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Military Support for Youth Development

An Exploratory Analysis

Beth J. Asch

Arroyo Center

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Prepared for the
United States Army

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Preface

Public discussion of future military missions includes possible Army roles in preparing youth, especially disadvantaged youth, to become productive members of the workforce and society. To date, however, there has been little systematic assessment of the prospects for success or the potential contribution of the military in such efforts. This report develops a framework for evaluating possible military roles for youth development, and it assesses what is now known about the effects of military experience relevant to such programs.

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James T. Quinlivan is Vice President for the Army Research Division and the Director of the Arroyo Center. Those interested in further information about the Arroyo Center should contact his office directly:

James T. Quinlivan
RAND
1700 Main Street
P.O. Box 2138
Santa Monica CA 90407-2138

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Summary

Recent public debate suggests widespread interest in potential military roles in preparing youth, especially disadvantaged youth, to become productive members of the workforce and society. As the nation's largest employer of youth, with a successful record of imparting occupational skills to military-qualified youth, the Army appears to some as a model for future programs. This report reviews the evidence on the effects of the military experience as a first step toward evaluating the prospects for youth development programs.

We first investigated what skills the Army actually teaches youth. A significant number of Army occupational skills are transferable to the civilian sector. Among new recruits, nearly 70 percent receive training in a military occupation that has at least one civilian counterpart. (On average, there are two or more.) About half of the training is for manual skills, but the other half represents information-processing abilities. Minority-group youth in the Army obtain more civilian-transferable skills than do majority-group youth, although they tend to enlist in occupations with somewhat shorter training periods. Finally, both anecdotal evidence and information based on performance tests suggest that this training works; the Army has been successful in training civilian youth to be effective soldiers in the field.

Would this type of training work in other contexts? Caution is warranted, because military training has some unusual features that may not be present in alternative programs. First, today's Army tends to select only "high-quality" enlistees (i.e., persons who have completed high school and who score well on standardized tests). Second, the Army trains people primarily in vocational skills directly tied to the job. Third, the effectiveness of military training may also depend on the conditions of service, namely, the explicit and long-term nature of the enlistment contract, the controlled learning environment, and comprehensive provision of services such as housing and health care.

Another visible benefit of military service is support for postservice civilian education, for example through the GI Bill. To see how useful such programs would be for serving broader goals of youth development, we examined the effects of military educational benefits on postsecondary school attendance of the Army enlistee cohort that entered service in 1981. The results indicate that relatively few youth—13 percent of blacks and 24 percent of whites—use

educational benefits. This suggests that a larger military program would not represent an important means of expanding civilian education of youth, and that national service may not increase the number of individuals attending educational institutions to the degree that planners may hope.

Finally, some proposals suggest that an expansion of military or other service programs could improve employment and earning prospects for youth. Our review of military veterans' earnings, however, finds that there is little reason to believe that expanding enlistment programs for youth would be significantly beneficial. Because of methodological problems such as "selectivity bias" (i.e., preexisting differences between those who serve and those who do not serve), few studies provide a persuasive assessment of postservice earnings. Among studies that have controlled for such biases, most find a negative return to military service for whites (spanning from –2 to –35 percent) and a nonstatistically significant return to service for nonwhites. The one study that finds evidence of a positive return to service for whites (on the order of 5 percent) finds this result only when the postservice earnings of veterans are compared to similar nonveterans who entered the civilian market directly after high school and did not attend college. When the veterans group is compared to a similar group who attended college, the 5 percent veteran's premium disappears. For low-aptitude youth, past studies also indicate no postservice benefit.

Overall these results suggest caution in applying the "military model." The evidence implies that a potential military role might be to provide training to qualified youth, or alternatively, to provide a model of youth training to be executed by a civilian organization. However, many questions are still unanswered, chief among them whether it is more cost-effective for the military or a civilian alternative to run such programs. It would therefore be prudent to assess such proposals by a thorough analysis of the relative costs and benefits of military versus civilian implementation of youth training programs.

Acknowledgments

This report benefited from the inputs of several individuals. I would like to thank Rachel Louie for constructing the data files used in analyzing the skill training provided by the Army and Robert Young for constructing the data files used in analyzing educational benefits usage. Elizabeth Ondaatje provided excellent research assistance. The report benefited greatly from the comments of several RAND colleagues including Maryann Gray, James Hosek, Bruce Orvis, Michael Polich, and Peter Tiemeyer. I also received numerous helpful suggestions from the RAND reviewer, Richard Buddin, which improved the report in several important ways. Finally, I would like to thank James Hosek and Michael Polich for their general support throughout this project.

1. Introduction

Concern is being expressed about how the nation can best prepare youth, especially disadvantaged youth, to be productive members of the workforce and society. Recently, these concerns have become more acute as doubts about the adequacy of the nation's traditional education and training system are increasing. Motivated by high dropout rates from school, employer complaints about a lack of basic skills, as well as projections about increasing employer demand for skilled workers, policymakers are considering less traditional avenues of preparing youth for success. Specifically, the military is now being considered by congressional members and the administration as a viable means or model for preparing youth for the civilian sector.

At the same time, the military is significantly reducing the size of its active force as part of the drawdown. The military is the largest employer of youth. Although many minorities are screened out by the military's stringent requirements, the military still employs a large fraction of the most qualified minority youth. Employment opportunities for those who would have enlisted (and could have enlisted given the military's entrance requirements) will be reduced as a result of the drawdown.

Determining what role the military can and should play in youth development requires answers to these questions: (1) Is there a unique contribution that the military can make? (2) If there is no unique contribution, can the military provide some types of youth development (beyond that in support of its national security mission) more cost-effectively than other institutions where "other institutions" include other federal agencies, state and local governments, and private-sector organizations? (3) What are the readiness implications for the military of undertaking a youth development mission and would readiness suffer?

Notice that adequately addressing these questions requires an answer to the larger question of how federal money in support of youth development should be allocated across potential providers (including the military) to ensure maximum cost-effectiveness. But addressing this question requires information on the various means or models of youth development, their relative effectiveness, what aspects make them successful, which types of youth are served and how, their cost, and which organizations have a comparative

advantage in providing the various models. Information is also needed on the kind of data and methodologies that are necessary for addressing these issues. Further, even if the military can provide youth development at less cost than other institutions, account must be taken of how such a mission would affect the military's warfighting readiness. Thus, an analysis of the military role must account for any decrement in readiness that could occur.

This report provides some of this information. First, the report describes the "military model" of youth development by describing the array of military (especially Army) programs and institutional features that affect youth development and indicating their essential elements. By military model, we mean how the military trains youth in job skills, transforms civilians into capable soldiers, instills values, and creates loyalty to the group.

Second, it begins to provide some insight into what if any contribution the military can make in the development of disadvantaged youth by reviewing the available evidence on the effects of military service on youth. Most of this evidence is gleaned from the military manpower literature. In the process of presenting the evidence from this literature, methodological problems and holes in the literature are also indicated.

Third, the report draws preliminary conclusions about this evidence for what roles the military could play in youth development and suggests areas for future research.

A number of proposals have been put forth regarding how the military could get involved in the development of the nation's youth. Some of the proposals are based on current military efforts while others reflect a new military mission.[1] One such program would be to have youth enlist in the military and either perform a traditional military role or, in one proposal, become a new type of enlistee—the citizen soldier—who would serve either or both an active and reserve term and whose job would be to fulfill a civic duty.[2] These enlistees either would be qualified for military service[3] or may be "at-risk" youth who would not generally qualify for service.

Other proposals include providing military programs aimed at serving the youth population. Some proposals would use active duty personnel—either as

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[1]Ondaatje (1993b) provides a detailed discussion of these proposals. Some of them are discussed further below.

[2]This proposal is developed in detail in Democratic Leadership Council (1988).

[3]Those who qualify for military service are typically high school graduates who have scored reasonably well on the Armed Forces Qualification Test (AFQT), the military's measure of trainability.

volunteers or as part of their active duty mission—to provide youth support services in local communities while others focus on using National Guard, Reserve, or retired military personnel to run such programs. Still other proposals include using military infrastructure—such as bases—to support youth development activities. Another idea is for the military to work in partnership with other institutions to provide youth development.

This report focuses primarily on the first proposal, i.e., military service, for the simple reason that we know the most about youth participation in the military. In reviewing the evidence, the report focuses on the skills and training the military provides, its support for formal postservice education, and the effect of service on postservice earnings. Thus, the report represents an exploratory analysis, since a more complete analysis would also consider the other proposals for military involvement in youth development and would compare the military options to civilian alternatives.

Before proceeding, it is useful to clarify the term "youth" in the context of "youth development." For the purposes of understanding what role the military might undertake in support of youth in the future, the focus of the following discussion is on disadvantaged youth. Defining disadvantaged precisely is difficult. Below, it is taken to mean those who are not ready or able to undertake formal training. Individuals may not be ready for training because they have insufficient background. For example, they may lack remedial skills such as reading and arithmetic or world-of-work skills such as self-discipline. "At-risk" youth, high school dropouts, and those with a low AFQT score fall into this category. Individuals might not be able to train because they have insufficient funds to attend an educational institution. Many minority youth fall into this category. This broad definition of disadvantaged youth will include some individuals who are qualified to currently serve in the military, such as minorities with insufficient funds to attend postsecondary educational institutions. However, it will also include those who would not currently qualify for service.

The report is organized as follows. The essential features of the so-called military model are first described. Then, the available evidence on the effectiveness of this model is presented. Some preliminary implications of this evidence for military involvement in youth development are indicated and areas worthy of future research are discussed in the final section.

2. Identifying the Military Model

In defining the military model, we also need to clarify the term "model." Below, this term is loosely taken to mean how the military goes about transforming civilian youth into trained and ready military personnel. Although this model involves complex interactions among many inputs, the model includes attributes of military service including the institutional context in which it takes place, formal schooling opportunities, and military programs aimed at serving civilian youth that are secondary to its national security mission. In this section we describe each of these in turn. The discussion focuses on Army programs. In later sections we discuss the evidence on the benefits conferred by this model and its implications for the military's role in youth development.

It should be noted that the discussion necessarily focuses on programs and institutional features that were *not* established with the intent of providing youth development for disadvantaged youth. In considering whether this model is appropriate for disadvantaged youth, we must remember that the model (and much of the evidence on its effectiveness) applies to those who are qualified to enter the military—a group that may overlap with but does not include all disadvantaged youth.

Military Service

Perhaps the feature of military service that stands out the most is that it constitutes national service. Those who enlist are performing a patriotic duty by putting country ahead of self. The nature of the service—to put one's life on the line during wartime—is obviously a unique aspect of the military. And because of this unique aspect, unit cohesion and the suppression of individual needs for group goals are particularly emphasized as part of the military corporate culture. Cooperation and team orientation are key parts of military service.

Enlistment

By way of distilling the essential features of service, we describe the nature of military service for a typical enlistee. Military service starts with the enlistment process. Youth in the 17-21-year-old age range are generally contacted by military recruiters who introduce to potential enlistees the idea of military

service. Interested youth then go to a regional military entrance processing station (MEPS) to take a physical exam and the Armed Services Vocational Aptitude Battery (ASVAB) if the exam has not been taken earlier. Scores on these tests are used to determine if the individual is qualified for service and, if so, those occupations for which he or she is qualified. Those who are qualified for service then meet with a guidance counselor while at the MEPS. During the session with the counselor, the individuals choose the occupations (or occupational groups) in which they will be trained from among those occupations for which they are qualified. They also choose the length of their enlistment contract.

The chosen occupation and enlistment term reflect the preferences of the youth and the needs of the service. As discussed below, these occupations offer training in an array of skills. In the Army, the duration of an enlistment contract can be for as little as two years and as much as six years. About 60 percent of Army recruits in fiscal year (FY) 1989 chose a four-year enlistment term, the most popular length. Eight percent chose a two-year term and 18 percent chose a three-year term. The remaining recruits chose a five- or six-year term. If a mutually advantageous contract is found, the youth signs the contract.

Screening is a critical part of the enlistment process. Although the military allows the enlistment of some non-high school graduates and low-aptitude youth (as measured by AFQT score, which is a composite of three of the 12 ASVAB subtests), it gives overwhelming preference to high school graduates and youth in the upper half of the AFQT score distribution. For example, in fiscal year 1991, 71 percent of all DoD accessions were in the upper half of the AFQT distribution and 99 percent were high school graduates. In contrast, only 54 percent of the civilian youth population in 1980 (the only year for which we have data) fall in the upper half of the AFQT distribution, and 81 percent of the 1991 civilian youth population had high school credentials (Department of Defense, 1991).

Not all individuals who sign a contract immediately enter service. Many do not access until some months later when they graduate from high school. During these months, some individuals change their minds and fail to enter service. About 10 percent of those who sign a contract do not actually enlist (Horne and Gilroy, 1991).

Basic Training

Upon accession, enlistees undergo basic recruit training. Basic training lasts between 6 and 8 weeks. As stated in the Army's *Basic Combat Training Manual,* the goal of this training is to produce soldiers who are motivated, disciplined,

physically conditioned, trained in common soldier tasks (such as first aid and gear usage), and capable of taking their place in the field. Soldierization or the acculturation of civilians into the military way of life is a key part of basic training. Another important element is discipline and the teaching of self-discipline so that recruits develop a sense of responsibility for their own actions and for those of others in their group. In addition to learning common soldierly skills and undergoing physical training, recruits also learn a variety of basic life skills. These include personal health and hygiene, alcohol and drug abuse prevention and control, preparation and wearing of the uniform, first aid, and military customs and courtesies.

Part of the military training model is not only what is taught but how it is taught. During the initial phase of basic training, the recruit's environment is under total control. Constant supervision is maintained, absolute adherence to standards is required, and group integrity is required whereby units of individuals are required to meet group standards. In the later phases of basic training, total control is lessened.

Beyond Basic Training

Upon successful completion of basic training, most enlistees receive individual specialized training.[1] This training is mostly vocational education whereby individuals learn skills in primarily a classroom setting that prepare them for their initial assignment in their chosen military occupation. This training is oriented toward the needs of the employer, namely, the military. In many ways, one can generically think of military service as a "tie-in" sale whereby the military provides the training and then hires the individual upon completion of training. The training curriculum is designed to teach the skills that are necessary to the "employer," namely, the units in the field. From the enlistee's perspective, this system has the advantage that job search upon completion of training is unnecessary.

Once they have completed their individual specialized training, enlistees join their units. There, they receive both informal on-the-job training and collective training. Collective training can include exercises that simulate wartime situations or can include instruction in group coordination. For example, tactics are taught to Patriot system operators in the Army during collective training.

[1]In the Army, basic training and individual specialized training are combined for some combat arms occupations. In the Navy, personnelmen, firemen, and seamen receive only on-the-job training and not A-school or specialized training.

Not all enlistees complete their first term. About 30 percent of all accessions break their enlistment contract (Horne and Gilroy, 1991). First-term attrition rates vary with length of enlistment term and with recruit quality. For example, low-quality youth have higher attrition rates (Baldwin and Daula, 1984, and Buddin, 1984).

Those who complete their first term can reenlist if they are eligible. Eligibility depends on a number of factors including supervisor evaluations, job performance test scores, and physical exams. About 30 to 40 percent of those who complete their first term reenlist. Reenlistment rates are higher at later decision points. For example, about 50 to 60 percent of those who complete their second term reenlist for a third term.

Institutional Context

An important feature of the military model of youth development is the institutional context in which this development occurs. These features include the array of programs and benefits the military provides, its organizational structure, and the uniformity in the way it delivers training and education. These features are highlighted below.

Comprehensive provisions of services is the rule in the military. In addition to pay, service members receive either room and board or housing and subsistence allowances. They and their dependents also receive medical and dental benefits. Service members and their families also receive an array of services that often include on-base day care facilities; housing referral services; PX shopping privileges; morale, welfare, and recreation programs; drug and alcohol counseling; family employment services; and financial and general counseling services.

Perhaps the most noticeable aspect of the military's organizational structure is that its ranks are hierarchical and there is little lateral entry. Personnel enter the bottom ranks and then progress through the ranks based on performance and other factors. Future mid-level technicians and supervisors and the services' senior leaders rise from the entry pools.

The hierarchical nature of the organization infiltrates all aspects of military life. Not only is decisionmaking hierarchical (with those in higher ranks given greater control) but privileges and benefits are often allocated according to rank. The hierarchy is an essential feature of the military's "corporate culture."

The rank structure of the military has an important implication for the military "model." Decisions about the management and coordination of various activities and programs are not made democratically. As in any corporation, priorities are set by those with the power to make these decisions and conflicts among alternative interests in lower ranks are resolved by the individual or group of individuals with oversight responsibilities. Decisions are then carried out through the proper chain of command. This feature facilitates the military's ability to coordinate diverse programs simultaneously across groups of individuals such as youth.

This feature seems to contrast sharply with the democratic approach used to coordinate and manage many youth programs and activities at the local and state government level. Some evidence indicates that coordination among the various providers (such as welfare agencies, drug rehabilitation programs, and training programs) is difficult because of "turf issues," financial issues (such as working out how payment for various services will be handled), the lack of communication between agencies about the needs and service history of participants, and cooperation in the setting of priorities (Public/Private Ventures, 1990a).

A final feature of the military's institutional nature is its apparent uniformity in the delivery of training and services regardless of location. Unlike local government services where similar programs can be implemented in vastly different ways, the military is often thought to operate much like a private-sector franchise where the training methods tend to be the same regardless of geographic area. Replicability of programs is often seen as an obstacle to expanding civilian youth development programs that are successful in a specific location (Public/Private Ventures, 1990b). However, even the military can have some difficulty in replicating its training methods as evidenced by the very different attrition rates among comparable recruits at different recruit training bases (Buddin, 1988).

Formal Schooling Opportunities During and After Service

The military model of youth development also includes the formal education opportunities that service provides. The formal academic training offered by the military includes the service academies and Reserve Officer Training Corps (ROTC). This training is primarily for officers and is intended for professional development. The military also has advanced degree programs (such as those in

the Naval Post-Graduate School and the War College) that provide courses on advanced military topics.

Service members can also pursue independently an array of educational degrees and vocational training. Basic skills courses, tests leading to a high school diploma, and college courses can be taken on many military installations. The military also participates in degree programs at a network of 500 colleges and universities. These academic institutions have special policies and programs—such as less stringent residency requirements, larger credit transfers—for service members and their families.

Educational benefits are one of the military's most visible youth development programs. The military has several educational benefits programs. The basic GI Bill—now called the Montgomery GI Bill—provides up to $14,575 in educational benefits. This figure includes the $1,200 contribution made by the recruit. These contributions are taken as payroll deductions during the recruit's first year of service. The contributions are nonrefundable. To become eligible to draw benefits, individuals must not only contribute to the fund but successfully complete at least 24 months of their obligated term of service and enroll in an approved educational institution.[2]

In addition to the basic GI Bill, several of the services—most notably the Army—have an enhanced educational benefit that is targeted toward high-quality enlistees who enter hard-to-fill occupations and sometimes longer obligated terms of service. For example, under the Army College Fund, Army recruits who enter combat arms skills can earn the basic Montgomery GI Bill benefit plus an additional benefit (called a kicker). The amount of the kicker increases with the recruit's obligated enlistment term. Some recruits who enter the Reserve components can also be eligible for the Army College Fund.

The military's educational benefits program is a type of national service program. Generically, the military's program links an apprenticeship with an education voucher. The apprenticeship portion of the program ties classroom (i.e., individual specialized) training with subsequent "employment" during a prespecified term of service. For fulfilling satisfactorily the training portion and some part of the employment portion of the contract, the individual receives a voucher that can be redeemed later in military service or after service. In contrast, the Clinton administration national service proposal would permit

[2]More specifically, active duty personnel can use their educational benefits after 24 months of service. Veterans (i.e., those who have left the military) can claim at least some fraction of their benefits after completing either 20 or 30 months of service, depending on their reason for separating. For example, individuals can claim their benefits after 20 months if they received a medical discharge.

individuals to perform service either before or after attending an educational institution. The nature of the service need not be an apprenticeship where training occurs and the voucher could be used for purposes other than to finance education (such as financing a house).[3] Despite these differences it is clear that the structure of the military's educational benefits programs is a model for a more broadly defined national service program and evidence on the military's program could provide some insights into how a more broadly defined program might work.

Other Military Activities in Support of Youth

Aside from educating and training enlistees in support of its national security mission, the military is also involved in a vast array of activities in support of youth that are undertaken by individuals and units on a volunteer basis.[4] Ondaatje (1993b) identifies over 150 Army National Guard activities alone that are aimed at service to youth. These activities include mentoring and tutoring programs, drug abuse prevention programs, partnerships with other community organizations (such as Boy Scouts) and with schools (such as Adopt-a-School), programs for disabled youth, and the lending or donation of equipment and facilities. Similar activities are undertaken by active Army and Army Reserve units.

Since 1916, the Army has helped sponsor the Junior Reserve Officer Training Corps (JROTC). The Army operates this program in about 850 high schools for about 130,000 students. Students participate in this program after school. The program is intended to foster citizenship, increase self-esteem, develop leadership potential and physical fitness, promote school completion, and aid drug abuse prevention. The program is run by retired military instructors whose salaries are subsidized by the services.

The military has also undertaken several new youth development programs as a result of legislation passed in the last three years. Some of these activities are only pilot programs. For example, the Community Works Progress Act of 1993 appropriated between $50 million and $70 million for four youth development programs to be run by the National Guard: Challenge, the Urban Youth Corps, the Youth Conservation Corps, and Starbase. Challenge—the largest of the four programs—is to be run by full-time National Guard members. It is a five-month residential program followed by at least one year of postresidential mentoring

[3]There are other differences. The length of service under the Clinton proposal could be as short as one year and the amount of the voucher differs from that of the military's educational benefit.

[4]This section draws heavily from Ondaatje (1993a, 1993b).

for 16- to 18-year-old dropouts. The program is intended to help students get a GED and offers job training and placement, training for civic and personal skills, and physical fitness activities. The Urban Youth Corps is a six-week nonresidential version of Challenge, and the Youth Conservation Corps is the six-week residential version. Starbase is only a five-day program for 6- to 18-year-old youth aimed at math and science literacy, drug abuse prevention, and physical fitness.

Congress also authorized for 1993 $20 million to DoD to run two residential programs as part of the "new" Civilian Community Corps (CCC).[5] The first is a summer of national service and the second is the national service program. Under both programs, participants receive educational credit or cash as well as a subsistence wage in exchange for community service. The new CCC is to be run by retired military officers and to the extent possible to use excess space on military installations. The program is to be staffed to the extent possible by military retirees or those discharged from service. DoD is also charged with working with the Department of Labor to develop a recruiting system for the program.

Another recent pilot program is the establishment of career academies. These academies represent a marriage between JROTC and "school-within-a-school" vocational academies. Students in this program receive academic, vocational, and "life-skills" instruction within a real world context. This program represents a joint effort between the Department of Defense and the Department of Education.

The Army has also recently signed a memorandum of understanding with "Cities in Schools" to help retired military personnel become administrators and staff members. This program is a private-public partnership aimed at preventing high school dropout.

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[5]The new CCC is based on the Civilian Conservation Corps run by the Army in the 1930s.

3. The Benefits of Military-Related Training and Education

In this section and the next we review the evidence on the benefits conferred by military service and by the military's support for education. Although the secondary activities that the military provides in support of youth were also identified as part of the military youth development model in the previous section, there is no systematic evidence on the benefits of these activities. Below, we first discuss what skills are taught by the Army and discuss some of the evidence on their effect on military performance. Then, we present evidence relating to the military's support for education. In the next section we focus on evidence with respect to postservice employment.

Skill Training

The types of skills learned during individual specialized training are highly diverse and reflect the diversity of military occupations. However, in an attempt to summarize the types of skills provided by the military to enlistees, we classified Army occupations into three basic categories and calculated the mean value of these characteristics among fiscal year 1989 recruits who entered these occupations. These means are shown in column 1 of Table 3.1.[1]

The categories are civilian exchangeability, military training characteristics, and academic credit. We proxy civilian exchangeability with two variables that suggest the degree to which the military occupation is transferable to the civilian sector. The first indicates whether or not the occupation has a primary civilian occupation (from the Dictionary of Occupational Titles or DOT). This measure is drawn from the Civilian Occupational Crosscode provided by the Defense Manpower Data Center (DMDC).[2] The second indicates the number of alternative civilian occupations in the crosscode.[3] We indicate the military

[1]The data used to construct Table 3.1 were created by merging Army FY 1989 enlistment data with a data file created at RAND that describes the training characteristics of Army occupations. The enlistment file is described in Asch and Karoly (1993) and the occupational characteristic file is described in Kirin and Winkler (1991). The variable descriptions in the text are takes from Kirin and Winkler (1991).

[2]DMDC maintains data files on military personnel. The occupational crosscode is a method of crosswalking military to civilian occupations.

[3]The crosscode permits one primary civilian occupation and up to five alternative civilian occupation codes.

Table 3.1

Mean Army Occupational Characteristics Among FY 1989 Recruits (standard deviations in parentheses)

Characteristic	All Recruits	White	Black	Other
Number of observations	119,408	80,863	31,191	7,354
Civilian exchangeability				
Existence of primary civilian occupation (DOT), (1=yes;0=no)	.68 (.47)	.65 (.48)	.74* (.44)	.67* (.47)
Number of alternative civilian occupations	2.30 (1.51)	2.18 (1.48)	2.61* (1.57)	2.30* (1.47)
Training characteristics				
Length of specialized training (in days)	55.05 (43.59)	57.48 (48.66)	49.70* (27.63)	52.04* (36.97)
Number of manipulative tasks	12.55 (10.58)	12.70 (10.85)	12.26* (11.37)	12.14* (9.11)
Number of information tasks	10.38 (10.01)	9.77 (9.30)	11.84* (11.37)	10.90* (10.62)
Ratio of information to manipulative tasks	−.13 (.48)	−.14 (.45)	−.09* (.55)	−.12* (.49)
Number of additional skills identifiers available in occupation	3.01 (3.01)	3.21 (3.19)	2.47* (2.63)	3.03* (3.12)
Combat arms skill (1=yes;0=no)	.32 (.47)	.34 (.47)	.26* (.44)	.33 (.47)
Academic credit				
Hours of associate degree credit	3.90 (4.13)	3.79 (4.12)	4.13* (4.14)	4.12* (4.16)
Hours of bachelor's degree credit	.08 (.67)	.10 (.76)	.03* (.3)	.05* (.53)
Hours of vocational education credit	3.94 (3.78)	3.84 (3.83)	4.16* (3.65)	4.04* (3.69)

* = Difference in mean with white mean is statistically significant at the 1 percent level.

training characteristics of the occupations with six variables. The first gives the length of specialized individual training in days, a rough indicator of the amount of training received. Two variables categorize the types and the number of tasks performed by those who receive training in the occupation. The first indicates the number of tasks that are "manipulative" in content in the particular occupation, i.e., that require motor skills, manual dexterity, and hand-eye

coordination. The second gives the number of tasks that are primarily informational in content. A third variable indicates the ratio of information (INFO) to manipulative (MAN) tasks and is defined as:[4]

$$(INFO-MAN)/(INFO+MAN)$$

Also included is a variable that indicates whether or not the occupation is a combat arms skill, thereby providing a rough measure of whether the occupation is military-specific. The final variable gives the number of additional skill identifiers (ASI) available in the occupation. These ASI indicate the skills that require formal institutional training and that are required to support unit mission requirements. However, these skills are not taught in standard specialized individual training, since they are not expected to be performed by every soldier in the occupation. For example, an infantry soldier can receive additional training as a "sniper" (ASI B4) or a "dragon gunner" (ASI C2).

We measure the academic credit associated with each occupation with variables that indicate the number of hours of credit recommended by the American Council of Education for formal academic training (associate degree and bachelor's degree) and for vocational education after service in the Army occupation. These variables provide some indication of how transferable training in the military is to civilian educational opportunities.

Column 1 in Table 3.1 shows that much of the training that the Army provides is exchangeable with civilian occupations. Almost 70 percent of the recruits entered occupations that had a primary civilian (DOT) occupation. On average there were more than two alternative civilian occupations to the occupation that recruits entered.[5] About a third of the recruits entered combat arms occupations; these occupations tend to teach more military-specific skills. Recruits received about eight weeks of specialized training on average. The content of the skills taught was somewhat more manipulative than informational. The table also indicates that the average recruit had about three additional skills associated with the occupation that he or she entered. The heavy vocational orientation of military training is indicated by the average number of hours recommended for vocational training (3.94) and for an associate degree (3.90) compared to those for a bachelor's degree (.08).

[4]Other ratio measures could be used, but the advantage of this measure is that it equals 1 or –1 if the tasks are entirely composed of information or manipulative skills, respectively, and equals 0 if the tasks are equally informative and manipulative.

[5]Note that the number of alternative occupations also includes the primary occupation.

The last three columns in Table 3.1 show the value of these variables by race.[6] Insofar as minority youth are more likely to be disadvantaged, comparisons across race provide some indication of the extent to which disadvantaged military recruits have qualified for and taken advantage of military training opportunities relative to nondisadvantaged youth. Comparison of the variables between whites and blacks suggests that blacks are more likely to enter occupations that provide training that is transferable to the civilian sector. About three-quarters of the black recruits entered an occupation related to a primary civilian occupation whereas about 65 percent of white recruits entered such an occupation. The average number of alternative civilian occupations for black recruits was 2.61 but was only 2.18 for white recruits. The table also indicates that black recruits enter occupations that entail about eight fewer days of training. They are also significantly less likely to undergo training for combat arms skills. About a third of white recruits train for these skills but only a quarter of black recruits do.

The occupations that black recruits enter on average tend to be more informational in content than the occupations that white recruits enter. In contrast, the occupations that white recruits enter on average tend to be more manipulative in content than those entered by black recruits. White recruits enter occupations that have more additional skill identifiers associated with them. Black recruits also appear to enter occupations that provide greater transferability with civilian vocational education and associated degrees than do white recruits. Black recruits would get an average of 4.16 hours of recommended vocational education credit whereas white recruits would get an average of 3.84 hours.

To summarize, these comparisons suggest that disadvantaged youth—defined broadly in this context as minority youth who qualify for service—get somewhat different training in the military than do nondisadvantaged youth. Disadvantaged youth obtain more transferable skills but receive somewhat less training where the quantity of training is defined in terms of duration and number of additional skill identifiers available in the occupation. On the other hand, these youth tend to receive skills that are more informational than manipulative in content.

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[6]Hispanics are included under the white category.

Implications for Performance

Although information on the types of skills taught by the Army provides some indication of what skill training military service offers, a key question is whether individuals who receive these skills are actually more productive. Below we discuss some of the evidence on the link between training and performance in the military. In Section 4 we discuss the evidence with respect to postservice employment, which is another measure of productivity.

Considerable anecdotal evidence suggests a general satisfaction on the part of commanders with the output of military training. Indeed, because the content of military training is entirely geared toward one end-user, the military, a natural feedback system is in place. The hierarchical command structure and the tie-in nature of training and employment that are essential features of military service enable commanders to report back any dissatisfactions with the training system. More recent "evidence" is provided by the military's performance during Operation Desert Shield/Storm. This operation has been hailed by commanders as an important example of the value of a well-trained and highly qualified personnel force.

Systematic evidence on the connection between training and military productivity is more spotty. Much of the research has been concerned with what factors (such as AFQT) predict proficiency in military jobs. However, some evidence on the performance of trained personnel on various job-related productivity tests is indirectly provided by these studies. Generally, the evidence provided by some of these studies suggests that individuals who undergo military individual specialized training perform reasonably well on performance tests that are related to job content.[7]

For example, a study by the Army Research Institute of about 700 soldiers in four occupations constructed indices of job-specific performance based on information from supervisor performance ratings, hands-on performance measures, and job knowledge tests (Schinnar et al., 1988). The indices ranged from zero to one with one being the highest score. On average, the soldiers in each occupation examined had an index of .85 or higher. Similarly, a study of the proficiency of Army communication operators on job-related tasks showed that

[7]One problem with evaluating whether military training makes individuals more productive is that the outcomes of performance tests may reflect the ability of those who receive the training rather than the programmatic effect of training. The evidence discussed in this section is consistent with both the hypothesis that training improves performance and the hypothesis that those who are more able perform better.

the majority of operators could complete the tasks correctly within the allowable time frame (Kirin and Uebersax, 1992).

Tracing which aspects of the military model are responsible for the apparent success of the military in supplying adequately trained personnel to the units in the field is difficult because of the interactions among the various inputs. The screening of recruits on the basis of AFQT and high school completion is most likely one of the main explanations; considerable evidence shows that AFQT is a strong predictor of job performance.

We can also suggest several other candidate explanations based on the discussion in Section 2. As mentioned above, the tie-in nature of training and employment in the military probably helps ensure an effective feedback system between the field and the training establishment. The broad range of services provided and the hierarchical command structure that enables the coordination of these services probably help to ensure that the diverse needs of various youth are identified and filled. The military's use of an enlistment contract helps guarantee that it will reap a return on its training investment for at least the length of the contract insofar as the contract deters personnel from leaving before the end of their obligated term of service.[8] The standardization of training across locations and the total control exerted over the trainees' environment (at least initially) also probably provide a measure of "quality assurance" and reduce the variability in training outcomes across recruits.

It should be recalled that the evidence presented above is based on information on youth who qualified for service. Whether military service would have the same outcomes for low-aptitude youth or high school dropouts—two other segments of our definition of disadvantaged youth—is still open to question. Some insight into this issue is gained by considering how high school dropouts and low-aptitude enlistees, i.e., the so-called low-quality recruits, perform in service relative to other enlistees.

The available evidence suggests, perhaps not surprisingly, that such youth are less successful in the military than high-quality youth. For example, low-quality youth have higher attrition rates (Baldwin and Daula, 1984, and Buddin, 1984); they are more likely to break their enlistment contracts. Evidence indicates that those with lower AFQT scores also perform worse on military missions (Orvis et

[8]Further,if those who are "completers" are also more willing to commit to an obligated term of service, the enlistment contract helps the military induce self-selection among potential enlistees. Those for whom the military is most likely to earn a return on its training investment are also those who are most likely to enlist under the conditions of an enlistment contract.

al., 1992, and Kirin and Uebersax, 1992). Low-quality youth also have a lower probability of promotion (Cooke and Quester, 1992).

Of course, low-quality youth in service may perform worse than high-quality youth but may do better than comparable youth who choose a civilian option. Thus, despite the poor performance of such youth, the military model may still be a better alternative for them. Although addressing this issue would require data on comparable military and civilian youth, some rough comparisons with the performance of similar youth in civilian training programs suggest that the military and civilian experience appears to be similar. For example, attrition from the Job Corps—a federal program where disadvantaged youth are placed in residential centers and given remedial education, skills training, room and board, medical care, and job counseling—is significant (Taggart, 1981). Other civilian training programs also report high attrition rates among disadvantaged youth (Public/Private Ventures, 1990a). Thus, the military may have no comparative advantage in working with such youth.

Support for Education

One indicator of how successful the military model is in improving the civilian outcomes of youth is in the usage of military educational benefits by veterans. Educational benefits are primarily used as a recruiting tool in the military, but it is clear that they represent not only an example of how the military is involved in youth development but also an example of how national service in the civilian sector might be structured. A key question is, how much does this "national service" program contribute to an enlistee's ability to attend school?

Table 3.2 provides some insight into usage of the Army College Fund. The information in the table is based on the experience of a cohort of high-quality[9] recruits who entered the Army in FY 1981 during the Educational Assistance Test Program.[10] The service history of these recruits and whether or not they used any of their educational benefits were tracked until September 1986.[11]

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[9]A high-quality recruit is defined as an individual who graduates from high school and is in the upper half of the AFQT distribution.

[10]Specifically, the data cover those who were in the Ultra-VEAP (veterans educational assistance program) test cell. The Ultra-VEAP became the Army College Fund in 1982. The group of recruits represents those who enlisted in test-eligible skills, i.e., Army occupations that were being offered the Ultra-VEAP benefit during the experiment.

[11]It is possible that the data are censored; some of the recruits might not have had time to complete their obligated term, leave service, and enter an approved educational program. Available evidence suggests that the vast majority of individuals use educational benefits within two years of leaving service and most within the first year (Schmidt et al., 1987). Thus, the censoring problem should not be too severe.

Table 3.2

Percentage Using Educational Benefits by Race

	All	White	Black	Other
Contribute to benefits	74	74	71	74
Complete service	72	72	71	72
Separate at end of obligated service	45	47	30*	41**
Use benefits	22	24	13*	18**
Conditional on separation				
Use benefits	49	51	43**	44

NOTE: With the exception of the bottom row, the numbers indicate the percentage of the entry cohort. In the bottom row, the numbers indicate the percentage of those who separate.

* Indicates statistically different from white mean at the 1 percent level; ** indicates statistically different from white mean at the 5 percent level.

As the first column in the table shows, usage rates are low. Only 22 percent of the recruits eventually used educational benefits although all of the recruits were eligible to enroll in the program. One reason is that some members do not contribute to the educational benefits fund. About 75 percent contribute. A second reason is that a significant number of individuals attrite—28 percent—and do not complete the necessary portion of their obligated term of service, one requirement for being able to claim the educational benefit. Further, many individuals opt to reenlist and remain on active duty.

The table also shows differences in usage by race. Comparisons by race broadly suggest differences in usage among disadvantaged and nondisadvantaged youth to the extent that many minorities are disadvantaged in their ability to finance their education. The table indicates that black recruits are less likely than white recruits to eventually use benefits—13 percent compared to 24 percent. The primary reason is that blacks are more likely to reenlist. About 30 percent of the black recruits separated at the end of their obligated term and 47 percent of white recruits did. To control for this, the table also presents usage rates conditional on separation. However, even conditional on separation, blacks are less likely to use educational benefits. This result is consistent with that found by Hogan et al. (1991).

These results suggest that many individuals and blacks especially do not take advantage of educational benefits despite their eligibility to do so at entry. Although educational benefits might be a highly successful means of helping the Army draw recruits into service and target them into hard-to-fill occupations, this program does not appear to be an important means of ensuring that large numbers of youth who participate in military service enter civilian educational institutions.

Further, not only do few appear to use the benefit, other evidence suggests that the effect of educational benefits on the educational attainment of individuals is also relatively small. Specifically, Angrist (1992) finds that benefit users complete 1.4 more years of schooling than similar veterans who did not use educational benefits. According to Angrist, this difference in schooling translates into a 6 percent difference in earnings. Thus, the military's role in facilitating the enhancement of civilian education may not be large for recent youth cohorts.

4. The Benefits of Military Service with Respect to Postservice Employment

This section presents evidence on the success of the military model in developing youth in terms of civilian outcomes. Specifically, the discussion draws on the available literature on: (1) the returns to service in the civilian sector; (2) the success of low-aptitude veterans relative to that of nonveterans in the civilian sector; and (3) employer attitudes toward veterans.

Returns to Service

Hypotheses

Underlying the returns to service literature is one of two hypotheses: the human capital or bridging hypothesis and the screening hypothesis. According to the human capital hypothesis, individuals at the end of high school decide whether to go to college, enter the civilian labor market, or enlist in the military after weighing the relative returns and costs of each option. Those who enter the civilian market out of high school have rising earnings as they accumulate human capital. Those who choose college have fewer earnings while in college but upon graduation earn significantly greater earnings than those who went to work out of high school and their earnings rise at a faster rate.

Those who enter the military have greater earnings while in service than those who enter college. But, those in the military may have higher or lower earnings than those who enter the civilian market depending on whether the return to military service is greater or less than the return to civilian service in the civilian market. Empirical evidence (Gilroy et al., 1992) indicates that those in the military earn more than comparable nonveterans who entered the civilian labor market.

It is postulated that once service members leave service, their earnings are initially lower than those of comparable nonveterans in the civilian labor market while they search for permanent employment. However, once they get a job, their earnings relative to those of nonveterans depend on the amount of military training received and the transferability of that training to the civilian sector. For the same amount of training, veterans' civilian earnings will be less than the civilian earnings of comparable nonveterans—the return to service will be

negative—if all or part of that training is not transferable because those who directly entered the civilian labor market accumulated civilian human capital while those who entered the military did not.

Borjas and Welch (1986) postulate that since veterans have lower civilian earnings after they leave service, they will invest more in civilian human capital than will nonveterans. Consequently, the civilian earnings of veterans will eventually catch up with those of nonveterans. On the other hand, the returns to military service will be positive if military training is transferable to the civilian sector and if either veterans receive more training or the return to military experience exceeds the return to civilian experience.

According to the screening hypothesis, even if military training is nontransferable in the sense of not providing skills that can be used in the civilian sector, military service may still give a positive return if civilian employers view military service as evidence of desirable work qualities that are inherent to those who serve. Similarly, a negative return to military service may occur if employers view military service as evidence of negative work characteristics. Thus, military experience may serve as a signal of the innate characteristics of those who enter the military (DeTray, 1982).[1]

Evidence of a positive or negative return to service is thus consistent with both the human capital hypothesis and the screening hypothesis. However, from the standpoint of addressing the question of what roles the military might play in developing youth, knowing which hypothesis is the correct one is crucial because they yield different policy prescriptions. The human capital hypothesis would say that a positive return is attributable to military service. Thus, the policy prescription would presumably be to expand military service. On the other hand, if the positive effect is attributable to the characteristics of those who enter the military and not to military service per se, then expanding service would have no effect.

In determining empirically whether evidence on the returns to service is attributable to the military (the human capital hypothesis) or to the characteristics of those who enter the military (the screening hypothesis), we must be sure that the methodology used corrects for selectivity bias. This bias occurs when the choice of entering military service or the civilian sector is not

[1]As discussed in Section 2, one goal of military training is to impart desirable world-of-work skills such as self-discipline. If these skills are acquired in the military, then any effect of these skills on postservice earnings would be evidence relating to the human capital hypothesis. However, if these skills are a characteristic of individuals who enlist and are not imparted by the military, then any effect of these skills on civilian outcomes would be evidence relating to the screening hypothesis.

random but is systematically related to innate characteristics of the individuals (such as an ability or taste for national service). If an appropriate methodology is not used to correct for this problem, estimates of the returns to service will be biased because they capture both the effect of military service on civilian earnings (the human capital hypothesis) and the effect of individuals' characteristics on civilian earnings. There are two sources of selectivity bias in measuring the returns to service. The bias may arise not only because those who enter military service may not be a random sample of all qualified youth but because those who leave military service may not be a random sample of all enlistees. In fact, considerable evidence indicates that the decision to enter or separate from service is not random; all else equal, higher-quality enlistees are less likely to enter service in the absence of such recruiting inducements as enlistment bonuses and educational benefits, less likely to attrite during their first term, and more likely to later separate at the end of their enlistment term.

Evidence

The literature is full of studies that have attempted to estimate whether the returns to service are positive or negative; however, only five studies correct for selectivity bias (Angrist and Krueger, 1994, Angrist, 1989, Angrist, 1990, Gilroy et al., 1992, and Bryant et al., 1992). The discussion below first presents an overview of the general approach used by these studies. It then summarizes their main findings and highlights the results of some of the other studies.

The general approach for estimating whether there is a veteran's penalty or a premium in the civilian labor market is to estimate an equation of the form:

$$\ln W = \delta V + X\beta + \varepsilon$$

where W is the individual's civilian wage, V represents veteran's status, X is a vector of other individual characteristics, ε is a random error term, and δ and β are parameters to be estimated. The parameter δ represents the veteran's premium (if it is positive) or penalty (if it is negative). Ordinary Least Squares (OLS) estimates of this equation will be biased if V and ε are correlated, which is the case if selectivity bias (discussed above) is present. Given that the military screens potential entrants and tends to reject those with lower aptitude and physical exam scores, it is likely that V and ε are correlated since those who score low are likely to be low earners as well. Thus, it is likely that OLS estimates of δ will be biased upward. To correct for this selectivity bias, the researcher needs to control for the probability that an individual enters the military.

The five studies that correct for this selectivity bias generally indicate that for nonwhites there are no statistically significant gains or losses as a result of serving in the military. For whites, the evidence suggests a veteran's penalty (or negative return to service) for draftees whereas for volunteers the evidence is less clear-cut but suggests that if the returns are positive, they are not large. The studies use different methodologies and different data sources. Their methodologies all have drawbacks (as detailed below). Two of the studies focus on Vietnam veterans (Angrist, 1989, 1990), one focuses on World War II veterans (Angrist and Krueger, 1994), and two focus on All-Volunteer Force (AVF) volunteers (Gilroy et al., 1992, and Bryant et al., 1993). A problem with all five studies is that they fail to correct for the selectivity bias that may arise because those who leave military service may not be a random sample. Despite these various problems, the five studies generally suggest that although military service may confer benefits to individuals while in service, veterans do not achieve any gains in the civilian labor market once they leave service and may suffer a loss.

More specifically, the three Angrist studies examine the returns to service for military draftees. Angrist (1989) finds a negative return to service for white Vietnam veterans on the order of 28 to 35 percent and a positive wage premium (that is only very marginally statistically significant) of between 20 and 40 percent for black Vietnam veterans. Using alternative data sources, Angrist (1990) arrives at similar results. He finds a large wage penalty of 15 percent for white Vietnam veterans and no statistically significant effect for nonwhites. In their study of World War II veterans, Angrist and Krueger (1994) find evidence of a 13 percent wage penalty. All three studies correct for selectivity bias by taking advantage of the lottery nature of the draft, which randomly assigned youth into draft status based on birthdate. More specifically, these analyses use draft eligibility as an instrument for veteran's status (V). Since draft eligibility is random, it is uncorrelated with ε. These three studies suggest that selectivity bias is an important problem.

However, although they correct for the selectivity problem, these analyses are subject to the criticism that they are relevant only to draftees whereas today's volunteers differ dramatically from draftees in terms of aptitude and taste for military service. Consequently, evidence on the returns to service for draftees may be irrelevant. Another criticism is that, according to Andrisani and Daymont (1990), the Angrist (1989) results are sensitive to a few outliers. The estimated penalty is eliminated if six key observations are removed. Also, one-third of the observations in this study have missing civilian earnings information. Those for whom data are available may not be representative of the relevant

population. However, these latter two criticisms are not too problematic, since Angrist finds similar results in his 1990 study using a different data source.

The two studies of the AVF veterans find mixed results. Gilroy et al. (1992) find that AVF service members earn more than their civilian counterparts while they are in service. They also find that white veterans initially earn less upon leaving service but then earn more relative to a comparable group of nonveterans who entered the civilian market upon leaving high school. Over an eight-year time horizon, the premium for non-Hispanic whites is estimated to be about 5 percent. However, relative to an otherwise comparable group of civilians who completed four years of college, the veterans received a wage penalty. For blacks, the Gilroy et al. study finds a negative return to service but the effect was not statistically significant. Similarly, the results on the returns to service for Hispanics were also not statistically significant.

The Gilroy et al. study also finds that selectivity bias is important. It corrects for selectivity bias by accounting for the probability an individual chooses to enter military service, college, or the civilian labor force.[2] One problem with the study is that it fails to correct for the censoring bias that can occur because some individuals in their data have zero civilian earnings.[3] Furthermore, because the study excludes those who attrite from military service but not from college or from civilian employment, it introduces an upward bias in the estimate of δ, since those who attrite from the military are more likely to be lower-aptitude recruits and thus have lower earnings capacity. Thus, their estimate of a premium for white veterans may be an overestimate.

The Bryant et al. (1993) study also focuses on AVF veterans. This study finds evidence of a negative return to service when the civilian earnings of veterans are compared to the earnings of otherwise comparable nonveterans; the wage penalty is estimated to be between 1 and 8 percent. The wage penalty is found to be greater for whites than for nonwhites. The nonwhite wage penalty is nearly zero whereas the white wage penalty ranges between 2 and 12 percent. However, the study does not find evidence of selection bias. Like the Angrist studies, this study does not correct for the potential selection bias caused by the nonrandomness of who leaves military service. Further, like the Gilroy et al. study, it fails to correct for censoring bias in the data.

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[2]More specifically, they use a Heckman-type procedure where the probability of making one of the three choices listed in the text is a function of the variables included in the earnings equation that were determined by the time the youth made their choice.

[3]Censoring bias is a special case of selectivity bias. Those with zero earnings may not be a random sample of all individuals. Instead, zero earnings may be systematically related to the characteristics of individuals that make it more likely that they are low earners.

The range of estimates across the five studies is rather large. For whites, the estimated wage penalties range is between 15 and 35 percent for draftees (veterans of World War II and of Vietnam) in the three Angrist studies. Although this range is sizable, it at least is consistently positive. Thus, the general conclusion is that there is a penalty associated with veterans status for whites who were conscripted. For nonwhite draftees, the evidence suggests that they have received no statistically significant gains or losses in earnings as a result of serving in the military.

For AVF veterans, the range among whites is between –5 percent (i.e., a wage premium) and 12 percent in the Gilroy et al. and the Bryant et al. studies, respectively. The 5 percent is an overestimate of the wage premium for whites in the Gilroy et al. study, however, because it only reflects the comparison between veterans and nonveterans who did not attend college. When college attendees are included in the comparison, the figure is closer to zero (but still negative).[4] Thus, for volunteers, the range includes the possibility that white veterans received a slight premium for serving in the military as well as the possibility that they suffered a significant penalty. For nonwhite volunteers, the evidence is similar to that found for nonwhite conscripts; the evidence does not suggest any statistically significant gains or losses associated with military service.

As mentioned above, the literature contains a multitude of studies that do not correct for selection bias. These studies use a wide variety of data sources and methodologies and focus on different cohorts of veterans (World War II, Korea, Vietnam, and the AVF) as well as different ethnic subgroups. The empirical evidence presented in these studies is also mixed; the studies are roughly split in their findings. About half find a positive return to service and about half find either a negative return or no difference in civilian earnings among veterans and nonveterans.[5]

It is difficult to categorize the findings of the various studies beyond whether the result is positive or negative because of the differences in data sources,

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[4]The Gilroy et al. study does not indicate what this figure actually is. The fact that it is negative is an inference based on the relative proportion of veterans, college attendees, and nonveterans who did not attend college in the study and the study's estimates for each comparison group.

[5]Those who find evidence in favor of a wage premium for veterans are: DeTray (1982), Rosen and Taubman (1982) for World War II and Korea veterans; Mangum and Ball (1989), Poston (1979) for black and Hispanic veterans; Fredland and Little (1985) and Little and Fredland (1979) for white and black veterans; Cohany (1992) for those with less education; Browning et al. (1973) and Martindale and Poston (1979) for blacks and Mexican Americans; and Villemez and Kasarda (1976) for World War II and Korean War veterans. Those finding a negative return to service include: Borjas and Welsh (1986), Rosen and Taubman (1982) for Vietnam veterans; Crane and Wise (1987), Goldberg and Warner (1987), Berger and Hirsch (1983), Cutright (1974), Villemez and Kasarda (1976), and Schwartz (1986) for Vietnam veterans. Some find neither a penalty nor a wage premium for military service. These include: Poston (1979) for whites; Schwartz (1986) for Korean War veterans; and Cohany (1992) for Vietnam veterans.

methodologies, and the definitions used to classify veterans into various subgroups. Still, the general consensus of these studies appears to be that those with less education receive a positive return to service. Rosen and Taubman (1982), Berger and Hirsch (1983), Villemez and Kasarda (1976), and Cohany (1992) find this result. Except for the Angrist and Krueger paper (1994) on World War II veterans, the general consensus also appears to be that World War II veterans earned a wage premium, Korean veterans received a smaller wage premium, but Vietnam veterans received a wage penalty. Studies that find a positive return for World War II and/or Korean veterans include Villemez and Kasarda (1976), Rosen and Taubman (1982), Little and Fredland (1979), Fredland and Little (1985), Detray (1982), and Martindale and Poston (1979). Those who find a negative return for Vietnam veterans include Villemez (1979), Schwartz (1986), Berger and Hirsch (1983), Rosen and Taubman (1982), and Crane and Wise (1987).

Several of the studies find evidence that supports the hypothesis that minorities receive a positive return to service (DeTray, 1982, Little and Fredland, 1979, Fredland and Little, 1985, Martindale and Poston, 1979, and Browning et al., 1973). However, as discussed above, two of the studies that correct for selection bias find no statistically different earnings differences for minorities. Thus, this result is less clear-cut.

The Success of Low-Aptitude Youth

The relevance of the return to service evidence to the question of whether the military model would be more beneficial for disadvantaged youth than a civilian alternative is limited by the fact that the evidence is based on the experiences of individuals who qualified for military service. Many disadvantaged youth, especially low-AFQT or low-aptitude youth, would not meet military entrance requirements. A key question is how successful would the military model be for disadvantaged youth who would not ordinarily qualify for service.

A partial answer to this question is provided by evidence on the success in the civilian sector of two cohorts of low-aptitude youth who were allowed (in one case inadvertently) to enter the military. The first cohort consisted of over 320,000 low-aptitude men who entered the military between 1966 and 1971 as part of Project 100,000, a program that was part of President Johnson's "War on Poverty." The program allowed the enlistment of youth whose aptitude levels would have precluded their entrance into the military under the enlistment standards of the time. The intent of the program was to provide a means of upward mobility for economically and educationally disadvantaged youth. The

second cohort consisted of about 300,000 low-aptitude youth who inadvertently entered the military between 1976 and 1980 as a result of an undetected error in the method used to calibrate the AFQT percentile scores.

To determine how military service affected the postservice civilian experience of these cohorts of low-aptitude youth, Laurence et al. (1989) conducted surveys of the two cohorts in 1986 and 1987. These surveys asked representative samples of these cohorts questions regarding their civilian labor market experiences, educational attainment, marital and family status, and other experiences such as welfare usage. The results from analyzing these data were compared to those from samples of nonveterans matched to the veteran samples according to year of birth, race, education, geographic region, and aptitude scores.[6] These nonveteran samples serve as baseline controls.

The results for both cohorts were roughly the same. The study found zero or a negative effect of military service on civilian outcomes. Relative to the nonveteran group, the low-aptitude veteran groups were not found to be better off economically, educationally, or socially. Specifically, for the Project 100,000 group, the veteran group was more likely to be unemployed whereas the nonveteran group was more likely to be working full-time. Comparisons of hourly pay, total household income, and yearly income showed that in each case veterans earned less. No statistical differences were found between the veterans and nonveterans groups in job stability (or work tenure), welfare usage, or unemployment benefits. The educational and training outcomes of the Project 100,000 veteran and nonveteran groups also showed no statistical differences. On the other hand, the veteran group was more likely to be divorced. It also had a higher number of marriages with fewer children.

For the second (ASVAB misnormed) cohort, the employment status of the veteran and nonveteran groups was not statistically different. Similarly, no differences were found between the civilian earnings of the two groups. Thus, veterans were neither worse off nor better off with respect to civilian earnings than the nonveteran group. Welfare usage and public assistance were also similar between the two groups. On the other hand, the veterans group acquired less formal education than its nonveteran counterparts. The veterans group in the second cohort also had a higher divorce rate.

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[6]Laurence et al. derived their veteran samples by taking advantage of Defense Manpower Data Center personnel records for the two cohorts. The control nonveteran samples were taken from the 1966 National Longitudinal Survey (NLS) for the Project 100,000 cohort and from the 1979 National Longitudinal Survey for the second cohort. One drawback of the 1966 NLS is that it lacks AFQT information. Therefore, aptitude was inferred from school files of the respondents. See Laurence et al. (1989).

Taken together, these results indicate that military service was not successful in addressing the problems of disadvantaged youth in terms of improving their civilian outcomes. On the other hand, there are two reasons why these results do not provide a definitive answer as to whether the military model would be more beneficial than a civilian alternative for disadvantaged youth. First, one could argue that the military was not configured to address the specific needs of low-aptitude youth. Had the military undertaken programs that addressed the special needs of these youth, perhaps military service would have translated into a postservice advantage for them.[7]

Second, although the Laurence et al. study carefully constructed control groups of nonveterans based on observed characteristics, it did not control for selectivity bias based on unobserved characteristics. Individuals were not randomly assigned to the control and test groups. Thus, if the veterans groups differed systematically from the nonveteran groups in some unobserved characteristic—such as level of maturity—then the above results may be partially or fully attributable to these unobserved differences rather than to the effects of military experience relative to civilian experience.

Employer Attitudes Toward Veterans

Another indicator of the success of the military model is how employers view the productivity of veterans. A recent survey of about 600 U.S. employers conducted by the Army Research Institute in 1990 provides some information on employer attitudes (Schroyer et al., 1990).

The survey suggests that employers believed that Army veterans have more of the characteristics they desire than job applicants in general. Among the characteristics considered the most important by employers for success in entry-level positions were dependability, listening to instructions, caring for company property, seeking clarification, efficiency, enthusiasm, respecting others, punctuality, showing good judgment, working as a team member, sticking with a task, and self-discipline. Of the 12 attributes that are rated as the most important, seven were seen as being possessed by Army veterans by over 50 percent of the companies. Most employers indicated that veterans had at least the same amount of these characteristics as job applicants in general. About 85 percent of large companies believed military veterans are prepared for their entry-level jobs

[7]This discussion begs the question of what types of programs are successful in addressing the special needs of disadvantaged youth. It is not clear that the particular characteristics that such programs need to have to be successful have been fully identified or implemented in either the civilian sector or military context.

whereas about 60 percent of very small companies believed this. On the other hand, about 40 percent of the companies felt that military service did not prepare people for jobs in their organizations.

These survey results suggest that the return to service should be positive for veterans. However, the survey also indicated that many employers did not know whether or not an applicant is a veteran. Over half of the employers said that they did not ask individuals if they were veterans. Among very small companies—which constitute the majority of U.S. firms—only 20 percent asked applicants if they were veterans. Thus, insofar as a positive return to military service is due to the signaling of traits positively associated with productivity on the job, a positive employer attitude toward veterans may not translate into higher earnings if many employers do not use veteran status as a screen in hiring.

5. Summary, Implications, and Suggestions for Future Research

In this section we summarize the main conclusions of the preceding sections and attempt to draw some preliminary conclusions about this evidence for what roles the military could play in preparing youth for success. To fully address the question of how the military might best participate in youth development, additional issues should be addressed in future research. These are also indicated in the discussion below.

Skills Training

A question of considerable interest is what skills would youth obtain if the military, as a large training institution that targets non-college-bound youth, expanded enlistments—perhaps under a citizen soldier program—for the purpose of training youth for the civilian sector? Alternatively, should the military approach be a model for a civilian-provided program? To begin answering these questions, we investigated what the Army actually teaches youth during training and whether the Army model is useful in terms of successfully training youth to be effective workers.

We find that many of the skills obtained by youth enlisting in the Army are transferable to the civilian sector Most recruits receive training in an occupation that has at least one civilian alternative and about two-thirds of them receive training in a noncombat arms occupation. Army recruits also receive considerable training in both "manipulative" skills that require manual dexterity as well as "informational" skills with the mix between the two categories being roughly equal. Not surprising given the tie-in nature of military training and military jobs, much of the training is vocational rather than academic. Comparing the skills training provided to whites and blacks suggests that disadvantaged youth, broadly defined as minority youth who qualify for service, obtain more transferable skills but somewhat less training where the quantity of training is defined in terms of duration and number of additional skill identifiers available in the occupation. The "disadvantaged" youth also tend to receive skills that are more informational than manipulative in content. Finally, both anecdotal evidence and information based on performance tests suggest that,

overall, Army skills training is effective; the military appears to be able to train civilian youth to be effective soldiers in the field.

Attributing the success of the military model to specific causes is difficult because of insufficient evidence. One likely reason is the screening of applicants that emphasizes the enlistment of primarily high-quality youth. But the effectiveness of the military may also depend on the conditions of service, namely, the explicit nature of the enlistment contract, the controlled learning environment, the comprehensive provision of services, and the tie-in nature of the training and the job. An important area for future research is determining the relative importance of these factors in explaining the military's success.

To the extent that the military model of youth development seems to work, at least for youth who qualify for service, the evidence implies that a potential role for the military might be to provide training (i.e., enlistment terms of military-type service) to qualified youth or, alternatively, to provide a model of youth training to be executed by a civilian organization. In the context of a civilian organization, such a program would probably provide contractual terms of service that tie basic and skills training with a job in an institutional context similar to that of the military.

If the model is provided by the military, information is needed on the financial and readiness costs of doing so. If provided by a civilian institution, further information is needed on whether the model *could* be executed by a nonmilitary organization. The model might not be readily applicable to the civilian sector because of some unique aspect of the military that facilitates the provision of youth training. Further, to draw lessons from the military approach for the civilian sector, we need to understand better what creates the success of the military model, as mentioned above. To determine which organization is the efficient provider, information is also needed on the costs to the civilian sector of running such a program. These issues should be investigated further in future research.

Support for Education

One of the most visible ways that the military supports youth education is through GI Bill benefits. Should this program be expanded as a means of increasing civilian education? This program represents a model of national service. As such, does the available evidence suggest that national service would expand youth educational attainment?

We provide some partial answers to these questions by examining the usage by a 1981 cohort of Army enlistees of the Army College Fund, an educational benefits program targeted toward high-quality youth who enter designated occupations and enlistment terms. The analysis indicates that few youth actually use these benefits. In part, this is because not all qualified youth contribute to the program and some recruits do not complete their obligated term of service—two requirements for becoming eligible for receiving the benefits. Blacks are even less likely than whites to use educational benefits—13 percent versus 24 percent, respectively.

Given that relatively few actually use Army educational benefits despite their qualifications for receiving them, the analysis implies that this Army program is not an important means of expanding the civilian education of youth, at least for a recent cohort of youth. As a model of national service, it also suggests that national service may not expand the number of individuals attending educational institutions to the degree that planners may hope. On the other hand, the national service program being proposed by the Clinton administration has objectives beyond this goal. These include instilling civic responsibility and meeting unmet needs in the community. The administration's proposed national service program would also require less service (up to two years), which would tend to increase usage relative to the Army College Fund but would pay a smaller benefit, which would tend to reduce the relative usage of national service educational benefits.

Postservice Outcomes

If the military is to be a means or a model for preparing youth for the civilian sector, a key question is what is the effect of military service on civilian labor market outcomes such as earnings. As we saw above, part of military training is transferable to the civilian sector. Do civilian employers value these skills more or less than skills obtained in the civilian sector? A positive return to service would imply that the military model is more successful than other avenues of developing comparable youth for postservice employment.

The available evidence generally suggests that military service does not confer large gains and probably results in an earnings loss. Among those studies that control for selectivity bias, most find evidence of a wage penalty associated with military service for whites and no statistically significant effect of service on earnings for nonwhites. The magnitudes of the estimates for whites cover a wide range, from –35 percent to 5 percent. However, the 5 percent is an overestimate, since it is based on a comparison of veterans' earnings with those of comparable

individuals who entered the civilian labor force directly after high school and it excludes those who entered college. When college entrants are included in the comparison group, the estimate is closer to zero. For low-aptitude youth, i.e., those whom the military deems more difficult to train, the evidence indicates that military service confers no postservice benefits relative to civilian alternatives; comparable veterans and nonveterans had similar civilian labor market outcomes.

Insofar as minorities and those who score poorly on the AFQT represent a disadvantaged group, this evidence suggests that the military probably has little if any comparative advantage in improving the civilian earnings of disadvantaged youth. Thus, there appears to be little reason to believe that expanding enlistment programs for such youth would be beneficial relative to expanding a civilian-sponsored program. On the other hand, although the military might not have a comparative advantage on the returns side of the equation, it might have a relative cost advantage. Developing youth with the military model as provided by the military might be less expensive than doing so with a civilian alternative, even with a civilian alternative that replicates the military approach. Further research is required on the resource cost of alternative civilian and military programs. Included in the cost to the military must be any negative effect of such programs on the readiness for its warfighting mission.

The evidence on the returns to service together with analysis on skills training discussed above suggests that the military appears to be successful in providing training for jobs in the military but whether it is relatively more successful in training youth for jobs in the civilian sector is an open question. Thus, the military model appears to be a useful paradigm for youth development in a one-setting or one-firm context but may be less so in a multiple-setting context.

Evaluating Potential Programs

This report has focused on examining one potential role for the military in youth development, namely, in encouraging youth participation in military service or providing a military-type model that could be emulated by a civilian institution. The primary reason for this focus is that we know the most about the nature of military service, i.e., the military model, and about youth who participate. However, many questions are still left unanswered. Among them is whether the military model could be applied to the civilian sector and if so, whether it is more cost-effective for the military or for a civilian alternative to run such a program. This question represents an important area of future research.

As discussed in Section 2, the military provides a vast array of programs in support of youth that are undertaken on a volunteer basis or are undertaken as secondary to its national security mission. Many of the recent proposals for a military role in youth development as well as several new legislated programs for military involvement in youth development are such programs. Unfortunately, very little is known about the cost and effect of these programs. Additional research on the relative cost-effectiveness of this role for the military is therefore also needed.

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