	51.8	52.0	50.6
1956	51.7	50.7	41.4	58.5	51.5
1957	48.5	61.2	46.5	59.8	52.7
1958	49.8	67.7	56.6	67.8	56.5
1959	53.0	69.2	54.5	67.1	58.8
1960	54.4	68.1	49.6	65.0	58.7
1961	56.7	68.0	58.3	62.2	60.2
1962	62.5	66.7	58.1	70.6	59.0
1963	62.1	71.8	63.5	68.2	60.5
1964	53.9	67.7	58.4	72.2	60.0
1965	62.9	68.0	60.9	69.1	59.2
1966	52.6	76.2	57.8	71.1	59.9
1967	61.5	76.1	54.2	67.5	57.5
1968	49.8	72.9	49.1	64.6	55.1
1969	51.0	66.1	46.8	64.0	55.2
1970	51.0	70.0	46.0	65.0	55.0
1971	51.0	70.8	46.7	59.9	55.0
1972	53.7	59.2	47.6	65.8	56.5
ALL-VOLUNTEER FORCE TRANSITION[b]					
1973	53.4	59.2	48.3	68.7	57.2
1974	47.9	60.9	62.9	69.1	56.6
1975	52.8	64.6	64.6	74.4	61.1
1976	46.9	67.5	65.3	78.6	59.2
1977	32.4	55.9	47.3	72.7	47.3
1978	34.0	58.9	44.1	69.4	49.2
1979	20.5	55.4	42.6	63.6	44.1
1980	28.9	59.9	43.3	59.9	44.0
1981	39.9	61.9	54.8	67.7	54.5
1982	51.4	62.9	56.5	68.0	58.7
1983	59.3	69.8	58.4	72.3	63.7

Sources: Percentages for FY 1952-70 were derived from data appearing in Department of Defense, Annual Reports of the Qualitative Distribution of Military Manpower. Percentages for FY 1971-83 were calculated from data provided by the Defense Manpower Data Center.

[a]Male recruits include persons without prior military service who were inducted or enlisted and entered active duty during the indicated fiscal year.

[b]The official end of the draft occurred on 30 June 1973. The drawdown began in July 1972, with the last draft call issued in December 1972.

number of individuals in the higher aptitude categories from whom to choose (as long as average aptitude and strength requirements remain fairly constant).

- During FY 1978, about 466,000 young men were examined for enlistment (Table 6) with just over 37 percent scoring at or above AFQT 50. About 270,000 young men enlisted that year (a ratio of six accessions per 10 examinees) and just over 49 percent achieved a score of AFQT 50 or higher.

- During FY 1980, the Services examined 624,000 applicants with an almost identical aptitude score distribution as that recorded in FY 1978. About 307,000 young men enlisted in FY 1980 (a ratio of 5 accessions per 10 applicants) and the proportion who scored at or above AFQT 50 was 44 percent--surprisingly lower than the average aptitude of new enlistees two years earlier.

In summary, examinee and accession data should probably not be compared except for the purpose of viewing long-term trends.

Table 7, when studied in isolation, also reveals a drop in average aptitude (mostly in the Army) after the end of the draft. Yet, once again, there is a limitation on how the data may be employed: during FY 1976-80, the Armed Services were using a version of the enlistment test that was calibrated incorrectly (that is, there was an error in the method by which the test raw scores were converted to percentile scores). Because scores in the lower-ability levels were being overstated, far more low-scoring enlistees were admitted to military service than would have qualified otherwise on the basis

of their "correct" aptitude test results. The Department of Defense and the Armed Services mistakenly observed "marked and steady improvement" in the average test scores of their recruits during the late 1970s.[38] Subsequent recomputation showed that, in fact, a considerably higher proportion of new enlistees were below-average (and many even below minimum entry standards) in tested ability.[39]

The downward shift in recruit aptitude test scores across DoD can also be seen when the data are displayed according to AFQT Category (Table 8). During the all-volunteer era, there has been a decline in the proportion of Category I recruits (all Services combined). In fact, during 1979 and 1980 proportionately fewer male recruits scored in AFQT Categories I and II (combined) than in any other single year during the three decades depicted in Table 8.

Test Score Trends in Historical Context

As previously observed, some analysts contend that the downward trend in military aptitude test scores can be partially attributed to a nationwide decline in scholastic aptitude and achievement test scores of young men and

---

[38]Department of Defense, America's Volunteers (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], December 1978), p. 3. For a more technical discussion of the problem and chronology of events, see Department of Defense, Aptitude Testing of Recruits (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], July 1980).

[39]All tables and figures in this report use test scores that were recomputed to correct for calibration errors during 1976-80. There is no reason to suspect that the test scoring problems strongly affected the number or character of persons who applied (as opposed to those who were accepted) for military service--unless, of course, similar versions of the miscalibrated test were employed extensively for prescreening purposes and more persons in the low-ability range (than otherwise) were allowed to process a formal application. But there is no evidence that such presceening of applicants occurred.

Table 8

Percent Distribution of Male Recruits (All Services Combined)
By AFQT Category, FY 1952-83

Fiscal Year	Percent Distribution of Male Recruits[a]				
	Category I	Category II	Category III	Category IV	Total[b]
1952	6.4	22.0	32.3	39.2	100.0
53	7.2	24.1	31.5	37.2	100.0
54	8.2	25.3	36.9	29.6	100.0
1955	7.8	25.3	38.1	28.8	100.0
56	7.1	25.9	40.2	26.8	100.0
57	7.8	25.2	42.8	24.2	100.0
58	8.7	26.2	47.1	18.0	100.0
59	9.1	27.8	47.7	15.4	100.0
1960	8.2	26.9	51.3	13.6	100.0
61	6.1	31.3	49.7	12.9	100.0
62	6.2	31..	48.7	16.3	100.0
63	6.0	32.5	47.8	13.7	100.0
64	6.3	32.1	47.1	14.5	100.0
1965	5.5	31.3	48.8	14.4	100.0
66	6.4	33.5	43.5	16.6	100.0
67	6.6	33.1	38.7	21.6	100.0
68	6.0	31.8	37.6	24.6	100.0
69	6.2	31.7	37.7	24.4	100.0
1970	5.3	30.5	41.0	23.2	100.0
71	5.1	30.0	43.1	21.8	100.0
72	4.2	30.2	48.1	17.5	100.0
----------ALL-VOLUNTEER FORCE TRANSITION[c]----------					
73	3.7	30.1	52.1	14.2	100.0
74	3.0	32.3	54.5	10.2	100.0
1975	3.5	34.0	56.3	6.1	100.0
76	3.9	33.9	51.7	10.5	100.0
77	4.3	28.2	39.6	27.9	100.0
78	3.6	27.3	42.1	27.0	100.0
79	3.0	23.6	41.8	31.6	100.0
1980	2.5	23.8	41.6	31.8	100.0
81	2.6	30.2	47.8	19.5	100.0
82	3.1	33.4	49.4	14.1	100.0
83	3.7	36.7	50.1	9.5	100.0

Sources: Data for FYs 1952-70 were calculated from Annual Reports of the Qualitative Distribution of Military Manpower. Data for FYs 1971-83 were provided by the Defense Manpower Data Center.

[a]Male recruits include persons without prior military service who were inducted or enlisted and entered active duty (all Services combined) during the indicated fiscal year.

[b]Row totals may not equal 100 due to rounding.

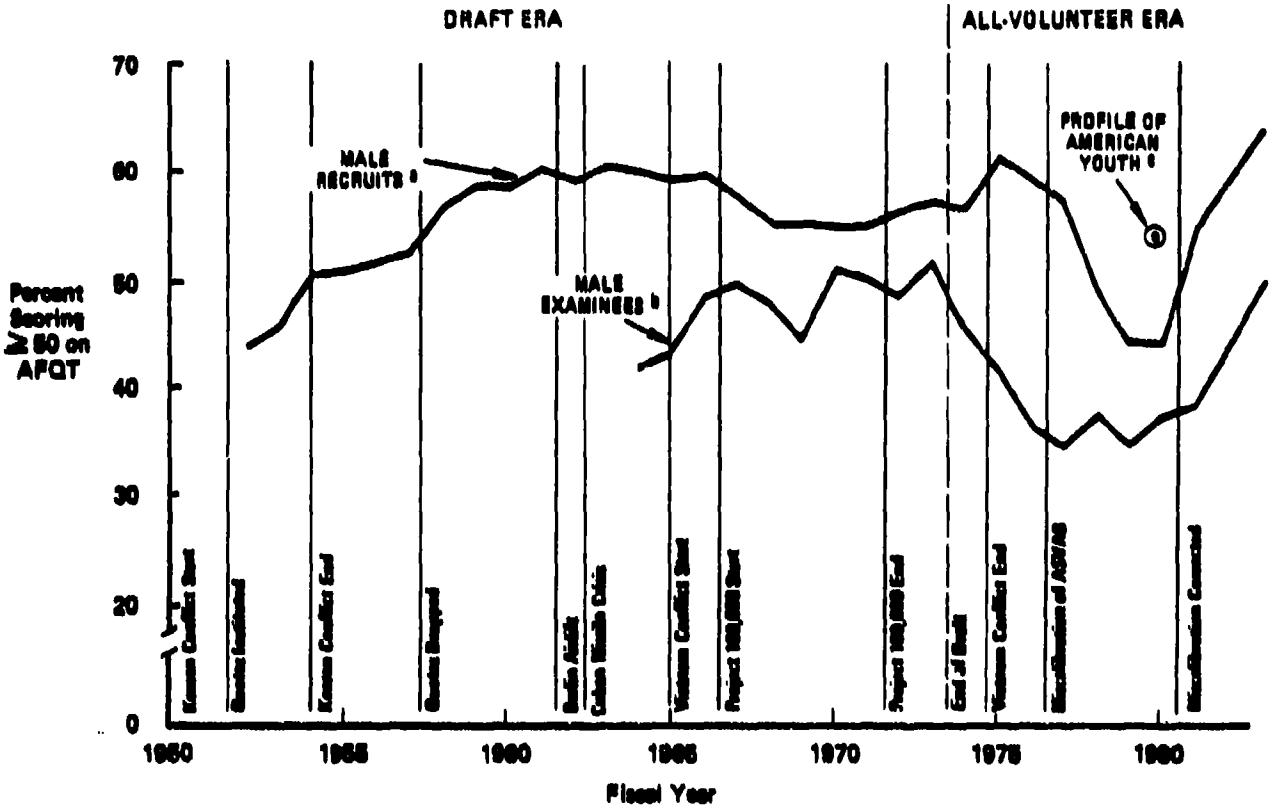
[c]The official end of the draft occurred on 30 June 1973. The drawdown began in July 1972, with the last draft call issued in December 1972.

women over the past two decades.[40] Others believe that the drop in "quality" is primarily a consequence of all-volunteer recruitment. A detailed exploration of the causes of changes in average aptitude from one year to another is beyond the scope of this research. Nevertheless, some light may be cast on the subject of possible causes by viewing the data within the context of selected, external events and shifts in policy.

In the past, certain changes in selection policy have been aimed specifically at modifying the qualitative mix of recruits in the lower-ability region. For example, it can be seen in Table 8 that the proportion of new recruits in AFQT Category IV was noticeably higher during the years between 1952-58 and 1967-71. (Table B-5 in Appendix B shows the AFQT category distributions of new recruits by Military Service from 1952 through 1983. Table B-6 compares the AFQT category distributions of Army enlistees and draftees between 1955 and 1983.) In fact, during most of the 1950s the Military Services were directed by the Defense Department to select a particular proportion (or quota) of new recruits in Category IV; and a similar policy was enforced throughout the 1967-71 period under "Project 100,000."

The effects of "quality quotas" in the 1950s and "Project 100,000" in the late 1960s are portrayed graphically in Figure 3. As the quotas for new recruits in the 1950s were gradually reduced and manpower strength requirements were cut, a steady increase in average aptitude (or the percent of male recruits scoring at or above AFQT 50) can be observed. A drop in average

[40]See, for example, Department of Defense, Profile of American Youth: 1980 Nationwide Administration of the Armed Services Vocational Aptitude Battery. (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], March 1982), p. 16: Also, see Advisory Panel on Scholastic Aptitude Test Score Decline, On Further Examination. (New York: College Entrance Examination Board, 1977).



SOURCES: Examinee data for Years 1964-1971 are based upon adjusted Preinduction Examinee Scores reported in the Office of the Surgeon General Form 1045, *Results of Preinduction Examinations Summary* and *Armed Forces Examining & Entrance Station Qualitative Distribution Report of Male Enlistments, Induction, and Rejections*, RCS DD-M(M)-663, 1964-1971. Recruit data for FYs 1952-1970 were calculated from *Annual Reports of the Qualitative Distribution of Military Manpower*. All data for FYs 1971-1983 were provided by the Defense Manpower Data Center.

[a]Male recruits include persons without prior military service who were inducted or enlisted and entered active duty (all Services combined) during the indicated fiscal year.

[b]Male examinees include persons without prior military service who were tested for the purpose of enlistment or induction.

[c]AFQT 50 is the median for the "World War II reference population." (See text for definition.) This point (AFQT 53) is the median score (calibrated with the World War II reference population) for a nationwide probability sample of male youth (16-23 years) who were tested in 1980.

[d]NOTE: Vertical comparisons between recruits and examinees since FY 1975 should "lag" the recruit plot an average of approximately one-half year to account for the Delayed Entry Program (DEP). For example, the average January examinee would not actually enter the military service until the following summer under average conditions in the DEP.

Figure 3. **Percent of Male Recruits and Examinees Who Achieved AFQT Percentile Scores of 50 or Higher By Selected Historical Event, FY 1952-83[d]**

aptitude coincided with the institution of "Project 100,000" and the nation's entry into the Vietnam conflict.

The end of the draft, as seen in Figure 3, witnessed another rise in recruit aptitude levels despite a markedly downward shift in the average test scores of applicants. By the mid-1970s, the aptitude levels of both recruits and examinees were declining in parallel fashion. Test miscalibration in 1976 apparently accelerated the drop (not recorded at the time of testing) in the average test scores of new recruits; at the same time, the scores of examinees exhibited periods of modest decline and improvement within a fairly small range.

Taken as a whole, the most substantial changes in the average aptitude of new recruits occurred during two periods: (1) 1952 through the end of the decade, when aptitude levels increased; and (2) 1975 through 1980, when aptitude levels dropped drastically and remained relatively low until 1981-83, when they surged upward. The proportion of new recruits with test scores equal to or above AFQT 60 remained reasonably steady throughout most of the 1960s and early 1970s, with a small drop in average aptitude coinciding with the Vietnam-era draft and "Project 100,000."

Historical events offer an important backdrop for viewing test score trends and for understanding the external factors or conditions that influence recruiting outcomes. This brief discussion of external factors would not be complete, however, without mention of the national economy and its presumed (though still uncertain) effect on all-volunteer recruitment. Changes in the national economy cannot be considered "events" in the strict sense applied here unless these changes result in identifiable periods of recession,

depression, recovery, growth, or other conspicuous shift in the business cycle. Yet, it is possible to juxtapose the average aptitude levels used in Figure 3 and the unemployment rate for "military-age" males in an effort to detect the relationship between "quality" trends and economic conditions.

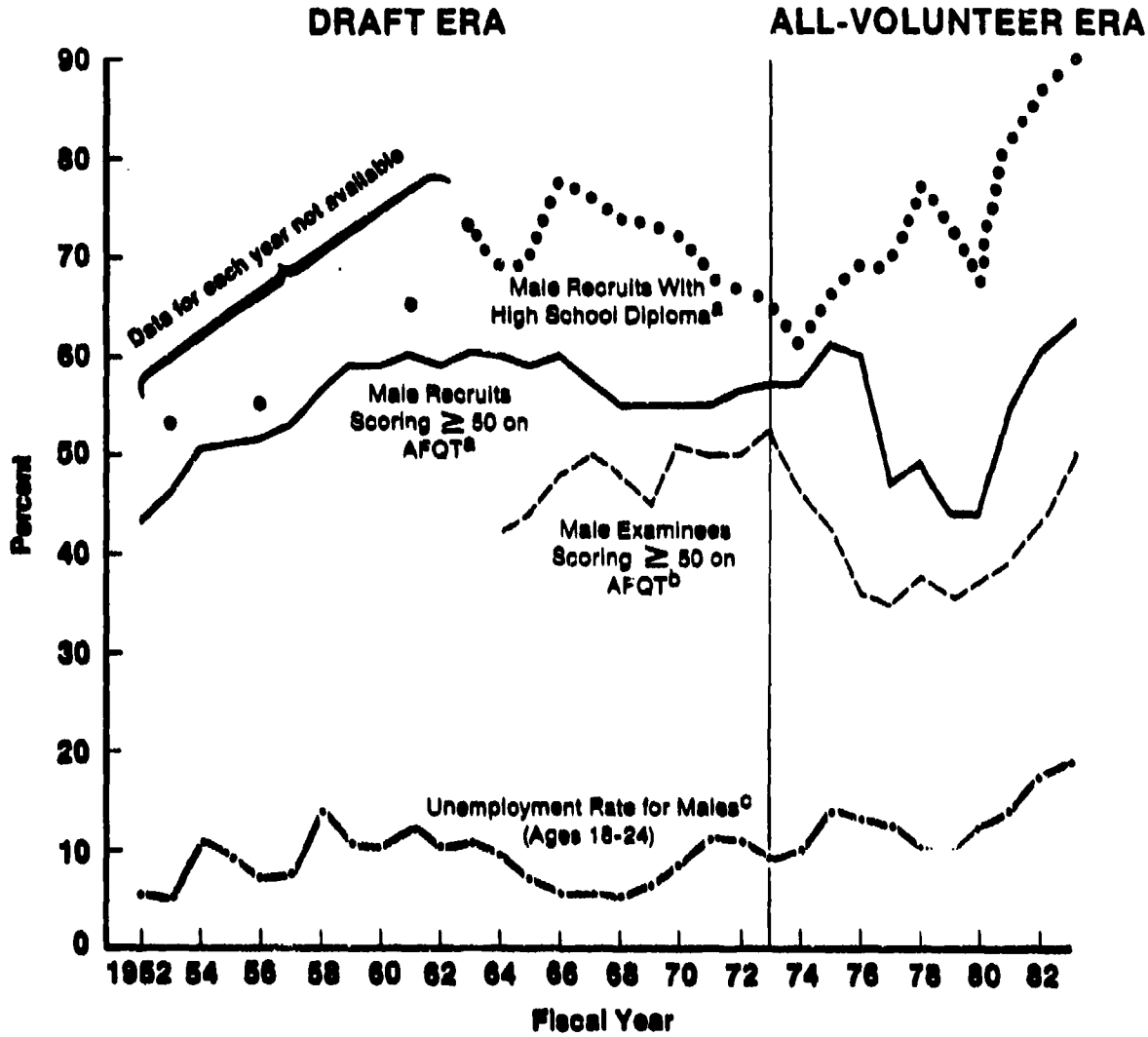
Figure 4 compares the annual proportions of male recruits and examinees who had test scores of AFQT 50 or higher between 1952-83 with the annual unemployment rate for males between the ages of 18 and 24 during the same years. Figure 4 also shows the proportion of male recruits who were high school graduates during each fiscal year period (except where data were unavailable).[41]

Logic suggests that civilian labor market conditions have a strong impact on the number and character of young men who apply for military enlistment. Yet, the results of several studies undertaken since the end of the draft on the effects of unemployment are still inconclusive--and most results thus far (with the exception of two studies) show only a very minor interaction between shifts in the civilian job sector and the flow of qualified recruits.[42]

---

[41]This comparison of "quality" trends and national economic conditions first appeared in Janice H. Laurence, Brian K. Waters, and Linda S. Perelman, "Enlisted Military Selection: Impacts of Changing Aptitude Standards Since 1940." Paper presented at the 24th Annual Conference of the Military Testing Association, San Antonio, TX, November 1982.

[42]For a brief summary of studies concerning the effects of civilian labor market conditions and related literature, see Charles Dale and Curtis Gilroy, "The Effects of the Business Cycle on the Size and Composition of the U.S. Army," PPRG Working Paper 82-1 (Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences, n.d.), p. 1. The authors of this particular study (preliminary) find that "the rise in the unemployment rate has led to a substantial increase in Army enlistments of male nonprior service high school graduates" (p. 10). And, conversely, "a drop in the national unemployment rate from 9 percent to 8 percent could cause Army enlistments of male nonprior service high school graduates to fall sharply by about 8.8 percent--or at the rate of over 7,000 per year." See also Linda S. Perelman, A Review of Military Enlistment Supply Models: In Search of Further Improvements, IR-PRD-83-16. (Alexandria, VA: Human Resources Research Organization, July 1983.)



STYLE: Unemployment rates were derived from data provided by the Bureau of Labor Statistics. Data on military recruits and examinees were obtained from Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) and the Defense Manpower Data Center.

[a]Male recruits include persons without prior military service who were inducted or enlisted and entered active duty (all Services combined) during the indicated fiscal year.

[b]Male examinees include persons without prior military service who were administered an operational version of the Armed Forces Qualification Test (AFQT) regardless of whether or not they actually entered one of the military services

[c]Unemployment rate was calculated as yearly average of all men (16-24 years) who were available for work but not working during the designated period (as defined by the Bureau of Labor Statistics).

Figure 4. **Percent High School Diploma Holders and AFQT Category I-IIIAs Among Male Examinees and Recruits Compared with National Unemployment Rate for Males (Ages 18-24), FYs 1952 - 83**

No attempt is made here to detail statistically the relationship between unemployment and the average aptitude or educational level of new recruits. Indeed, a proper analysis of this relationship would also have to identify and measure several associated factors such as military/civilian pay comparability, military benefits and enlistment incentives, attitudes of youth toward military service, the national spirit or patriotism of the times, service advertising and recruiting budgets, and assorted other variables that might influence the quantity and quality of volunteers. Nonetheless, the parallel form of movement in unemployment and the composition of examinees and recruits, as displayed in Figure 4, generally suggests the influence of the former on the latter.[43] Figure 4 also implies that, at certain times during the all-volunteer era, the Military Services have emphasized the importance of high school graduation over aptitude test scores. (Though the reader is reminded that officially the Services were unaware of the extent of the drop in aptitude levels until the test miscalibration between 1976 and 1980 was first detected and then corrected. There is however, anecdotal evidence to suggest that field commanders had noticed a drop in the quality of recruits earlier than 1980.)

Some General Observations

Recruit "quality," when viewed in an aggregate form combining multi-year periods, appears strikingly consistent. Table 9 compares the AFQT category distributions of male military recruits during three periods--the modern draft (1953-1972), the All-Volunteer Force (1973-1983), and the entire period since 1953--with the distributions of the 1944 "World War II reference population"

[43] One recruiting official points out that the Military Services are more inclined to take qualified applicants "as they come" during recognized periods of low unemployment or a depression in recruiting. Conversely, when applications for enlistment are at a peak, recruiters can "pick and choose among the best" or "opt to wait until the better kids apply."

and the 1980 male youth population. It can be seen that male recruits during the all-volunteer era are very much like their draft-year counterparts, with the only noteworthy difference between the two groups being a moderately greater proportion of all-volunteer recruits within AFQT Category III. At the same time, compared with male youth as a whole, military recruits have tended to be concentrated in the average aptitude range (Category III); and, as a group, they are characteristically more similar to the 1944 reference population than to the 1980 group in terms of the proportion of above-average individuals (Categories I and II combined).

Table 9

Percent Distribution of Male Recruits (All Services Combined) and the General Population of Male Youth by AFQT Category

AFQT Category	1944 Reference Population	Male Recruits[a] DRAFT 1953-1972	AVF 1973-1983	DRAFT/AVF 1953-1983	1980 Male Youth Population
I	8	6.5	3.2	5.8	5
II	28	29.6	29.5	29.5	35
III	34	42.6	49.1	44.2	29
IV	21	21.3	18.2	20.5	23
V	9	0.0[b]	0.0[b]	0.0[b]	8
	100	100.0	100.0	100.0	100

Source: AFQT distributions for 1953-73 were derived from data in Bernard D. Karpinos, Male Chargeable Accessions: Evaluation by Mental Categories (1953-1973), SR-ED-75-18 (Alexandria, VA: Human Resources Research Organization, January 1977). All other data on male recruits are from the Defense Manpower Data Center.

[a]Male recruits include persons without prior military service who were inducted or enlisted and entered active duty (all Services combined) during the indicated fiscal year. Draftees who failed the aptitude test but who were declared administratively acceptable (on the basis of personal interviews and some additional aptitude testing) are included in AFQT Category IV.

[b]Persons with scores in AFQT Category V are not eligible for military enlistment.

These aggregated statistics, however, mask some of the differences in general "quality" during the 20-year draft period--including the fact that, in terms of average aptitude, the All-Volunteer Force of the 1970s often looks more like the draft-era military of the 1950s than that of the 1960s. Furthermore, statistics for test scores in all Services combined hide the several variations that have taken place in each of the separate Military Services.

Indeed, although the average aptitude of the Vietnam-era military was approximately equal to that of the All-Volunteer Force, the end of the draft has been followed by "quality" decrements in the Army and Navy, and improvements in the Marine Corps and Air Force. As shown in Table 10, the drops in average aptitude for the all-volunteer Army and Navy have been considerable--with just under 46 and 65 percent of male enlistees scoring AFQT 50 or above, compared with nearly 52 and 70 percent of all Vietnam-era recruits, respectively.

Table 10

Median Percent of Male Recruits (Nonprior Service) Who Scored AFQT 50 or Higher by Service, FY 1964-72 and FY 1974-83[a]

Service	Vietnam-Era Draft (FY 1964-72)	All-Volunteer Force (FY 1974-83)
Army	51.5	45.9
Navy	70.0	64.6
Marine Corps	49.1	54.8
Air Force	65.8	69.1
TOTAL	**56.5**	**56.6**

[a] Excludes FY 1973, the AVF transition year.

The reader should note that the median percent values in Table 10 were affected by the ASVAB miscalibration results in FYs 1976-1980. It is not clear what Table 10 AVF data would have looked like if the equating error had not occurred.

It is clear from the abundance of statistics on aptitude test scores, the review of historical events, and the history of selection criteria presented in Section 1, that minimum aptitude and education screens are less related to average quality levels of recruits than has been commonly assumed. The mechanism of the draft largely dictates who gets in and who stays out during a mobilization for war or national emergency. The draft is equipped to take the best or the worst of the general populace, or whomever the nation's leaders decide to send to arms. During all-volunteer periods (or lulls in the draft), external factors largely determine who applies for military service, but the pool of volunteers appears to be pulled from the very same "quality" sector of society each year. Even though there have been wide variations in the number of persons who apply to enter military service, numerous permutations in policy and practice, along with a full range of historical events and changes in recruiting conditions, the qualitative profile of applicants has remained remarkably similar throughout the all-volunteer period.

The suggestion here is that changes in the economy, recruiting incentives, and policy during the AVF have not operated to alter the "attractiveness" of military service for any one particular aptitude category over another; all categories have been equally affected by the influencing factors of the 1970s. The recruiting successes of the past two years, so it follows, are not a direct consequence of having proportionately more high-quality applicants--but, more precisely, a result of having numerically more high-

quality applicants from whom to choose. With a larger pool of high test-scorers, the Armed Services have been able to tighten their cutting scores and raise the average aptitude of their new recruits. When the total number of applicants drops or the ratio of applicants to recruits falls from one year to the next, it appears likely that quality will suffer in a parallel fashion.

The "AVF experiment" of the 1970s compelled the Armed Services to locate their "true volunteer" recruiting market for the first time after 30-odd years with a draft. The all-volunteer era was consequently characterized by a probing for the proper minimum standards and a search for screening criteria flexible enough to bend with the frequently unknown effects of external factors while ensuring that qualitative and quantitative recruiting objectives could be accomplished. It was also a time, as observed in test score data, when the average aptitude of examinees sank to a lower level than that experienced under the draft.

The evidence implies that aptitude and education Service screens are highly <u>reactive</u> to changes that occur in the recruiting environment. Standards do not dictate who applies for military service, how many apply, or even the qualitative complexion of new recruits who place above the minimum criteria. Returning to the metaphor of the dam, the flow of applicants is constantly affected by unpredictable environmental forces; but the entry screens of the military, like the gates of the dam, compensate for these forces by opening and closing in reaction to the flow and the needs of those on the other side.

Recent survey results and related data on the test scores of a nationally representative sample of American youth now offer manpower analysts the opportunity to study the effects of aptitude and education standards on population eligibility rates and participation in the all-volunteer military. This source of information casts a new light on the statistics normally used to describe recruiting outcomes. The data on eligibility and participation should additionally help manpower managers reach a more complete understanding of the effects of raising and lowering standards on the supply of capable recruits in both the near and distant future.

SECTION 3

American Youth and Military Service: Qualification and Participation

This section presents the results of a preliminary effort to estimate the eligibility for military service of various segments of the general population. The discussion first focuses on the common perception of military "qualification" from the standpoint of manpower administrators. It then traces the various attempts that have been made to estimate, from historical information, the military "qualification rates" of young men. As an introduction to the results of the present analysis, the primary data resource (the "Profile of American Youth") is described and briefly evaluated. Population eligibility, as determined from the "Profile Study" (nationwide administration of the ASVAB), is then explored in some depth. The discussion subsequently turns to actual participation in the military by selected subgroups of American youth. A new statistic, the participation rates of potentially qualified youth, is introduced and presented in several tables showing racial/ethnic groups at different levels of education.

The Department of Defense states that "entrance standards are set so as to enlist the largest possible number of individuals who will be eligible for several types of training, who will successfully complete training courses, who will complete their first term of service, and who will be qualified to enter the career force."[44] This is the fundamental purpose of screening for

[44]Department of Defense, Department of Defense Efforts to Develop Quality Standards for Enlistment, A Report to the House and Senate Committees on Armed Services (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], December 1981), p. 3.

military service, expressed in positive terms. The Department of Defense could say alternatively that entrance standards are established to eliminate the largest possible number of applicants who would fail to complete training, would leave before finishing the first term of service, or would be disqualified in the future from reenlisting. The latter statement is probably more accurate today since the military's entry standards are less a hurdle for all who are capable of serving successfully than an impassable barricade for those who are least likely, on the average, to perform at a predetermined level of competence.

This is not just an exercise in semantics. Education and aptitude standards in the military have been analyzed and reanalyzed actively since the end of the draft. The motivation for conducting such research has usually revolved around budgetary matters--that is, reducing the high costs associated with first-term attrition, training failures, and delinquent behavior by new recruits. As one study points out, "the military training of young, unskilled people" is an "investment." And

> the underlying purpose of the screening process is to reduce the risk that an investment will be made in persons who are unable or unwilling to perform their duty. In times when the number of applications exceeds the manpower needs of a service, the screening process serves the additional function of identifying which candidates are likely to be more productive.[45]

The authors of a study of enlistment standards in the Air Force similarly observe:

---

[45]Kwan H. Kim et al., Research of the Proportion of the Total Youth Population Which is Physically and Mentally Unfit for Military Service, Volume IA: Main Report, NOSC-7229-KK/MS/RS (Bethesda, Md.: Mathtech, Inc., December 1978), p. I-1 (emphasis added).

> In the accomplishment of its mission, the Air Force invests millions of dollars in training to improve the skills of the men and women who are accepted for enlistment. Air Force personnel planners seek ways to reduce costs associated with attrition from training programs and, at the same time, maintain the highest quality potential possible. This objective has been sought through imposition of stringent qualifications for initial enlistment in an effort to raise the quality of the basic recruit.[46]

The belief that standards are intended primarily to eliminate "poor risks" (screening out as opposed to screening in) is a vestige of the modern draft when the Army could fill its ranks with involuntary recruits and the other Services could pick and choose from a cache of draft-avoiders (or the so called "draft-motivated" enlistees). Congress has also been responsible for encouraging this outlook, mainly because "failure" is perceived more easily and clearly than "success" in this context. Personnel performance failures, for example, appear in the military's reports to Congress as premature discharges (historically, for almost two out of every five first-term recruits), disciplinary actions, skill qualification failures, training losses, desertions, and the like. Personnel performance successes, on the other hand, are not quantified with the same categorical precision as their counterparts; indeed, personnel successes are viewed and counted mainly as the opposite of failures.[47]

---

[46]Bart M. Vitola et al., Impact of Various Enlistment Standards on the Procurement Training System, AFHRL-TR-77-16 (Brooks AFB, TX: Air Force Human Resources Laboratory, April 1977), p. 5 (emphasis added).

[47]Certain measures of success, such as reenlistment eligibility and paygrade achieved after a specified period of time, are commonly used. However, most analyses of success in terms of personnel performance center on the individual's ability to be a "completer," or one who simply receives a passing mark (as opposed to a grade of high achievement) and finishes the full term of obligated service without getting into trouble.

Various attempts have been made over the years to ascertain the size of the so-called "eligible" youth population, or those who have a relatively low probability of failure, based on educational level and aptitude test scores. Many of these research efforts have focused on the young men who were summoned to take a preinduction examination, assuming that preinductees are approximately representative of the general population (in similar age groups). There are some obvious methodological problems involved in using preinductees as a substitute for the general population--such as the dissimilarities between the two groups that resulted from disqualifications before examination, and draft deferments favoring certain segments of the general population--but the young men who took the draft examination were the closest thing to a representative sample that was readily available for statistical study.

In 1960, Bernard D. Karpinos examined the "Fitness of American Youth for Military Service" during the Korean Conflict (July 1950-July 1953) and found that 91.3 percent of all young men were able to pass the minimum aptitude standards for induction. Karpinos concluded that, since all men between 18 and 26 years of age were equally liable for military service during the war, the results of the preinduction testing presented a reasonably accurate picture of the general "fitness" of American youth for military service.[48]

---

[48]Bernard D. Karpinos, "Fitness of American Youth for Military Service," Milbank Memorial Fund Quarterly 38 (June 1960): 213-247. Karpinos notes, however, that the data are disproportionately weighted by youths who could not qualify for voluntary enlistment or other reserve programs, but were subsequently examined for induction, and, conversely, the data do not include persons who were able to discharge their military liability in a "nondraft method." Overall, 76.4 percent of the young men examined were able to qualify for induction (including the additional rejections for medical and moral unsuitability). See also Bernard D. Karpinos, Draftees: Disqualifications for Military Service for Medical Reasons - An Analysis of Trends Over Time, Report No. MA-72-1 (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower and Reserve Affairs], June 1972).

A study of the "mental qualification" of American youth for military service in 1960 showed that preinductees (young men ordered to report for the induction examination) were distributed according to AFQT Category as follows:[49]

Table 11

1960 AFQT Category Distribution of White and Black Preinductees

AFQT Category	1960 Preinductees (Percent)	
	White[a]	Black
I	10	*
II	29	4
III	38	24
IV	18	41
V	5	31
	100	100

*Less than 0.5 percent.

Source: Karpinos, 1966.

[a]Includes all racial/ethnic groups other than black.

In response to a request by the General Accounting Office, historical data on the AFQT scores of preinductees were compiled and analyzed by the Department of Defense during the early days of the All-Volunteer Force. Specifically, the data were requested so that changes over time in AFQT scores

[49]Bernard D. Karpinos, "The Mental Qualification of American Youths for Military Service And its Relationship to Educational Attainment," Proceedings, American Statistical Association, 1966. (Reprint.) See also Bernard D. Karpinos, Qualification of American Youths for Military Service (Washington, D.C.: Office of the Surgeon General, Department of the Army, 1962).

could be evaluated. The distributions of preinductees by AFQT Category nonetheless provide an approximation of the general population who could probably qualify for induction during the indicated periods. As shown in Table 12, about 80 percent of preinductees scored AFQT 10 or above (Categories I-IV) in the 1958-64 period and thus "passed" (or were not routinely disqualified) the aptitude test, compared with about 90 percent during the late 1960s and the transition to all-volunteer recruitment.

Table 12

Percentage Distribution of Preinductees by AFQT Category During Selected Time Periods, 1958-72

AFQT Category	Preinductees During Selected Time Periods			
	CY1958-64	CY1964-68	Aug. 1969-Jan. 1970	FY1971-72
I	9.0	6.7	6.2	6.5
II	23.2	27.6	29.5	31.7
III	26.4	32.0	34.5	34.9
IV	22.9	20.6	19.2	17.8
Subtotal	81.5	86.8	89.4	90.9
V	18.5	13.2	10.6	9.1
	100.0	100.0	100.0	100.0

Source: Derived from data in Bernard D. Karpinos, AFQT: Historical Data (1958-1972), SR-ED-76-12 (Alexandria, VA.: HumRRO, June 1975), p. 11.

Table 13 presents the percentages of white and black preinductees who achieved scores of 10 or higher on the AFQT during each year between 1953 and 1971. It can be seen here that the proportion of white preinductees who "qualified" on the basis of the aptitude test remained between about 88 and 90 percent from 1953 through 1964. In 1965, the proportion of white preinductees scoring above Category V edged above 90 percent for the first time; it then increased again the following year and stayed in the range of 94 to 96 percent up to the all-volunteer transition.

Table 13

Percentage of Preinductees Who Achieved AFQT Percentile Scores of 10 or Higher During Initial Examination by Race, FY 1953-71

Fiscal Year	Percent of Preinductees Who Scored AFQT 10 or Higher[a]	
	White[b]	Black
1953	89.9	54.9
1954	89.4	51.7
1955	88.7	39.4
1956	87.5	46.1
1957	87.5	43.1
1958	87.4	44.9
1959	87.6	46.1
1960	88.8	53.6
1961	89.3	57.4
1962	88.2	59.1
1963	90.0	55.9
1964	89.6	54.8
1965	91.6	58.4
1966	94.5	67.2
1967	94.3	72.0
1968	93.8	66.8
1969	93.7	68.0
1970	95.8	72.3
1971	96.4	71.0

Source: Derived from data in Bernard D. Karpinos, Draftees: AFQT Failure, (Alexandria, VA: HumRRO, February 1973), p.3. (Processed.)

[a]From 1953 through 1971, approximately 11.4 million preinductees were examined--including 9.8 million white (and other) young men and 1.6 million black young men.

[b]White category includes all racial/ethnic groups other than black.

There is considerable variability in the proportion of black preinductees scoring AFQT 10 or higher between 1953 and 1965, with the appearance of especially low "passing" rates in the 1955 through 1959 time period (ranging from a low of 39 percent in 1955 to a high of 46 percent in 1956 and 1959). In 1966, an increase similar to that seen for whites occurred in the proportion of black preinductees scoring in AFQT Categories I through IV. Between 1965 and 1966, the proportion of black preinductees with initially "qualifying" scores jumped from 58 percent to 67 percent. In 1967, it increased again to 72 percent, then declined below 70 percent for the next two years, and rose

again above 70 percent for the final years of the draft. It may appear that these black test score trends are inconsistent with overall national trends. The general trend of increasing black test scores reflected in these data also appeared in national black aptitude test score data.[50] The overall national trends increased from the 1950s until 1964 and decreased further until the late 1970s.[51]

The percentage of preinductees with AFQT scores of 10 or higher are arrayed by Census region and division in Table 14. For both white and black preinductees, "qualifying" rates are noticeably lower in the South. The magnitude of the difference between rates in the South and those in other regions, however, is much greater for black preinductees than it is for whites. In 1971, for example, about 98 percent of all white preinductees from areas outside the South achieved AFQT scores of 10 or higher, compared with between 91 and 94 percent within the South. For black preinductees outside the South, the "passing" rate ranged between 79 and 89 percent, while the rate for those in the Southern divisions was around 60 to 67 percent.[52]

In 1972, the Defense Department's Directorate for Manpower Research attempted to determine the military qualification rates for different categories of young men (white and black by state, area, and region of the country)

---

[50]College Entrance Examination Board. National college bound seniors, 1982. (Princeton, NJ: Admissions Testing Program, 1982).

[51]Brian K. Waters, The Test Score Decline: A Review and Annotated Bibliography, Technical Memorandum 81-2. Washington, D.C.: Directorate for Accession Policy, Office of the Secretary of Defense, August 1981.

[52]There are also large differences on the level of the individual states. For example, the rates in 1971 were lowest for blacks in Louisiana and Mississippi, where less than half of the preinductees achieved AFQT scores of 10 or above. The rates for blacks were highest in Oklahoma, with 94 percent "passing" the test. See Karpinos, Draftees: AFQT Failures, pp. 7-8.

Table 14

Percentage of Preinductees Who Achieved AFQT Percentile Scores of 10 or Higher During Initial Examination by Race and Census Region and Division, FY 1953-71

Census Region and Division	Percentage of Draftees Who Scored AFQT 10 or Higher									
	White*					Black				
	1953-1958	1959-1965	1966-1969	1970	1971	1953-1958	1959-1965	1966-1969	1970	1971
Northeast										
New England	92.5	90.5	93.8	96.0	98.1	59.8	69.2	77.2	82.8	83.1
Middle Atlantic	90.2	87.9	92.6	94.4	96.9	66.0	60.6	75.3	78.1	79.4
North Central										
E. North Central	93.1	93.8	96.6	97.4	97.7	62.4	71.7	78.3	81.2	79.1
W. North Central	95.5	95.5	97.7	98.6	98.3	62.1	66.0	79.5	81.1	79.8
West										
Mountain	90.9	93.0	95.2	96.5	97.3	57.9	68.3	73.3	80.6	83.1
Pacific	89.5	92.2	95.3	96.3	98.0	71.5	79.8	84.5	88.5	89.1
South										
South Atlantic	81.6	85.9	81.2	94.1	94.3	36.1	49.4	60.7	65.1	66.5
E. South Central	76.5	81.4	89.5	93.9	90.7	33.1	44.9	58.6	63.9	59.7
W. South Central	86.3	90.0	94.2	95.5	94.3	40.2	50.7	67.1	72.7	63.3
Total	88.7	90.0	94.1	95.8	96.4	43.9	56.3	68.0	72.3	71.0

Source: Derived from data in Bernard D. Karpinos, Draftees: AFQT Failures (Alexandria, VA; HumRRO, February 1973), p.4. (Processed.)

*White category includes all racial/ethnic groups other than black.

sing seven different combinations of minimum AFQT scores and educational evels. The data base included men who were examined for either voluntary nlistment or Selective Service induction during FY 1971 (a total of over one illion cases), and it incorporated the results of aptitude testing as well as edical examination and moral review.[53]

[53]Department of Defense, "Geographic and Racial Differences Among Men Qualified for Military Service," Manpower Research Note 72-16 (Washington, D.C.: Directorate for Manpower Research, Office of the Assistant Secretary of Defense for Manpower and Reserve Affairs, July 1972).

Table 15 shows the military "qualification rates" for white and black young men from the various Census regions and divisions. The qualifying requirements shown here include four different sets of minimum standards or conditions: (1) medically and morally qualified, minimum AFQT percentile score of 10 (AFQT Categories I through IV); (2) medically and morally qualified, minimum AFQT percentile of 21; (3) medically and morally qualified, high school graduates with a minimum AFQT percentile of 16, and nongraduates with a minimum AFQT percentile of 31; and (4) medically and morally qualified, high school graduates with a minimum AFQT percentile of 21, and nongraduates with a minimum AFQT percentile of 31. (The third set of standards is roughly

Table 15

Percent of Men Qualified for Military Service Under Selected Minimum Standards by Race and Census Region and Division, FY 1971

Census Region and Division	Percent of Men Qualified for Military Service Under Selected Minimum Standards*							
	Condition 1		Condition 2		Condition 3		Condition 4	
	White	Black	White	Black	White	Black	White	Black
Northeast	**63.8**	**72.1**	**58.8**	**48.9**	**57.3**	**46.9**	**56.3**	**42.1**
New England	52.3	62.3	57.9	41.7	56.6	40.1	55.8	36.7
Middle Atlantic	64.5	73.4	59.3	49.8	57.8	47.7	56.8	42.7
North Central	**72.9**	**73.4**	**68.3**	**50.6**	**66.7**	**48.0**	**65.7**	**43.4**
E. North Central	73.0	73.9	68.0	49.9	66.1	47.3	65.0	42.4
W. North Central	72.6	70.2	69.2	53.6	68.1	50.5	67.4	47.8
West	**70.2**	**69.6**	**65.5**	**48.3**	**64.2**	**50.3**	**63.1**	**44.0**
Mountain	69.6	65.9	64.9	42.2	63.5	43.7	62.5	40.2
Pacific	70.3	69.8	65.6	49.5	64.3	51.5	63.2	45.1
South	**68.5**	**64.7**	**60.6**	**35.9**	**58.2**	**38.8**	**56.8**	**31.8**
South Atlantic	69.0	65.6	61.6	37.0	59.3	39.6	58.0	32.8
E. South Central	67.2	64.6	58.1	33.6	55.6	37.4	54.1	29.6
W. South Central	68.5	62.9	60.7	35.1	58.3	38.1	56.9	31.3
Total	**68.5**	**67.1**	**62.6**	**40.9**	**60.8**	**41.8**	**59.7**	**35.8**

Source: Department of Defense, "Geographic and Racial Differences Among Men Qualified for Military Service," Manpower Research Note 72-16 (Washington, D.C.: Director for Manpower Research, Office of the Assistant Secretary of Defense for Manpower and Reserve Affairs, July 1972).

*Minimum standards include medical and moral qualification as well as the following minimum AFQT percentile scores: Condition 1-AFQT 10; Condition 2-AFQT 21; Condition 3-high school graduates with AFQT 16 and nongraduates with AFQT 31; Condition 4-high school graduates with AFQT 21 and nongraduates with AFQT 31.

equivalent to present minimum standards for the Army, and the fourth set is similar to the current minimum standards for the Marine Corps.)

The "qualifying" rates shown in Table 15 are somewhat inconsistent with the previous statistics on preinductees. For instance, the "qualifying" rates for blacks in the Northeast and North Central regions are generally higher than those for whites under the first set of standards (AFQT 10). At the same time, the rates for whites are lowest in the Northeast rather than the South under all sets of standards (though the "qualifying" rates for blacks are substantially lower in the South than in any other region). These differences and other inconsistencies in the data on preinductees may be attributed to the fact that Table 15 includes voluntary applicants for enlistment (a self-selected group) as well as the men summoned by Selective Service.

In 1964, the President's Task Force on Manpower Conservation evaluated the military service examination process and the statistics on rejections. The Task Force found that one-third of all young men in the nation turning 18 would be found unqualified if they were to be examined for induction into the Armed Forces. Of those rejected, about one-half would be turned down for medical reasons, and the remainder would fail through the inability to qualify on the aptitude test (about 16 percent of all 18-year-old males throughout the nation). In a nationwide survey conducted by the Task Force, it was also discovered that a major proportion of the young men who failed the aptitude test were "the products of poverty"--the poor, the unskilled, the jobless, and the uneducated.[54]

[54]The President's Task Force on Manpower Conservation, One-Third of a Nation: A Report on Young Men Found Unqualified for Military Service (Washington, D.C.: Government Printing Office, January 1, 1964).

In a study of the total youth population (17 to 24 years old) considered physically and mentally unfit for military service, carried out 14 years after the Task Force research, Kim and his associates estimated (a "reasonable estimate") that about three-quarters of all young men and women who apply for enlistment would probably be found acceptable under the current medical, mental, and moral standards. Using data obtained through the Department of Defense High School Testing Program between 1974 and 1976, the research analysts also developed estimates of the population distribution by AFQT Category.[55]

Table 16 displays the AFQT distributions by educational level, sex, and race that were used to determine the "fitness" of American youth for military service. These estimated test score distributions were also arrayed by Census region and division and then combined with statistics on physical and medical disqualifications, diagnostic indicators, and various other demographic information to project disqualifications among the relevant age groups through the year 1995. It is important to note that the data on AFQT scores were estimated mainly on the basis of the scores of high school seniors who decided on their own to take the ASVAB. Since there were no comparable data on nongraduates (assuming that practically all seniors eventually graduated), it was necessary for the researchers to make several additional assumptions concerning the population, to accommodate for missing data through other sources, and to make assorted statistical adjustments. The percentage distributions shown in Table 16 were derived from some of the best available information at the time, but the distributions are very rough estimates nonetheless.

[55]Kim et al., Research of the Proportion of the Total Youth Population, Volume IA, p. I-12.

Table 16

Percentage Distribution of American Youth (17-24 Years) by Educational Level and AFQT Category, Sex, and Race, 1974-76

Educational Level and AFQT Category	American Youth (17-24) Years), 1974-76			
	Male		Female	
	White[a]	Black	White[a]	Black
Non-High School Graduates				
I	0.7	b	0.7	b
II	11.2	0.7	3.1	0.6
IIIa	13.3	2.1	12.1	2.0
IIIb	23.6	9.8	26.7	6.1
IV	33.1	39.1	39.1	40.0
V	18.1	49.6	21.0	51.3
	100.0	100.0	100.0	100.0
High School Graduates				
I	4.8	0.2	2.7	0.1
II	32.1	4.1	24.1	1.9
IIIa	21.6	7.3	20.7	4.4
IIIb	23.0	18.6	26.6	14.9
IV	16.6	50.4	23.4	55.0
V	1.9	19.4	2.6	23.7
	100.0	100.0	100.0	100.0

Source: Derived from data in Kwan H. Kim et al., Research of the Proportion of the Total Youth Population Which Is Physically and Mentally Unfit for Military Service, Volume 3: Main Report, NOSC-7229-RR/MS/RS (Bethesda, MD.: Mathtech, Inc., December 1978), pp. 9-11/12.

[a]White category includes all racial/ethnic groups other than black.

[b]Less than 0.05 percent.

In the final analysis, neither the population of preinductees, the population of voluntary applicants, nor the group of high school students who elected to take the ASVAB can be considered a representative sample of the general population from which they came. Preinductees represent only the group of young men who did not have draft deferments or exemptions, did not satisfy their military obligation by alternative means, and were not dismissed from being examined. Applicants for enlistment and students who take the military's test are much more homogeneous, as a rule, than their contemporaries in the community at large. Up to this time, manpower analysts had to accept

these limitations and make as many statistical and conceptual concessions as necessary in estimating the "fitness" or military qualification rates of American youth. Now, with the "Profile of American Youth," it is possible to estimate with scientific accuracy the numbers and proportions of young men and women from varied backgrounds who would be expected to qualify for each of the Armed Services.

The "Profile of American Youth": Summary of the Study and Selected Results

In 1980, the Department of Defense and the Military Services, in cooperation with the Department of Labor, sponsored a large-scale research project to assess the vocational aptitudes of American youth. A national probability sample of about 12,000 young men and women, consisting of participants in the National Longitudinal Survey (NLS) of Youth Labor Force Behavior, was administered an operational version (Form 8a) of the ASVAB. The sample was designed to yield a data base that could be statistically projected (within known confidence intervals) to represent the entire national population born between January 1, 1957 and December 31, 1964.[56]

This project, known as the "Profile of American Youth," marks the first time that a vocational aptitude test has been administered to a nationally representative sample. The "Profile Study" thus offers an unprecedented

[56]See Martin R. Frankel and Harold A. McWilliams, The Profile of American Youth: Technical Sampling Report (Chicago: National Opinion Research Center, University of Chicago, 1981). The sample contained individuals from urban and rural areas, youth from all major Census regions, and approximately equal proportions of males and females. Certain key groups such as Hispanics, blacks, and economically disadvantaged whites were oversampled, allowing for more precise subgroup analyses.

opportunity to evaluate the "cross-sectional character" of military enlistees based on a national measure of vocational test performance. In addition, the Military Services have, for the first time, a valid means for (a) detailing the specific attributes and "trainability" of the military-age population, by geographic area and social category (for recruiting purposes or possible future mobilization); (b) estimating, with a greater degree of precision, the effects of various modifications in aptitude/education standards on recruiting outcomes (under a variety of conditions); (c) tracking (through the linkage with the main NLS data bases) the labor force behavior of American youth according to measured vocational aptitudes and attitudes toward the military; and (d) gauging the comparative aptitudes of different demographic subgroups of American youth.

The findings from initial analyses of the "Profile Study" are presented in Profile of American Youth: 1980 Nationwide Administration of the Armed Services Vocational Aptitude Battery.[57] The "Profile Study" report describes the project, presents a comparison of the aptitude test scores of military recruits and contemporary youth, and evaluates the performance of selected population subgroups on the AFQT, ASVAB subtests and composites, and a reading grade level estimate derived from the Adult Basic Learning Examination (ABLE). Since the Military Services recruit primarily individuals who are at least 18 years old, the report focuses on persons who were 18 to 23 years old at the time of testing (birth years 1957 through 1962). The restriction on age reduced the sample size to 9,173.

[57]Department of Defense, Profile of American Youth: 1980 Nationwide Administration of the Armed Services Vocational Aptitude Battery (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], March 1982).

A major part of the initial analyses was devoted to a comparison of the test scores of selected subgroups within the 1980 youth population. The demographic variables used to differentiate population subgroups were age, sex, race/ethnicity, level of education, socioeconomic status, and geographic region. The results of the subgroup comparisons were generally consistent with the findings of published research on aptitude and achievement tests.[58] For example, the "Profile" study results revealed the following differences in test performance among the several demographic categories:

- Age. Average AFQT scores and estimates of reading grade level increased with age.

- Sex. The average AFQT scores of males and females were similar. However, sex differences in average test scores were found on the aptitude composites--with males scoring higher on the Mechanical, Electronics, and General Composites, and females outscoring males on the Administrative Composite.

- Race/Ethnicity. AFQT scores for whites were higher, on the average, than those recorded for either Hispanics or blacks. Hispanics, in turn, scored higher

[58]See Mark J. Eitelberg, Subpopulation Differences in Performance on Tests of Mental Ability: Historical Review and Annotated Bibliography, Technical Memorandum 81-3 (Washington, D.C.: Directorate for Accession Policy, Office of the Secretary of Defense, August 1981).

than blacks. This pattern of racial/ethnic group performance was the same on estimates of reading grade level and on the four aptitude composites examined (Mechanical, Administrative, General, and Electronics).

- Level of Education. Aptitude test performance was strongly correlated with amount of formal schooling (based on high school graduation status). Non-high school graduates had the lowest average AFQT scores, and high school graduates had the highest scores. GED recipients scored between these two groups.

- Socioeconomic Status. Individuals achieved higher scores on the AFQT in direct correspondence with advances in the amount of formal education completed by their mothers.[59]

- Geographic Region. Average AFQT scores were highest for youths in the New England and West North Central regions of the country, and lowest in the three southern divisions. Persons in the East North Central, Middle Atlantic, Mountain, Pacific, and West South Central divisions scored approximately at the level of the overall population median.

[59]The socioeconomic status of children and adolescents is typically indexed using mother's education, father's education, average family income, and father's occupational status. Recent analyses of profile study data suggests that the measured effects of mother's education on ASVAB performance approximate the measured effects of all four variables combined. For the profile study analyses, then, mother's education was used in place of a socioeconomic status index as a general indicator of family background.

Tables 17 and 18 give some idea of the extent of the differences in test score performance between the sexes, racial/ethnic groups, persons from different sections of the country, and persons with different levels of education. From these scores one can infer the probable effect that the military's education and aptitude standards have on persons with different backgrounds.

Table 17

Mean AFQT Standard Scores of American Youth (18-23 Years) by Sex, Racial/Ethnic Group, and Educational Level[a]

Racial/Ethnic Group and Sex[b]	Educational Level			
	Non-High School Graduate	GED High School Equivalency	High School Diploma Graduate and Above	Total
White				
Male	438	511	547	523
Female	437	513	539	521
Total	438	512	543	522
Black				
Male	341	407	430	396
Female	333	417	432	406
Total	337	412	431	401
Hispanic				
Male	358	451	495	434
Female	355	433	468	423
Total	359	442	481	429
TOTAL				
Male	420	493	528	501
Female	418	495	520	499
Total	419	494	524	500

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Scores were standardized to a metric with a mean of 500 and a standard deviation of 100.

Table 18

Mean AFQT Standard Scores of American Youth (18-23 Years) by Sex, Racial/Ethnic Group, and Geographic Region[a]

Racial/Ethnic Group and Sex	Geographic Region (U.S. Bureau of Census)			
	Northeast	North Central	South Central	West
White				
Male	536	529	508	522
Female	534	521	509	528
Total	536	525	509	525
Black				
Male	405	422	383	405
Female	424	400	401	426
Total	416	411	392	416
Hispanic				
Male	420	430	458	426
Female	388	441	430	430
Total	404	436	444	428
TOTAL				
Male	510	508	488	500
Female	509	500	489	508
Total	510	504	489	504

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Scores were standardized to a metric with a mean of 500 and a standard deviation of 100.

Methodology Employed in the Present Study

The "Profile of American Youth," as noted, contains ASVAB performance measures for a nationally representative sample of American youth. For the purposes of previous analyses, this sample was statistically weighted to

correspond with the 1980 national youth population. Since the "Profile Study" incorporated the scores of contemporary youth on a version of the ASVAB similar to that used currently to screen military recruits, it is possible to estimate, with reasonable precision, the numbers and proportions of young men and women who would be expected to qualify for military enlistment under current standards.

The minimum education and aptitude standards applied by the Armed Services during FY 1981 were selected for use in the present study because this period (October 1980 through September 1981) coincided roughly with the point of educational attainment established for the "Profile of American Youth" population (that is, September 1980, or the start of the 1980-81 school year). Table 19 shows the FY 1981 aptitude standards for enlistment by Service, sex, and educational level. It should be noted that the minimum standards are the operational criteria employed during most of the year; and minimum scores are expressed as percentile scores on the AFQT and as standard scores on aptitude composites. In FY 1981, these scores were derived by combining subtests appearing on ASVAB forms 8, 9, or 10.

It is obvious from Table 19 that each Military Service applies its own aptitude standards in determining eligibility for enlistment. These aptitude standards reflect the diverse requirements of the separate Services, and they typically vary according to educational attainment (high school graduation status) and, at times, sex. For example, individuals wishing to enlist in the Army are required to achieve a minimum AFQT score of 16 and a score of at least 85 on one of nine Army-specific aptitude composites. In contrast, Air Force enlistment standards for FY 1981 required that male and female high

Table 19

Fiscal Year 1981 Minimum Aptitude Standards for Enlistment
By Service, Sex, and Educational Level[a]

Educational Level	Minimum Aptitude Standards			
	Male Applicants		Female Applicants	
	AFQT Score	Aptitude Composite Score	AFQT Score	Aptitude Composite Score
ARMY				
H.S. Diploma Graduate	16	85 on Any 1	16	85 on Any 1
GED	31	85 on Any 1	31	85 on Any 1
Non-H.S. Graduate	31	85 on Any 2	31	85 on Any 2
NAVY				
H.S. Diploma Graduate	17	[b]	School Eligible[c]	
GED	31	[b]	School Eligible[c]	
Non-H.S. Graduate	38	[b]	Not Eligible	
MARINE CORPS				
H.S. Diploma Graduate	21	GT[d]=80	50	[b]
Non-H.S. Graduate (Including GED)	21	GT[d]=98	Not Eligible	
AIR FORCE				
H.S. Diploma Graduate	21	G[e]=30; MAGE[f]=120	21	G[e]=30; MAGE[f]=120
GED	50	G[e]=30; MAGE[f]=120	50	G[e]=30; MAGE[f]=120
Non-H.S. Graduate	65	G[e]=30; MAGE[f]=120	65	G[e]=30; MAGE[f]=120

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Minimum aptitude standards (operational) are expressed as percentile scores on the Armed Forces Qualification Test (AFQT) and standard scores on the aptitude composites. In 1981, these scores were derived from combinations of subtests appearing on Armed Services Vocational Aptitude Battery (ASVAB) Forms 8, 9, or 10.

[b]No minimum aptitude composite standard.

[c]"School eligible" as defined in Department of the Navy, "Criteria for Selection of Recruits and New Accessions for Formal School Training," NAVMILPERSCOM Instruction 1236.1A (Washington, D.C.: Navy Military Personnel Command, January 1981).

[d]General-Technical (GT) aptitude composite.

[e]General (G) aptitude composite.

[f]Combined scores on the Mechanical (M), Administrative (A), General (G), and Electronics (E) aptitude composites.

school graduates achieve a minimum AFQT score of 21; in addition, prospective recruits were required to attain a combined Air Force specific-aptitude composite score (including the Mechanical, Administrative, General, and Electronics composites) of no less than 120 and a General composite score of at least 30.

The component ASVAB subtests (forms 8, 9, and 10) for the aptitude composites listed specifically in Table 19 (under Marine Corps and Air Force standards) are:

Mechanical (M): Mechanical Comprehension, Automotive-Shop Information, and General Science.

Administrative (A): Coding Speed, Numerical Operations, Paragraph Comprehension, and Word Knowledge.

General (G) and General Technical (GT): Arithmetic Reasoning, Paragraph Comprehension, and Word Knowledge.

Electronics (E): Arithmetic Reasoning, Electronics Information, General Science, and Mathematics Knowledge.

The enlistment standards for the Army shown in Table 19 require that applicants attain a standard score of at least 85 on "any 1" (for high school diploma graduates) or "any 2" (for all others) of the Army's aptitude composites. The aptitude composites (and component subtests) used by the Army include the following:

Combat (CO): Coding Speed, Arithmetic Reasoning, Mechanical Comprehension, and Automotive-Shop Information.

Field Artillery (FA): Coding Speed, Arithmetic Reasoning, Mechanical Comprehension, and Mathematics Knowledge.

Operators/Food (OF): Numerical Operations, Paragraph Comprehension, Word Knowledge, Mechanical Comprehension, and Automotive-Shop Information.

Surveillance/Communications (SC): Numerical Operations, Coding Speed, Paragraph Comprehension, Word Knowledge, and Automotive-Shop Information.

General Maintenance (GM): General Science, Automotive-Shop Information, Mathematics Knowledge, and Electronics Information.

Mechanical Maintenance (MM): Numerical Operations, Electronics Information, Mechanical Comprehension, and Automotive-Shop Information.

Electronics (EL): Same as Electronics (E) above.

Clerical (CL): Same as Administrative (A) above.

Skilled Technical (ST): Paragraph Comprehension, Word Knowledge, Mathematics Knowledge, Mechanical Comprehension, and General Science.

General/Technical (GT): Same as General (G) and General Technical (GT) above.

The Navy did not have an enlistment eligibility requirement for minimum scores on specific aptitude composites other than the AFQT during FY 1981. Nonetheless, aptitude composite standards were used by the Navy in determining the eligibility of applicants for job training and assignment and in determining "school eligibility" (and basic enlistment eligibility) of female applicants. The Navy's aptitude composites are similar to those presented above, though structured and weighted to fit the particular training and skill demands of occupations in this Service.

The aptitude standards established for males and females with different levels of education were transcribed into selection algorithms for each of the Armed Services. A computer program was created to identify both qualified and unqualified participants in the "Profile of American Youth" data file.

The subgroups selected for the present study were limited to gender, the three racial/ethnic categories analyzed in the Defense Department report (white, black, and Hispanic),[60] the three categories of high school graduation status identified by the Armed Services in their standards (below

[60]For the purpose of this analysis, the white category includes all racial/ethnic groups other than black or Hispanic; and the black category does not include persons of Hispanic origin.

high school graduate, General Educational Development [GED] high school equivalency, and high school diploma graduate and above), and the four regions and nine divisions established by the U.S. Bureau of the Census.[61]

The base population used to derive the "qualification rates" is shown in Table 20. This population--presented by racial/ethnic group, sex, and educational level--includes all (approximately 25 million) residents of the United States who were born between January 1, 1957 and December 31, 1962. The educational level of a very small proportion of the "Profile" study sample (about 1.4 percent of all participants) could not be determined at the time of the data analysis. Since educational level is an important criterion of the individual's ability to qualify for enlistment, "unknown education" cases were excluded from computation of the subgroup qualification rates. This procedure reduced the total base population by about 350,000 persons, with proportional decreases in each of the subgroup categories.[62]

Study Results

Eligibility for Enlistment: Selected Subgroups

Two sets of tables were produced to show separately (1) the estimated enlistment qualification rates (percent) among the various selected subgroups for each of the Armed Services and (2) the corresponding numbers of American youth in each demographic category who would be expected to meet the minimum

---

[61]A list of the states that comprise the geographic regions and divisions appears in Appendix C.

[62]There were slight variations among the subgroup categories in the proportion of "unknown education" cases. For example, "unknown" cases occurred most often among black males (2.2 percent) and least often among Hispanic males and white males (1.2 percent).

Table 20

Base Population Used to Derive Qualification Rates
By Racial/Ethnic Group, Sex, and Educational Level[a]

Racial/Ethnic Group and Sex[b]	Educational Level[c]			TOTAL
	Below High School Graduate	GED High School Equivalency	High School Diploma Graduate and Above	
White				
Male	2,099,387	367,081	7,789,050	10,255,518
Female	1,603,759	336,062	7,932,781	9,872,602
Total	3,703,146	703,143	15,721,831	20,128,120
Black				
Male	629,951	65,118	1,000,534	1,695,603
Female	438,642	59,963	1,207,289	1,705,894
Total	1,068,593	125,081	2,207,823	3,401,497
Hispanic				
Male	329,486	25,312	414,166	768,964
Female	294,535	27,031	433,552	755,118
Total	624,021	52,343	847,718	1,524,082
TOTAL				
Male	3,058,824	457,511	9,203,750	12,720,085
Female	2,336,936	423,056	9,573,622	12,333,614
Total	5,395,760	880,567	18,777,372	25,053,709

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Base population includes residents of the United States born between January 1, 1957 and December 31, 1962. Base population figures in this table exclude persons for whom education was unknown. Exclusion of these persons reduced base population figures by an average of 1.4 percent below Bureau of the Census estimates. Unknown cases occurred most often among black males (2.2 percent) and least often among Hispanic and white males (1.2 percent).

[b]White category includes all racial/ethnic groups other than black or Hispanic. Black category does not include Hispanics.

[c]Education as of September 1980 (start of the 1980-81 school year).

aptitude standards. The qualification rates for the four Services appear in Tables 21 through 24. The corresponding estimates of the numbers of young men and women considered eligible for enlistment are displayed in Tables 25 through 28.

Table 21

Estimated Percent of American Youth
(18-23 Years) Who Would Qualify for Enlistment
By Educational Level, Racial/Ethnic Group, and Sex[a]

- ARMY -

Racial/Ethnic Group and Sex[b]	Educational Level[c] Below High School Graduate	GED High School Equivalency	High School Diploma Graduate and Above	TOTAL
White[d]				
Male	42.4	73.0	95.6	83.9
Female	40.8	79.2	95.4	86.0
Total	41.7	76.0	95.5	84.9
Black[e]				
Male	8.9	37.7	61.0	40.7
Female	4.6	32.4	61.1	45.5
Total	7.1	35.2	61.0	43.1
Hispanic				
Male	11.6	48.7	85.8	52.8
Female	15.3	31.8	79.1	52.5
Total	13.3	40.0	82.4	52.7
TOTAL				
Male	32.2	66.6	91.4	76.3
Female	30.8	69.6	90.3	78.3
Total	31.6	68.0	90.8	77.3

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.

[c]Educational level as of September 1980 (start of the 1980-81 school year).

[d]White category includes all racial/ethnic groups other than black or Hispanic.

[e]Black category does not include persons of Hispanic origin.

Table 22

Estimated Percent of American Youth
(18-23 Years) Who Would Qualify for Enlistment
By Educational Level, Racial/Ethnic Group, and Sex[a]

- NAVY -

Racial/Ethnic Group and Sex[b]	Educational Level[c] Below High School Graduate	GED High School Equivalency	High School Diploma Graduate and Above	TOTAL
White[d]				
Male	35.2	73.0	95.5	82.3
Female	0.0	67.6	79.7	66.4
Total	19.9	70.4	87.5	74.5
Black[e]				
Male	6.4	37.7	63.7	41.4
Female	0.0	14.6	30.6	22.1
Total	3.8	26.6	46.6	31.7
Hispanic				
Male	9.1	48.7	85.1	51.3
Female	0.0	23.6	45.4	26.9
Total	4.8	35.7	64.8	39.2
TOTAL				
Male	26.4	66.6	91.6	75.0
Female	0.0	57.2	72.0	57.8
Total	15.0	62.1	81.6	66.6

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.

[c]Educational level as of September 1980 (start of the 1980-81 school year).

[d]White category includes all racial/ethnic groups other than black or Hispanic.

[e]Black category does not include persons of Hispanic origin.

Table 23

Estimated Percent of American Youth
(18-23 Years) Who Would Qualify for Enlistment
By Educational Level, Racial/Ethnic Group, and Sex[a]

- MARINE CORPS -

Racial/Ethnic Group and Sex[b]	Educational Level[c] Below High School Graduate	GED High School Equivalency	High School Diploma Graduate and Above	TOTAL
White[d]				
Male	39.7	67.2	92.1	80.5
Female	0.0	0.0	67.7	54.4
Total	22.5	38.1	79.8	67.7
Black[e]				
Male	6.5	26.7	52.1	34.2
Female	0.0	0.0	18.5	13.1
Total	3.9	13.9	33.8	23.6
Hispanic				
Male	10.5	38.9	79.0	48.3
Female	0.0	0.0	31.5	18.1
Total	5.5	18.8	54.7	33.3
TOTAL				
Male	29.7	66.6	87.2	72.4
Female	0.0	0.0	59.8	46.4
Total	16.8	31.1	73.2	59.6

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.

[c]Educational level as of September 1980 (start of the 1980-81 school year).

[d]White category includes all racial/ethnic groups other than black or Hispanic.

[e]Black category does not include persons of Hispanic origin.

Table 24

Estimated Percent of American Youth
(18-23 Years) Who Would Qualify for Enlistment
By Educational Level, Racial/Ethnic Group, and Sex[a]

- AIR FORCE -

Racial/Ethnic Group and Sex[b]	Educational Level[c] Below High School Graduate	GED High School Equivalency	High School Diploma Graduate and Above	TOTAL
White[d]				
Male	11.8	56.3	88.1	71.3
Female	10.4	55.8	82.2	69.6
Total	11.2	56.1	85.1	70.5
Black[e]				
Male	0.8	10.5	34.9	21.3
Female	0.7	11.9	29.9	21.7
Total	0.8	11.2	32.1	21.5
Hispanic				
Male	0.7	19.9	67.8	37.5
Female	2.3	13.8	46.1	27.9
Total	1.5	16.8	56.7	32.7
TOTAL				
Male	8.3	47.8	81.4	62.6
Female	7.6	46.9	74.0	60.4
Total	8.0	47.4	77.6	61.5

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (MAnpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Service Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.

[c]Educational level as of September 1980 (start of the 1980-81 school year).

[d]White category includes all racial/ethnic groups other than black or Hispanic.

[e]Black category does not include persons of Hispanic origin.

Table 25

Estimated Number of American Youth
(18-23 Years) Who Would Qualify for Enlistment
By Educational Level, Racial/Ethnic Group, and Sex[a]

- ARMY -

Racial/Ethnic Group and Sex[b]	Educational Level[c] Below High School Graduate	GED High School Equivalency	High School Diploma Graduate and Above	TOTAL
White[d]				
Male	890,887	267,927	7,444,014	8,602,828
Female	654,437	266,308	7,565,616	8,486,361
Total	1,545,324	534,235	15,009,630	17,089,189
Black[e]				
Male	56,251	24,546	610,009	690,806
Female	19,941	19,453	737,083	776,477
Total	76,192	43,999	1,347,092	1,467,283
Hispanic				
Male	38,211	12,328	355,255	405,794
Female	45,040	8,891	342,931	396,562
Total	83,251	20,919	698,186	802,356
TOTAL				
Male	985,349	304,801	8,409,278	9,699,428
Female	719,418	294,352	8,645,630	9,659,400
Total	1,704,767	599,153	17,054,908	19,358,828

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the number of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.

[c]Educational level as of September 1980 (start of the 1980-81 school year).

[d]White category includes all racial/ethnic groups other than black or Hispanic.

[e]Black category does not include persons of Hispanic origin.

Table 26

Estimated Number of American Youth
(18-23 Years) Who Would Qualify for Enlistment
By Educational Level, Racial/Ethnic Group, and Sex[a]

- NAVY -

Racial/Ethnic Group and Sex[b]	Educational Level[c] Below High School Graduate	GED High School Equivalency	High School Diploma Graduate and Above	TOTAL
White[d]				
Male	738,580	267,927	7,437,623	8,444,130
Female	0	227,017	6,326,289	6,553,306
Total	738,580	494,944	13,763,912	14,997,436
Black[e]				
Male	40,302	24,546	637,372	702,220
Female	0	8,767	368,827	377,594
Total	40,302	33,313	1,006,199	1,079,814
Hispanic				
Male	29,861	12,328	352,652	394,841
Female	0	6,372	196,981	203,353
Total	29,861	18,700	549,633	598,194
TOTAL				
Male	808,743	304,801	8,427,647	9,541,191
Female	0	242,157	6,892,097	7,134,253
Total	808,743	546,958	15,319,744	16,675,444

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the number of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.

[c]Educational level as of September 1980 (start of the 1980-81 school year).

[d]White category includes all racial/ethnic groups other than black or Hispanic.

[e]Black category does not include persons of Hispanic origin.

Table 27

Estimated Number of American Youth
(18-23 Years) Who Would Qualify for Enlistment
By Educational Level, Racial/Ethnic Group, and Sex[a]

- MARINE CORPS -

Racial/Ethnic Group and Sex[b]	Educational Level[c] Below High School Graduate	GED High School Equivalency	High School Diploma Graduate and Above	TOTAL
White[d]				
Male	832,483	246,544	7,172,508	8,251,535
Female	0	0	5,366,571	5,366,571
Total	832,483	246,544	12,539,079	13,618,106
Black[e]				
Male	41,203	17,417	521,595	580,215
Female	0	0	223,885	223,885
Total	41,203	17,417	745,480	804,100
Hispanic				
Male	34,434	9,849	327,180	371,463
Female	0	0	136,638	136,638
Total	34,434	9,849	463,818	508,101
TOTAL				
Male	908,120	273,810	8,021,283	9,203,213
Female	0	0	5,727,094	5,727,094
Total	908,120	273,810	13,748,377	14,930,307

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the number of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.

[c]Educational level as of September 1980 (start of the 1980-81 school year).

[d]White category includes all racial/ethnic groups other than black or Hispanic.

[e]Black category does not include persons of Hispanic origin.

Table 28

Estimated Number of American Youth
(18-23 Years) Who Would Qualify for Enlistment
By Educational Level, Racial/Ethnic Group, and Sex[a]

- AIR FORCE -

Racial/Ethnic Group and Sex[b]	Educational Level[c] Below High School Graduate	GED High School Equivalency	High School Diploma Graduate and Above	TOTAL
White[d]				
Male	246,995	206,817	6,862,037	7,315,849
Female	167,447	187,377	6,519,427	6,874,251
Total	414,442	394,194	13,381,464	14,190,100
Black[e]				
Male	5,098	6,839	348,905	360,842
Female	2,957	7,163	360,802	370,922
Total	8,055	14,002	709,707	731,764
Hispanic				
Male	2,316	5,043	280,985	288,344
Female	6,774	3,737	199,812	210,323
Total	9,090	8,780	480,797	498,667
TOTAL				
Male	254,409	218,699	7,491,927	7,965,035
Female	177,178	198,277	7,080,041	7,455,496
Total	431,587	416,976	14,571,968	15,420,531

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the number of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.

[c]Educational level as of September 1980 (start of the 1980-81 school year).

[d]White category includes all racial/ethnic groups other than black or Hispanic.

[e]Black category does not include persons of Hispanic origin.

It should be noted again that the percentages and numbers presented here are estimates of the portion of the population that would have qualified for enlistment based only on the education/aptitude criteria applied in FY 1981.[63] Eligibility for actual enlistment would have depended on the individual's ability to satisfy certain other requirements, including standards that relate to physical fitness, medical condition, and background and behavior (i.e., the so-termed moral standards).

Higher minimum aptitude scores, as seen above in Table 19, were required ordinarily for male non-high school graduates and recipients of GED high school equivalency certificates in each of the four Services. The "Profile of American Youth" revealed that aptitude test scores tend to increase, on the average, in direct correspondence with advances in an individual's level of education. The combination of higher minimum aptitude standards and lower average scores for high school dropouts reduced considerably the number and percentage of nongraduates who would have been eligible for military service. Restrictions on women (e.g., Congressional restrictions on women in combat) likewise diminished their relative eligibility compared with males in all educational categories. In FY 1981, for instance, female non-high school graduates were not eligible to enlist in either the Navy or the Marine Corps;

[63]The minimum education and aptitude standards applied in FY 1981 are the same as those applied in FY 1982. Beginning in FY 1983, the Navy and the Marine Corps modified their minimum standards as follows: (1) in the Navy, differential standards for females were eliminated, so females at all educational levels were required to meet the same standards as those established for males; (2) in the Marine Corps, males who did not possess a high school diploma were required to attain an AFQT percentile score of no less than 31 (instead of 21) and a standard score of at least 105 (instead of 95) on the General-Technical composite. All other minimum standards in the Armed Services were the same in FY 1983 as in FY 1981. Tables C-2 through C-5 in Appendix C display the effects of the FY 1983 minimum education and aptitude standards applied by the Navy and the Marine Corps on the selected population subgroups.

females with GED certificates also were barred from joining the Marine Corps; and female high school graduates wishing to enter the Navy or Marine Corps were required to meet higher minimum aptitude standards than those established for male graduates.

In general, proportionately more young men and women--within each level of education and racial/ethnic category--would have been able to qualify for enlistment in the Army than in any other Service. The overall effect of minimum aptitude standards on the comparative ability of persons to qualify for enlistment in the other Services may be summarized as follows:

- The proportion of males (regardless of racial/ethnic group) with GED high school equivalency certificates and of males with high school diplomas who would have qualified for enlistment is largest for the Navy and Army, next largest for the Marine Corps, and smallest for the Air Force.

- Young men without high school diplomas or equivalency certificates would have found it comparatively easier (but just slightly) to qualify for the Marine Corps than for the Navy, and most difficult to have qualified for the Air Force.

- Females with high school diplomas would have found it most difficult to qualify for the Marine Corps in FY 1981. For white female graduates, the next lowest qualification rate was that for the Navy and then the Air Force, while for black female graduates the qualification rate for these Services was reversed. Because of the bar on women who did not possess diplomas, the

overall proportion of females eligible to enlist in the Marine Corps was the lowest of all the Services. The Navy's aptitude requirements for women with equivalency certificates were slightly more lenient than those of the Air Force.

It is quite apparent from the results presented here that enlistment "selectivity" varies from Service to Service. About three out of four young men, on the average, would have qualified for the Army (76.3 percent), Navy (75.0 percent), or Marine Corps (72.4 percent) in FY 1981, compared with fewer than two out of three (62.6 percent) for the Air Force. Just over three out of four (78.3 percent) women would have been expected to meet the Army's minimum requirements, compared with about three out of five for the Air Force (60.4 percent) and the Navy (57.8 percent), and fewer than one out of two (46.4 percent) for the Marine Corps.

Even more dramatic, however, are the effects of aptitude/education standards on the enlistment eligibility rates for the three racial/ethnic groups. For example, approximately four out of five white youth would have been expected to qualify for enlistment in the Army during FY 1981. Just over half (54.6 percent) of all Hispanic youth, and just under half (48.1 percent) of all black youth, would have met the minimum aptitude standards established by the Army. And the disparity between racial/ethnic groups is even wider in the other Services. About three out of 10 white youth (29.5 percent), for instance, probably would have failed to qualify for entry into the Air Force, based on FY 1981 minimum education/aptitude standards; in sharp contrast, almost four out of five (78.5 percent) black youth would have been rejected by the Air Force for aptitude test score or education level disqualifications.

Differential aptitude standards had a pronounced effect on the eligibility rates for American youth in three education categories, both within and between the separate racial/ethnic groups. The enlistment eligibility rates for non-high school graduates, regardless of racial/ethnic group, were considerably below the comparable rates for persons with equivalency certificates or high school diplomas (who could qualify with lower test scores). Minorities who were high school dropouts (without GED certificates), in fact, had little or no likelihood in FY 1981 of being able to meet the minimum aptitude score criteria established for enlistment in the Armed Services. This was especially true for black nongraduates. In FY 1981, about 7.1 percent probably could have passed the Army's standards, compared with still lower proportions in the Navy and Marine Corps and less than one percent in the Air Force.

Tables 25 through 28 display the estimated numbers of young men and women--by educational level, racial/ethnic group, and sex--who would have been expected to qualify for enlistment into each of the four Military Services during FY 1981. These data are presented here to give some idea of (1) the approximate number of youth, by selected demographic subgroup, affected by the eligibility rates shown above, and (2) the differential impact of Service standards on the supply of qualified applicants.

Eligibility for Enlistment: Regional Differences

The results of the "Profile of American Youth" revealed regional differences in the test performance of young men and women. These differences are related to other factors, such as urban-rural composition, quality of education, and socioeconomic and subcultural differences. Nevertheless, the variations in test performance around the nation indicate that the "qualified and

available" population in, say, Mississippi or Georgia may be quite unlike its counterpart in Maine or New York. And these variations in aptitude test scores from one region to the next hold some bearing on the allocation of resources for recruiting, on issues concerning future mobilization of manpower, and on other policy or program decisions that are connected with regional recruiting or draft quotas.

Table 29 shows the estimated percent of American youth who would have been expected to qualify for enlistment in FY 1981 by Census region and division and Military Service (Appendix table C-1 displays Census regions and Divisions by State). Table 30 displays the corresponding numbers of eligible young men and women from the four regions and nine component divisions. (It should be noted that persons outside the major regions--such as those in outlying areas, bordering nations, and countries and dependencies of special sovereignty (n=233)--were excluded from the analysis.)

The results presented in Tables 29 and 30 demonstrate that there are substantial differences in the "qualification rates" for designated geographical areas both within and between the Military Services. In the three divisions in the South, for instance, fewer than three out of four young men and women probably would have been qualified for enlistment into the Army during FY 1981; in the Northeast and North Central regions and part of the West (the Mountain states), on the other hand, it is estimated that better than four out of five individuals would have passed the Army's education and aptitude standards.

The proportions of "qualified" American youth who reside in the South--the traditional recruiting base for the Armed Services, where pro-military

Table 29

Estimated Percent of American Youth (18-23 years) Who Would Qualify for Enlistment by Census Region and Division, and Military Service[a]

Census Region and Division[b]	ARMY	NAVY	MARINE CORPS	AIR FORCE
Northeast	**81.4**	**72.4**	**64.8**	**66.9**
New England	86.6	76.3	70.6	72.3
Middle Atlantic	79.7	71.1	62.8	65.1
North Central	**81.9**	**71.1**	**64.5**	**66.6**
E. North Central	81.3	69.3	62.3	64.9
W. North Central	83.8	77.4	72.2	72.7
West	**78.3**	**67.3**	**61.4**	**62.9**
Mountain	83.6	69.3	66.8	62.2
Pacific	75.8	66.4	58.9	63.2
South	**70.0**	**58.4**	**51.0**	**52.9**
South Atlantic	69.4	57.4	50.8	52.7
E. South Central	69.2	54.7	44.2	49.0
W. South Central	72.0	63.1	55.8	56.0
TOTAL	77.3	66.6	59.6	61.5

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962. Estimates of American youth qualified for military service use educational level as of September 1980 (start of 1980-81 school year).

Table 30

Estimated Number of American Youth (18-23 years) who would Qualify for Enlistment by Census Region and Division, and Military Service[a]

Census Region and Division[b]	ARMY	NAVY	MARINE CORPS	AIR FORCE
Northeast	**4,230,879**	**3,762,803**	**3,365,992**	**3,478,271**
New England	1,110,402	980,376	906,592	928,289
Middle Atlantic	3,120,477	2,782,427	2,459,400	2,546,982
North Central	**6,015,003**	**5,222,424**	**4,736,784**	**4,898,839**
E. North Central	4,646,381	3,957,966	3,557,471	3,710,230
W. North Central	1,368,622	1,264,458	1,179,313	1,188,609
West	**3,268,107**	**2,807,367**	**2,561,561**	**2,624,588**
Mountain	1,092,463	905,544	873,088	812,740
Pacific	2,172,644	1,901,823	1,688,473	1,811,848
South	**5,804,464**	**4,841,564**	**4,224,920**	**4,385,404**
South Atlantic	3,309,921	2,739,381	2,424,732	2,514,407
E. South Central	968,701	764,853	618,167	685,543
W. South Central	1,525,842	1,337,330	1,182,021	1,185,454
TOTAL	19,315,453	16,634,158	14,889,257	15,384,102

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the number of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962. Estimates of American youth qualified for military service use educational level as of September 1980 (start of 1980-81 school year).

[c]Totals may differ slightly from those presented in other tables due to exclusion of persons from areas outside the four major Census Regions and nine divisions listed here.

sentiments are said to be the strongest, and where most military installations are situated--appear especially low when compared with the qualification rates in the other geographical areas. Indeed, less than half of all young men and women living in the East South Central division (Kentucky, Tennessee, Alabama, and Mississippi) would have been able to meet the FY 1981 education and aptitude standards established by either the Marine Corps or the Air Force. By comparison, the Marine Corps and Air Force would have found that about two out of every three young residents in the Northeast and North Central divisions qualified to join their enlisted ranks.

The geographical statistics on youth who were potentially eligible to enlist in the Navy or Marine Corps during FY 1981 obviously reflect the influence of restrictions on females who did not possess a high school diploma. The aggregate geographical statistics are influenced also by differences in the average educational level of individuals from different parts of the country. Tables 31 through 34, which present the estimated numbers and percent of "qualified" youth by educational level and sex, provide a more detailed view of the population and the effects of Service standards on specific categories of potential recruits within separate geographical areas.

Of particular note, perhaps, is the fact that there are certain regional differences in the relative proportion of males and females who would meet minimum aptitude standards for enlistment in the Army or the Air Force. For example, in the Army, the relative proportion of female nongraduates exceeded the proportion of male nongraduates in three divisions (East North Central, South Atlantic, and West South Central); female high school graduates had

Table 3I

Estimated Number and Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment by Educational Level, Sex, and Census Division[a]

- ARMY -

Census Division	Educational Level[b]											
	Non-High School Graduate			GED High School Equivalency			High School Diploma Graduate and Above			TOTAL		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
New England												
Number	60,482	37,008	97,521	*	*	*	503,361	467,108	970,469	584,764	525,639	1,110,403
Percent	55.5	41.9	49.4				96.4	91.3	93.9	89.2	83.7	86.5
Middle Atlantic												
Number	104,631	55,969	160,601	*	*	52,844	1,430,778	1,476,348	2,907,833	1,566,659	1,553,911	3,120,570
Percent	26.3	24.2	25.5			56.1	98.6	91.7	91.1	77.2	82.4	79.7
East North Central												
Number	228,243	202,104	430,347	*	*	*	2,107,348	2,012,729	4,120,869	2,377,197	2,269,275	4,646,472
Percent	36.0	38.1	37.0				94.1	92.7	93.4	80.8	81.9	81.3
West North Central												
Number	53,629	*	75,236	*	*	*	667,513	609,465	1,276,978	725,893	642,807	1,368,700
Percent	39.4		33.5				94.9	90.9	92.9	84.8	82.6	83.8
South Atlantic												
Number	216,959	149,939	366,897	*	*	132,335	1,288,198	1,530,608	2,818,806	1,572,569	1,737,469	3,310,038
Percent	27.2	27.8	27.5			68.3	87.6	86.0	86.8	66.3	72.4	69.4
East South Central												
Number	33,762	46,770	80,532	*	*	*	354,661	495,889	850,550	396,890	571,812	968,702
Percent	18.8	29.2	23.7				82.8	87.1	85.3	62.7	74.7	69.2
West South Central[3]												
Number	82,630	52,416	135,046	*	*	*	670,267	652,406	1,322,673	794,016	731,930	1,525,946
Percent	31.0	21.3	26.3				89.6	85.4	87.4	74.4	69.6	72.0
Mountain												
Number	97,385	56,297	153,682	*	*	*	428,396	466,526	894,922	545,397	547,067	1,092,463
Percent	54.9	52.2	53.9				90.8	94.4	92.6	81.4	86.0	83.6
Pacific												
Number	107,629	97,281	204,910	*	*	106,813	947,565	913,588	1,861,153	1,114,344	1,058,532	2,172,876
Percent	30.0	28.4	29.2			68.8	92.0	93.2	92.6	75.7	76.0	75.8

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]American youth population includes all persons born between January 1, 1957 and December 31, 1962. Estimates of the number and percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]Educational level as of September 1980 (start of 1980-81 school year).

*Sample size is too small (<50) to yield reliable estimates.

Table 32

Estimated Number and Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment by Educational Level, Sex, and Census Division[a]

- N A V Y -

Census Division	Educational Level[b]: Non-High School Graduate			GED High School Equivalency			High School Diploma Graduate and Above			TOTAL		
	Male	Female[c]	Total	Male	Female[d]	Total	Male	Female	Total	Male	Female	Total
New England												
Number	47,731	0	47,731	*	*	*	583,361	386,870	990,231	572,014	408,362	980,376
Percent	43.8	0.0	24.2				96.4	75.6	86.1	87.2	65.0	76.3
Middle Atlantic												
Number	80,747	0	80,747	*	*	46,681	1,418,982	1,236,897	2,655,879	1,530,979	1,251,449	2,782,427
Percent	28.3	0.0	12.8			49.5	89.8	76.8	83.2	75.4	66.4	71.1
East North Central												
Number	216,088	0	216,088	*	*	*	2,115,404	1,538,196	3,653,600	2,373,186	1,584,860	3,957,966
Percent	34.1	0.0	18.6				94.5	70.8	82.8	88.7	57.2	69.3
West North Central												
Number	40,325	0	40,325	*	*	*	669,357	540,224	1,209,582	714,434	550,024	1,264,458
Percent	29.6	0.0	18.0				95.1	80.6	88.0	83.4	70.7	77.4
South Atlantic												
Number	169,291	0	169,291	*	*	118,969	1,292,491	1,158,630	2,451,121	1,537,195	1,202,186	2,739,381
Percent	21.2	0.0	12.7			51.4	88.5	65.1	75.7	64.8	50.1	57.4
East South Central												
Number	24,062	0	24,062	*	*	*	354,274	348,897	703,171	386,803	378,050	764,853
Percent	13.4	0.0	7.1				82.7	61.3	70.5	61.1	49.4	54.7
West South Central												
Number	80,498	0	80,498	*	*	*	676,187	518,403	1,196,590	799,804	537,527	1,337,330
Percent	30.2	0.0	15.7				98.6	67.8	65.4	75.0	51.1	63.1
Mountain												
Number	71,037	0	71,037	*	*	*	428,396	369,074	797,470	519,049	386,495	905,544
Percent	40.1	0.0	24.9				90.8	74.7	82.6	77.4	60.7	69.3
Pacific												
Number	78,965	0	78,965	*	*	98,747	947,954	776,157	1,724,111	1,086,069	815,753	1,901,823
Percent	22.0	0.0	11.3			61.6	92.1	79.2	85.8	73.7	58.6	66.4

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]American youth population includes all persons born between January 1, 1957 and December 31, 1962. Estimates of the number and percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]Educational level as of September 1980 (start of 1980-81 school year).

[c]Females not possessing a high school diploma or a GED high school equivalency certificate were not eligible for enlistment.

*Sample size is too small (<50) to yield reliable estimates.

Table 33

Estimated Number and Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment by Educational Level, Sex, and Census Division[a]

-MARINE CORPS-

Census Division	Educational Level[b]: Non-High School Graduate			GED High School Equivalency			High School Diploma Graduate and Above			TOTAL		
	Male	Female[c]	Total	Male	Female[c]	Total	Male	Female	Total	Male	Female	Total
New England												
Number	48,687	0	48,687	*	0	*	499,369	340,479	839,848	566,113	340,479	906,592
Percent	44.6	0.0	24.6		0.0		95.7	66.5	81.2	86.3	54.2	70.6
Middle Atlantic												
Number	98,863	0	98,863	*	0	24,369	1,339,341	996,826	2,336,167	1,462,573	996,826	2,459,400
Percent	24.5	0.0	15.7		0.0	25.5	84.8	61.9	73.2	72.1	52.9	62.8
East North Central												
Number	228,424	0	228,424	*	0	*	2,833,529	1,256,512	3,290,061	2,300,959	1,256,512	3,557,471
Percent	36.8	0.0	16.9		0.0		90.8	57.8	74.6	78.2	45.3	62.3
West North Central												
Number	43,819	0	43,919	*	0	*	656,233	475,309	1,131,542	704,804	475,309	1,177 713
Percent	31.6	0.0	19.2		0.0		93.3	70.9	82.4	82.2	61.1	72.2
South Atlantic												
Number	200,835	0	200,835	*	0	68,523	1,203,709	951,585	2,155,374	1,473,147	951,585	2,474,732
Percent	25.2	0.0	15.0		0.0	35.4	82.4	53.5	66.5	62.1	39.7	50.8
East South Central												
Number	22,363	0	22,363	*	0	*	333,844	253,493	587,337	364,674	253,493	618,167
Percent	12.4	0.0	6.6		0.0		77.9	44.5	58.9	57.6	33.1	44.2
West South Central												
Number	81,389	0	81,389	*	0	*	626,131	436,166	1,062,296	745,856	436,166	1,182,021
Percent	38.6	0.0	15.3		0.0		83.7	57.1	70.2	69.9	41.5	55.8
Mountain												
Number	96,114	0	96,114	*	0	*	415,757	342,767	758,524	530,322	342,767	873,088
Percent	54.2	0.0	33.7		0.0		88.2	69.3	78.5	79.1	53.9	66.8
Pacific												
Number	88,587	0	88,587	*	0	51,193	894,085	654,609	1,548,694	1,033,864	654,609	1,688,473
Percent	24.7	0.0	12.6		0.0	33.0	86.8	66.8	77.1	70.2	47.0	58.9

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]American youth population includes all persons born between January 1, 1957 and December 31, 1962. Estimates of the number and percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]Educational level as of September 1980 (start of 1980-81 school year).

[c]Females not possessing a high school diploma were not eligible for enlistment.

*Sample size is too small (<50) to yield reliable estimates.

Table 3H

Estimated Number and Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment by Educational Level, Sex, and Census Division[a]

- AIR FORCE -

	Educational Level[b]											
	Non-High School Graduate			GED High School Equivalency			High School Diploma Graduate and Above			TOTAL		
Census Division	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
New England												
Number	12,812	0[c]	12,812	*	*	*	488,831	397,254	878,085	510,553	417,736	928,289
Percent	11.8	0[c]	6.5				92.1	77.6	84.9	77.8	66.5	72.3
Middle Atlantic												
Number	24,931	15,938	40,861	*	*	29,187	1,238,290	1,238,724	2,477,014	1,277,101	1,269,882	2,546,982
Percent	6.3	5.9	6.5			30.9	78.4	76.9	77.6	62.9	67.4	65.1
East North Central												
Number	76,284	49,918	126,114	*	*	*	1,919,456	1,602,263	3,521,719	2,025,663	1,684,567	3,710,230
Percent	12.0	9.4	10.8				85.7	73.8	79.8	68.9	60.8	64.9
West North Central												
Number	19,899	*	31,890	*	*	*	608,889	540,682	1,149,571	632,001	556,609	1,188,609
Percent	14.6		14.2				86.5	80.7	83.7	73.8	71.6	72.7
South Atlantic												
Number	36,925	36,649	73,574	*	*	96,667	1,128,825	1,215,341	2,344,166	1,227,669	1,286,736	2,514,407
Percent	4.6	6.8	5.5			49.9	77.3	68.3	72.4	51.8	53.6	52.7
East South Central												
Number	1,275	5,086	6,361	*	*	*	286,384	355,426	641,810	296,125	389,417	685,543
Percent	0.7	3.2	1.9				66.8	62.5	64.3	46.7	50.9	49.0
West South Central												
Number	30,473	5,764	36,238	*	*	*	580,777	523,682	1,104,459	639,999	545,455	1,185,454
Percent	11.4	2.3	7.1				77.6	68.5	73.0	60.0	51.9	56.0
Mountain												
Number	14,058	13,047	27,105	*	*	*	368,649	386,648	755,298	395,624	417,116	812,740
Percent	7.9	12.1	9.5				78.2	78.2	78.2	59.0	65.5	62.2
Pacific												
Number	37,831	38,804	76,635	*	*	70,319	864,417	800,478	1,664,895	943,414	868,434	1,811,848
Percent	10.5	11.3	10.9			45.3	84.0	81.7	82.8	64.1	62.3	63.2

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]American youth population includes all persons born between January 1, 1957 and December 31, 1962. Estimates of the number and percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]Educational level as of September 1980 (start of 1980-81 school year).

[c]Data from the New England Division Shows that not one of the 51 female, non-high school graduate sample members met the Air Force minimum aptitude requirements set for non-graduates (i.e., AFQT $\geq$ 65; MAGE $\geq$ 120).

*Sample size is too small (<50) to yield reliable estimates.

higher eligibility rates than their male counterparts in four divisions (Middle Atlantic, East South Central, Mountain, and Pacific); and, overall, the proportion of eligible female youth exceeded that of males in the Middle Atlantic, East North Central, South Atlantic, East South Central, Mountain, and Pacific divisions. In the Air Force, the proportion of all "qualified" females exceeded the comparable proportion of "qualified" males in the same Census divisions as the Army, with the exception of East North Central and Pacific.

During FY 1983, the Navy modified its minimum education and aptitude standards (as noted above) so that the same criteria applied to both women and men. This change resulted in a sizeable increase in the population of potentially qualified females at all three levels of education. In addition, in a pattern similar to the results in the Army and the Air Force, the proportion of females who would be expected to meet the Navy's education and aptitude criteria surpassed the comparable proportion of males in several geographical areas. The estimated number and percent of the 1980 youth population who would have passed the Navy's education and aptitude standards of FY 1983--by educational level, sex, and Census division--can be found in Appendix Table D-3.

With the understanding that enlistment standards are flexible and subject to change in accordance with manpower supply and demand, population eligibility rates were also calculated on the basis of various alternative standards. Four sets of alternative or "simulated" criteria were selected for analysis. The statistical results and a brief discussion of the findings are presented in Appendix E.

Table 35 was extracted from the data appearing in Appendix E. This excerpt shows the enlistment qualification rates for each of the Armed Services using actual and lower aptitude standards. The "lower" aptitude standards used here are the minimum scores for high school diploma graduates applied by each of the Services during FY 1983 (thus eliminating education differentials or the higher minimum aptitude requirements currently set for nongreduates and GEDs). While the data for all four Services show increases in the proportions of persons eligible, these increases are rather modest (i.e., from a low of two percent for the Air Force to a high of seven percent for the Navy). Obviously, the four Services share the manpower pool and therefore no <u>one</u> Service could actually expect to increase its pool by these amounts under such reduced standards. (More simulations, demographic details, and discussion can be found in Appendix E.)

Table 35

Estimated Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment Under Actual and Lower Standards[a]

(1983 Standards)

	SERVICE							
	Army		Navy		Marine Corps		Air Force	
Sex[b]	Actual	Lower[c]	Actual	Lower[c]	Actual	Lower[c]	Actual	Lower[c]
Male	76.3	82.3	75.0	82.6	68.3	77.0	62.6	65.2
Female	78.3	82.8	78.1	84.4	46.4	51.2	60.4	62.0
Total	77.3	82.6	76.5	83.5	57.5	64.3	61.5	63.5

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.

[c]The lower standards used here are the minimum aptitude standards for high school diploma graduates within each of the Armed Services. For example, in FY 1983, non-high school graduates and GEDs applying for enlistment in the Army were required to attain a percentile score of at least 31 on the AFQT along with required minimum scores on ASVAB composites. High school diploma graduates were required to attain a lower score of at least AFQT 16 with minimum ASVAB composite scores. The "lower" requirements shown in this table are thus the minimum aptitude scores for high school graduates, as applied to <u>all</u> applicants regardless of education. Although the specific standards used by the different Services vary, they are in all cases more lenient than the standards actually used for non-high school graduates or GEDs.

Military Participation Rates

A popular subject of discussion, beginning around the middle of the 1960s and extending through the period of the All-Volunteer Force, has been the "representativeness" or statistical description of the youth population in the American military.[64] Over the years, numerous attempts have been made to describe the cross-sectional character of the Armed Services by estimating the "participation rates" of various demographic subgroups. The rates of participation for all youth (or specific age cohorts) can be determined easily with Department of Defense statistics on active duty personnel and Bureau of the Census population estimates. However, the "participation rates" of potentially qualified youth--a more refined measure of participation--must obviously be based on a reasonable estimation of the number and characteristics of the specific portion of the population that could be expected to pass through the military's enlistment screens.

In 1976, Cooper drew upon examination data on preinductees and, assuming that the population of preinductees approximated a representative sample of military-age youth, derived the several estimates of the population classified as AFQT Categories I through III.[65] These estimates are shown in Table 36.

The projected population scores on the AFQT were then combined with Census data and Defense Department statistics on active duty recruiting, and a

---

[64]Mark J. Eitelberg, Military Representation: The Theoretical and Practical Implications of Population Representation in the American Armed Forces, AD-A093-391 (Alexandria, VA: Defense Technical Information Center [DTIC], October 1979).

[65]Richard V.L. Cooper, Military Manpower and the All-Volunteer Force, R-1450-ARPA (Santa Monica, CA: The Rand Corporation, September 1977), p. 213.

Table 36

Previously Estimated Percent of Male Population Scoring in AFQT Categories I-III

Estimated Percent of Male Population Scoring in AFQT Categories I-III		
Year	White (Nonblack)	Black
1971	83	33
1973	84	42
1974	84	45

Source: Cooper, 1977.

rough estimate was derived of the proportion of higher-quality youth (AFQT Categories I through III or AFQT percentile 31 and above) who had joined the Armed Services.[66] These so-termed "participation rates" among young men in the top three AFQT Categories are displayed in Table 37.

More recently, the National Longitudinal Survey (NLS) of Youth Labor Force Behavior (but without the "Profile of American Youth" component) was used to estimate military "participation rates" for males (18 to 21 years) during 1979 (the week of survey administration). The authors of one report on the NLS results, for instance, found generally higher participation rates for minorities than for whites, especially when level of education is taken into

[66]Ibid., p. 216.

Table 37

Previously Estimated Percent of Male Population in AFQT Categories I-III Who Enlisted in the Military

Estimated Percent of Male Population in AFQT Categories I-III Who Enlisted in the Military		
Year	White (Nonblack)	Black
1971-72	24	53
1973	16	48
1974	19	57
1975	19	42

Source: Cooper, 1977.

account (see Table 38).[67] (It should be noted here that Cooper's estimates are participation rates for Category I-III males of all ages--all of whom would generally qualify for enlistment--while the rates from the NLS analysis are percentages of the total population ages 18-23.)

Both of the previous studies summarized above show that minorities--particularly those with higher levels of education and those in the higher aptitude categories--participate in the military at relatively greater rates than their white counterparts. This is not unexpected, considering the fact that the Armed Services have been a traditional avenue of social mobility and (frequently) an employer of last resort for qualified minorities.

[67]Choongsoo Kim et al., The All-Volunteer Force: An Analysis of Youth Participation, Attrition, and Reenlistment (Columbus, OH: Center for Human Resource Research, The Ohio State University, May 1980), p. 213.

Table 38

Previously Estimated "Military Participation Rates" for Males (18-21 Years) by Racial/Ethnic Group and Education

Racial/Ethnic Group	Military Participation Rate (Percent) for Males (18 - 21 Years)	
	All Levels of Education	12 to 15 Years of Education
White	6.1	6.2
Black	9.7	15.7
Hispanic	7.6	10.4
Total	6.7	7.4

Source: Kim, et al. 1980.

Nevertheless, although the analysis by Cooper seeks to discover the participation rates of higher-quality youth, it is based largely on data obtained from the less-than-representative population of preinductees. And, while the study by the Center for Human Resource Research uses the NLS national probability sample to estimate general rates of participation, it did not yet have the benefit of aptitude testing results from the "Profile of American Youth".

In the present analysis, the military "participation rates" of American male youth were calculated with aptitude and education data from the "Profile Study" and recruiting statistics compiled by the Defense Manpower Data Center. The "participation rate" is defined as the percentage of male youth born between January 1, 1957 and December 31, 1962 (18 through 23 years old at the time of the "Profile Study") who would be qualified for enlistment and who

actually enlisted in the military (for the first time) between July 1, 1973 and September 30, 1981.[68]

Before the participation rates could be calculated, it was first necessary to obtain a detailed computation of all males born during the appropriate time period who had ever enlisted in the military. Table 39 shows this base population arrayed by racial/ethnic group, educational level, and Service in which enlisted. Using these statistics on male enlistees provided by the Department of Defense and the estimates of the general population (Table 20) and "qualified" population (Tables 25 through 28), it was possible to derive two ratios: (1) the proportion of <u>all</u> male youth (within selected categories) who have ever participated in the active duty military; and (2) the proportion of <u>all potentially qualified</u> male youth who have ever entered active duty military service.

Tables 40 through 44 present the results of this analysis for each of the four Armed Services and all Services combined. It should be noted that the cross-sectional participation rates displayed in the tables actually <u>understate</u> the true percentages of male youth who join the military, since they do not include individuals who either (a) enlist after September 30, 1981, (b) enter officer programs, or (c) directly join the Reserves or National Guard. It should also be pointed out that eligibility for enlistment would depend on other factors in addition to aptitude and education--including medical and moral requirements--which would reduce again the potentially

[68]The aforementioned ASVAB miscalibration affected the test scores of recruits who tested from 1 January 1976 through 30 September 1980. The scores of AFQT Category IV examinees were inflated approximately 15 points; thus, the "participation rates" shown in Tables 40-44 are higher than would be expected without the calibration error.

Table 39

Base Population Used to Derive Participation Rates by Racial/Ethnic Group, Educational Level, and Military Service[a]

Racial/Ethnic Group and Educational Level[b]	ARMY	NAVY	MARINE CORPS	AIR FORCE	ALL SERVICES
White[c]	**419,881**	**356,362**	**162,540[e]**	**240,019**	**1,178,802[e]**
NHSG	188,563	91,377	50,966	16,584	347,490
GED	20,276	23,952	5,665	18,490	68,382
HSG	211,043	241,033	104,167	204,945	761,188
Black[d]	**180,274**	**47,921**	**45,053[e]**	**35,874**	**309,122[e]**
NHSG	66,396	8,146	10,759	1,046	76,347
GED	4,618	1,853	753	1,808	9,229
HSG	119,060	37,922	33,258	33,023	223,263
Hispanic	**30,616**	**12,849**	**12,671**	**8,554**	**64,089[e]**
NHSG	10,685	2,582	3,785	420	17,472
GED	1,653	869	409	727	3,658
HSG	17,677	9,398	8,277	7,407	42,759
Unknown	**5,978**	**2,838**	**1,386**	**2,389**	**12,488**
NHSG	2,757	319	246	110	3,432
GED	595	209	66	148	1,018
HSG	2,526	2,307	1,074	2,131	8,038
TOTAL	**636,048**	**419,968**	**221,650**	**286,836**	**1,564,412[e]**
NHSG	288,401	102,424	65,756	18,160	444,741
GED	27,341	26,884	6,893	21,170	82,288
HSG	350,306	290,660	146,776	247,506	1,035,248

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Base population includes all males born between January 1, 1957 and December 31, 1962 who enlisted in the military (for the first time) between July 1973 and September 1981.
[b]Educational level at time of entry into military service. NHSG is non-high school graduate. GED is recipient of General Educational Development (GED) high school equivalency certificate. HSG is high school diploma graduate or above.
[c]White category includes all racial/ethnic groups other than black or Hispanic.
[d]Black category does not include persons of Hispanic origin.
[e]Includes persons for whom educational level could not be determined. Unknown cases are distributed as follows: White - 1,742; Black - 283; Hispanic - 200; Total - 2,225.

Table 41

Military Participation Rates of Male Youth Born 1957 Through 1962 by Racial/Ethnic Group and Educational Level[a]

- NAVY -

Educational Level and Base Population[b]	Racial/Ethnic Group			
	White[c]	Black[d]	Hispanic	TOTAL
Below High School Graduate				
All Youth	4.4	1.3	0.8	3.3
Qualified Youth	12.4	20.2	8.6	12.7
GED High School Equivalency				
All Youth	6.5	2.8	3.4	5.9
Qualified Youth	8.9	7.5	7.0	8.8
High School Diploma Graduate and Above				
All Youth	3.1	3.8	2.3	3.2
Qualified Youth	3.2	5.9	2.7	3.4
TOTAL				
All Youth	3.5	2.8	1.7	3.3
Qualified Youth	4.2	6.8	3.3	4.4

Sources: Derived from data that appear in Department of Defense, Profile of American Youth: 1980 Nationwide Administration of the Armed Services Vocational Aptitude Battery (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], March 1982); and special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics).

[a]Participation rate is the percentage of male youth born between January 1, 1957 and December 31, 1962 who enlisted in the military (for the first time) between July 1973 and September 1981. Participation rates are shown for two base populations: 1. all male youth within the racial/ethnic and education category; and 2. all male youth who would be expected to qualify for enlistment under 1981 aptitude test standards (by racial/ethnic and education category). The cross-sectional participation rates understate the true percentage of male youth who join the military since they do not include individuals who a) enlist after 30 September 1981 and b) enter officer programs. Estimates of the number of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery to a national probability sample in 1980) and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]For military personnel, education at time of entry (and initial qualification) into service. Approximately one percent of the male youth population could not be identified on the basis of education; and one percent of military personnel could not be identified on the basis of racial/ethnic group. These unknown cases were not included in the calculations of participation rates.

[c]White category includes all racial/ethnic groups other than black or Hispanic.

[d]Black category does not include persons of Hispanic origin.

Table 42

Military Participation Rates of Male Youth Born 1957 Through 1962 by Racial/Ethnic Group and Educational Level[a]

- MARINE CORPS -

Educational Level and Base Population[b]	Racial/Ethnic Group			
	White[c]	Black[d]	Hispanic	TOTAL
Below High School Graduate				
All Youth	2.4	1.7	1.1	2.1
Qualified Youth	6.1	26.1	11.0	7.2
GED High School Equivalency				
All Youth	1.5	1.2	1.6	1.5
Qualified Youth	2.3	4.3	4.2	2.5
High School Diploma Graduate and Above				
All Youth	1.3	3.3	2.0	1.6
Qualified Youth	1.5	6.4	2.5	1.8
TOTAL				
All Youth	1.6	2.7	1.6	1.7
Qualified Youth	2.0	7.8	3.4	2.4

Sources: Derived from data that appear in Department of Defense, Profile of American Youth: 1980 Nationwide Administration of the Armed Services Vocational Aptitude Battery (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], March 1982); and special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics).

[a]Participation rate is the percentage of male youth born between January 1, 1957 and December 31, 1962 who enlisted in the military (for the first time) between July 1973 and September 1981. Participation rates are shown for two base populations: 1. all male youth within the racial/ethnic and education category; and 2. all male youth who would be expected to qualify for enlistment under 1981 aptitude test standards (by racial/ethnic and education category). The cross-sectional participation rates understate the true percentage of male youth who join the military since they do not include individuals who a) enlist after 30 September 1981 and b) enter officer programs. Estimates of the number of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery to a national probability sample in 1980) and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]For military personnel, education at time of entry (and initial qualification) into service. Approximately one percent of the male youth population could not be identified on the basis of education; and one percent of military personnel could not be identified on the basis of racial/ethnic group. These unknown cases were not included in the calculations of participation rates.

[c]White category includes all racial/ethnic groups other than black or Hispanic.

[d]Black category does not include persons of Hispanic origin.

Table 43

Military Participation Rates of Male Youth Born 1957 Through 1962 by Racial/Ethnic Group and Educational Level[a]

- AIR FORCE -

Educational Level and Base Population[b]	Racial/Ethnic Group			
	White[c]	Black[d]	Hispanic	TOTAL
Below High School Graduate				
All Youth	0.8	0.2	0.1	0.6
Qualified Youth	6.7	20.5	18.1	7.1
GED High School Equivalency				
All Youth	5.0	2.8	2.9	4.6
Qualified Youth	8.9	26.4	14.4	9.7
High School Diploma Graduate and Above				
All Youth	2.6	3.3	1.8	2.7
Qualified Youth	3.0	9.6	2.6	3.3
TOTAL				
All Youth	2.3	2.1	1.1	2.3
Qualified Youth	3.3	9.9	3.0	3.6

Sources: Derived from data that appear in Department of Defense, Profile of American Youth: 1980 Nationwide Administration of the Armed Services Vocational Aptitude Battery (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], March 1982); and special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics).

[a]Participation rate is the percentage of male youth born between January 1, 1957 and December 31, 1962 who enlisted in the military (for the first time) between July 1973 and September 1981. Participation rates are shown for two base populations: 1. all male youth within the racial/ethnic and education category; and 2. all male youth who would be expected to qualify for enlistment under 1981 aptitude test standards (by racial/ethnic and education category). The cross-sectional participation rates understate the true percentage of male youth who join the military since they do not include individuals who a) enlist after 30 September 1981 and b) enter officer programs. Estimates of the number of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery to a national probability sample in 1980) and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]For military personnel, education at time of entry (and initial qualification) into service. Approximately one percent of the male youth population could not be identified on the basis of education; and one percent of military personnel could not be identified on the basis of racial/ethnic group. These unknown cases were not included in the calculations of participation rates.

[c]White category includes all racial/ethnic groups other than black or Hispanic.

[d]Black category does not include persons of Hispanic origin.

Table 44

Military Participation Rates of Male Youth Born 1957 Through 1962 by Racial/Ethnic Group and Educational Level[a]

- ALL SERVICES -

Educational Level[b]	Racial/Ethnic Group			
	White[c]	Black[d]	Hispanic	TOTAL
Below High School Graduate				
All Youth	16.6	12.1	6.3	14.5
Qualified Youth	39.0	135.7[e]	45.7	45.1
GED High School Equivalency				
All Youth	18.6	14.2	14.5	18.0
Qualified Youth	25.5	37.6	29.7	27.0
High School Diploma Graduate and Above				
All Youth	9.8	22.3	10.3	11.2
Qualified Youth	10.2	33.7	11.6	12.2
TOTAL				
All Youth	11.8	18.2	8.3	12.3
Qualified Youth	13.6	41.6	15.3	16.0

Sources: Derived from data that appear in Department of Defense, Profile of American Youth: 1980 Nationwide Administration of the Armed Services Vocational Aptitude Battery (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], March 1982); and special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics).

[a]Participation rate is the percentage of male youth born between January 1, 1957 and December 31, 1962 who enlisted in the military (for the first time) between July 1973 and September 1981. Participation rates are shown for two base populations: 1. all male youth within the racial/ethnic and education category; and 2. all male youth who would be expected to qualify for enlistment under 1981 aptitude test standards (by racial/ethnic and education category). The cross-sectional participation rates understate the true percentage of male youth who join the military since they do not include individuals who a) enlist after 30 September 1981 and b) enter officer programs. Estimates of the number of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery to a national probability sample in 1980) and the 1981 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]For military personnel, education at time of entry (and initial qualification) into service. Approximately one percent of the male youth population could not be identified on the basis of education; and one percent of military personnel could not be identified on the basis of racial/ethnic group. These unknown cases were not included in the calculations of participation rates.

[c]White category includes all racial/ethnic groups other than black or Hispanic.

[d]Black category does not include persons of Hispanic origin.

[e]This figure reflects the fact that during the FY 1976-80 period the Armed Services unknowingly accepted volunteers who did not meet eligibility standards because of errors in test calibration. Since these errors affected principally non-high school graduates with low aptitude scores the Services enlisted many more black male dropouts than would have been qualified in the relevant population group.

qualified population (especially for those in the lower socioeconomic strata) and further increase the corresponding participation rates.[69]

The statistics on the separate Military Services (Tables 40 through 44) indicate, as expected (particularly from end strength requirements), that the participation rates for young men are highest in the Army, followed generally in order by the Navy, the Air Force, and the Marine Corps. Participation rates are presented also for the selected demographic categories. Among white male youth with GED certificates or high school diplomas, the participation rates in the Navy are higher than those in the Army--and the participation rates of white males at these educational levels in the Air Force are about the same as the rates in the Army (if not slighly higher). The participation rates for blacks are usually equal to or higher in the Marine Corps than in the Navy (with the exception of blacks possessing GED certificates). The total rates for Hispanics are lowest in the Air Force, and the rates for non-high school graduates generally are lowest in the Air Force.

The attraction of the military for minority youth is most vividly portrayed when the participation data for the separate Armed Services are combined. As seen in Table 44, black and Hispanic youth who are "qualified" for military service have generally enlisted in proportionately greater levels

---

[69] Variations exist in the definitions of "high school graduate" applied by each Military Service and the definition used in the NLS data base. Indeed, there are about nine different categories at present in the available types of high school completion or equivalency credentials--and no two Services treat all types alike. Persons who complete a correspondence school program as a substitute for formal graduation (with diploma), for example, are treated as CED equivalents in the Navy, but as diploma graduates in the other Services. The definitions used in the NLS data base, on the other hand, tend to generalize -though it is unknown how some of the types of credentials are defined. For a further discussion of the various types of education credential available in the U.S. today, see Janice H. Laurence, Secondary Education Credentials: A Military Enlistment Policy Dilemma, FR-PRD-83-22 (Alexandria, VA: Human Resources Research Organization, November 1983).

than their white counterparts. This is particularly true for blacks: as of September 1981, almost 45 percent of all potentially qualified black males in the United States (born in 1957 through 1962) had entered military service. One out of three black male youth who had a high school diploma or a GED, and would probably qualify for enlistment, had enlisted by September 1981--while the comparable rate for black high school dropouts was a whopping 136 percent. (This unusually high rate reflects the fact that ASVAB misnorming during FY 1976-80 principally affected the eligibility of non-high school graduates with low aptitude test scores. Many more black youth in this category consequently were accepted for military service than would have qualified with a correctly calibrated test.) In contrast, the participation rate for potentially qualified white high school graduates was 10 percent; and the overall rate for white males who would qualify for enlistment was about 14 percent.

The participation rates presented in Table 44 were updated to cover the next two years of military eligibility (through September 30, 1983) for younger males in the group. (Males born in 1957 through 1962 would have been between the ages of about 21 and 26 in September 1983. The median age of new enlistees is 19 years; so the vast majority of all men in the relevant group who planned to join the military would have probably enlisted already by the end of FY 1983.)

The revised participation rates for all Services combined are shown in Table 45. The addition of two more years of enlistment experience resulted in a modest increase in the participation rates of all youth and in those who were potentially qualified. It is noteworthy, nevertheless, that the rate for

Table 45

Military Participation Rates of Male Youth Born Between 1957 through 1962 by Racial/Ethnic Group and Educational Level

- ALL SERVICES -

(Updated Through September 1983)

Educational Level	Racial/Ethnic Group			
	White	Black	Hispanic	TOTAL
Below High School Graduate				
All Youth	17.0	12.3	5.4	14.8
Qualified Youth	40.0	137.8*	46.5	45.9
GED High School Equivalency				
All Youth	21.4	16.2	16.1	20.4
Qualified Youth	29.4	43.0	33.2	30.6
High School Diploma Graduate and Above				
All Youth	11.5	28.6	12.0	13.2
Qualified Youth	12.1	42.0	14.0	14.4
TOTAL				
All Youth	13.0	20.3	9.3	13.9
Qualified Youth	15.5	49.9	17.6	18.2

Sources: Derived from data that appear in Department of Defense, Profile of American Youth: 1980 Nationwide Administrations of the Armed Services Vocational Aptitude Battery (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], March 1982; and special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics).

*This figure reflects the fact that during the FY 1976-80 period the Armed Services unknowingly accepted volunteers who did not meet eligibility standards because of errors in test calibration. Since these errors affected principally non-high school graduates with low aptitude scores the Services enlisted many more black male dropouts than would have been qualified in the relevant population group.

"qualified" black males increased from 45 percent to 50 percent. It is estimated that, if disqualifications for medical and moral reasons were also taken into account, the participation rate for all potentially eligible blacks at this point would be as high as 60 percent. That rate would even be slightly greater if officers and nonprior service reservists were counted as "military participants."

Perhaps an even more revealing aspect of the youth participation statistics lies in the fact that potentially qualified youth who do not have a high school diploma or equivalency certificate--regardless of race--find military service an especially appealing job or education alternative. Almost half of all high school dropouts who could probably pass the military's aptitude test standards had enlisted; and more than one out of four qualified GED recipients had made the same choice. In fact, the impact of the Armed Services as a place of relative opportunity, equal acceptance, and involvement, regardless of prior social disadvantage, has helped to make the military a traditional channel for social mobility. The participation rates displayed tend to confirm that both the image and the promise of "opportunity" are still quite strong.

SECTION 4

Study Implications: Looking Ahead

The implications of the research reported here are, needless to say, far-reaching for both the military and society. The causes and consequences of screening for military service are intertwined with the lives and futures of individuals and their families, with social categories and communities, and with every person or group of persons touched by the nation's military. Screening for military service may likewise affect our institutions, our domestic policies, international relations, and the tranquility and security of the nation. And the list goes on.

In this section, several separate, yet interrelated, implications of the study results are briefly explored. First, the discussion looks at factors or supplementary criteria (in addition to formal aptitude and education requirements) that may play an important role in determining who is or is not eligible for enlistment. Emphasis here is placed on the added selection standards used variously by the Armed Services, as well as the job placement actions that occur during the enlistment process. The discussion then turns to the special problems and issues--underscored by discrepancies in test score performance--regarding the selection and classification of women and minorities. A short note concerning the future need for military personnel with high levels of ability is presented, followed by an examination of multiple standards and current definitions (as applied by the Armed Services) of "high school graduate." The section closes with a concise review of current research efforts in the areas of initial screening and placement, along with a "look ahead."

Other Factors In Eligibility for Enlistment

The present study examines the qualitative character of military pre-inductees, inductees, voluntary applicants, and enlistees over time. The study also describes the relative ability of different segments of American youth to qualify for enlistment in each of the Military Services and develops estimates of participation. Throughout the analysis, aptitude test scores and other individual attributes are treated in the context of minimum requirements for enlistment or induction. In the case of induction, where young men are selected, classified, and then assigned (by directive) to military jobs where they are needed most, minimum requirements draw a clear-cut line between the qualified and the unqualified. For volunteers, however, minimum aptitude/education, medical, and moral standards may be only the first among many "gates" that the individual will have to pass through before gaining admission. Eventual enlistment often depends on several other factors, including additional requirements for persons with marginal qualifications and the offer of guaranteed placement in a specific military occupation for those whose qualifications are well above the minimum.

In the Army, for example, all applicants are evaluated at the recruiter level on their background characteristics and behavior while in school. In addition, applicants who have arrest records, numerous traffic violations, or a history of alcohol abuse or drug use are ordinarily required to gain a special "moral waiver" before they are allowed to enlist. The Military Services each have their own guidelines and regulations for processing waivers and judging the merits of a case. There is an increasing tendency for individuals who fall into this category to have little chance of being

accepted--particularly in a good recruiting market--unless they are clearly desirable candidates on other grounds (such as education or training). The final decision on a waiver is left largely to the discretion of the designated authority.[70]

The Navy also uses a method for assessing the qualifications of applicants that produces a general score or indicator of the individual's potential for successful service. This evaluation technique, called SCREEN (an acronym for Success Chances for Recruits Entering the Navy), uses the individual's educational attainment, age, and AFQT score to estimate the relative probability that the applicant will effectively complete the first year of service. Minimum SCREEN scores are established to prohibit enlistment of those applicants who, on the basis of previous experience, have the personal characteristics, background, and ability that increase their statistical likelihood for failure. Waivers can be granted to those with SCREEN scores below the minimum level, and for certain categories of applicants (such as those with prior drug involvement), the minimum scores are raised.

Another consideration when viewing the enlistment process is the prescreening of applicants that occurs through the use of shortened versions of the AFQT. The policies of the Armed Services vary concerning the use of these prescreening tools, but they may be applied on a large-scale basis (depending on the supply and demand for new enlistees). The abridged versions of the enlistment test are seen to offer a preview of the

[70]Barbara Means, Moral Standards for Military Enlistment: Screening Procedures and Impact, FR-PRD-83-26 (Alexandria, VA: Human Resources Research Organization, November 1983).

individual's performance on the full-length test. If a prospective recruit fails to achieve an acceptable score on the short test, he or she may be advised by the recruiter (who administers and scores the test) to postpone efforts to enlist or to seek entry into one of the other Armed Services. The entire enlistment process for some applicants may thus end here, even before it is allowed to formally begin.

In addition to their use in the enlistment screening process, aptitude test scores are used to classify the recruit or potential recruit and to determine eligibility for training and occupational assignment. An applicant may thus be able to pass the minimum criteria for enlistment--but, if he or she cannot meet the requirements for an available occupation (that is, one in which the yearly quota of openings or training "school seats" has not been filled), or is unable to qualify for any career field he or she is willing to enter, enlistment may be postponed indefinitely or ruled out entirely. For all intents and purposes, then, an applicant who is able to pass the minimum entry criteria but unable to qualify for the "right" job is an enlistment reject. (However, some Services do have a system for granting waivers for occupational assignment to candidates who are otherwise qualified.)

Indeed, as the authors of one study point out, recruiting is a function of training requirements: "The services attempt, primarily on the basis of written tests, to decide the capabilities a person must possess to be trained in a given occupation. Then, the services try to recruit personnel that meet these test-established qualifications."[71] "Hence,"

[71]Herbert R. Northrup et al., Black and Other Minority Participation in the All-Volunteer Navy and Marine Corps (Philadelphia, PA: The Wharton School, University of Pennsylvania, 1979), p. 48.

the authors find, "mental testing, the keystone of the service's recruiting programs, is used as a determinant of who is recruitable and who is trainable and as a limiting criterion in meeting recruiting mix objectives."[72]

In a syndicated article, a news service journalist similarly observed that "plainly, the ASVAB has power":

> Whether a recruit becomes something fancy like a microwave transmitter repairmen or something dreary like what the Army calls a "laundry and bath specialist" depends on a power higher than the recruit or the sergeant.
>
> It depends on the Armed Services Vocational Aptitude Battery, one of the most powerful instruments in the U.S. military this side of nuclear weapons. Score a 30 and you're out for deferred enlistment next June. "Grab a lucky pencil," as one recruit put it, score a 31 and you're in.
>
> Drop out of high school and you'll need an ASVAB score of 62 [sic] to enlist immediately and get the next green bus to Fort Dix, N.J. Be a graduate and a 49 [sic] will do.[73]

"In the course of one afternoon," the journalist adds, "overseeing one sergeant's transactions, four points on an ASVAB subtest kept a bright adventurer out of the Special Forces, one point denied a young man enlistment entirely and another young man--an electronics wizard by his test scores--nearly picked that field instead of his dream: to become a truck driver."[74] Because the ASVAB scores are so important, and because minorities tend to score lower than whites on the test, it is noted, minorities tend to be consigned to the "soft skills" or low-level military jobs:

---

[72]Ibid., p. 53.

[73]Frank Greve, "Vocational Military Tests: Powerful, Controversial," Baton Rouge State Times (Knight-Ridder Newspapers), January 8, 1983.

[74]Ibid.

"It's a statistical tendency that played a part in the futures of 930,000 young adults who took the ASVAB test last year."[75]

The influence of aptitude test scores on job assignments and the general opportunities for technical training is illustrated in Table 46. The percent of male youth (18 through 23 years), according to racial/ethnic group and educational level, who would probably qualify for two occupational specialities in the Army was estimated using "Profile of American Youth" results and 1983 occupational classification standards. The two specialties represent (a) a basic, common occupation in the Army (Infantryman) at one extreme; and (b) a highly selective and technically specialized occupation (Calibration Repair Specialist) at the other extreme. (Males were singled out in this analysis because of the current prohibition on women serving in combat-related occupational specialties.)

The results of the analysis shown in Table 46 demonstrate, once again, the differences in eligibility rates (and accompanying opportunities) between the racial/ethnic groups and educational categories. About 81 percent of all white young men, for instance, would probably qualify for the Army Infantry, compared with 47 percent of Hispanics and 26 percent of all black young men. The racial/ethnic differences are accentuated in the highly technical field of Calibration Repair Specialist: just under one out of three whites could expect to pass the minimum standard, compared with one out of ten Hispanics and virtually no (three percent) blacks.

At the same time, one is struck by the degree to which requirements for highly technical specialties reduce so drastically the pool of

[75]Ibid.

Table 46

Estimated Percent of American Male Youth (18-23 Years) Who Would Qualify for Assignment to Selected Occupational Specialties in the Army, By Racial/Ethnic Group and Educational Level

RACIAL/ETHNIC GROUP	Infantry[a]				Calibration Repair[b]			
	Below High School Graduate	GED High School Equivalency	High School Diploma Graduate And Above	TOTAL	Below High School Graduate	GED High School Equivalency	High School Diploma Graduate And Above	TOTAL
White	40.2	72.8	92.3	80.9	5.3	6.9	37.3	29.7
Black	6.3	26.8	37.6	25.6	0.3	0.0	5.5	3.4
Hispanic	10.9	48.7	75.2	46.8	0.9	3.5	16.2	9.2
TOTAL[c]	30.0	64.9	85.6	71.5	3.8	5.7	32.9	24.9

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics) and the Defense Manpower Data Center. Information on Composites and Occupational requirements from Department of the Army.

[a]Individual is required to achieve a Combat (CO) Composite standard score of 85 or higher. The Combat Composite includes the following subtests: Coding Speed (CS), Arithmetic Reasoning (AR), Mechanical Comprehension (MC), and Auto & Shop Information (AS).

[b]Individual is required to achieve an Electronics (EL) Composite standard score of 120 or higher. The Electronics Composite includes the following subtests: Arithmetic Reasoning (AR), Mathematics Knowledge (MK), Electronics Information (EI), and General Science (GS).

[c]Females are not eligible for assignment to the Infantry occupational specialty; if females were eligible, approximately 62.4 percent would probably qualify based on these standards. About 9.5 percent of all females would qualify for assignment to the Calibration Repair specialty. The combined (male and female) qualification rates for the Infantry and Calibration specialties are 67.0 and 17.4, respectively.

potentially eligible recruits: although 76 percent of all young men nationwide would probably qualify for enlistment in the Army (see Table 21), fewer than one out of four would be available for training in calibration repair. And, since test scores vary considerably by geographic region, the respective pools of potentially qualified recruits are also quite different from one region to the next. Further analysis shows, for example, that 49 percent of all young men in New England would probably pass the minimum standard for the calibration repair specialty, compared with a regional low of only 16 percent in the East South Central area of the country.

Military Selection and Classification Standards for Minorities and Women: Some Problems and Issues

As observed, in FY 1981 women who did not have high school diplomas or equivalency certificates were not eligible to enlist in either the Navy or the Marine Corps; women with equivalency certificates were also barred from entering the Marine Corps. Females who qualified on the basis of their education in these Services were required to meet different, higher aptitude standards than those established for men with similar education. By FY 1983, the differential standards for female applicants in the Navy had been abolished.

It should also be pointed out that, until recently, the Army used a different test composite for male and female applicants in determining AFQT scores. The net effect of this practice was a relative reduction in the supply of qualified female applicants--even though it appeared, ostensibly, that males and females were being evaluated equally in terms of mental aptitude standards. All Services still preserve quotas (or "ceilings") on

the enlistment of females, and informal barriers are periodically placed on the eligibility of female nongraduates. The Services point out that female applicants are treated differently than their male counterparts because they have a separate "selection ratio." Legal and policy restrictions that bar females from serving in certain occupations along with other recruiting limitations, have permitted the Services to establish more stringent enlistment criteria for selecting among the pool of female applicants.

The movement of female recruits into certain nontraditional (i.e., male-dominated) and mechanically technical occupations is also hindered by the disparate performance of females on the aptitude subtests and composites that figure so prominently in the minimum requirements for assignment to these specialties. On the Mechanical composite (comprised of the Mechanical Comprehension, Automotive-Shop Information, and General Science subtests), for instance, a large gap is found between the scores of males and females: the mean standard score (on a standardized scale having a mean of 500 and a standard deviation of 100) for males was 545, compared with a mean standard score of 454 for females. Males also outperformed females on the Electronics composite (a mean score of 521 compared with a score of 479 for females) and, to a lesser degree, on the General composite (506 compared with 494 for females). Females, on the other hand, achieved a higher mean standard score than did males on the Administrative composite (513 compared with 487 for males).[76] The Administrative composite (comprised of the Coding Speed, Numerical Operations, and Verbal subtests), in

[76]Janice H. Laurence, Mark J. Eitelberg, and Brian K. Waters, "Subpopulation Analyses of 1980 Youth Population Aptitudes," Paper presented at the 90th Annual Convention of the American Psychological Association, Washington, D.C., August 1982.

contrast to the Mechanical and Electronics composites, is commonly used to determine eligibility for the clerical-administrative military occupations in which women have traditionally served.

Differences in the measured mental aptitude between blacks and whites were used during the 1950s to justify segregation, racial restrictions, and quotas within the military. Historically, the military's aptitude tests also once served as a convenient device to regulate the enlistment of blacks.[77] The predictability of average race differences on certain test items and subtests permitted the creation of test composites that, with a fair degree of confidence, could be used to "favor" one race over another. In 1950, the Army agreed to an abolition of racial quotas based on the belief that blacks could be "counted on" to score well below whites on mental qualifying examinations. The minimum mental aptitude standards could thus be manipulated, it was believed, to keep the proportion of blacks below 10 percent.[78] Indeed, in 1975 and, again, in 1979 the Navy was accused by a Congressman of using a disguised racial quota in the form of restrictions on the percentage of recruits scoring in AFQT Category IV (the lowest acceptable category). Ironically, in 1980 Congress itself imposed a

[77]It should be noted that tests of aptitude, achievement, literacy, or the like have been a traditional tool for discrimination in this country and in many others. The examples are numerous--from instances in granting voting privileges, admission to jobs and educational institutions, immigration policies, and so on. The military has merely mirrored the tenor of the times in this respect. (See Chapter 2 of Martin Binkin and Mark J. Eitelberg, with Alvin J. Schexnider and Marvin M. Smith, Blacks and the Military (Washington, D.C.: The Brookings Institution, 1982), pp. 27-28.)

[78]Ibid., pp. 27-28.

ceiling on the percentage of AFQT Category IV recruits who were permitted to enter military service between FY 198' and FY 1983.[79,80]

One lingering effect of racial differences in performance on tests of mental aptitude is the existence of a definite pattern of black participation in the military's occupational areas. Historically, blacks were relegated to service and supply units--a trend that can be traced back as far as the American Revolution. Recent experience exposes the enduring social class and color lines of the military's occupational placement system: in 1964, the last peacetime year before the Vietnam conflict, blacks were greatly overrepresented in the Service and Supply Handler occupational area in all four Armed Services; in every succeeding year, blacks have remained overrepresented in this occupational area.[81]

It does not appear that this trend in the occupational placement of minorities will change very much in the near future. The margin of difference in the average educational level of whites and blacks nationwide and the test score differences revealed in the "Profile of American Youth" imply that, unless the Services change their classification criteria, blacks (as well as Hispanics) may be disproportionately relegated to the military's "soft skills" for some time to come.[82]

---

[79]Military Selective Service Act. 50 U.S.C. App. s 451-71a.

[80]Department of Defense Authorization Act. FY81 P.L. 96-342; FY82 P.L. 97-86; FY83 P.L. 97-252; FY84 P.L. 98-94.

[81]Binkin and Eitelberg, Blacks and the Military, p. 172-173.

[82]It should be noted that the Navy, through its classification and assignment system known as CLASP, has been consciously working toward balancing the distribution of ethnic minorities within all ratings.

There is also some question as to the relative effectiveness of the military's minimum entry requirements for minorities. As noted above, the first-term attrition rates for high school graduates are typically half as large as the attrition rates for nongraduates. This historical trend serves as the principal reason for the present use of differential aptitude standards based on high school graduation status. Higher aptitude test scores are required for non-high school graduates. The intent is to accept only the "best" (i.e., those with higher aptitude scores) from among non-high school graduates, a generally less-preferred group of candidates. Thus, while aptitude does not control attrition, it does provide a means by which to reduce the number of enlistment-eligible nongraduates. The first-term experience of white male enlistees who entered military service between 1973 and 1978 tends to support this policy: the attrition rate (Defense-wide) for non-high school graduates in AFQT Categories I and II (combined) was 44 percent, compared with a rate above 50 percent for those in Category IIIB and those in Category IV. Among black male enlistees during the same period, however, the attrition rates for nongraduates did not vary much at different aptitude levels. In fact, the historical attrition rate for black male enlistees who were nongraduates was generally slightly higher among those with test scores in Categories I and II than those with scores in Category IV.[83]

The creators and users of aptitude tests in higher education and civilian industry periodically have contended with critics who assert that most standardized testing is unfair and culturally biased. As one

[83]Eli S. Flyer and Richard S. Elster, First-Term Attrition Among Non-Prior Service Enlisted Personnel: Loss Probabilities Based on Selected Entry Factors (Monterey, CA: Naval Postgraduate School, July 1983.

scientist and controversial author points out, "certainly no theory or practice in modern psychology has been more attacked than mental testing." It is "the only topic in psychology that in recent years has consistently been showered by brickbats from the popular media."[84] The Military Services are likewise subjected to the skepticism expressed in certain circles concerning their methods of selection and classification.

The Military Services are, by far, the largest single employer of initially unskilled labor in the nation. Several hundred thousand young men and women are "hired" each year and then trained in jobs as dissimilar as cannon crewman, clinical nuclear medicine technician, calibration specialist, cryptologic technician, computer programmer, or cook. The military is a massive training institution that annually teaches technical skills to young adults in numbers equivalent to the entire population of some states. At the same time, the military's enlistment standards and screening policies have a direct effect on the employment and training opportunities of millions of young men and women who are just starting out in the world of work. For many, acceptance or rejection by the military can affect not only their immediate opportunities for employment, but the total sum of their early "life chances" and the eventual course of their job histories. And, for some, service in the nation's military could even be a sort of crossroad or junction between a path to either failure or success. At a point when testing in general is under fire and widespread public scrutiny, it is not surprising to find the nation's Defense policy-makers and testing psychologists fending off the same charges and

[84]Arthur R. Jensen, Bias in Mental Testing (New York: The Free Press, 1980), p. 1.

complaints that have been leveled at aptitude screening for education or civilian employment.

Test Bias and Differential Validity: Evaluating the ASVAB

The subject of bias in standardized testing is complicated and beyond the scope of the present study. Nevertheless, one may gain a feeling for the major issues involved by reviewing the definition of test bias contained in Title VII of the Civil Rights Act of 1964 (as interpreted by the Supreme Court in 1971):[85] tests are considered fair and unbiased when either (a) the use of tests in selection have a numerically equal impact on minority and nonminority groups or (b) any numerical advantage of one group over another empirically reflects a corresponding job-related advantage. (The latter criterion more nearly reflects the psychometrician's standard.)[86]

The ASVAB has been evaluated by civilian test experts. Extensive research studies have been performed to investigate the empirical validity of the military's test for predicting training and job performance. As part of these efforts, the utility of the ASVAB in predicting the

---

[85]Title X of the United States Code provides the governing statutes applicable to military personnel. Accordingly, the Department of Defense General Counsel has ruled that Title VII does not pertain to military personnel testing. Nevertheless, Defense Department psychologists recognize the need to have an equitable selection and classification instrument, and they follow the principles of test development and validation set forth in the testing standards of the American Psychological Association, the American Educational Research Association and the National Council on Measurement in Education.

[86]R.A. Weitzman, Racial Bias and Predictive Validity in Testing for Selection, NPS 54-83-008 (Monterey, CA: Naval Postgraduate School, July 1983) pp. 9-10.

performance of the sexes and minority groups has been assessed.[87] The battery has been shown to be equitable in predicting success in technical training for diverse military occupations among males and females, and majority and minority group members alike. In fact, most studies show that ASVAB scores have a slight overpredictive tendency with respect to minority group performance and a modest underpredictive tendency with respect to the performance of whites. That is, the test generally predicts that minority examinees will do better and majority examinees will do less well in training than has been the case.

There is some evidence to suggest that the mechanical, electronic, and science areas of the ASVAB are statistically biased against females in predicting performance. Experts point out, however, that this outcome on experientially-based subtests is consistent with the social and cultural factors that currently affect the intellectual development and education of young men and women.

---

[87]The following represent a sample of available sources:

R. Darrell Bock and Robert Mislevy, The Profile of American Youth: Data Quality and Analysis of the Armed Services Vocational Aptitude Battery (Chicago: National Opinion Research Center, August 1981).

R. Darrell Bock and Elsie G. J. Moore, The Profile of American Youth: Demographic Influences on ASVAB Test Performance (Chicago: National Opinion Research Center, May 1984).

R. F. Boldt, M. K. Levin, D. E. Powers, M. Griffin, R. C. Troike, W. Wolfram, and Forrest R. Ratliff. Sociolinguistic and Measurement Considerations for Construction of Armed Service Selection Batteries, AFHRL-TR-77-76 (Brooks AFB, TX: Air Force Human Resources Laboratory, December 1977).

Lonnie D. Valentine, Prediction of Air Force Technical Training Success from ASVAB and Educational Background, AFHRL-TR-77-18 (Brooks AFB, TX: Air Force Human Resources Laboratory, May 1977).

Nancy Guinn, Ernest C. Tupes, and William E. Alley. Demographic Differences in Aptitude Test Performance, AFHRL-TR-70-15 (Brooks AFB, TX: Air Force Human Resources Laboratory, May 1970).

Nancy Guinn, Ernest C. Tupes, and William E. Alley. Cultural Subgroup Differences in the Relationships Between Air Force Aptitude Composites and Training Criteria, AFHRL-TR-70-35 (Brooks AFB, TX: Air Force Human Resources Laboratory, September 1970).

C. Wayne Shore and Rodger Marion, Suitability of Using Common Selection Test Standards for Negro and White Airmen, AFHRL-TR-72-53 (Brooks AFB, TX: Air Force Human Resources Laboratory, May 1972).

Thus, the lower predictive validity for females as compared with males in certain test areas is not necessarily a weakness of the ASVAB, but a reflection of the previous experiences of the two sexes up to the time of testing.[88]

The purpose of the military's aptitude test is to predict accurately the in-service performance of applicants for enlistment and to consequently provide a means for selection or rejection. The true gauge of bias in the AFQT is not the test's worthiness in estimating the intellectual ability of test takers, but its capacity to predict accurately the relative military performance of individuals so that no particular group or sex is given an unfair advantage over another when the scores are actually used. As Weitzman notes:

> Whereas the public at large might condemn as biased a test on which white and black people have different means, a test expert is likely to consider this judgment to be premature. In the expert's view, more may be involved than simply a difference in test means. Particularly if the use of the test is to select applicants for work or school, the final verdict on test bias must also take into account subsequent performance on the job or in the classroom. If the racial group having the higher test mean tends to perform correspondingly better at work or school, then the difference in means may be a more accurate reflection of test validity than of test bias.[89]

In 1981, the Defense Department formed the Defense Advisory Committee on Military Personnel Testing, an independent panel of nationally recognized psychometricians. One of the first tasks of the Advisory Committee was to evaluate the possible existence of test bias in the ASVAB. In its 1983 report to the Secretary of Defense, the Committee concluded:

---

[88]Bock and Moore, The Profile of American Youth: Demographic Influences on ASVAB Test Performance.

[89]Weitzman, Racial Bias and Predictive Validity in Testing for Selection, pp. 2-3.

> The evidence clearly shows that the ASVAB has substantial operational value for purposes of predicting training criteria in a wide range of military specialties. There is also substantial evidence that the tests provide reasonable predictions for minority as well as majority group applicants, and do not systematically underestimate the performance of minority group members.[90]

This conclusion was consistent with the findings of other independent test experts who had previously given the ASVAB a favorable rating:

> Data from responses to the ASVAB are free from major defects such as high levels of guessing or carelessness, inappropriate levels of difficulty, cultural test-question bias, and inconsistencies in test administration procedures. They provide a sound basis for the estimation of population attributes such as means, medians, and percentile points in the youth population as a whole and in subpopulations defined by age, sex, and race/ethnicity.[91]

Thus, the overall consensus is that the ASVAB is a valid predictor of in-service performance for all groups, regardless of minority status or sex.

Selection Testing in our Society

The National Academy of Sciences' Committee on Ability Testing observed that "every society develops some sort of formalized criteria for making selection decisions." Social characteristics and intuitive opinions have typically offered a convenient basis for making these selection decisions. However, "given the great tide of immigrants seeking to find a place in America and the expansiveness of the economy," writes the Committee, "ability testing offered an ordering device that traditional

---

[90] Biennial Report of the Defense Advisory Committee on Military Personnel Testing (Washington, DC: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], June 1983), p. 2.

[91] R. Darrell Bock and Robert Mislevy, Data Quality Analysis of the Armed Services Vocational Aptitude Battery (Chicago: National Opinion Research Center, 1981), p. 51.

institutions could no longer provide and that accommodated the aspirations of the ambitious. The convergence of these intellectual, economic, and social forces produced a climate conducive to the acceptance of tests and testing in industrial, educational, and governmental settings during the first half of this century."[92]

Many institutions had adopted the practice of using paper-and-pencil aptitude tests for screening without adequate evidence that the tests actually identified the best performers on the job. Now, amid the lively controversy over the use and misuse of standardized tests, there is a somewhat declining reliance on traditional paper-and-pencil tests of ability. Many employers and educators, in an effort to reduce their vulnerability to charges of discrimination and unfairness--from the public and federal government alike--have curtailed use of certain tests in favor of alternative selection criteria.[93] Yet, tests still determine to a large extent who goes to college, who gets hired, promoted, retained, licensed, and certified--or who gets life's "chances" and who does not. And the costs and benefits of these tests are enormous to the user, the individual test takers, and the society itself.

For the test takers, the Committee on Ability Testing points out, "the consequences of testing are the opportunities gained or lost. Unsatisfactory performance will cost the test taker access to one sort of future." On

---

[92]Alexandra K. Wigdor and Wendell R. Garner, eds., Ability Testing: Uses, Consequences, and Controversies, Part I: Report of the Committee (Washington, D.C.: National Academy Press, 1982), p. 9.

[93]Toby Friedman and E. Belvin Williams, "Current Use of Tests for Employment," Ability Testing: Uses, Consequences, and Controversies, Part II: Documentation Section, eds. A. K. Wigdor and W. R. Garner (Washington, D.C.: National Academy Press, 1982), pp. 99-169.

the other hand, "the benefits of testing accrue to the taker who gains access to a limited opportunity, is assigned to a potentially more rewarding position, is barred from an opportunity that would have led to failure, or can gain self-knowledge that will help in choosing among educational or vocational options."[94] The impact that the elimination of screening based upon test scores will have upon any particular group of applicants will depend upon the nature of the criteria used in place of tests. A major argument for the use of standardized tests in educational and employment settings has been that, in spite of their shortcomings, they are less biased and more valid than other selection methods, such as personal interviews.

The search for answers to these questions is difficult and tied to many other social, political, and philosophical concerns. But the general topics and issues that are presently being thrashed out in public, academic, and government forums serve to emphasize the substantial consequences of testing on the individual and the entire nation.

Ability Levels and the Changing Military

Some observers take note of the fact that technological advancements are rapidly changing the face of the American military as well as our traditional concepts of war and strategy. They also express concern that--along with trends in declining test scores and an apparently waning national interest in mathematics and science--new weapons, communication systems, vehicles, and military equipment in general are becoming too

[94]Wigdor and Garner, eds., Ability Testing, Volume I, p. 23.

complicated and demanding for military personnel to operate effectively. They point out, too, that today's selection and classificaton standards are but the outdated, imprecise, and simplistic artifacts of a simpler time; and, new, more discriminating job-related selection criteria are needed to keep the modern military in step with the latest technological revolution.

As the authors of a Brookings Institution study observe:

> Advances in technology since World War II have had a dramatic influence on the U.S. defense establishment. Unlike the armed forces of an earlier period, which were dominated by relatively unskilled infantrymen and able-bodied seamen, the majority of military personnel today are involved in providing support for the combat forces.[95]

For example, in 1945, about 13 percent of trained enlisted personnel were assigned to technical skills. Today, better than one out of four (28 percent) enlistees are serving as technical workers (computer specialists, electronics technicians, medical technicians, and similar occupations). And a total of approximately 46 percent of current enlistees are performing work that would be classified as "white collar" in the civilian sector.[96]

"Despite the popularized image of the automated Buck Rogers-style battlefield of the future, characterized by small numbers of highly trained operators remotely commanding electronic tanks and laser death rays," the Brookings analysts write,

---

[95]Binkin and Eitelberg, Blacks and the Military, p. 132. See also Martin Binkin and Irene Kyriakopoulos, Youth or Experience? Manning the Modern Military (Washington, D.C.: The Brookings Institution, 1979).

[96]Binkin and Eitelberg, Blacks and the Military, p. 133. In comparison, about 52 percent of the civilian workforce are currently classified as "white collar."

> the composition of the U.S. ground combat forces will probably change little over the next twenty-five years, if experience is any guide. Although major advances are expected in precision-guided munitions and perhaps in improved battlefield mobility, the demise of traditional ground formations and their heavy dependence on the combat infantryman seems unlikely.[97]

Yet, the Air Force projects that its requirements for specialized technicians will rise by 34 percent through the 1980s. The Army, whose need for trained specialists has grown by over 30 percent in just the past two years, has only recently embarked on its weapons modernization program. And, as observers point out, today's modern weapons may actually be simpler in some respects to operate, "but their heavy use of microchip technology makes them logistics and maintenance nightmares, demanding better-educated technicians and more intense and expensive training."[98]

Whatever may be the pace of changes in the future, it is clear that the aptitudinal basis for picking and placing new recruits has remained intact for the past thirty years. The only major modifications, other than the periodic raising and lowering of minimum scores, were the institution of an education standard with different minimum aptitude requirements in the 1960s, the use of certain aptitude composites, and the establishment of supplementary screening techniques (by the Navy). The following two subsections place the use of multiple standards (including several aptitude composites) and educational criteria in proper perspective.

Multiple Aptitude Standards for Selection

All of the Military Services, except the Navy, currently use multiple aptitude standards in determining basic eligibility for enlistment. High

[97]Ibid., p. 134.

[98]David Wood and Alan Citron, "Enlistment Surge Fails to Solve Military Woes," Los Angeles Times, November 1, 1982, p. 11.

school graduates who apply for enlistment in the Army, for instance, are required to score at least 16 on the AFQT and no lower than 85 on any one of the aptitude composites. High school graduates seeking to enlist in the Marine Corps are required to achieve a score of at least 21 on the AFQT and 80 on the General-Technical Composite. Candidates for enlistment into the Air Force must meet minimum AFQT requirements as well as minimum scores on the General Composite and a minimum score on a combination of the Mechanical, Administrative, General, and Electronics Composites.

The "Profile of American Youth" offers the opportunity to investigate the effects of the separate components of Service aptitude standards on the enlistment eligibility of the general population. Table 47 shows the estimated percent of American male youth (18-23 years), by educational category, who would qualify for enlistment under the AFQT requirement alone, under other composite criteria without the AFQT, and under the currently required combination of aptitude standards.[99]

It can be seen in Table 47 that the multiple aptitude standards used to screen applicants during FY 1983 have various effects on the qualification rates of male youth. In the Army, the minimum AFQT standard, not the composite requirement, is the effective determiner of eligibility (regardless of educational level) for enlistment: about 85 percent of all male youth would probably qualify based on the minimum scores on other aptitude composites, compared with 77 percent using the AFQT alone. In contrast, aptitude composites other than the AFQT act as the determinant of enlistment eligibility for non-high school graduates and GED recipients in the

[99]Janice H. Laurence and Mark J. Eitelberg. Eligibility for Military Service: Operational and Alternative Aptitude Standards (HumRRO Professional Paper). Alexandria, VA: Human Resources Research Organization (In preparation).

Table 47

Estimated Percent of American Male Youth (18-23 Years)[a] Who Would Qualify for Enlistment Under AFQT, Composite, and Combined Minimum Aptitude Requirements by Service and Educational Level[b]

Educational Level[c] and Aptitude Screen[d]	Service			
	ARMY	NAVY	MARINE CORPS	AIR FORCE
Non-High School Graduate				
AFQT Alone	32.2	26.4	32.2	8.3
Other Composites Alone	58.0	e	15.6	39.4
AFQT and Other Composites	32.2	26.4	15.6	8.3
GED High School Equivalency				
AFQT Alone	66.6	66.6	66.6	47.8
Other Composites Alone	89.5	e	42.0	78.4
AFQT and Other Composites	66.6	66.6	42.0	47.8
High School Diploma Graduate and Above				
AFQT Alone	92.5	91.6	87.5	87.5
Other Composites Alone	93.4	e	90.4	84.4
AFQT and Other Composites	91.4	91.6	87.2	81.4
TOTAL				
AFQT Alone	77.1	75.0	73.5	67.0
Other Composites Alone	84.7	e	70.7	73.4
AFQT and Other Composites	76.3	75.0	68.3	63.5

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]American male youth population includes all males born between January 1, 1957 and December 31, 1962.

[b]Estimates of the percent of youth who would qualify for military service were calculated on the basis of results from the "Profile of American Youth" (Administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[c]Educational level as of September 1980 (start of 1980-81 school year).

[d]Each Service (with the exception of the Navy) requires that enlistment applicants achieve minimum scores on the Armed Forces Qualification Test (AFQT) and certain other Armed Services Vocational Aptitude Battery (ASVAB) aptitude composites. These minimum scores differ by Service and within Service by educational level.

[e]The Navy's enlistment aptitude standards are based on AFQT only.

Marine Corps, and the combined effects of the AFQT and the other aptitude composites determine the qualification rates for high school graduates in this Service. Nongraduates and GED recipients who apply to the Air Force are affected principally by the AFQT: the qualification rate for nongraduates based on the minimum AFQT score is eight percent, compared with a rate five times greater using only the other minimum composite scores; about 48 percent of GED recipients would probably qualify on the basis of the AFQT alone, compared with 78 percent using only the other composites without the AFQT. At the same time, the multiple aptitude standards used by the Air Force to screen high school graduates appear to have an interactive effect on the eligibility of persons within this educational category.

Although Table 47 does not show the interaction of multiple standards on the eligibility rates of male youth (and subgroups), the implication here is that certain combinations of aptitude standards for persons in certain education categories are superfluous. The use by the Army of composites other than the AFQT during FY 1983 appears to have no bearing in determining basic eligibility for enlistment. For nongraduates and GED recipients seeking to enter the Marine Corps, it is the minimum required score on the General composite, not the AFQT requirement, that operates as an enlistment screen. And, in the Air Force, there appears to be no reason for having an additional aptitude composite requirement other than the AFQT for persons who do not have high school diplomas.

The High School Diploma in Fact and Fiction

In the classic American film, the Wizard of Oz (1939), four slightly unusual characters (and a small dog) set off on a strange journey down a

yellow brick road to find a mysterious and omnipotent ruler of an emerald city. Dorothy sought the Wizard's help in getting back to Kansas and her Auntie Em. The Tin Woodman wanted a heart. The Cowardly Lion wanted courage to make him king of the forest. The Scarecrow joined the pilgrimage in search of some brains.

To make a long story short, Dorothy (and her dog Toto) got back to Kansas (through no help of the Wizard) by clicking her heels and saying magic words. The Tin Woodman settled for a ticking clock. Instead of courage, the Cowardly Lion got a medal for bravery. In lieu of brains, the Wonderful Wizard gave the Scarecrow a document certifying and symbolizing the powers of intellectual prowess. The Wizard instructed the Scarecrow:

> Why, anybody can have a brain. That's a very mediocre commodity. Back where I come from we have great universities, seats of great learning where men go to become great thinkers. And when they come out they think deep thoughts, and with no more brains than you have. But, they have one thing you haven't got: a diploma.

In the world of work, symbols of accomplishment, such as diplomas, are often treated as tickets to employment or promotion. Recognition of previous accomplishments, or abilities, or special achievements in the form of certificates or awards, it is believed, provide a fair indicator of the personal attributes of those who hold these symbols. Young men and women who have no previous record of employment have few indicators of their relative worth as potential employees other than the diplomas or academic degrees they have earned. Indeed, the main mark of distinction for those seeking entry-level jobs has traditionally been the educational equivalent of a red badge of courage: pieces of fancy paper or parchment with foreign

words, lots of loops and curls, gold seals, and impressive-looking signatures. To get a good job, teenagers are told, get a diploma.

In some ways, the military shares a perspective with the Great and Powerful Oz. For, in the world of the military's policymakers and data analysts, in the realm of placement officers and recruiters alike, diplomas and degrees hold an almost mystical property. These documents are regarded highly--not so much for what they say about a person's intellect or knowledge or "brains" (according to the Wizard)--but for what they say about the statistical probability of a person's chances for performing well in military service. To those who review applications for enlistment, diplomas suggest that the recipient possesses a fair amount of intellectual ability and a store of learning that was adequate enough to achieve the necessary passing grade. But, even more important, the diploma certifies a person's value to the military by placing him or her in a desirable section of the military's actuarial table: individuals with diplomas stand a much better than average chance of fulfilling their initial term of enlistment in satisfactory fashion.

This understanding, of course, is based on the assumption that there is some sort of common definition of "high school graduate" and an established method for determining who gets the treasured credential. The fact of the matter is that there are numerous types of high school diplomas, equivalency certificates, and alternative credentials. Furthermore, there is a wide and almost limitless variety of "graduation" standards now being used in the states, school districts, and even in individual secondary schools. The problem is compounded when one examines the way in which the separate Military Services treat these credentials under their enlistment screening process.

As shown in Table 48, there have been distinct variations in the Services' definitions of the nine most common categories of education credentials.[100] For example, in FY 1983, the Air Force treated recipients of non-state accredited diplomas as non-high school graduates. The Navy evaluated these individuals on a case-by-case basis under their waiver procedures, while the Army and Marine Corps called them high school diploma graduates. The Air Force, but not the other Services, recognized the California High School Proficiency Examination (CHSPE) as a valid diploma. All Services except the Air Force recognized high school completion certificates as diplomas. All Services except the Navy recognized (under specified conditions) correspondence school programs as an alternative source of high school diplomas. All Services except the Marine Corps recognized (under specified conditions) the authority of adult schools to grant high school diplomas. And there were, and continue to be, several other variations between the enlistment policies of the individual Services.

These differences in the treatment of educational credentials bear upon the qualification rates presented above. (The analysis presented in this study used the general definitions provided in the NLS along with supporting material collected from the high schools that were attended by the survey respondents.) As far as can be determined, there is no compelling reason why one Service should recognize a particular credential as a high school diploma and another Service should not. Without a strong argument in support of one policy over another, the present education standards appear arbitrary. More precise standards can be developed to coincide with the substantial changes that have occurred in the secondary

[100]See Janice H. Laurence, Education Standards for Military Enlistment and the Search for Successful Recruits, FR-PRD-84-4 (Alexandria, VA: Human Resources Research Organization, February 1984).

Table 48

Treatment of Secondary School Educational Credentials for Enlistment Purposes During FY 1983, by Service

Secondary School Credential	Treatment for Enlistment Purposes*			
	ARMY	NAVY	MARINE CORPS	AIR FORCE
High School Diploma (State Accredited)	Grad	Grad	Grad	Grad
High School Diploma (Non-State Accredited)	Grad	Grad[1]	Grad	Non
High School Attendance Certificate	Grad	Grad	Grad	Non
High School Completion Certificate	Grad	Grad	Grad	Non
GED Certificate	GED[2]	GED[2]	Non	GED[2]
High School Diploma Based on GED	GED[2]	GED[2]	Non	GED[2]
Adult High School Diploma	Grad[3]	Grad[4]	Grad[5]	Grad[6]
California High School Proficiency Examination (CHSPE) Certificate	Non	Non	Non	Grad
Correspondence School	Grad[7]	GED	Grad[7]	Grad[8]

Sources: Department of the Army (DAPE-MPA-CS), Memorandum for Director, Accession Policy, OASD(MRA&L), 29 June 1982. Department of the Navy (OP-136L/0527:rk), Memorandum for Director, Accession Policy, OASD(MP&FM)(AP), 7 July 1982. Department of the Navy Headquarters United States Marine Corps (MPP-39-msh, 5000/1), Memorandum for the Assistant Secretary of Defense (MP&FM), 29 June 1982. Department of the Air Force (MPXOA), Memorandum for Director, Accession Policy, OSD(MRA&L) (MP&FM), 30 June 1982.

*Grad is high school diploma graduate. GED is high school equivalency. Non is non-high school graduate.

Note: A 1982 version of this table appears in Janice H. Laurence, "Educational Credentials and Military Enlistment". Paper presented at the Annual Convention of the American Educational Research Association, Montreal, April 1983. This updated version was obtained through subsequent communication with the offices listed above.

[1]Enlisted as high school diploma graduates on a case-by-case waiver basis.

[2]Enlisted under standards separate from both high school diploma graduates and nongraduates but reported as non-high school graduates.

[3]Enlisted as high school diploma graduates provided that the diploma was awarded or authorized by the state.

[4]Enlisted as high school diploma graduates provided that the program is recognized by the state.

[5]Only individuals accessed as part of test programs (to determine success rates of adult high school programs) are enlisted as high school diploma graduates; all others are enlisted as non-high school graduates.

[6]Enlisted as high school diploma graduates provided that the diploma was not issued as a result of the GED test only.

[7]Enlisted as high school diploma graduates provided that the course/program is accredited by the National Home Study Council.

[8]Enlisted as high school diploma graduates provided that the school is accredited by the state or jurisdiction.

school systems of this country over the past two decades. Clearly, some applicants who should not be allowed to enlist are being accepted; on the other hand, it is quite likely that some individuals who would perform well in the military are being eliminated from consideration due to educational standards that are outdated, unnecessarily rigid, imprecise, and overly generalized.

Screening for Service in the Years Ahead

Recognition of the consequences of personnel screening decisions in the Armed Forces--on the individual "life chances" of today's youth as well as the nation's own defense capabilities--has operated to place the military's enlistment criteria under greater scrutiny than ever before. As the authors of one recent study observe:

> Whether the standards used for enlistment, job classification, and assignment are as valid as adherence to them implies is an open question. While in many cases present standards are based on years of experience and are the products of extensive and rigorous research, in others they appear to be nothing more than legacies of the conscription era when there was virtually no pressure on the armed forces to justify their manning criteria.[101]

Congress has strongly urged the Department of Defense and the Military Services to develop a solid empirical and analytical foundation for enlistment standards presently in use.[102] Indeed, major efforts are currently underway to validate existing standards and to expand the selection and classification measures applied by the military (particularly aptitude

---

[101]Binkin and Eitelberg, Blacks and the Military, p. 155.

[102]Department of Defense, Department of Defense Efforts to Develop Quality Standards for Enlistment, Report to the House and Senate Committees on Armed Services (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], December 1981), p. 1.

test scores). Research is also in progress now to include several additional predictors--such as various high school credentials, supplementary test scores, high school academic records, and attendance and behavioral records--in an effort to refine further the recruit screening process.

The most extensive, and potentially most rewarding, research project in this area is a joint effort by the Department of Defense and the Military Services to link enlistment standards directly to job performance on a large scale. As the Department of Defense notes in a report to Congress, "the methodology and technology used by the Services to measure the suitability of applicants for military services have changed little over several decades":

> The primary source of aptitude information has been paper-and-pencil tests which in turn have been validated against training success. While job performance has always been considered the "ultimate" basis upon which to validate tests used to screen military applicants, the state-of-the-art in job performance measurement has not been adequate to permit evaluation of on-the-job performance and use of this information to conduct validation studies.[103]

Pilot studies conducted by the Services suggest that the further development of job performance measures is now feasible. The major research undertaking is scheduled to continue for up to five years. And, although some technical problems are yet to be worked out, the overall outlook is promising: "The preliminary data suggest that, if job performance measures can be developed, future attempts to link enlistment standards to

---

[103]Department of Defense, First Annual Report to the Congress on Joint-Service Efforts to Link Standards for Enlistment to On-the-Job Performance, A Report to the House Committee on Appropriations (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], December 1982), p. 2.

the resultant job performance information may yield significant improvements in DoD's ability to enlist and classify individuals in jobs for which they are optimally suited."[104]

The military's changing needs and progressive views of what constitutes an effective force have variously affected the history of aptitude and education standards over the past several decades. Basic tests of literacy have given way to combinations of interrelated aptitude and education requirements covering a range of individual attributes and abilities. At the same time, screening for military service has remained a flexible and adaptable process that fits the unique demands of recruitment within each of the Armed Services during any particular period. In the past, the exigencies of war have often forced the military's qualitative barriers to be lowered. Now, over ten years after the nation's last major armed conflict, the Services find themselves placing a rapidly expanding emphasis and importance on the intellectual capabilities of new recruits.

Throughout the evolution of screening for military service, the process has been able to cope sufficiently with the distinct circumstances and demands of the military. Yet, the flow of prospective recruits and the quality of new enlistees has characteristically fluctuated both in terms of quantity and quality. And, as the data on recruiting outcomes suggest, the qualitative profile of each new batch of enlistees from one year to the next is not entirely a function of efficient military management.

---

[104]Ibid., p. 111. See also Department of Defense, Conference on Joint-Service Efforts to Link Enlistment Standards and Job Performance (Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], 28-29 September 1983).

Recruiting outcomes (except at the lower levels of "quality") bear little relationship to the modifications in selection criteria.

Screening for service can help to produce a solid and proficient military force by taking the best cut of the available crop of applicants each year and then matching them with the most suitable job. Current and planned research for improving or refining the screening process should help the scientific and policymaking community mitigate many of the problems mentioned here. After more than 10 years with the All-Volunteer Force, the Armed Services have accumulated enough experiential information --often obtained through trial and error--to approach more effectively the manpower troubles and recruiting difficulties that undoubtedly lie ahead. Now, the military stands at the edge of a new age, when the strength of its forces and effectiveness of its weapons are increasingly influenced by the education and aptitudes of its personnel. If all-volunteer recruitment is to survive the next decade, it must learn how to pull, even harder, and pick, even better, the capable and the qualified from the young population. The latest efforts by the military to remedy a time-worn system for selecting recruits are an important step in the right direction.

References

ASVAB Working Group. History of the Armed Services Vocational Aptitude Battery (ASVAB) 1974-1980. A Report to the Principal Deputy Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics). Washington, D.C.: Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics), March 1980.

Biennial Report of the Defense Advisory Committee on Military Personnel Testing. Washington, DC: Office of the Assistant Secretary of Defense (Manpower, Installations, and Logistics), June 1983.

Binkin, Martin, and Eitelberg, Mark J., with Alvin J. Schexnider and Marvin M. Smith. Blacks and the Military. Washington, D.C.: The Brookings Institution, 1982.

Binkin, Martin, and Kyriakopoulos, Irene. Youth or Experience? Manning the Modern Military. Washington, D.C.: The Brookings Institution, 1979.

Bock, R. Darrell, and Mislevy, Robert J. Data Quality Analysis of the Armed Services Vocational Aptitude Battery. Chicago, IL: National Opinion Research Center, 1981.

Bock, R. Darrell, and Moore, Elsie G. J. The Profile of American Youth: Demographic Influences on ASVAB Test Performance. Chicago, IL: National Opinion Research Center, May 1984.

Cooper, Richard V.L. Military Manpower and the All-Volunteer Force, R-1450-ARPA. Santa Monica, CA: The Rand Corporation, September 1977.

Department of the Army. Marginal Man and Military Service. Washington, D.C.: Department of the Army, December 1965.

Department of Defense. America's Volunteers. Washington, D.C.: Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics), December 1978.

Department of Defense. Annual Reports of the Qualitative Distribution of Military Manpower Program, FYs 1952-1970. Washington, D.C.: Office of the Adjutant General, Department of the Army.

Department of Defense. Aptitude Testing of Recruits. Washington, D.C.: Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics), July 1980.

Department of Defense. Armed Forces Examining and Entrance Station Qualitative Distribution Report of Male Enlistments, Induction, and Rejections, RCS DD-M(M)-663. Ft. Sheridan, IL: United States Army Recruiting Command, 1964-1971.

Department of Defense. Conference on Joint-Service Efforts to Link Enlistment Standards and Job Performance. Washington, D.C.: Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics), September 1983.

Department of Defense. Defense Manpower Quality Requirements. Report to the Committee on Armed Services of the U.S. Senate. Washington, D.C.: Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics), January 1974.

Department of Defense. Department of Defense Efforts to Develop Quality Standards for Enlistment. A Report to the House and Senate Committees on Armed Services. Washington, D.C.: Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics), December 1981.

Department of Defense. First Annual Report to the Congress on Joint-Service Efforts to Link Standards for Enlistment to On-the-Job Performance, A Report to the House Committee on Appropriations. Washington, D.C.: Office of the Assistant Secretary of Defense [Manpower, Reserve Affairs, and Logistics], December 1982.

Department of Defense. "Geographic and Racial Differences Among Men Qualified for Military Service." Manpower Research Note 72-16. Washington, D.C.: Directorate for Manpower Research, Office of the Assistant Secretary of Defense for Manpower and Reserve Affairs, July 1972.

Department of Defense. Profile of American Youth: 1980 Nationwide Administration of the Armed Services Vocational Aptitude Battery. Washington, D.C.: Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics), March 1982.

Department of Defense. Project 100,000: Characteristics and Performance of "New Standards" Men. Washington, D.C.: Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs), December 1969.

Department of Defense. Reference Materials Department of Defense Study of the Draft. Washington, D.C.: Office of the Assistant Secretary of Defense (Manpower), July 1966.

Department of Defense. Results of Preinduction Examinations Summary, OTSG Form 1043. Washington, D.C.: Office of the Surgeon General, 1964-1971.

Dole, Charles, and Gilroy, Curtis. "The Effects of the Business Cycle on the Size and Composition of the U.S. Army," PPRG Working Paper 82-1. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences, n.d.

Eitelberg, Mark J. Military Representation: The Theoretical and Practical Implications of Population Representation in the American Armed Forces, AD-A093-391. Alexandria, VA: Defense Technical Information Center [DTIC], October 1979.

Eitelberg, Mark J. Subpopulation Differences in Performance on Tests of Mental Ability: Historical Review and Annotated Bibliography, Technical Memorandum 81-3. Washington, D.C.: Directorate for Accession Policy, Office of the Secretary of Defense, August 1981.

Flyer, Eli S. Factors Relating to Discharge for Unsuitability Among 1956 Airman Accessions to the Air Force, WADC-TN-59-201. Lackland AFB, TX: Personnel Laboratory, Wright Air Development Center, December 1959.

Flyer, Eli S., and Elster, Richard S. First-Term Attrition Among Non-Prior Service Enlisted Personnel: Loss Probabilities Based on Selected Entry Factors. Monterey, CA: Naval Postgraduate School, 1983. (Forthcoming).

Frankel, Martin R., and McWilliams, Harold A. The Profile of American Youth: Technical Sampling Report. Chicago: National Opinion Research Center, University of Chicago, 1981.

Friedman, Toby, and Williams, E. Belvin. "Current Use of Tests for Employment," in Ability Testing: Uses, Consequences, and Controversies, Part II: Documentation Section, eds. A.K. Wigdor and W. R. Garner. Washington, D.C.: National Academy Press, 1982.

General Accounting Office. Problems Resulting From Management Practices in Recruiting, Training, and Using Non-High School Graduates and Mental Category IV Personnel, FPCD-76-24. Washington, D.C.: General Accounting Office, 12 January 1976.

Ginzberg, E. Anderson, J.K. Ginsburg, S.W. and Herma, J.L. The Lost Divisions. New York: Columbia University Press, 1959.

Greve, Frank. "Vocational Military Tests: Powerful, Controversial," Baton Rouge State Times, January 8, 1983.

Jensen, Arthur R. Bias in Mental Testing. New York: The Free Press, 1980.

Karpinos, Bernard D. AFQT: Historical Data (1958-1972), SR-ED-75-12. Alexandria, VA: Human Resources Research Organization, June 1975.

Karpinos, Bernard D. Applicants for Enlistment: Results of Examination for Military Service (FYs 1972 and 1973), SR-ED-75-5. Alexandria, VA: Human Resources Research Organization, April 1975.

Karpinos, Bernard D. Draftees: AFQT Failures. Alexandria, VA: Human Resources Research Organization, February 1973.

Karpinos, Bernard D. Draftees: Disqualifications for Military Service for Medical Reasons - An Analysis of Trends Over Time, Report No. MA-72-1. Washington, D.C.: Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs), June 1972.

Karpinos, Bernard D. "Fitness of American Youth for Military Service." Milbank Memorial Fund Quarterly 38, June 1960.

Karpinos, Bernard D. Male Chargeable Accessions: Evaluation by Mental Categories (1953-1973), SR-ED-75-18. Alexandria, VA: Human Resources Research Organization, January 1977.

Karpinos, Bernard D. "The Mental Qualification of American Youths for Military Service and Its Relationship to Educational Attainment." In Proceedings, The American Statistical Association, 1966.

Karpinos, Bernard D. Qualification of American Youths for Military Service. Washington, D.C.: Office of the Surgeon General, Department of the Army, 1962.

Kim, Choonqsoo, Nestel, Gilbert, Phillips, Robert L., and Borus, Michael E. The All-Volunteer Force: An Analysis of Youth Participation, Attrition, and Reenlistment. Columbus, OH: Center for Human Resources Research, The Ohio State University, May 1980.

Kim, Kwan H., Karpinos, Bernard D., Schwirz, Ronald, and Slott, Michael. Research of the Proportion of the Total Youth Population Which is Physically and Mentally Unfit for Military Service, NOSC-7299-KK/MS/RS. Bethesda, MD: Mathtech, Inc., December 1978.

Laurence, Janice H. "Educational Credentials and Military Enlistment." Paper presented at the Annual Convention of the American Educational Research Association, Montreal, Canada, April 1983.

Laurence, Janice H. Educational Enlistment Standards in the Military and the Search for Successful Recruits, Human Resources Research Organization Professional Paper. Alexandria, VA: Human Resources Research Organization, in preparation.

Laurence, Janice H., and Eitelberg, Mark J. Operational and Alternative Aptitude Standards, Human Resources Research Organization Professional Paper. Alexandria, VA: Human Resources Research Organization. (in preparation).

Laurence, Janice H., Eitelberg, Mark J., and Waters, Brian K. "Subpopulation Analyses of 1980 Youth Population Aptitudes," Paper presented at the 90th Annual Convention of the American Psychological Association, Washington, D.C., August 1982.

Laurence, Janice H., Waters, Brian K., and Perelman, Linda S. "Enlisted Military Selection: Impacts of Changing Aptitude Standards Since 1940." Paper presented at the 24th Annual Conference of the Military Testing Association, San Antonio, TX, November 1982.

Means, Barbara. Moral Standards for Military Enlistment: Screening Procedures and Impact (FR-PRD-83-26). Alexandria, VA: Human Resources Research Organization.

Northrup, Herbert R., Brinker, John A., DiAntonio, Steven M., Daniel, Dale F., Cowin, Ronald M., Jenkins, Frank A., III, and Mathison, Eugene G., III. Black and Other Minority Participation in the All-Volunteer Navy and Marine Corps. Philadelphia, PA: The Wharton School, University of Pennsylvania, 1979.

Perelman, Linda S. A Review of Military Enlistment Supply Models: In Search of Further Improvements, IR-PRD-83-16. Alexandria, VA: Human Resources Research Organization, July 1983.

The President's Task Force on Manpower Conservation. One-Third of a Nation: A Report on Young Men Found Unqualified for Military Service. Washington, D.C.: Government Printing Office, 1 January 1964.

Skager, Rodney. "On the Use and Importance of Tests of Ability in Admission to Postsecondary Education." Ability Testing: Uses, Consequences, and Controversies, Part II. Edited by A.L. Wigdor and W.R. Garner. Washington, D.C.: National Academy Press, 1982.

Staff, Personnel Research Section (The Adjutant General's Office). "The Army General Classification Test." Psychological Bulletin 42, December 1945.

Uhlaner, J.E., and Bolanovich, D.J. Development of the Armed Forces Qualification Test and Predecessor Army Screening Tests, 1946-1950, PRS Report 976. Washington, D.C.: Personnel Research Section, Department of the Army, 7 November 1952.

United States Department of Health and Human Services. Health, United States-1980, DHHS Publication No. (PHS)81-1232. Hyattsville, MD: United States Department of Health and Human Services, December 1980.

Vitola, B.H., Gwinn, N., and Wilbourn, J.M. . Impact of Various Enlistment Standards on the Procurement Training System, AFHRL-TR-77-16. Brooks AFB, TX: Air Force Human Resources Laboratory, April 1977.

Waters, Brian K. The Test Score Decline: A Review and Annotated Bibliography, Technical Memorandum 81-2. Washington, D.C.: Directorate for Accession Policy, Office of the Secretary of Defense, August 1981.

Weitzman, R. A. Racial Bias and Predictive Validity in Testing for Selection, Report No. NPS 54-83-008, Monterey, CA: Naval Postgraduate School, July 1983.

Wigdor, Alexandra K., and Garner, Wendell R., eds. Ability Testing: Uses, Consequences, and Controversies, Part I: Report of the Committee. Documentation Section, eds. A. K. Wigdor and W. R. Garner. Washington, D.C.: National Academy Press, 1982.

Wool, Harold. The Military Specialist: Skilled Manpower for the Armed Force. Baltimore, MD: The Johns Hopkins Press, 1968.

A P P E N D I X A

Chronology Track of Aptitude Standards for Induction and Enlistment of Males (Army, Navy, Marine Corps, Air Force)

Table A-1.

Minimum Aptitude Standards for Induction Into the Military from 1940 to 1973

Effective Period	Minimum Aptitude Standards
Oct. 1940 - May 1941	Ability to comprehend simple orders given in the English language.
May 1941 - July 1942	Ability to read and write the English language as commonly prescribed for the fourth grade in grammar school.
Aug. 1942 - Oct. 1942	Ten percent quota of illiterates (i.e., those who did not meet the fourth grade requirement), later reduced to 5 percent.
Oct. 1942 - May 1943	Standard score of 90 on R-1 test (equivalent to a percentile score of 31 on the Armed Forces Qualification Test [AFQT] for induction of limited service (physically restricted) personnel.
June 1943 - Oct. 1945	Mental capacity above the lower 3/5 Grade V on Army General Classification Test (AGCT).
Nov. 1945 - Oct. 1948	**No inductions.**
Nov. 1948 - Jan. 1949	Standard score $\geq$ 70 on R-5, R-6.
Feb. 1949 - Aug. 1950	**No inductions.**
Aug. 1950 - Nov. 1950	Standard score $\geq$ 70 on R-5, R-6.
Nov. 1950 - June 1951	Percentile ("converted") score of 13 on AFQT-1,-2 (equivalent to a standard score of 70 on R-5, R-6).
June 1951 - Aug. 1958	Percentile score of 10 on AFQT-1,-2 until 1956, then AFQT-3,-4 (equivalent to a standard score of 65 on R-5, R-6), supplemented by additional screening with subtests.
Aug. 1958 - April 1963	Percentile score of 31 on AFQT-5,-6; or AFQT 10-30 and standard scores of > 90 in two or more aptitude areas of the Army Classification Battery (ACB).

Table A-1, Continued:

May 1963 - Oct. 1965	Percentile Score of 31 on AFQT-7,-8 or AFQT 10-30 and General Technical (GT) score > 80 and standard scores of > 90 in two or more additional aptitude areas of the Army Qualification Battery (AQB).
	Education Differential Introduced.
Nov. 1965 - March 1966	(a) High School Graduate (HSG) with AFQT between 16-20 fully qualified; or HSG with AFQT 10-15 and GT ≥ 80 and standard scores of ≥ 90 in two additional AQB aptitude areas.
	(b) Non-high school graduate (NHSG) with AFQT 31; or NHSG with AFQT 10-30 and GT ≥ 80 and standard scores of ≥ 90 in two additional AQB aptitude areas.
April 1966 - Sept. 1966	Eliminated GT requirement for NHSG within the AFQT 21-30 range (See [b] above--Nov. 1965-March 1966).
Oct. 1966 - Nov. 1966	Eliminated GT requirements for HSG within the AFQT 10-15 range (See [a] above--Nov. 1965-March 1966).
Dec. 1966 - June 1972	(a) HSG with AFQT 10 (i.e., no AQB requirements for HSG). All HSG in mental category IV were considered mentally qualified.
	(b) NHSG with AFQT 31; or NHSG with AFQT 16-30 and a standard score of ≥ 90 in one AQB aptitude area; or NHSG with AFQT 10-15 and standard scores of ≥ 90 in two AQB aptitude areas.

Table A-1, Continued:

July 1972 - Dec. 1972*	(a) HSG with AFQT 31; or HSG with AFQT 21-30 and a standard score of ≥ 90 in one AQB aptitude area; or HSG with AFQT 16-20 and standard scores of ≥ 90 in two AQB aptitude areas; or HSG with AFQT 10-15 and GT ≥ 80 and standard scores of ≥ 90 in two additional AQB aptitude areas.
	(b) NHSG with AFQT 21-30 and standard score of ≥ 90 in one AQB aptitude area; or NHSG with AFQT 16-20 and GT ≥ 80 and standard scores of ≥ 90 in two additional AQB aptitude areas.

*The last Selective Service draft call was issued in December 1972. The last induction (under previous draft calls) occurred in June 1973.

Note: This table was reviewed by the Department of the Army, Office of the Deputy Chief of Staff for Personnel (DAPE-MPA-CS), 23 May 1983.

Table A-2.

Minimum Aptitude Standards for Enlistment of Males (Without Prior Service) into the Army from 1946 to 1983

Effective Period	Minimum Aptitude Standards
April 1946 - April 1947	Standard score of 70 on R-1, R-2 or R-3/R-4.
April 1947 - July 1948	Standard score of 80 on R-1, R-2 or R-3/R-4.
July 1948 - Nov. 1948	Standard score of 80 on R-5, R-6.
Nov. 1948 - Dec. 1948	Standard score of 70 on R-5, R-6.
Jan. 1950 - July 1950	Percentile score of 31 on Armed Forces Qualification Test (AFQT) 1,2 (equivalent to a standard score of 90).
July 1950 - June 1951	Percentile score of 13 on AFQT (equivalent to a standard score of 70).
June 1951 - Dec. 1955	Percentile score of 10 on AFQT (equivalent to a standard score of 65).
Jan. 1956 - June 1957	Percentile score of 10 for 2-year enlistments; AFQT 21 for over 2-year enlistments.
July 1957 - July 1958	Percentile score of 31 on AFQT.
Aug. 1958 - Dec. 1958	Percentile score of 31 on AFQT or AFQT 21 and standard scores of ≥ 90 in two or more aptitude areas of Army Classification Battery (ACB).
Jan. 1959 - May 1962	Percentile score of 31 on AFQT.
	Education Differential Introduced
June 1962 - Oct. 1965	(a) High School Graduate (HSG) with AFQT 31 fully qualified; or HSG with AFQT 21-30 and standard scores of ≥ 90 in three Army Qualification Battery (AQB) aptitude areas; (b) Non-high school graduate (NHSG) with AFQT 31.
Nov. 1965 - March 1966	(a) HSG with AFQT 16 fully qualified. (b) NHSG with AFQT 31; or NHSG with AFQT 16-30 and General Technical (GT) score ≥ 80 and standard scores of 90 in two additional AQB aptitude areas.

Table A-2, Continued:

April 1966 - Jan. 1967 ---------(a) HSG with AFQT 16 fully qualified; (b) NHSG with AFQT 31; or NHSG with AFQT 16-30 and standard scores of ≥ 90 in two AQB aptitude areas.

Sept. 1967 - Feb. 1968 ---------(a) HSG with AFQT 10; (b) NHSG with AFQT 31; or NHSG with AFQT 16-30 and a standard score of ≥ 90 in one AQB aptitude area; or NHSG with AFQT 10-15 and standard scores of ≥ 90 in two AQB aptitude areas.

March 1968 - June 1971 ---------(a) HSG with AFQT 16 fully qualified; (b) NHSG with AFQT 31; or NHSG with AFQT 16-30 and standard scores of > 90 in two AQB areas.

June 1971 - Oct 1971 --------- **Above two-year enlistments:**

(a) HSG with AFQT 16 fully qualified; (b) NHSG with AFQT 31; or NHSG with AFQT 21-30 and standard score of > 90 in one AQB aptitude area; or NHSG with AFQT 16-20 and standard scores of ≥ 90 in two AQB aptitude areas.

Two-Year enlistments:

(a) HSG with AFQT 10; (b) NHSG with AFQT 16 and a standard score of ≥ 90 in one AQB aptitude areas; or NHSG with AFQT 10-15 and standard scores of ≥ 90 in two AQB aptitude areas.

Nov. 1971 - March 1972 ---------Change with respect to NHSG requiring, in addition to standard scores of ≥ 90 in two AQB aptitude areas, a standard score ≥ 80 on GT for NHSG with AFQT 16-20 enlisting for longer than two years.

March 1972 - July 1974 --------- **Above two-year enlistments:**

(a) HSG with AFQT 31 fully qualified; or HSG with AFQT 21-30 and a standard score of > 90 in one AQB/ACB-73 aptitude area; or HSG with AFQT 16-20 and standard scores of > 90 in two AQB/ACB-73 aptitude areas; (b) NHSG with AFQT 31; or NHSG with AFQT 21-30 and a standard score of ≥ 90 in one AQB/ACB-73 aptitude area.

Table A-2, Continued:

	Two-year enlistments:
	(a) HSG with AFQT 10 and GT > 80 and standard scores of ≥ 90 in two additional AQB/ACB-73 aptitude areas; (b) NHSG with AFQT 10 and GT > 80 and standard scores of ≥ 90 in two additional AQB/ACB-73 aptitude areas.
Aug. 1974 - July 1976	(a) HSG or General Educational Development (GED) high school equivalency with AFQT 16-30 and a standard score ≥ 90 in one ACB-73 aptitude area; (b) NHSG with AFQT 31 and standard scores ≥ 90 in two ACQ/ACB-73 aptitude areas.
	Age Differential Introduced
July 1976	Age 17: (a) HSG with AFQT 16; (b) GED and NHSG with AFQT 31. Aptitude requirements remain the same.
	Age 18 and above: (a) HSG and GED with AFQT 16; (b) NHSG with AFQT 31. Aptitude requirements remain the same.
Nov. 1977 - March 1979	Requirements raised with respect to GED and NHSG, requiring an AFQT of 50 for 17 year old GEDs and NHSGs. For 18 year olds and above, the requirement for GEDs was also raised to AFQT 21.
April 1979 - Feb. 1980	(a) High School Diploma Graduate (HSDG) with AFQT 31 and a standard score of ≥ 90 in one Armed Services Vocational Aptitude Battery (ASVAB) aptitude area or HSDG with AFQT 16-30 and standard scores of ≥ 90 in two ASVAB aptitude areas; (b) GED with AFQT 31 and a standard score of ≥ 90 in one ASVAB aptitude area; (c) NHSG with AFQT 31 and standard scores of ≥ 90 in two ASVAB aptitude areas. (GT scores not used to qualify for enlistment. NHSGs below 18 years old must score ≥ 62 on the Military Applicant Profile [MAP]).
Feb. 1980 - Sept. 1980	Change with respect to 17 year old NHSGs, requiring a score of ≥ 50 on MAP.
Oct. 1980 - Nov. 1980	Map qualifying score for 17 year old and NHSG changed back to ≥ 62. ASVAB aptitude minimum qualifying scores ≥ 85 if tested with ASVAB 8, 9, 10 and ≥ 90 if tested before Oct. 1980 with ASVAB 6 and 7. All other standards remained the same.

Table A-2, Continued:

Dec. 1980 - Present	---------(a) HSDG with AFQT 16 and a standard score of ≥ 85 in one ASVAB aptitude area; (b) GED with AFQT 31 and a standard score of ≥ 85 in one ASVAB aptitude area; (c) NHSG with AFQT 31 and standard scores of ≥ 85 in two ASVAB aptitude areas.

Note: This table was reviewed by the Department of the Army, Office of the Deputy Chief of Staff for Personnel (DAPE-MPA-CS), 23 May 1983.

Table A-3.

Minimum Aptitude Standards for Enlistment of Males (Without Prior Service) into the Navy from 1951 to 1983

Effective Period	Minimum Aptitude Standards
July 1951 - Nov. 1951	Percentile score of 16 on Armed Forces Qualification Test (AFQT).
Dec. 1951 - April 1957	Percentile score of 10 on AFQT.
May 1957 - Aug. 1957	Percentile score of 21 on AFQT.
Sept. 1957 - Oct. 1957	Percentile score of 31 on AFQT.
Nov. 1957 - June 1961	Percentile score of 21 on AFQT.
July 1961 - March 1962	Percentile score of 15 on AFQT.
April 1962 - Oct. 1965	Percentile score of 21 on AFQT.
Nov. 1965 - Dec. 1966	**Education Differential Introduced** (a) High School Graduate (HSG) with AFQT 16; (b) Non-high school graduate (NHSG) with AFQT 31, or NHSG with AFQT 16-30 and General Technical (GT) > 80 and standard scores of > 90 in two additional Army Qualification Battery (AQB) aptitude areas.
Jan. 1967 - Feb. 1972	(a) HSG with AFQT 10; (b) NHSG with AFQT 31, or NHSG with AFQT 16-30 and a standard score of > 90 in one AQB aptitude area; or NHSG with AFQT 10-15 and standard scores of > 90 in two AQB aptitude areas.
Feb. 1972 - April 1972	**Age Differential Introduced** Percentile score of 21 on AFQT. 17-year-olds must be high school diploma graduates (HSDG). Persons 18 and over must be HSG or have an Odds for Effectiveness (OFE) score of 69. OFE was designed to provide success probabilities of an applicant for enlistment based on aptitude score, number of years of school completed, number of expulsions/suspensions from school and number of non-traffic arrests.

Table A-3, Continued:

April 1972 - Oct. 1972	Percentile score of 21 on AFQT, or AFQT 10-20 and a standard score of > 37 on General Classification Test (GCT) of Short Basic Test Battery (SBTB). 17-year-old NHSGs were acceptable. OFE minimums were cancelled.
Oct. 1972 - Dec 1972	(a) HSDG with AFQT 21; (b) General Educational Development (GED) high school equivalency with AFQT 31; (c) NHSG with AFQT 31.
Jan. 1973 - Dec. 1975	New OFE tables established from SBTB. While waiver policy fluctuated, generally the OFE minimum score was $\geq$ 69. During this period SBTB served as the Navy's entrance test and minimum standards were expressed in terms of standard score requirements as follows: (a) HSDG with a combined standard score on GCT + ARI + MECH $\geq$ 125. (b) GED with GCT + ARI + MECH $\geq$ 134. (c) NHSG with GCT + ARI + MECH $\geq$ 134.
Jan. 1976	Standards remained the same but ASVAB became the sole entrance test.
Oct. 1976	SCREEN (Success Chances for Recruits Entering the Navy) was developed, replacing OFE. SCREEN considers factors such as: educational attainment, age, AFQT scores, and dependency status in estimating the chances that an applicant will effectively complete the first year of service. The minimum SCREEN score was set at $\geq$ 70.*
Sept. 1979 - Aug. 1980	(a) HSDG with AFQT 21; (b) GED with AFQT 31; (c) NHSG with AFQT 49. SCREEN $\geq$ 70.

*According to SCREEN, for example, a 17-year-old applicant having an AFQT score of 35-49 with no dependents and more than 12 years of schooling would be assigned to a SCREEN score of 86 (i.e., an 86 percent chance of successfully completing the first year of Service). With other factors held constant, if the applicant had 12 years of schooling, the SCREEN score would be 81; with 11 years of schooling, the SCREEN score would be 70; and with less than 11 years of schooling, the SCREEN score would be 66. Waiver policy has varied with SCREEN as with the previous OFE and in some cases (e.g., applicants with prior drug involvement) higher SCREEN scores are required.

Table A-3, Continued:

Sept. 1980 - Present	---------(a) HSDG with AFQT 17; (b) GED with AFQT 31; (c) NHSG with AFQT 38. SCREEN score > 70. SCREEN was revised to delete "dependency status" as a factor for estimating the chances that an applicant will effectively complete the first year of service.

Note: This table was reviewed by the Department of the Navy, Office of the Chief of Naval Operations (Memo OP-135L/13L/0420:pak), 13 May 1983.

Table A-4.

Minimum Aptitude Standards for Enlistment of Males (Without Prior Service) into the Marine Corps from 1951 to 1983

Effective Period	Minimum Aptitude Standards
July 1951 - March 1956	Percentile score of 10 on Armed Forces Qualification Test (AFQT).
April 1956 - June 1957	Percentile score of 21 on AFQT.
July 1957 - Nov. 1958	Percentile score of 25 on AFQT.
Dec. 1958 - Dec. 1959	Percentile score of 28 on AFQT.
Jan. 1960 - May 1962	Percentile score of 25 on AFQT.
June 1962 - July 1965	AFQT 31; or AFQT 21 and standard scores of ≥ 90 in three Army Qualification Battery (AQB) aptitude areas.
Aug. 1965 - Oct. 1965	AFQT 31; or AFQT 21 and General Technical (GT) ≥ 80 and standard scores of > 90 in two additional AQB aptitude areas.
Nov. 1965 - Dec. 1966	**Education Differential Introduced** (a) High School Graduate (HSG) with AFQT 10; (b) Non-High School Graduate (NHSG) with AFQT 31; or NHSG with AFQT 16-30 and GT > 80 and standard scores of ≥ 90 in two additional AQB aptitude areas.
Jan. 1967 - June 1971	(a) HSG with AFQT 10; (b) NHSG with AFQT 31; or NHSG with AFQT 16-30 and a standard score of > 90 in one AQB aptitude area; or NHSG with AFQT 10-15 and standard scores of ≥ 90 in two AQB aptitude areas.
July 1971 - Jan. 1972	(a) HSG with AFQT 10; (b) NHSG with AFQT 16 and a standard score of > 90 in one AQB aptitude area; or NHSG with AFQT 10 and standard scores of > 90 in two AQB aptitude areas. All applicants with AFQT 10-15 must have an Odds for Effectiveness (OFE) standard score of > 50. In addition, 17 year olds must be HSG or have AFQT ≥ 50.

Table A-4, Continued:

Feb. 1972 - Jan. 1973	(a) HSG with AFQT 21 and a standard score of ≥ 90 in one AQB aptitude area; or HSG with AFQT 10-20 and GT > 80 and standard scores of ≥ 90 in two AQB aptitude areas; (b) NHSG with AFQT 21 and a standard score of ≥ 90 in one AQB aptitude area. The OFE requirements and the requirements for 17 year-olds remained the same.
Feb. 1973 - March 1973	AFQT Category IV acceptable only for 2-year enlistments.
April 1973 - Aug. 1973	Percentile score of 21 on AFQT. All accessions within the AFQT ranges of 21-30 and 31-49 were required to have a GT ≥ 80 and standard scores of ≥ 90 in two additional ASVAB-3 aptitude areas.
Aug. 1973 - Sept. 1973	GT and aptitude area requirements were dropped for HSG within the AFQT range of 31-49.
Sept. 1973 - Oct. 1973	17-year-old NHSGs were acceptable within the AFQT range of 40-49 provided they had a GT ≥ 80 and standard scores of ≥ 90 in two additional ASVAB-3 aptitude areas. NHSG with AFQT ≥ 50 had no additional requirements.
Oct. 1973 - Dec. 1973	A standard score of 80 on Skilled Technical (ST) subtest of ACB-73 was acceptable in lieu of GT.
Dec. 1973 - Aug. 1974	The requirement of a standard score ≥ 80 on ST or GT was dropped for NHSG within the AFQT 31-49 range; for all HSG accessions within the AFQT 21-30 range, and for 17-year-old NHSG within the AFQT 40-49 range.
Aug. 1974 - Feb. 1975	The requirement for 2 aptitude areas ≥ 90 for 18 year old and older NHSGs scoring AFQT 31-49 was removed.
Feb. 1975 - March 1975	AFQT 21 and GT ≥ 95 for all applicants.
March 1975 - Aug. 1975	(a) HSG with AFQT 31 and GT ≥ 90; (b) NHSG with AFQT 31 and GT ≥ 95.
Aug. 1975 - Jan. 1976	(a) HSG with AFQT 21 and GT ≥ 90; (b) NHSG with AFQT 31 and GT ≥ 95.

Table A-4, Continued:

Jan. 1976 - Oct. 1981	---------(a) High school diploma graduates (HSDG) with AFQT 21 and GT ≥ 80; (b) NHSG with AFQT 21 and GT ≥ 95.
Oct. 1981 - May 1982	---------(a) HSDG with AFQT 21 and GT ≥ 80; (b) NHSG with AFQT 31 and GT ≥ 95.
May 1982 - Oct 1982	---------(a) HSDG with AFQT 21 and GT ≥ 80; (b) NHSG with AFQT 31 and GT ≥ 100.
Nov. 1982 - Present	---------(a) HSDG with AFQT 21 and GT ≥ 80; (b) NHSG with AFQT 31 and GT ≥ 105.

Note: This table was reviewed by the Department of the Navy, Headquarters United States Marine Corps (MPI-20:clk :200), May 1983.

Table A-5.

Minimum Aptitude Standards for Enlistment of Males (Without Prior Service) into the Air Force from 1946 to 1983

Effective Period	Minimum Aptitude Standards
April 1946 - March 1947	Standard score ≥ 70 on R-1 (Raw score of 15).
March 1947 - Sept. 1949	Standard score ≥ 90 on R-3/R-4, R-5/R-6.
Oct. 1949 - Dec. 1949	Standard score ≥ 100 on R-5/R-6.
Jan. 1950 - May 1950	Armed Forces Qualification Test (AFQT) ≥ 49.
May 1950 - June 1950	Percentile score of 31 on AFQT.
June 1950 - July 1950	(a) High school graduates (HSG) with AFQT 3: (b) Non-high school graduate (NHSG) with AFQ 49.*
July 1950 - Nov. 1950	(a) HSG with AFQT 21; (b) NHSG with AFQT 31.*
Nov. 1950 - April 1951	Percentile score of 21 on AFQT.
May 1951 - Aug. 1951	Percentile score of 13 on AFQT.
Aug. 1951 - March 1958	Percentile score of 10 on AFQT.
April 1958 - Feb. 1961	Percentile score of 10 on AFQT and a standard score of ≥ 40 on any one of the following Airman's Qualifying Examination (AQE) aptitude areas: Mechanical (M), Administrative (A), General (G), or Electronics (E). It should be noted that each aptitude area had certain career fields that required higher (i.e., 60 or 80) scores if applying to those specialties.
Feb. 1961 - July 1961	"Dual 25" minimum entry requirement established. While the AFQT requirements remained the same as above, AQE requirements could be satisfied by a standard score of 25 in each of two of the four aptitude areas (i.e., M, A, G, E) or a score of 40 in any one area.

*Although other sources report that education differentials were introduced into the Air Force in 1961, a "temporary change" directive -- TWX, AFPTP-2, 43066, 20 June 1950 (AFR 39-9, 15 April 1949) -- indicates that these standards existed during most of 1950.

Table A-5, Continued:

	Education Differential Introduced*
Aug. 1961 - Dec. 1961	(a) HSG with AFQT 26; (b) NHSG with AFQT 31. The AQE requirements remained the same as specified above.
Jan. 1962 - Sept. 1966	The minimum AFQT score was lowered for HSG from AFQT 26 to AFQT 21. All other standards remained the same.
Oct. 1966 - March 1967**	Under Project 100,000 guidelines the standards were as follows: all applicants with AFQT 21
April 1967 - Sept. 1967**	Percentile score of 10 on AFQT.
Oct. 1967 - May 1972**	(a) HSG with AFQT 21 or HSG with AFQT 10-20 and a standard score of 25 in two aptitude areas or a score of 40 in any one area (i.e. M, A, G, E). (b) NHSG with AFQT 31 or NHSG with AFQT 10-30 and a standard score of 25 in two aptitude areas or a score of 40 in any one area (i.e., M, A, G, E).
May 1972 - June 1973	(a) HSG with AFQT 21 and a standard score of > 40 on either M,A,G, or E; (b) NHSG with AFQT 31 and a standard score of > 40 on G and a standard score of ≥ 40 on either M,A, or E.
June 1973 - Jan. 1975	The minimum AFQT requirement was raised for NHSG from AFQT 31 to AFQT 65. No other changes in minimum aptitude requirements.
Jan. 1975 - March 1975	(a) HSG with AFQT 21; (b) NHSG with AFQT 65. All applicants must have a combined standard score of ≥ 170 across M,A,G,E with a minimum standard score of ≥ 45 on G.

**These standards were in effect under the DoD Project 100,000 program, implemented on 1 October 1966. Under this program the intake of AFQT Category IV personnel was increased by lowering minimum aptitude requirements.

Table A-5, Continued:

March 1975 - Sept. 1980	---------DOD modified the definition of HSDG to exclude non-state certified GED applicants. Such applicants must meet the same qualifications as NHSG. No other changes in minimum aptitude standards.
Oct. 1980 - Nov. 1980	---------(a) High School Diploma Graduate (HSDG) with AFQT 21, and G $\geq$ 30, and combined M,A,G,E $\geq$ 170; (b) GED with AFQT 50, G $\geq$ 30 and combined M,A,G,E $\geq$ 170; (c) NHSG with AFQT 65, G $\geq$ 30 and combined M,A,G,E $\geq$ 170.
Dec. 1980 - Present	---------Combined M,A,G,E score minimum was lowered to 120 for all applicants. All other standards remained the same.

Note: This table was reviewed by the Department of the Air Force, Headquarters United States Air Force (MPXOA), 10 May 1983.

A P P E N D I X B

Aptitude Trends of Military Examinees

Table B-1

Percentage Distribution of Male Examinees By AFQT Category, FY 1972-83

- Army -

AFQT Category	Percentage Distribution of Male Examinees[a]											
	1972[b]	1973[b]	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
I	3.0	2.6	2.0	2.1	3.2	2.1	2.1	1.8	1.8	1.7	2.6	3.1
II	23.0	21.7	19.8	18.3	17.5	13.4	14.1	12.1	12.5	14.8	21.8	24.8
III A	17.2	17.7	17.8	16.9	11.5	9.6	10.3	9.4	9.7	9.7	13.6	15.9
III B	20.3	22.0	25.1	25.1	20.5	15.0	15.6	15.2	15.6	16.9	18.6	22.0
IV A	13.3	14.5	11.0	9.4	10.4	12.5	13.4	14.3	15.0	14.4	15.5	15.6
IV B	9.1	8.5	6.8	5.4	6.8	11.2	12.2	13.3	13.6	12.1	10.4	7.9
IV C	8.2	7.5	7.3	6.8	9.4	15.9	17.4	18.6	17.6	15.7	10.4	7.0
V	5.1	4.5	8.7	7.6	12.5	13.0	13.4	14.3	13.6	14.3	6.7	3.2
UNK	0.8	1.1	1.6	8.3	8.3	7.4	1.7	1.1	0.7	0.5	0.4	0.6
Total												
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number (in 000s)	198	189	229	233	267	285	195	207	282	292	280	282

Source: Derived from data provided by the Defense Manpower Data Center.

[a]Includes male examinees without prior military service who were processed for the purpose of enlistment during the indicated fiscal year.

[b]Includes draft registrants as well as applicants for enlistment.

Table B-2

Percentage Distribution of Male Examinees By AFQT Category, FY 1972-83

- Navy -

AFQT Category	Percentage Distribution of Male Examinees[a]											
	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
I	3.8	2.8	2.0	1.8	5.2	4.0	4.2	3.9	4.3	2.8	3.1	3.9
II	28.2	27.2	30.7	23.3	23.3	23.5	25.9	24.8	28.0	26.9	29.2	34.1
III A	18.9	20.3	23.6	20.1	11.2	14.8	16.4	16.4	18.2	16.2	17.1	17.8
III B	20.4	24.4	33.4	21.8	14.6	17.6	19.2	19.8	20.0	20.4	22.1	21.1
IV A	9.6	7.3	4.0	3.6	6.2	10.8	11.7	12.2	10.9	12.5	12.2	10.5
IV B	6.5	4.3	0.1	0.2	3.4	7.0	7.4	7.9	6.8	6.9	5.8	4.6
IV C	6.3	4.4	0.1	0.1	3.4	9.0	7.3	7.7	5.8	6.4	4.3	3.0
V	4.3	3.1	0.0	0.1	4.1	4.3	4.1	4.1	2.8	4.1	2.0	1.1
UNK	2.0	6.2	6.2	28.9	28.6	11.1	3.8	3.2	3.3	3.9	4.2	3.8
Total												
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number (in 000s)	100	93	91	85	111	164	127	124	147	170	168	136

Source: Derived from data provided by the Defense Manpower Data Center.

[a]Includes male examinees without prior military service who were processed for the purpose of enlistment during the indicated fiscal year.

Table B-3

Percentage Distribution of Male Examinees By AFQT Category, FY 1972-83

- Marine Corps -

AFQT Category	Percentage Distribution of Male Examinees[a]											
	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
I	1.6	1.3	1.8	1.5	3.3	2.3	2.1	1.9	2.2	1.9	2.0	2.4
II	16.5	15.1	19.5	18.4	22.1	17.6	18.1	16.2	19.2	22.2	24.4	28.2
III A	15.5	14.8	18.0	16.6	14.9	13.3	13.5	13.6	14.9	15.9	16.5	18.6
III B	21.6	21.2	21.4	23.1	21.7	18.4	19.2	20.1	20.3	22.9	25.0	27.3
IV A	13.0	15.4	14.6	12.4	9.8	12.4	14.2	14.8	14.4	14.5	15.2	11.1
IV B	10.4	10.8	8.4	7.3	5.5	9.0	10.1	10.8	10.3	7.7	6.9	4.9
IV C	11.0	10.3	7.6	5.3	5.2	10.9	11.8	12.5	10.5	7.9	5.8	3.1
V	7.6	7.0	4.3	4.8	6.3	7.2	7.4	7.7	6.1	4.7	2.6	1.1
UNK	2.9	4.3	4.5	10.7	11.3	8.9	3.7	1.5	2.4	1.8	1.6	3.2
Total												
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number (in 000s)	49	50	50	39	60	67	50	51	61	68	69	78

Source: Derived from data provided by the Defense Manpower Data Center.

[a]Includes male examinees without prior military service who were processed for the purpose of enlistment during the indicated fiscal year.

Table B-4

Percentage Distribution of Male Examinees By AFQT Category, FY 1972-83

-Air Force-

AFQT Category	Percentage Distribution of Male Examinees[a]											
	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
I	4.3	4.3	3.0	2.6	5.2	4.2	4.1	3.5	3.5	2.8	3.0	3.6
II	30.9	31.9	27.8	29.2	24.4	27.5	28.0	26.6	28.4	30.4	31.7	35.5
III A	19.8	21.3	20.8	23.1	12.9	16.7	17.7	17.3	18.8	18.5	18.4	20.6
III B	20.8	21.5	24.6	19.7	15.3	18.4	20.0	20.4	21.4	21.2	21.8	20.3
IV A	9.4	8.2	5.6	2.0	8.3	9.7	10.6	11.3	10.9	11.5	10.5	8.6
IV B	5.3	4.7	3.2	1.0	5.7	5.9	6.2	6.5	5.6	5.6	5.1	4.2
IV C	4.8	3.8	2.3	0.7	5.9	6.4	6.5	5.7	5.4	5.7	4.7	3.1
V	3.0	2.1	1.6	0.6	4.7	3.8	3.8	3.6	2.8	2.8	2.2	1.2
UNK	1.8	2.4	11.1	21.2	17.8	7.5	3.2	4.2	3.2	1.6	2.6	3.0
Total												
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number (in 000s)	106	90	83	70	77	121	94	95	134	146	131	116

Source: Derived from data provided by the Defense Manpower Data Center.

[a]Includes male examinees without prior military service who were processed for the purpose of enlistment during the indicated fiscal year.

Table B-5

Percentage Distribution of Male Recruits in Each Military Service by AFQT Category, FY 1952-83

Percentage Distribution of Male Recruits by AFQT Category[a]

Fiscal	Army				Navy				Marine Corps				Air Force			
Year	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
1952	6.9	28.4	28.7	44.1	6.5	24.8	37.1	33.6	5.7	21.3	38.5	42.6	6.9	23.8	36.8	33.4
53	7.8	22.9	28.4	40.7	6.9	28.3	37.5	27.4	4.9	23.1	37.8	34.2	9.8	28.1	36.8	26.9
54	9.7	25.9	34.9	29.8	7.4	27.2	38.7	26.7	4.2	28.5	48.9	34.4	6.5	25.5	41.2	26.8
1955	9.5	26.7	35.9	27.8	4.8	21.8	38.8	35.2	6.2	27.5	48.1	28.2	6.5	25.2	41.7	26.6
56	8.4	28.5	36.8	26.5	5.7	23.6	38.4	32.3	4.4	21.7	39.8	34.9	7.5	28.9	45.4	18.2
57	8.2	24.1	37.2	30.5	6.7	26.2	39.8	16.3	5.4	23.1	45.9	25.6	8.4	27.4	48.2	15.9
58	8.5	23.2	41.7	26.6	7.7	26.5	58.6	7.2	7.4	26.9	58.7	9.0	11.3	33.1	47.9	7.7
59	8.8	24.2	48.1	28.9	8.9	32.2	50.4	6.5	6.0	25.4	59.9	8.7	12.2	33.6	43.7	10.5
1960	8.2	24.1	59.7	17.9	7.5	28.3	56.1	7.1	5.3	22.3	59.9	16.4	10.3	32.5	45.5	11.7
61	6.1	27.4	53.3	13.2	5.7	24.6	48.7	16.9	4.8	31.2	56.9	7.1	6.7	34.8	42.4	16.1
62	5.9	27.3	44.5	22.4	5.5	34.2	48.5	11.8	4.4	32.5	54.1	9.0	8.5	48.9	43.4	7.2
63	6.1	26.7	46.7	21.5	6.4	36.9	51.1	5.6	4.9	37.5	53.7	3.9	7.7	38.2	45.7	8.4
64	5.7	25.9	48.4	19.9	6.1	34.9	48.9	10.9	4.6	32.8	53.4	9.2	8.7	41.9	46.2	4.1
1965	4.5	26.7	45.3	19.2	5.3	33.6	47.9	13.6	4.4	33.7	58.1	3.8	7.7	38.1	46.7	7.4
66	5.6	28.5	42.5	23.4	6.1	42.8	43.7	8.4	3.6	33.3	47.7	13.5	8.2	41.4	44.8	6.3
67	5.9	26.5	39.3	28.3	9.8	38.5	37.8	11.8	4.7	31.2	46.7	17.4	8.8	38.9	40.1	12.8
68	5.5	27.3	38.2	28.8	8.8	51.9	23.6	16.6	3.9	26.7	47.2	22.2	7.9	36.9	36.2	17.9
69	6.1	26.5	38.1	27.5	7.9	48.7	33.1	10.2	3.5	25.5	45.3	25.7	8.2	36.5	35.5	17.8
1970	5.2	28.9	41.9	25.8	6.1	36.6	36.9	16.4	2.9	24.4	48.5	24.2	8.1	38.6	35.1	18.1
71	5.1	27.8	42.1	25.2	6.1	38.6	48.2	14.9	2.5	23.4	55.9	18.1	5.9	33.6	42.7	17.8
72	4.9	28.4	48.9	16.8	4.5	32.5	42.8	20.2	2.2	22.1	55.6	20.1	5.4	37.3	46.6	8.7
73	3.4	27.5	51.8	17.3	3.8	32.1	48.5	15.7	2.1	22.6	60.8	14.6	5.5	38.5	51.8	4.2
74	3.6	27.5	51.1	17.8	2.7	33.7	60.2	3.3	2.7	36.7	53.9	7.8	4.7	48.8	53.9	8.6
1975	4.5	30.3	56.1	10.0	2.8	36.2	57.2	4.8	3.9	33.8	59.8	3.5	3.9	49.9	56.6	8.4
76	3.2	35.7	54.5	16.6	4.9	38.4	47.5	9.2	3.8	35.9	54.4	6.8	5.4	48.6	47.6	1.9
77	2.3	17.9	36.4	43.4	5.9	33.4	49.8	10.9	3.3	26.5	46.6	24.6	7.1	48.3	41.8	5.8
78	2.3	17.6	36.5	43.6	4.9	33.6	44.6	16.1	2.5	23.2	46.1	28.2	5.2	46.7	47.8	6.3
79	1.7	14.4	35.1	48.7	4.2	30.9	44.9	21.4	2.2	21.4	47.5	28.8	4.7	38.2	48.9	10.1
1980	1.5	13.7	34.7	50.1	4.5	32.6	45.3	17.6	2.3	23.4	48.5	27.8	4.1	36.2	48.9	9.9
81	2.2	21.4	44.5	30.9	3.8	35.8	48.9	12.4	2.4	30.3	54.4	12.9	3.5	38.5	48.9	7.1
82	2.9	28.9	49.6	18.4	3.7	36.8	48.5	10.9	2.1	32.1	57.8	8.7	3.4	48.7	46.8	6.1
83	3.4	32.1	50.8	13.7	4.9	43.3	44.8	7.8	2.2	32.6	57.1	8.1	4.5	44.4	48.4	2.7

Sources: Data for FY 1952-75 were provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics). Data for FY 1976-82 were derived from data provided by the Defense Manpower Data Center.

[a]Male recruits include persons without prior military service who were inducted or enlisted and entered active duty (all Services combined) during the indicated fiscal year.

Table B-6

Comparison of the Percentage Distributions of Male Enlistees and Draftees in the Army by AFQT Category, FY 1955-83

Fiscal Year[a]	Category I		Category II		Category III		Category IV	
	Enlistee	Draftee	Enlistee	Draftee	Enlistee	Draftee	Enlistee	Draftee[b]
1955	7.1	10.9	24.9	27.7	44.7	31.2	23.3	30.2
56	7.1	9.4	26.1	26.8	46.7	32.0	20.1	31.8
57	8.5	8.2	25.7	23.5	49.2	32.9	16.6	35.4
58	9.6	7.8	28.4	20.2	57.6	32.5	4.4	39.5
59	8.5	9.1	25.7	22.8	55.4	37.3	10.4	30.8
1960	8.4	7.9	27.4	20.7	64.2	36.6	0.0	34.8
61	5.7	6.8	31.0	21.0	63.3	35.7	0.0	36.5
62	6.6	5.1	33.8	22.5	58.6	33.9	1.0	38.5
63	5.5	4.5	30.9	20.7	56.9	31.9	6.7	42.9
64	6.4	5.2	31.6	25.5	54.8	40.4	7.2	28.9
1965	5.1	4.5	29.1	24.3	58.3	40.9	7.5	30.3
66	8.1	4.3	33.5	25.9	41.7	42.9	16.7	26.9
67	7.3	5.0	31.3	26.8	37.6	40.3	23.8	27.9
68	6.9	4.6	30.1	25.7	38.8	39.5	24.2	30.2
69	6.3	5.9	28.9	27.9	37.5	38.6	27.3	27.6
1970	5.1	5.2	28.0	28.0	43.1	39.4	23.8	27.4
71	4.5	5.6	26.8	28.4	45.9	38.5	22.8	27.5
72	3.9	4.7	28.5	27.5	50.2	40.6	17.4	27.2
----------	ALL-VOLUNTEER FORCE TRANSITION							
73	3.2	4.6	26.8	30.6	53.3	45.1	16.7	19.7
74	1.9	--	22.8	--	55.8	--	19.5	--
1975	3.5	--	25.4	--	57.9	--	9.9	--
76	3.4	--	25.6	--	54.8	--	16.0	--
77	2.4	--	18.0	--	38.3	--	39.8	--
78	2.3	--	18.8	--	39.4	--	38.8	--
79	1.8	--	14.9	--	36.9	--	46.3	--
1980	1.6	--	13.8	--	34.8	--	49.7	--
81	2.2	--	21.5	--	45.1	--	31.2	--
82	3.0	--	29.0	--	48.6	--	19.4	--
83	3.4	--	32.1	--	50.8	--	13.7	--

Source: Statistics for FY 1955-74 were derived from data appearing in Department of Defense, Qualitative Distribution of Military Manpower, DD-MP&R(M)344 (Washington, D.C.: Department of the Army Office of Personnel Operations), 1955-74. Statistics for FY 1975-82 were provided by the Defense Manpower Data Center.

[a]AFQT category distribution for FY 1976 does not include the transition quarter (July through September).

[b]Draftees who failed the aptitude test but who were declared administratively acceptable (on the basis of personal interviews and some additional aptitude testing) are included in AFQT Category IV.

A P P E N D I X C

States Within the U.S. Census Regions & Divisions

Table C-1

U.S. Bureau of Census Classification of States by Region and Division

Region	Division and States	
NORTHEAST		
	New England	**Middle Atlantic**
	Maine	New York
	New Hampshire	New Jersey
	Vermont	Pennsylvania
	Massachusetts	
	Rhode Island	
	Connecticut	
NORTH CENTRAL		
	East North Central	**West North Central**
	Ohio	Minnesota
	Indiana	Iowa
	Illinois	Missouri
	Michigan	North Dakota
	Wisconsin	Nebraska
		Kansas
		South Dakota
SOUTH		
	South Atlantic	**East South Central**
	Delaware	Kentucky
	Maryland	Tennessee
	District of Columbia	Alabama
	Virginia	Mississippi
	West Virginia	
	North Carolina	**West South Central**
	South Carolina	Arkansas
	Georgia	Louisiana
	Florida	Oklahoma
		Texas
WEST		
	Mountain	**Pacific**
	Montana	Washington
	Idaho	Oregon
	Wyoming	California
	Colorado	Alaska
	New Mexico	Hawaii
	Arizona	
	Utah	
	Nevada	
OTHER		
	Outlying Areas; Bordering Nations; and Countries, Dependencies, and Areas of Special Sovereignty	
	Mexico	Mariana Islands
	American Samoa	Marshall Islands
	Canal Zone	Puerto Rico
	Caroline Islands	Trust Territories of the Pacific Islands
	Cook Islands	U.S. Miscellaneous Pacific Islands
	Gilbert and Ellice Islands	Virgin Islands
		Wake Island

A P P E N D I X D

Qualification for Enlistment in the Navy and Marine Corps Under Revised (1983) Aptitude Standards

Table D-1

Estimated Number and Percent of American Youth
(18-23 Years) Who Would Qualify for Enlistment
By Educational Level, Racial/Ethnic Group, and Sex[a]

- NAVY -
(1983 Standards)

Racial/Ethnic Group and Sex[b]	Educational Level[c]						Total	
	Below High School Graduate		GED High School Equivalency		High School Diploma Graduate and Above			
	Percent Qualified	Number(000) Qualified	Percent Qualified	Number(000) Qualified	Percent Qualified	Number(000) Qualified	Percent Qualified	Number(000) Qualified
White[d]								
Male	35.2	739	73.0	268	95.5	7,438	82.3	8,445
Female	32.0	513	79.2	266	96.4	7,644	85.3	8,423
Total	33.8	1,252	76.0	534	95.9	15,082	83.8	16,868
Black[e]								
Male	6.4	40	37.5	25	63.7	637	41.4	702
Female	4.2	19	32.4	19	64.8	783	48.1	821
Total	5.5	59	35.2	44	64.3	1,420	44.8	1,523
Hispanic								
Male	9.1	30	48.7	12	85.1	353	51.3	395
Female	9.9	29	31.8	9	80.5	349	51.2	387
Total	9.4	59	40.4	21	82.8	702	51.3	782
TOTAL								
Male	26.4	809	66.6	305	91.6	8,428	75.0	9,542
Female	24.0	560	69.6	294	91.7	8,776	78.1	9,630
Total	25.4	1,369	68.0	599	91.6	17,204	76.6	19,172

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the number and percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.) Numbers are expressed in thousands (000).
[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.
[c]Educational level as of September 1980 (start of the 1980-81 school year).
[d]White category includes all racial/ethnic groups other than black or Hispanic.
[e]Black category does not include persons of Hispanic origin.

Table D-2

Estimated Number and Percent of American Youth
(18-23 Years) Who Would Qualify for Enlistment
By Educational Level, Racial/Ethnic Group, and Sex[a]

- MARINE CORPS -
(1983 Standards)

Racial/Ethnic Group and Sex[b]	Educational Level[c]						Total	
	Below High School Graduate		GED High School Equivalency		High School Diploma Graduate and Above			
	Percent Qualified	Number(000) Qualified	Percent Qualified	Number(000) Qualified	Percent Qualified	Number(000) Qualified	Percent Qualified	Number(000) Qualified
White[d]								
Male	21.1	443	49.8	183	92.1	7,172	76.0	7,798
Female	0	0	0	0	67.6	5,367	54.4	5,367
Total	12.0	443	26.0	183	79.8	12,539	65.4	13,165
Black[e]								
Male	3.0	19	8.0	5	52.1	522	32.2	546
Female	0	0	0	0	18.5	224	13.1	224
Total	1.8	19	4.2	5	33.8	745	22.6	770
Hispanic								
Male	4.5	15	16.2	4	79.0	327	45.0	346
Female	0	0	0	0	31.5	137	18.0	137
Total	2.4	15	7.8	4	54.7	464	31.7	483
TOTAL								
Male	15.6	476	42.0	192	87.2	8,021	68.3	8,690
Female	0	0	0	0	59.8	5,727	46.4	5,727
Total	8.8	476	21.8	192	73.2	13,748	57.5	14,417

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the number and percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.) Numbers are expressed in thousands (000).
[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.
[c]Educational level as of September 1980 (start of the 1980-81 school year).
[d]White category includes all racial/ethnic groups other than black or Hispanic.
[e]Black category does not include persons of Hispanic origin.

Table D-3

Estimated Number and Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment by Educational Level, Sex, and Census Division[a]

- N A V Y -

(1983)

Census Division	Educational Level[b]											
	Non-High School Graduate			GED High School Equivalency			High School Diploma Graduate and Above			TOTAL		
	Male	Female[c]	Total	Male	Female[c]	Total	Male	Female	Total	Male	Female	Total
New England												
Number	47,731	27,690	75,421	*	*	*	503,361	475,511	978,472	572,014	524,292	1,096,306
Percent	43.8	31.3	38.2				96.4	92.8	94.6	87.2	83.4	85.4
Middle Atlantic												
Number	80,747	40,306	121,053	*	*	52,044	1,418,982	1,587,414	2,926,396	1,530,979	1,569,314	3,100,292
Percent	20.3	17.4	19.2			56.1	89.8	93.6	91.7	75.4	83.3	79.2
East North Central												
Number	216,088	162,826	378,914	*	*	*	2,115,404	2,032,492	4,147,896	2,373,106	2,249,760	4,622,866
Percent	34.1	30.7	32.5				94.5	93.6	94.0	80.7	81.2	80.9
West North Central												
Number	40,325	*	59,762	*	*	*	669,357	623,692	1,293,049	714,434	654,863	1,369,298
Percent	29.6		26.6				95.1	93.0	94.1	83.4	84.2	83.8
South Atlantic												
Number	169,291	114,118	283,409	*	*	132,335	1,292,491	1,556,130	2,848,621	1,537,195	1,727,170	3,263,365
Percent	21.2	21.2	21.2			68.3	88.5	87.5	87.9	64.8	72.0	68.4
East South Central												
Number	24,062	34,524	58,586	*	*	*	354,274	508,260	862,534	386,803	571,936	958,740
Percent	13.4	21.6	17.2				82.7	89.3	86.5	61.1	74.7	68.5
West South Central												
Number	80,498	40,229	120,726	*	*	*	678,187	655,068	1,333,255	799,804	722,406	1,522,210
Percent	30.2	16.3	23.5				90.6	85.7	88.1	75.0	68.7	71.9
Mountain												
Number	71,037	40,951	111,988	*	*	*	428,396	470,941	899,337	519,049	536,136	1,055,185
Percent	40.1	38.0	39.3				90.8	95.3	93.1	77.4	84.2	80.7
Pacific												
Number	78,965	80,402	159,367	*	*	106,813	947,954	925,763	1,873,717	1,086,069	1,053,829	2,139,898
Percent	22.0	23.5	22.7			69.8	92.1	94.5	93.2	73.7	75.7	74.7

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the number and percent of youth qualified for military service were calculated on the bases of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors—including medical and moral requirements.)

[b]Educational level as of September 1980 (start of 1980-81 school year).

[c]Female: not possessing a high school diploma or a GED high school equivalency certificate were not eligible for enlistment.

*Sample size may be too small (<50) to yield reliable estimates.

Table D-4

Estimated Number and Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment by Educational Level, Sex, and Census Division[a]

-MARINE CORPS-

(1983)

	Educational Level[b]											
	Non-High School Graduate			GED High School Equivalency			High School Diploma Graduate and Above			TOTAL		
Census Division	Male	Female[c]	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
New England												
Number	24,670	0	24,670	*	*	*	499,369	340,479	839,848	540,949	340,479	881,428
Percent	22.7	0.0	12.5				95.7	66.5	81.2	82.5	54.2	68.6
Middle Atlantic												
Number	49,346	0	49,346	*	*	10,259	1,339,341	998,826	2,336,167	1,398,946	996,826	2,395,772
Percent	12.4	0.0	7.8			10.9	84.8	61.9	73.2	68.9	52.9	61.2
East North Central												
Number	122,978	0	122,978	*	*	*	2,033,529	1,256,512	3,290,041	2,190,527	1,256,512	3,447,039
Percent	19.4	0.0	10.6				90.8	57.8	74.6	74.5	45.5	60.3
West North Central												
Number	27,508	0	27,508	*	*	*	656,233	475,309	1,131,542	685,939	475,309	1,161,248
Percent	20.2	0.0	12.2				93.3	70.9	82.4	80.1	61.1	71.1
South Atlantic												
Number	90,508	0	90,058	*	*	53,023	1,203,789	951,585	2,155,374	1,347,320	951,585	2,298,905
Percent	11.3	0.0	6.8			27.4	82.4	53.5	66.5	56.8	39.7	48.2
East South Central												
Number	8,067	0	8,067	*	*	*	333,844	253,493	587,337	349,465	253,493	602,958
Percent	4.5	0.0	2.4				77.9	44.5	58.9	55.2	33.1	43.1
West South Central												
Number	45,589	0	45,589	*	*	*	626,131	436,166	1,062,296	698,941	436,166	1,135,107
Percent	17.1	0.0	8.9				83.7	57.1	70.2	65.5	41.5	53.6
Mountain												
Number	53,782	0	53,782	*	*	*	415,757	342,767	758,524	479,607	342,767	822,374
Percent	30.3	0.0	18.9				88.2	69.3	78.5	71.6	53.9	62.9
Pacific												
Number	54,031	0	54,031	*	*	29,467	894,085	654,609	1,548,694	977,582	654,609	1,632,192
Percent	15.1	0.0	7.7			19.0	86.8	66.8	77.1	66.4	47.0	57.0

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the number and percent of youth qualified for military service were calculated on the bases of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors—including medical and moral requirements.)

[b]Educational level as of September 1980 (start of 1980-81 school year).

[c]Females not possessing a high school diploma or a GED high school equivalency certificate were not eligible for enlistment.

*Sample size may be too small (<50) to yield reliable estimates.

A P P E N D I X E

Qualification for Enlistment Under Various Alternative or "Simulated" Standards

Detailed statistics on the number and percent of American youth who would be expected to qualify for enlistment under existing aptitude/education standards are presented in Section 3 of the report. This appendix presents qualification rates for population subgroups based on alternative or "simulated" standards. First, the effects of using alternative standards for persons with General Educational Development (GED) High School Equivalency Credentials are examined in Tables E-1 through E-4. Second, the effects of eliminating the educational differential--by requiring all youth to meet the aptitude standards currently established for either high school diploma graduates or for non-high school graduates--are explored in Tables E-5 through E-12. The effects of instituting an across-the-board minimum AFQT of 50 are then examined in Table E-13. Finally, the impact of using equivalent aptitude requirements for males and females in the Marine Corps is investigated in Table E-14. Some of the alternative aptitude standards analyzed here would be more stringent (e.g., applying universally the aptitude requirements for non-high school graduates), while others would be considered more lenient (e.g., using the minimum aptitude requirement for high school graduates as a standard for everyone).

This analysis demonstrates the consequences of selected changes in enlistment requirements on the quantity of the "eligible" manpower pool and upon subgroups within the pool. Examples of conditions that might encourage the use of more stringent standards include extended recruiting and retention success, a sizeable decrease in strength requirements, increases in occupational requirements or technology, and Congressional influence. Reduced aptitude criteria might be instituted in an effort to increase the "eligible" manpower pool or to maintain strength in a decreasing market.

Persons with General Educational Development (GED) high school equivalency credentials constitute approximately three percent of the overall youth population (ages 18-23) and six percent of military nonprior service accessions. Despite the relatively small size of this group (compared with high school diploma graduates and nongraduates), they constitute an important component of the military manpower pool. High school equivalency (or GED) is one of three education categories used by the Services when applying different aptitude standards for enlistment. Because of higher attrition rates, persons with GEDs (and non-high graduates) are required to achieve higher AFQT and ASVAB composite scores than diploma graduates. There seems to be a general lack of understanding outside the military as to why such education policies exist. While a GED credential may be the legal equivalent of a high school diploma, persons holding the former certainly do <u>not</u>, on the average, have equivalent performance records. In light of Congressional and national educational associations' (i.e., American Council on Education) questioning of the current practice of applying such differential standards as well as Service recognition that GEDs are an important manpower resource, the impacts of eliminating higher requirements for GEDs are presented below.

Tables E-1 through E-4 compare the proportion of GEDs and the total youth population eligible for enlistment in each Service under existing standards (1983 for the Navy and the Marine Corps, and 1980-83 for the Army and the Air Force) with the corresponding proportion of GEDs <u>if</u> they were treated as either nongraduates or high school diploma graduates for enlistment purposes. It can be seen here that using these simulated standards for GEDs would not substantially alter the size of the total manpower pool. For example, if the nongraduate (i.e., more stringent) standards were used, the

overall population eligible for the Navy and the Air Force would be reduced by only 0.3 percent and 0.6 percent, respectively.

Existing Marine Corps standards treat GEDs as non-high school graduates for enlistment purposes. As shown in Table E-1, Army standards functionally accomplish the same result. The Army, consequently, would not decrease its total eligible pool or GED pool by raising its standards in this fashion.

If the more lenient aptitude standards used for high school diploma graduates were also used for GEDs, the total eligible pool would increase by less than one percent (i.e., approximately 200,000 persons) in all Services except the Marine Corps, which would experience an increase of approximately 1.6 percent (see Table E-3). Thus, the size of the eligible manpower pool (total) would not be substantially altered by allowing persons with GEDs to enlist under the minimum aptitude standards for high school diploma graduates.

The effects of eliminating the differential aptitude standards applied to broad educational groups (e.g., high school diploma graduates, GEDs, and non-high school graduates) are analyzed for each Service in Tables E-5 through E-12. When education differentials were eliminated and replaced by the lower minimum aptitude standards required for high school diploma graduates (Tables E-5, E-7, E-9, E-11), the total eligible pool increased variably in each of the Services: 5 percent in the Army; 7 percent in the Navy; 7 percent in the Marine Corps; and 2 percent in the Air Force.

While the percentage increase in the overall pool would be relatively small, the increase in the percentage of eligible non-high school graduates would be quite substantial. Over 50 percent of nongraduates would qualify for

both the Army and the Navy under these simulated standards, as compared with between 25 and 30 percent under the existing standards. Eliminating education differentials in the Marine Corps and the Air Force would also result in a sizeable increase in the proportion of non-high school graduates eligible for enlistment in these Services--from just under 10 percent to approximately 30 percent.

If the more stringent non-high school graduate standards were used for all youth (Tables E-6, E-8, E-10, E-12), the Army would experience the smallest absolute decrease in its total eligible pool (approximately 8 percent or from 77 to 69 percent eligible), while the Marine Corps would have the largest absolute decrease (31 percent). The rather large decrease in the Marine Corps could be accounted for primarily by the different (more stringent) standards for women. That is, since female nongraduates and GEDs are presently ineligible for enlistment in the Marine Corps, absolutely no women would be eligible if nongraduate standards were used for high school diploma graduates as well. Since the qualification rates for high school graduates are still much higher than those for nongraduates under these non-differentiated standards, a substantial percentage of graduates would be lost from the pool. The Air Force, for example, would lose approximately 32 percent of its pool of high school diploma graduates.

Table E-13 shows the population eligibility rates under a minimum standard of AFQT 50 for all persons. A percentile score of 50 on the AFQT represents the median of the World War II reference population. This particular standard was selected for analysis because the Services use this score as a dividing line of recruit "quality". As can be deduced from Table E-13 (in

conjunction with the information from previous tables), if persons with aptitude scores at or above AFQT 50 were eligible for enlistment, the Army and Navy would each lose approximately one quarter of the overall manpower pool eligible under existing standards. The Air Force would lose only 9 percent of its currently eligible pool, and the Marine Corps would lose about 5 percent. If propensity estimations and "quality mix" (to name just two of the important variables) were not considered in setting standards, it appears possible that the Air Force and Marine Corps could meet existing numerical requirements under such a standard. However, it should be pointed out, that, although the percentage of the overall pool would not decrease dramatically, the high school graduate group would be primarily affected--a group that also defines "quality" among recruits.

The simulations presented and discussed above involve the elimination of education differentials. In addition to using different sets of aptitude scores for various education groups, the Marine Corps presently requires higher minimum aptitude scores for females than for males. The effects of eliminating these sex differentials are shown in Table E-14. The Marine Corps standards (which also vary according to high school graduation status) for males in 1983 were applied in similar fashion for females. This "reduction" in standards would increase the female pool by approximately 25 percent and the overall pool by roughly 12 percent. Most of the increase in the female pool would be within the GED and high school diploma graduate groups (10 and 14 percent, respectively) rather than among female nongraduates (5 percent).

While there are obviously many different scenarios under which enlistment standards might be adjusted, the simulations presented here would not, for the most part, alter the size of the manpower pool substantially. While

some gains would occur in the pool under more lenient criteria, most of the added members would not be among the preferred high school diploma graduate group. That is, most of the gains would occur among GEDs and nongraduates--groups that have not performed as well (on average) as diploma graduates in the military. The answer to screening in subsets of the nongraduate group that perform well is not reduced aptitude requirements but rather alternative predictors such as a biographical and/or more detailed educational background information.

While more stringent criteria would increase the quality of personnel entering the Services, it would also restrict flexibility and perhaps result in strength shortfalls. Under current standards, the Services are afforded the opportunity of using higher cutting scores during favorable market conditions. The bottom line is that current minimum standards seem to be set at levels which still allow for much flexibility to meet changing market conditions and Congressional requirements, but without major sacrifices in personnel quality.

Table E-1

Estimated Number and Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment Under Actual Standards and Under Simulated Standards for Youth Who Possess a General Educational Development (GED) High School Equivalency Certificate[a]

(Number in Thousands)

- A R M Y -

Racial/Ethnic[b] Group and Sex	Actual Standards[c] AFQT=31; 85 on 1 Composite				Simulated Standards[d] AFQT=31; 85 on 2 Composites				AFQT=16; 85 on 1 Composite			
	GED		Total		GED		Total		GED		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
White[e]												
Male	268	73.0	8,603	83.9	268	73.0	8,603	83.9	353	96.2	8,688	84.7
Female	266	79.2	8,486	86.0	266	79.2	8,486	86.0	330	98.1	8,550	86.6
Total	534	76.0	17,089	84.9	534	76.0	17,089	84.9	683	97.1	17,238	85.6
Black[f]												
Male	25	37.7	691	40.7	23	36.0	690	40.7	34	51.6	700	41.3
Female	19	32.4	776	45.5	19	32.4	776	55.5	38	62.7	795	46.6
Total	44	35.2	1,467	43.1	42	34.3	1,466	43.1	72	56.9	1,495	43.9
Hispanic												
Male	12	48.7	406	52.8	12	48.7	406	52.8	21	82.3	414	53.9
Female	9	31.8	397	52.5	9	31.8	397	52.5	19	69.8	407	53.9
Total	21	40.0	802	52.7	21	40.0	802	52.7	40	75.9	821	53.9
Total												
Male	305	66.6	9,699	76.3	304	66.4	9,699	76.3	407	89.0	9,802	77.1
Female	294	69.6	9,659	78.3	294	69.6	9,659	78.3	386	91.3	9,751	79.1
Total	599	68.0	19,359	77.3	598	67.9	19,358	77.3	793	90.1	19,550	78.1

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the number and percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.

[c]The actual aptitude standards in effect for GEDs enlisting in the Army refer to the Armed Forces Qualification Test and additional ASVAB aptitude requirements in effect since 1980.

[d]The simulated standards refer to the application of more stringent and more lenient Armed Forces Qualification Test and additional ASVAB aptitude requirements (i.e., those in effect for non-high school graduates and high school diploma graduates respectively).

[e]White includes all racial/ethnic groups other than black or Hispanic.

[f]Black does not include persons of Hispanic origin.

Note: Numbers may not sum due to rounding.

Table E-2

Estimated Number and Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment Under Actual Standards and Under Simulated Standards for Youth Who Possess a General Educational Development (GED) High School Equivalency Certificate[a]

(Number in Thousands)

- N A V Y -

Racial/Ethnic[b] Group and Sex	Actual Standards[c] AFQT=31				Simulated Standards[d] AFQT=50				AFQT=17			
	GED		Total		GED		Total		GED		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
White[e]												
Male	268	73.0	8,444	82.3	247	67.4	8,424	82.1	347	94.6	8,523	83.1
Female	266	79.2	8,423	85.3	227	67.6	8,384	84.9	329	97.9	8,486	86.0
Total	534	76.0	16,867	83.8	474	67.5	16,808	83.5	676	96.1	17,009	84.5
Black[f]												
Male	26	37.7	702	41.4	16	23.6	693	40.9	36	53.1	712	42.0
Female	19	32.4	821	48.1	9	14.6	810	47.5	39	65.4	840	49.3
Total	44	35.2	1,523	44.8	24	19.2	1,503	44.2	74	59.0	1,553	45.6
Hispanic												
Male	12	48.7	396	51.3	7	27.2	389	50.6	22	86.6	404	52.6
Female	9	31.6	387	51.2	6	23.6	388	50.9	22	79.8	400	52.9
Total	21	40.0	782	51.3	13	25.3	774	50.8	43	83.0	804	52.8
Total												
Male	305	66.6	9,541	75.0	270	58.9	9,506	74.7	404	88.2	9,640	75.8
Female	294	69.6	9,631	78.1	242	57.2	9,578	77.7	390	92.1	9,726	78.9
Total	599	68.0	19,172	76.6	512	58.1	19,084	76.2	793	90.1	19,366	77.3

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the number and percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.

[c]The actual aptitude standards in effect for GEDs enlisting in the Navy refer to the Armed Forces Qualification Test and additional ASVAB aptitude requirements in effect since 1983.

[d]The simulated standards refer to the application of more stringent and more lenient Armed Forces Qualification Test and additional ASVAB aptitude requirements (i.e., those in effect for non-high school graduates and high school diploma graduates respectively).

[e]White includes all racial/ethnic groups other than black or Hispanic.

[f]Black does not include persons of Hispanic origin.

Note: Numbers may not sum due to rounding.

Table E-3

Estimated Number and Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment Under Actual Standards and Under Simulated Standards for Youth Who Possess a General Educational Development (GED) High School Equivalency Certificate[a]

(Number in Thousands)

- M A R I N E C O R P S -

Racial/Ethnic[b] Group and Sex	Actual Standards[c] Male: AFQT=31; GT=105 Female: Not Eligible				Simulated Standards[d] Male: AFQT=21; GT=80 Female: AFQT=50			
	GED		Total		GED		Total	
	N	%	N	%	N	%	N	%
White[e]								
Male	183	49.8	7,798	76.0	343	93.4	7,958	77.6
Female[g]	-	-	5,367	54.4	187	55.8	5,554	56.3
Total	183	26.0	13,165	66.4	530	76.4	13,512	67.1
Black[f]								
Male	5	8.0	546	32.2	28	56.3	569	33.6
Female[g]	-	-	224	13.1	7	11.9	231	13.5
Total	5	4.2	770	22.6	36	28.5	800	23.5
Hispanic								
Male	4	16.2	346	45.0	18	70.9	360	46.8
Female[g]	-	-	137	18.0	4	13.8	140	18.6
Total	4	7.8	483	31.7	22	41.4	500	32.8
Total								
Male	192	42.0	8,690	68.3	389	86.1	8,887	69.9
Female	-	-	5,727	46.4	198	46.9	5,926	48.0
Total	192	21.8	14,417	57.5	588	66.7	14,812	59.1

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the number and percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1983) and the education/aptitude standards used by the Armed Services.(It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.

[c]The actual aptitude standards in effect for GEDs enlisting in the Marine Corps refer to the Armed Forces Qualification Test and additional ASVAB aptitude requirements in effect since 1983.

[d]The simulated standards refer to the application of more lenient Armed Forces Qualification Test and additional ASVAB aptitude requirements (i.e., those in effect for high school diploma graduates). Since the aptitude standards for GEDs are the same as for non-high school graduates the effects of more stringent criteria were not simulated.

[e]White includes all racial/ethnic groups other than black or Hispanic.

[f]Black does not include persons of Hispanic origin.

[g]Female GEDs and non-high school graduates are not eligible for enlistment in the Marine Corps. Female high school graduates must meet more stringent aptitude requirements than their male counterparts.

Note: Numbers may not sum due to rounding.

Table E-4

Estimated Number and Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment Under Actual Standards and Under Simulated Standards for Youth Who Possess a General Educational Development (GED) High School Equivalency Certificate[a]

(Number in Thousands)

- A I R F O R C E -

Racial/Ethnic[b] Group and Sex	Actual Standards[c] AFQT=50; MAGE = 130				Simulated Standards[d] AFQT=65; MAGE = 130				AFQT=21; MAGE = 130			
	GED		Total		GED		Total		GED		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
White[e]												
Male	207	56.3	7,316	71.3	136	37.1	7,245	70.6	300	81.8	7,409	72.2
Female	187	55.8	6,874	69.6	107	31.8	6,794	68.8	255	75.9	6,942	70.3
Total	394	56.1	14,190	70.5	243	34.6	14,039	69.7	555	79.0	1,436	71.3
Black[f]												
Male	7	10.6	361	21.3	3	4.3	357	21.0	18	27.6	372	21.9
Female	7	11.9	371	21.7	2	3.7	366	21.5	10	17.1	374	21.9
Total	14	11.2	732	21.5	6	4.0	723	21.2	28	22.5	746	21.9
Hispanic												
Male	5	19.9	288	37.5	3	10.1	286	37.2	15	58.3	298	38.8
Female	4	13.8	210	27.9	0	0.0	207	27.4	6	23.6	213	28.2
Total	9	16.8	499	32.7	3	4.9	492	32.3	21	40.4	511	33.5
Total												
Male	219	47.8	7,965	62.6	141	30.9	7,888	62.0	333	72.7	8,079	63.5
Female	198	46.9	7,455	60.4	109	25.8	7,366	59.7	272	64.3	7,529	61.0
Total	417	47.4	15,421	61.5	251	28.5	15,254	60.9	605	68.7	15,608	62.3

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the number and percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.

[c]The actual aptitude standards in effect for GEDs enlisting in the Air Force refer to the Armed Forces Qualification Test and additional ASVAB aptitude requirements in effect since 1980.

[d]The simulated standards refer to the application of more stringent and more lenient Armed Forces Qualification Test and additional ASVAB aptitude requirements (i.e., those in effect for non-high school graduates and high school diploma graduates respectively).

[e]White includes all racial/ethnic groups other than black or Hispanic.

[f]Black does not include persons of Hispanic origin.

Note: Numbers may not sum due to rounding.

Table E-5

Estimated Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment Under Actual and Simulated Standards Using the High School Graduate Minimum Scores For All Youth[a]

- ARMY -
(Actual Standards vs. Lower Standards)

Racial/Ethnic Group and Sex[b]	Educational Level[c]						
	Below High School Graduate		GED High School Equivalency		High School Diploma Graduate and Above	Total	
	Actual	Simulated[d]	Actual	Simulated[d]	Actual	Actual	Simulated[d]
White[e]							
Male	42.4	67.2	73.0	96.2	95.6	83.9	89.8
Female	40.8	63.8	79.2	98.1	95.4	86.0	90.3
Total	41.7	65.6	76.0	97.1	95.5	84.9	90.0
Black[f]							
Male	8.9	22.8	37.7	81.5	61.0	40.7	46.4
Female	4.6	17.5	32.4	62.7	61.1	45.5	49.9
Total	7.1	20.7	35.2	56.9	61.0	43.1	48.2
Hispanic							
Male	11.6	39.7	48.7	82.3	85.8	52.8	62.1
Female	15.3	29.1	31.8	69.8	79.1	52.5	59.3
Total	13.4	29.9	40.0	76.9	82.4	52.7	60.7
TOTAL							
Male	32.2	54.2	66.6	89.0	91.4	76.3	82.3
Female	30.8	50.7	69.6	91.3	90.3	78.3	82.8
Total	31.6	52.6	68.0	90.1	90.8	77.3	82.6

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.

[c]Educational level as of September 1980 (start of the 1980-81 school year).

[d]The simulated standards are those used operationally for high school diploma graduates; thus they are more lenient than the standards actually used for non-high school graduates or GEDs.

[e]White category includes all racial/ethnic groups other than black or Hispanic.

[f]Black category does not include persons of Hispanic origin.

Table E-6

Estimated Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment Under Actual and Simulated Standards Using the Non-High School Graduate Minimum Scores For All Youth[a]

- ARMY -
(Actual Standards vs. Higher Standards)

Racial/Ethnic Group and Sex[b]	Educational Level[c]						
	Below High School Graduate	GED High School Equivalency		High School Diploma Graduate and Above		Total	
	Actual	Actual	Simulated[d]	Actual	Simulated[d]	Actual	Simulated[d]
White[e]							
Male	42.4	73.0	73.0	95.6	87.4	83.9	77.7
Female	40.8	79.2	79.2	95.4	85.9	86.0	78.4
Total	41.7	76.0	76.0	95.5	86.7	84.9	78.0
Black[f]							
Male	8.9	37.7	36.0	61.0	37.7	40.7	26.9
Female	4.6	32.4	32.4	61.1	36.7	46.5	28.3
Total	7.1	36.2	34.3	61.0	37.1	43.1	27.6
Hispanic							
Male	11.6	48.7	48.7	86.8	69.7	82.8	44.1
Female	16.3	31.8	31.8	79.1	63.2	82.5	37.6
Total	13.3	40.0	40.0	82.4	61.2	82.7	40.9
TOTAL							
Male	32.2	66.6	66.4	91.4	81.2	76.3	68.9
Female	30.8	69.6	69.6	90.3	78.2	78.3	68.9
Total	31.6	68.0	68.0	90.8	79.7	77.3	68.9

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)
[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.
[c]Educational level as of September 1980 (start of the 1980-81 school year).
[d]The simulated standards are those used operationally for non-high school diploma graduates; thus they are more stringent than the standards actually used for GEDs or high school diploma graduates.
[e]White category includes all racial/ethnic groups other than black or Hispanic.
[f]Black category does not include persons of Hispanic origin.

Table E-7

Estimated Percent of American Youth (16-23 Years) Who Would Qualify for Enlistment Under Actual and Simulated Standards Using the High School Graduate Minimum Scores For All Youth[a]

- NAVY -
(Actual Standards vs. Lower Standards)

Racial/Ethnic Group and Sex[b]	Educational Level[c]							
	Below High School Graduate		GED High School Equivalency		High School Diploma Graduate and Above	Total	
	Actual	Simulated[d]	Actual	Simulated[d]	Actual	Actual	Simulated[d]
White[e]							
Male	35.2	67.4	73.0	94.6	95.5	82.3	89.7
Female	32.0	66.5	79.2	97.9	96.4	85.3	91.6
Total	33.8	67.0	76.0	96.1	95.9	83.8	90.6
Black[f]							
Male	6.4	25.3	37.7	53.1	63.7	41.4	48.7
Female	4.2	21.4	32.4	65.4	64.8	49.1	53.7
Total	5.5	23.7	35.2	59.0	64.3	44.8	52.0
Hispanic							
Male	9.1	32.4	48.7	86.5	85.1	61.3	62.6
Female	9.9	30.0	31.8	79.8	80.5	61.2	60.8
Total	9.4	31.2	40.0	83.0	82.8	61.3	61.7
TOTAL							
Male	26.4	55.0	66.6	88.2	91.6	75.0	82.6
Female	24.0	53.5	69.6	92.1	91.7	78.1	84.4
Total	25.4	54.3	68.0	90.1	91.6	76.5	83.5

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)
[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.
[c]Educational level as of September 1980 (start of the 1980-81 school year).
[d]The simulated standards are those used operationally for high school diploma graduates; thus they are more lenient than the standards actually used for non-high school graduates or GEDs.
[e]White category includes all racial/ethnic groups other than black or Hispanic.
[f]Black category does not include persons of Hispanic origin.

Table E-8

Estimated Percent of American Youth (18-23 Years)
Who Would Qualify for Enlistment Under Actual and
Simulated Standards Using the Non-High School Graduate
Minimum Scores For All Youth[a]

- NAVY -
(Actual Standards vs. Higher Standards)

Racial/Ethnic Group and Sex[b]	Educational Level[c]					Total	
	Below High School Graduate	GED High School Equivalency		High School Diploma Graduate and Above			
	Actual	Actual	Simulated[d]	Actual	Simulated[d]	Actual	Simulated[d]
White[e]							
Male	35.2	73.0	67.4	95.5	83.2	82.3	78.2
Female	32.0	79.2	67.6	96.4	79.7	86.3	71.6
Total	33.8	76.0	67.5	95.9	81.4	83.8	72.2
Black[f]							
Male	6.4	37.7	23.5	63.7	34.9	41.4	21.8
Female	4.2	32.4	14.6	64.8	30.5	48.1	23.2
Total	5.5	35.2	19.2	64.3	31.0	44.8	22.5
Hispanic							
Male	9.1	48.7	27.2	85.1	62.2	51.3	38.3
Female	9.9	31.8	23.6	80.5	46.4	51.2	30.8
Total	9.4	40.0	25.3	82.8	53.6	51.3	34.6
TOTAL							
Male	26.4	66.6	58.9	91.6	76.6	75.0	63.9
Female	24.0	69.6	57.2	91.7	72.0	78.1	62.4
Total	25.4	68.0	58.1	91.6	74.2	76.5	63.2

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)
[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.
[c]Educational level as of September 1980 (start of the 1980-81 school year).
[d]The simulated standards are those used operationally for non-high school graduates; thus they are more stringent than the standards actually used for high school diploma graduates or GEDs.
[e]White category includes all racial/ethnic groups other than black or Hispanic.
[f]Black category does not include persons of Hispanic origin.

Table E-9

Estimated Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment Under Actual and Simulated Standards Using the High School Graduate Minimum Scores For All Youth[a]

- MARINE CORPS -
(Actual Standards vs. Lower Standards)

Racial/Ethnic Group and Sex[b]	Educational Level[c]						
	Below High School Graduate		GED High School Equivalency		High School Diploma Graduate and Above	Total	
	Actual	Simulated[d]	Actual	Simulated[d]	Actual	Actual	Simulated[d]
White[e]							
Male	21.1	56.6	49.8	93.4	92.1	76.0	84.9
Female[f]	--	22.8	--	55.8	67.6	54.4	60.0
Total	12.0	41.9	26.0	75.4	79.8	65.4	72.6
Black[g]							
Male	3.0	18.3	8.0	56.3	52.1	32.2	39.3
Female[f]	--	2.3	--	11.9	18.5	13.1	14.1
Total	1.8	11.7	4.2	28.5	33.8	22.6	26.7
Hispanic							
Male	4.5	24.1	16.2	70.9	79.0	45.0	55.2
Female[f]	--	5.5	--	13.8	31.5	18.0	20.7
Total	2.4	15.3	7.8	41.4	54.7	22.6	38.1
TOTAL							
Male	15.6	45.2	42.0	85.1	87.2	68.3	77.0
Female[f]	--	16.7	--	46.9	59.8	46.4	51.2
Total	8.8	32.9	21.8	66.7	73.2	57.5	64.3

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)

[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.

[c]Educational level as of September 1980 (start of the 1980-81 school year).

[d]The simulated standards are those used operationally for high school diploma graduates; thus, they are more lenient than the standards actually used for non-high school diploma graduates or GEDs.

[e]White category includes all racial/ethnic groups other than black or Hispanic.

[f]Under actual Marine Corps aptitude standards in effect in 1983, female GEDs and non-high school graduates are not eligible for enlistment. Female high school graduates must meet more stringent aptitude requirements than their male counterparts. The simulated standards also reflect the relatively high standards for females.

[g]Black category does not include persons of Hispanic origin.

Table E-10

Estimated Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment Under Actual and Simulated Standards Using the Non-High School Graduate Minimum Scores For All Youth[a]

- MARINE CORPS -
(Actual Standards vs. Higher Standards)

Racial/Ethnic Group and Sex[b]	Educational Level[c]					
	Below High School Graduate	GED High School Equivalency	High School Diploma Graduate and Above		Total	
	Actual	Actual	Actual	Simulated[d]	Actual	Simulated[d]
White[e]						
Male	21.1	49.8	92.1	70.3	76.0	59.5
Female[f]	--	--	67.6	--	54.4	--
Total	12.0	26.0	79.8	34.9	65.4	30.3
Black[g]						
Male	3.0	8.0	62.1	19.8	32.2	13.1
Female[f]	--	--	18.6	--	13.1	--
Total	1.8	4.2	33.8	9.0	22.6	6.5
Hispanic						
Male	4.5	16.2	79.0	44.0	45.0	26.2
Female[f]	--	--	31.5	--	18.0	--
Total	2.4	7.8	54.7	21.5	31.7	13.2
TOTAL						
Male	15.6	42.0	87.2	63.7	68.3	51.3
Female[f]	--	--	59.8	--	46.4	--
Total	8.8	21.8	73.2	31.2	57.5	26.1

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)
[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.
[c]Educational level as of September 1980 (start of the 1980-81 school year).
[d]The simulated standards are those used operationally for non-high school diploma graduates and GEDs; thus, they are more stringent than the standards actually used for high school diploma graduates.
[e]White category includes all racial/ethnic groups other than black or Hispanic.
[f]Under actual Marine Corps aptitude standards in effect in 1983, female GEDs and non-high school graduates are not eligible for enlistment. Female high school graduates must meet more stringent aptitude requirements than their male counterparts. The simulated standards also reflect the relatively higher standards for females.
[g]Black category does not include persons of Hispanic origin.

Table E-11

Estimated Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment Under Actual and Simulated Standards Using the High School Graduate Minimum Scores For All Youth[a]

- AIR FORCE -
(Actual Standards vs. Lower Standards)

Racial/Ethnic Group and Sex[b]	Educational Level[c]						
	Below High School Graduate		GED High School Equivalency		High School Diploma Graduate and Above	Total	
	Actual	Simulated[d]	Actual	Simulated[d]	Actual	Actual	Simulated[d]
White[e]							
Male	11.8	46.9	56.3	81.8	88.1	71.3	73.5
Female	10.4	34.5	55.8	75.9	82.2	69.6	71.0
Total	11.2	41.4	56.1	79.0	85.1	70.5	72.3
Black[f]							
Male	0.8	8.9	10.5	27.5	34.9	21.3	24.1
Female	0.7	3.2	11.9	17.1	29.9	21.7	22.4
Total	0.8	6.6	11.2	22.5	32.1	21.5	23.2
Hispanic							
Male	0.7	12.5	19.9	58.3	67.8	37.5	41.2
Female	2.3	11.2	13.8	23.6	46.1	27.9	30.5
Total	1.5	11.9	16.8	40.4	56.7	32.7	36.0
TOTAL							
Male	8.3	35.3	47.8	72.7	81.4	62.6	65.2
Female	7.6	25.7	46.9	65.6	74.0	60.4	62.0
Total	8.0	31.3	47.4	68.7	77.6	61.5	63.5

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)
[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.
[c]Educational level as of September 1980 (start of the 1980-81 school year).
[d]The simulated standards are those used operationally for high school diploma graduates; thus they are more lenient than the standards actually used for non-high school graduates or GEDs.
[e]White category includes all racial/ethnic groups other than black or Hispanic.
[f]Black category does not include persons of Hispanic origin.

Table E-12

Estimated Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment Under Actual and Simulated Standards Using the Non-High School Graduate Minimum Scores For All Youth[a]

- AIR FORCE -
(Actual Standards vs. Higher Standards)

Racial/Ethnic Group and Sex[b]	Educational Level[c]					Total	
	Below High School Graduate	GED High School Equivalency		High School Diploma Graduate and Above			
	Actual	Actual	Simulated[d]	Actual	Simulated[d]	Actual	Simulated[d]
White[e]							
Male	11.8	56.3	37.1	88.1	56.2	71.3	46.4
Female	10.4	55.8	31.8	82.2	48.3	69.6	41.6
Total	11.2	56.1	34.6	85.1	52.2	70.5	44.1
Black[f]							
Male	0.8	10.5	4.3	34.9	11.7	21.3	7.4
Female	0.7	11.9	3.7	29.9	8.5	21.7	6.3
Total	0.8	11.2	4.0	32.1	9.9	21.8	6.8
Hispanic							
Male	0.7	19.9	10.1	67.8	30.6	37.5	17.5
Female	2.3	13.8	0.0	46.1	18.4	27.9	11.4
Total	1.5	16.8	4.9	56.7	24.3	32.7	14.3
TOTAL							
Male	8.3	47.8	30.9	81.4	50.2	62.6	39.5
Female	7.6	46.9	25.8	74.0	41.9	60.4	34.9
Total	8.0	47.4	28.5	77.6	46.0	61.5	37.2

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)
[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.
[c]Educational level as of September 1980 (start of the 1980-81 school year).
[d]The simulated standards are those used operationally for non-high school diploma graduates; thus they are more stringent than the standards actually used for GEDs or high school diploma graduates.
[e]White category includes all racial/ethnic groups other than black or Hispanic.
[f]Black category does not include persons of Hispanic origin.

Table E-13

Estimated Number and Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment If Minimum Aptitude Requirements Were Set at the Fiftieth Percentile on the AFQT For All Youth[a]

(Number in Thousands)

(Simulated Standards)

Racial/Ethnic Group and Sex[b]	Educational Level[c]						Total	
	Below High School Graduate		GED High School Equivalency		High School Diploma Graduate and Above			
	n	%	n	%	n	%	n	%
White[d]								
Male	529	24.1	207	56.3	5,729	73.4	6,476	62.4
Female	430	26.0	187	55.6	5,376	67.7	5,999	59.9
Total	959	24.8	394	56.1	11,105	70.8	12,474	61.2
Black[e]								
Male	24	3.7	7	10.6	207	20.7	240	13.8
Female	11	2.8	7	11.9	224	18.8	244	14.0
Total	35	3.2	14	11.2	431	19.6	484	13.9
Hispanic								
Male	16	4.6	5	19.9	198	47.8	220	28.3
Female	17	5.8	4	13.8	137	31.8	157	20.8
Total	32	5.1	9	16.8	336	39.8	377	24.4
TOTAL								
Male	569	17.8	219	47.8	6,134	66.8	6,936	53.8
Female	458	18.5	198	46.9	5,737	59.9	6,400	51.1
Total	1,026	18.1	417	47.4	11,871	63.1	13,336	52.8

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)
[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.
[c]Educational level as of September 1980 (start of the 1980-81 school year).
[d]White category includes all racial/ethnic groups other than black or Hispanic.
[e]Black category does not include persons of Hispanic origin.

Table E-14

Estimated Percent of American Youth (18-23 Years) Who Would Qualify for Enlistment Under Actual and Simulated Standards For Females Using the Corresponding Minimum Scores in Effect for Males[a]

- MARINE CORPS -
(Actual Standards vs. "Male" [Lower] Standards for Females)

Racial/Ethnic Group and Sex[b]	Educational Level[c]							
	Below High School Graduate		GED High School Equivalency		High School Diploma Graduate and Above		Total	
	Actual	Simulated[d]	Actual	Simulated[d]	Actual	Simulated[d]	Actual	Simulated[d]
White[e]								
Male	21.0	21.0	49.8	49.8	92.1	92.1	76.0	76.0
Female[f]	--	16.8	--	45.6	67.6	93.0	54.4	79.0
Total	12.0	19.2	26.0	47.8	79.8	92.6	65.4	77.8
Black[g]								
Male	3.0	3.0	8.0	8.0	52.1	52.1	32.2	32.2
Female[f]	--	1.1	--	7.3	18.5	80.8	13.1	36.5
Total	1.8	2.2	4.2	7.7	33.8	51.4	22.6	34.4
Hispanic								
Male	4.5	4.5	16.2	16.2	79.0	79.0	45.0	45.0
Female[f]	--	4.9	--	6.3	31.5	70.3	18.0	42.5
Total	2.4	4.7	7.8	11.1	54.7	74.5	31.7	43.8
TOTAL								
Male	15.6	15.6	42.0	42.0	87.2	87.2	68.3	68.3
Female[f]	--	12.4	--	37.6	59.8	86.7	46.4	70.9
Total	8.8	14.2	21.8	39.9	73.2	86.9	57.5	69.6

Source: Derived from special tabulations provided by the Office of the Assistant Secretary of Defense (Manpower, Installations and Logistics).

[a]Estimates of the percent of youth qualified for military service were calculated on the basis of results from the "Profile of American Youth" (administration of the Armed Services Vocational Aptitude Battery [ASVAB] to a national probability sample in 1980) and the 1983 education/aptitude standards used by the Armed Services. (It should be noted that eligibility for enlistment would also depend on other factors--including medical and moral requirements.)
[b]American youth population includes all persons born between January 1, 1957 and December 31, 1962.
[c]Educational level as of September 1980 (start of the 1980-81 school year).
[d]Standards are simulated for females only; thus, the simulated standards represent more lenient enlistment aptitude requirements for females, specifically those in effect for males. Under this condition differential aptitude standards exist for educational levels only, not sex.
[e]White category includes all racial/ethnic groups other than black or Hispanic.
[f]Under actual Marine Corps aptitude standards in effect in 1983, female GEDs and non-high school graduates are not eligible for enlistment. Female high school graduates must meet more stringent aptitude requirements than their male counterparts.
[g]Black category does not include persons of Hispanic origin.