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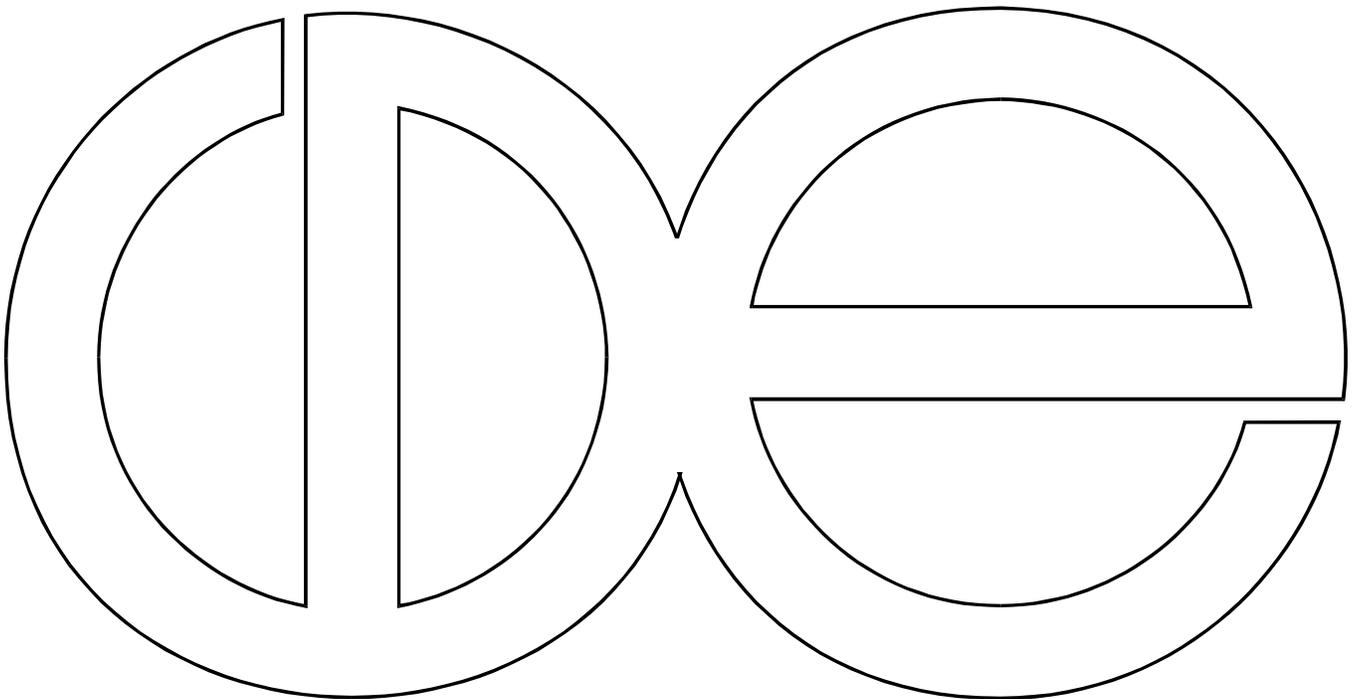
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The Varieties of Veteran Experience: Peacetime Cold War Military Service and Later Life Attainment

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Abstract

In this paper I examine the effects of peacetime Cold War military service on the life course according to five hypotheses that state that the armed forces: 1. disrupted veterans' lives; 2. provided veterans with an apprenticeship program; 3. enabled veterans to benefit from additional education; 4. reproduced civilian status; and/or 5. reflected the process of selection into military service. The findings at least partly correspond with the status reproduction and selection hypotheses. In addition, more educated veterans and veterans who became officers benefited from their service. These findings suggest that military service did not substitute for, but rather supplemented a college degree.

Introduction

Much previous research has focused on US veterans who served during the major wars since the 1930s: World War II, and the Korean and Vietnam Wars. Yet more than 5 million individuals entered the US military in the years 1954-64, the 10 years between the Korean and Vietnam Wars (Flynn 1993). Researchers have commonly combined information about these peacetime veterans with that about those who served during wartime (for an exception see Hauser 1979). In this paper, I look at how military service affected the work lives of some of the millions of ordinary men who served in the armed forces during the peacetime Cold War. These veterans served during a number of military conflicts, including the Lebanese Crisis, the shelling of Quemoy and Matsu, and the Cuban Missile Crisis. However, they were less likely to be involved in combat than were wartime veterans. In this respect, they resemble contemporary GIs who were also less likely to experience combat until the recent expeditions in Yugoslavia, Afghanistan, and Iraq. Yet military service was much more common during the peacetime Cold War than it is today. More than half of the men eligible for service entered the armed forces of the late 1950s and early 1960s, while less than five percent of individuals age 18 to 20 served in the military in the year 2000.

In this paper, I look at how military service affected Cold War veterans' occupational and economic chances throughout the life course. In particular, I examine their occupational status, income, and wealth measured when they were in the middle and near the end of their working lives. Did military service provide these veterans with the credentials or skills they needed to do well at work? I find that they did not benefit from military service as a substitute for formal education, but rather as a supplement. Veterans did better socioeconomically

1

throughout the life course if they entered service after college graduation. They also did better if they left the armed forces as officers. The remaining Cold War veterans, enlisted men without pre-service college degrees, experienced no effect of their service on the rest of their occupational and economic lives.

Since the early 1970s, researchers have debated the effects of military service on occupational and economic attainment. Different researchers have found that military service has positive, negative and neutral effects on subsequent status and income. On balance, it appears that many veterans paid a socioeconomic penalty in their subsequent civilian work lives for time spent in the military. Early research found a neutral effect of service. According to this research, veterans tended to work at jobs with the same status and income as non-veterans (Mason 1970). This research, however, combined veterans of different time periods. Later research found that veterans of World War II, the Korean War and the post-Korean Cold War earned more and had higher status than non-veterans (De Tray 1982; Teachman and Call 1996). Indeed, veterans who furthered their education after serving in the armed forces worked at higher status jobs than either other veterans or non-veterans (Fligstein 1976). However, subsequent research showed that World War II veterans earned less than equivalent non-veterans (Angrist and Krueger 1994). Vietnam veterans had lower income and lower occupational status than non-veterans of the same period (Angrist 1990; Mangum and Ball 1987; Teachman and Call 1996). Though there has been less time to assess the lifelong impact of service in the all-volunteer force, white veterans have earned less than white non-veterans, while non-white veterans appear to have earned slightly more than their non-veteran counterparts (Angrist 1998). These findings suggest that the effects of military service differ

across historical periods and for different groups within the larger population. This paper attempts to describe how military service affected the primarily white men from Wisconsin who served during the peacetime Cold War in the course of their later civilian work.

Even if we assert, along with recent research, that military service has a negative effect on earnings and status, there is little consensus about whether this is a lifelong or merely a short-term effect. If military service has a negative effect, it may only affect individuals in the years immediately after they leave the armed forces. In the long run, veterans may achieve as much as their non-veteran counterparts. Indeed, some research suggests that the penalty paid by veterans is long-lasting, while other research suggests that it is not. World War II veterans earned less than equivalent non-veterans throughout their careers (Angrist and Krueger 1994). Vietnam veterans later caught up to their non-veteran counterparts (Angrist 1990; Card 1983). Peacetime Cold War veterans earned the same wages as did non-veterans after they had accumulated a similar amount of civilian experience (Hauser 1979). Since World War II, veterans appear to have earned less and worked at lower status jobs than non-veterans for at least some portion of their working lives. Yet, these conclusions also remain ambiguous. This paper attempts to answer the question of whether Cold War military service affected workplace outcomes for the entire work life or just the middle.

Previous research has left open a number of questions related to service in the peacetime Cold War military. Did veterans who served during peacetime pay a penalty in their later work lives as it appears wartime veterans did? If so, did the penalty apply to just the years immediately following service or to the entire work life? In this paper, I consider five

3

competing hypotheses concerning the effect of military service on occupational and economic outcomes.

The first hypothesis suggests that military service had a negative effect on veterans' later lives by serving as a disruption. Alternatively, military service may have a positive effect on later life socioeconomic attainment. This positive effect can be accounted for by two alternative hypotheses. One hypothesis states that the armed forces provide some veterans with an apprenticeship program.[1] Another hypothesis is that veterans advance father than expected because they receive additional education. In contrast, military service may have a neutral effect on the later work life. As in the positive case, this neutral effect can be explained by two hypotheses. One hypothesis suggests that veterans come from families with different characteristics than do non-veterans, and therefore the armed forces reproduce civilian status. Another hypothesis suggests that veterans have different individual rather than family characteristics and therefore the association between military service and later life outcomes is a product of selection.

I use the Wisconsin Longitudinal Study (WLS) to look more closely at how Cold War military service affected veterans on a number of occupational and economic measures. Much previous research has focused on cross-sectional data, or on longitudinal data spanning 10 or at most 20 years (see for instance Teachman and Call 1996). The WLS data have the advantage of spanning the period from the end of high school to near the beginning of retirement, for a total of 35 years. The first round of WLS data was collected when the respondents were

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[1] Both this positive account and the preceding negative account could be true. For instance, veterans in higher status occupations may be penalized for the time taken out of their careers, while veterans in lower status occupations may have benefited from time spent in the military.

seniors in high school. The latest round was collected when the individuals were in their early fifties. My analyses therefore encompass most of the arc of the respondents' working lives. In addition, I extend previous research that has focused on income and occupational status, by looking also at accumulated wealth near the end of the work life.

Hypotheses to Account for How Military Service Affected Occupational and Economic Attainment

A Negative Effect: The Disruption Hypothesis

If veterans earn less and have lower occupational status than non-veterans, then military service may have disrupted individuals' accumulation of money and status. The disruption could apply to all veterans, only to veterans with particular characteristics, or only to veterans in particular post-service occupations. This disruption could have been merely a short-term one, applying only when the veterans were young. Alternatively, it may have had lasting effects on the entire civilian work lives of veterans.

Military service may have a negative effect on all veterans in all occupations. In a limited sense, veterans earn less when they are young because, on average, they have less experience than non-veterans of the same age in the civilian labor market. Though recent military recruits have earned more than their civilian counterparts (Angrist 1993), during the cold war, soldiers earned less than equivalent civilians. At all times, veterans begin their first civilian jobs when they are older than non-veterans with the same characteristics (Hauser 1979). Therefore they may accumulate less civilian experience over the work life. If employers base wages and salaries on years of civilian experience, then, other things being

equal, veterans should earn less. This negative account makes a sharp distinction between military and civilian training. Alternatively, veterans may earn less or achieve less occupational status because employers discriminate against them. Indeed, there is some evidence that employers discriminated against Vietnam veterans (Veterans Administration 1980). There is no evidence that this was the case during the Cold War. However, it is still possible that an observed negative effect of Cold War military service could stem from employer discrimination.

Military service may negatively affect only particular types of veterans . Veterans who were drafted may have experienced a particularly negative effect of their military service. Being drafted meant that these men had little control over the timing and type of service. Men who volunteered could determine when they entered and had relatively greater choice of military branch and occupation. For instance, draftees could only enter the Army and, in certain cases, the Marines. By contrast, volunteers could enter the Navy or Air Force, branches that provide more technical training and less exposure to dangerous situations. Previous research has focused on the extent to which the draft represented a "tax" on draftees (Bailey and Cargill 1969; Hansen and Weisbrod 1967; Miller and Tollison 1971; Oi 1967). This tax may capture just the fact that GIs earned less than their civilian counterparts while they were in the military. Alternately, veterans may remain behind non-veterans throughout the work life.

Veterans may later "catch-up" to non-veterans, earning the same wages and working in jobs with the same status. Military service may disrupt just the beginning or the entire course of the work life. Men served in the military when they were young, in their late teens or twenties. They served, on average, for three years. During this time, they may have lost important

6

opportunities for gaining civilian experience or training (Bailey and Cargill 1969; Hansen and Weisbrod 1967; Miller and Tollison 1971; Oi 1967). They may also not be able to use military training in their later civilian work lives. Employers may discriminate against veterans no matter how old they are (Veterans Administration 1980). Veterans may never be able to make up for lost time and experience. However, veterans may have subsequently accumulated enough civilian experience to overcome any initial handicap.

Thus, military service may have disrupted the work lives of all veterans or just particular types of veterans. In addition, this disruption may have affected veterans only for the years immediately after service or for the entire work life.

A Positive Effect: The Apprenticeship and Education Hypotheses

Military service may have a positive effect on the occupational and economic attainment of some veterans, those with particular social background or academic characteristics. The military may help these veterans achieve more schooling than they would otherwise or it may provide them with an alternative to higher education.

Research on inter-generational mobility has outlined the links between family background, educational attainment, and occupational status. Individuals from families with higher socioeconomic status typically achieve higher occupational status and earn more income in their later lives. They advance farther because their family background enables them to get more education (Blau and Duncan 1967; Featherman and Hauser 1978; Sewell and Hauser 1975). Individuals from families with lower socioeconomic status tend to do less well in the labor market. They are less likely to get a college education and therefore less likely to get

good jobs. In other words, educational attainment mediates the effect of family background on occupational status.

Military service could alter this relationship by enabling certain veterans to go to college. For instance, veterans might be more likely to get a college education than comparable non-veterans, particularly those who came from lower status backgrounds or who were less academically promising. Thus, these veterans may subsequently earn more and work at higher status occupations than equivalent non-veterans. Indeed, previous research has found that veterans who took advantage of the GI Bill worked at higher status jobs than other veterans and than non-veterans (Fligstein 1976; Nam 1964).

Alternatively, veterans may advance farther than they would have not because of additional formal education, but because of their military experience. They may learn important skills while in the military (De Tray 1982). This explanation corresponds with the "bridging environment" hypothesis (Browning, Lopreato, and Poston 1973; Lopreato and Poston 1977).

If veterans achieve more in their work lives than non-veterans, the potential reasons for the positive effect of military service could correspond with those advanced for the positive effects of education. More years of schooling are associated with higher wages and occupational status by imparting either skills or credentials. If additional schooling imparts skills, then it helps to increase human capital. According to this view, post-secondary schools provide individuals with essential training that is then rewarded by employers (Becker 1964; Shavit and Blossfeld 1993). According to the alternative view, higher education merely provides credentials, rather than useful training. For example, employers may reward workers

who hold a college degree not because the workers have particular skills, but because the degree implies something else about the workers, such as that they can be trained (Thurow 1975). Thus, schools provide either skills or credentials that lead to higher pay and status.

Military service may have a positive effect in the same two ways: by increasing human capital or by providing credentials. In either case, the military may lead to work life benefits by serving as an apprenticeship program. If the armed forces increase human capital, veterans receive formal or informal training while in the military that enables them to achieve greater occupational status and income in their later civilian lives (Browning et al. 1973; Xie 1992). In other words, the military might serve as a "bridging environment." Such an environment would allow individuals from lower socioeconomic backgrounds or with lower prior achievements to advance further than they would have otherwise (Browning et al. 1973; Elder 1986, 1987; Elder and Hareven 1993). These individuals may learn such skills as working with other people, operating within a bureaucracy, and meeting a deadline. They benefit from being organizational "apprentices."

If the military primarily provides credentials, the benefits of service might apply only to specific civilian occupations. Just as different occupations lead to different trajectories over the work life, so too, different occupations have different requirements for entry (Spilerman 1977). Since at least the second World War, enlisted individuals have been required to meet certain minimum physical and psychological standards (Flynn 1993). Some occupations rely less on higher educational credentials for entry and may accept military service as a substitute. Employers hiring workers for these positions may value the skills and screening implied by an honorable military discharge, since, like a college degree, an honorable discharge implies the

ability to complete a lengthy task (De Tray 1982). In other words, employers hiring for particular positions may discriminate in favor of veterans. Other occupations require at least a college degree, such as the professional occupations of lawyer or doctor (Spilerman 1977). Employers hiring for these positions are unlikely to accept military experience in place of formal education.

Whatever the reason, military service may substitute for a college education among veterans from lower status backgrounds or with lower prior academic achievements. In addition, veterans who attended college after their military service may have gone on to work at jobs with higher occupational status and income than they would have had they not been able to increase their education.

A Neutral Effect: Status Reproduction or Selection

Military service may also have no net effect on civilian status as a consequence of selection into the military on the basis either of social background or of individual characteristics. Individuals who enter the military may typically come from families with lower socioeconomic status or be less academically and occupationally promising. In turn, veterans may end up with lower socioeconomic status than non-veterans. This result would be a product of their pre-service characteristics, rather than of their time in the military (Levy 1998). They may end up with the same occupational status and income as they would have had they not served in the military. This account of military service also corresponds with a theoretical perspective on the role of education that says that schools simply reproduce the social structure (Bowles and Gintis 1976). If the armed forces simply reinforce the effects of

family background, the effect of military service is consistent with the status reproduction hypothesis.

Alternatively, men may decide to serve in the military if they have individual characteristics that make it less likely that they will earn more or work at higher status jobs, which would correspond with the selection hypothesis. Since veterans had lower IQ scores and lower high school rank than non-veterans, they may have advanced as far as they would have had they not served in the military. If this is the case, the apparent negative association between military service and socioeconomic outcomes may be a consequence of selection into the military. Thus military service would have a neutral effect on later life accomplishments net of veterans' prior academic achievements and aspirations.

Data and Methods

Data

I use data derived from the Wisconsin Longitudinal Study (WLS). The WLS contains information provided by a one third random sample (n=10,317) of the individuals who graduated from Wisconsin high schools in 1957. WLS data were collected from the 1957 graduates or their parents in 1957, 1964, 1975, and 1992-93. Another wave of data is currently being collected, having started in the summer of 2003. These data provide a full record of social background, youthful aspirations, schooling, and military service. More than half of the male WLS graduates served in the military. Fewer than 1 percent of the female graduates served in the military, I limit the sample to men.

Dependent variables

        The dependent variables are occupational status, income, and wealth. Status and income are measured at two points in time: 1975 and 1992. Wealth is measured only in 1992. In 1975, the respondents were all in their mid-thirties, near the mid-point of their working lives. In 1992, they were all in their early fifties, near the end of their careers. Thus the measures provide information about the respondents at the middle and near the end of the work life.

Status

        Occupational status is measured in two ways: occupational education and occupational income. In the past, status has commonly been measured using the Duncan socioeconomic index (SEI). The SEI measures, roughly, a combination of the average educational level and average income within a given occupation. This measure conflates the two components of occupational status: entry requirements and occupational rewards. I choose instead to assess these components using two separate measures: occupational education and occupational income. These measures are based on the 1970 census occupational codes. Occupational education measures the percentage of workers within a given occupational category who had completed a year of college or more. It captures the credentials workers must have to enter a particular occupation. Occupational income measures the percentage of workers in the occupation who earned at least $10,000 in 1969, slightly above the median for male high school graduates (Hauser and Warren 1997). It measures the rewards workers receive in each occupation. Because these measures are not normally distributed, I transform them in the following manner:

$$\ln\left(\frac{oced + 1}{100 - oced + 1}\right)$$

Where oced indicates occupational education.

I measure occupational status in 1975, when the respondents were, on average, around 36 years old, and in 1992, when they were approximately 53 years old. The data also include a measure of first job. I would like to look at the effects of veteran status as close as possible to military service. Unfortunately, nearly half of the veterans held their "first job" prior to military service. Therefore, I do not look at first jobs.

Income

Respondents provided information about their income in both the 1975 and 1992 surveys. The income measure in the 1975 survey is slightly different from that in the 1992 survey. In 1975, income was based on a combination of three measures obtained for 1974. The measures were: wages and salaries, non-farm self-employed income, and farm income. In 1992, the measure was a combination of two measures obtained for the previous twelve months. The measures were: wages, salaries, commissions and tips before taxes; and earnings from business, professional practice, partnership, or farm. In the 1992 measure, a disproportionate number of individuals answered "zero income." I consider these answers to be polite refusals and therefore code these as missing.

These measures are highly skewed to the right, meaning the majority of respondents earned relatively low incomes, while a few earned much more. Therefore, I transform the measures using a started log ($\ln(1000 + income)$).

Because there are a few outliers in the transformed distributions, I top-code these measures at two and a half standard deviations above the mean of the logged distribution. In order to interpret the effects of the independent variables in a meaningful way, I transform the parameter estimates back into their original metric. For instance, I exponentiate the effects of independent variables on the log of earnings in 1992 in order to express the effect in dollars.

Wealth

The final dependent variable is wealth, which is measured in the WLS by a series of questions designed to capture the value of net assets of the respondents. The questions ask individuals about the equity in their home, other real estate, business or farm, and vehicles. In addition, the measure includes an assessment of the individuals' and their spouses' savings and investments. From these items is subtracted how much the individuals owe on their possessions and the value of any loans or credit card debt they may have. If the respondents did not provide information in response to these questions, I code them as missing. As with income, the measure is right skewed. Therefore, I transform and top-code this variable in the same way as the income variable. I include wealth to test the long-term effects of military service. There may be cross-sectional differences in income at any point in time, but wealth captures the resources that individuals have accumulated. This measure is particularly important as individuals approach retirement.

Independent variables

Military service may be associated with greater or lesser achievement because of selection and screening. The military may disproportionately draw individuals who would not

otherwise have achieved higher occupational status and income. If lower status individuals disproportionately choose to serve in the military then the armed forces may simply reproduce civilian status (Appy 1993; Fallows 1975). I include measures of family background that may be associated with military service to address the issue of status reproduction. In addition, the military screens potential recruits for mental and physical characteristics. The military may tend to draw people from the middle of the ability distribution (Mare and Winship 1984). Individuals who are more academically promising may choose to go to college, while those who are less promising may be effectively "tracked" into the military. I include measures of prior academic achievement, as well as aspirations prior to joining the military to address the issue of selection.

Military Service

The key variable of interest is military service, which denotes whether the respondent has, in the words of the survey, "ever been on active duty in the U.S. Armed Forces or spent at least two months on active duty for training in the Reserves or National Guard."

Duration of Military Service

Military service was not a uniform experience; respondents served for differing lengths of time. It may be that military service only affects those who served for a long enough period of time to adequately disrupt their intended schooling. Or the effect of military service may be stronger for those who served for a longer period of time. To test for differences in the effect of the military by length of service, I estimate models in which length of military service is an alternative explanatory variable to military service. Length of military service is not

15

continuous, but falls into discrete categories. Men who served less than one year may have been expelled for physical or psychological reasons, or they may have enlisted in a program that required only 6 months of active duty, followed by 6 and a half years of reserve duty. Though the data do not directly address the numbers of men who were expelled for physical or psychological reasons, 141 veterans or approximately 24 percent of those serving less than one year did not also serve in the reserves and were therefore likely judged unfit for service for some reason. Men who were drafted needed to serve only two years, while men who volunteered for the army served at least three years. Men who volunteered for the Navy or Air Force served for 4 years. Men who served more than 4 years were most likely career soldiers, or reenlisted after their first tour of duty was finished. Therefore, I recategorize the length of service variable into 6 categories: 0 = no service; 1 = less than 1 year; 2 = between 1 and 2 years; 3 = between 2.1 and 3 years; 4 = between 3.1 and 4 years; and 5 = More than 4 years.

Timing of Service

I measure timing by looking at the decade in which individuals entered the military. The majority of the respondents entered the military in the 1950s, while the remainder entered in the early 1960s. Those who served in the 1950s were younger when they started serving. In addition, they served during a relatively calm period during the Cold War. Those who served in the 1960s were slightly older when they began serving. They were also more likely to have experienced the military build-up following the Berlin Wall and Cuban Missile crises. Some of them may have been affected by the beginning of the US engagement in Vietnam in 1964. The effect of military service may differ according to how old the respondents were when they

16

began serving or to the geopolitical situation during which they served. Therefore, I estimate models in which the decade of entering service is an alternative independent variable.

Characteristics of military service

Training: I also explore the effects of military training using data collected in response to a string of questions beginning: "Other than basic training, how many specialized training programs or schools did you complete while in the armed forces?" Individuals were then prompted for information about whether they used the training they received in subsequent civilian work. I construct a dummy variable coded one if the respondents used any of the training programs in subsequent work, and zero if they did not.

Draft: Because I am interested in whether the armed forces disrupted the respondents' work lives, I also include a measure of whether the individuals were drafted. Individuals who were drafted were less likely to have control over the timing of their service. The measure is composed of the answer to the question "How did you <u>first</u> enter the armed forces?" Individuals who answered that they were "drafted" were coded one, while all other respondents were coded zero.

Officer status: Individuals who achieved officer status may have achieved greater occupational status and income in their later civilian lives. Therefore I include a measure of officer status composed of answers to the following question: "What rank did you hold when you were <u>last</u> separated from active duty?" I code the measure of officer status as 1 if the respondent answered that they were pay grade O-1 or above, at least a second lieutenant in the Army, Air Force or Marines, or an ensign in the Navy. Officer status may interact with length of service. Almost half of the officers served for four or more years, while only 13 percent of

enlisted men served for that long. Unfortunately, a test of the interaction between officer status and duration of service is beyond the scope of the current paper.

Family Background

I use six measures of family background: family income, paternal status, parental education, sibship size, and hometown size. Family income is the average family income taken from tax records filed between 1957 and 1960. In 1975, the graduates were asked to report retrospectively their family income from 1957. To deal with missing data from the measure based on the tax records, average family income was regressed on the retrospective report. The retrospective report was then used to predict family income for those individuals missing data from tax records. Father's occupational status is based on the graduate's 1975 retrospective report of father's occupation. If the retrospective report is missing, father's occupational status is derived from the less detailed information provided by the father on the 1957 tax form. The measures of mother's and father's education are based first on retrospective reports of parents' education provided in 1975. If these measures are missing, a report from 1957 is substituted. The number of siblings ever born was enumerated in the graduates' responses to the 1975 survey. This variable is top-coded at 11. The size of high school hometown was constructed in 1957 based on geographic information collected at the time.

Aspirations

Veterans may have different ultimate occupational goals from non-veterans. These different goals may determine their later working lives, causing the apparent effect of military service. Therefore, I construct four aspirations variables: military service, college education,

and professional or managerial occupation. In 1957, respondents provided their "plans beyond high school" in response to the answer stem "I plan." Respondents could choose among six possible answers, or provide an open-ended response. I focus on whether men planned to enter the military or continue their schooling. In their senior year, respondents were also asked to check "I hope eventually to enter the type of occupation checked in the right hand column below." These broad occupational categories were re-coded into categories more compatible with subsequent census occupational codes. I construct two dummy variables on the basis of these answers, according to whether individuals "hoped" to enter either professional or managerial occupations.

Educational Attainment

I also use measures of two higher educational transitions: college attendance and college graduation. Individuals who attended or graduated from college are compared to individuals who simply graduated from high school. A key question is whether veterans who did not attend or graduate from college achieved as much as non-veterans with a college degree. If they did, this provides evidence that military service was an alternative to higher education. I also use a measure of education prior to entering the military derived from "Highest Grade Completed Prior to Active Duty," which is based on answers given in 1975 and 1992-3.

Methods

To test the effects of military service, as well as possible mediators of such service, I compare results from a series of models in which I take into account different independent

variables. First, I consider models that take into account the heterogeneity of military service.

I consider whether military service is best described by date of entry, duration of service, or a

simple dummy variable. Next, I consider whether the effects were different for veterans who

were drafted, became officers, or used military training in subsequent work. Then, I examine

the effects of military service along with the independent variables divided into categories

defined by order in the life course. I consider the effects of a variety of variables measured

prior to military service: family background; academic achievement; academic and

occupational aspirations; and pre-service educational attainment. Finally, I consider total

college attendance and graduation.

I consider two possible approaches to describe the effects of veteran status and other

early life characteristics on later life outcomes. The first approach is to estimate individual sets

of models for each of the seven socioeconomic outcomes. This alternative allows the early life

characteristics to affect each of the outcomes in different ways. To take just one possible

example, military service may affect occupational status in the middle of the career positively,

but affect wealth accumulated near the end of the career negatively. Unfortunately, this

procedure produces a total of 35 different models.

The second alternative is to estimate a series of MIMIC (multiple indicator, multiple

cause) models with all outcomes as indicators of a single intervening variable (Hauser and

Goldberger 1971; Joreskog and Sorbom 2001). This alternative produces only five different

models. These models describe each early life variable as affecting all of the later life

outcomes in the same direction and proportion relative to all of the other early life variables.

These effects differ only in the proportional effects of the independent variables across

outcomes. Thus, for example, the independent variables must have the same proportional

effects on occupational status, income, and wealth measured at all points in time. This effect is

multiplied by the loading for each of the outcomes. The simplest MIMIC model is the one in

which all of the independent variables affect an intervening variable that is indicated by the

seven outcome variables.

If the MIMIC models fit reasonably well, then they provide a more parsimonious way

to describe the data than the individual regressions for each outcome. Figure 1 shows the basic

MIMIC model to be estimated. As the figure shows, I allow the error terms of the outcomes to

be freely correlated. This suggests that individual variables may be related to each other in

ways that are not captured by their relationships to the intervening factor. Said another way,

the dependent variables are linked together not just by their relationships with the independent

variables. Because of the advantages from an analytical perspective of a more parsimonious

model, I estimate the MIMIC model first and look at model fit. As I describe in the findings

section, this model fits well. Therefore, I report just the estimates from the MIMIC models.

This model is based on the following set of three equations. The first equation is for the

measurement model:

$$y = \lambda_y \eta_1 + \varepsilon \qquad\qquad [1]$$

where y is a 7 by 1 vector of the socioeconomic outcome variables; η_1 is the latent endogenous

variable; λ_y is a 7 by 1 matrix of coefficients of the regression of y on η_1; and ε is a 7 by 1

vector of measurement errors in y, which are allowed to be freely correlated. The structural

model is calculated by:

$$\eta_1 = \Gamma \xi \qquad\qquad [2]$$

where η_1 is as defined above; Γ is a 1 by 20 matrix of coefficients of the relationship between the ξ and η_1; ξ is a 20 by 1 vector of latent independent variables. The measurement of the independent variables is specified by the following equation:

$$x = \xi + \delta \qquad\qquad\qquad\qquad [3]$$

where x is a 20 by 1 vector of the independent variables; ξ is defined as above; and δ is a 20 by 1 matrix of measurement errors in x.

The possible limitation of such an approach is that the measurement coefficients, or the effects of the intervening factor on the individual outcomes differ depending on which groups of variables are considered to be independent variables. In order to ensure that each of the succeeding MIMIC models describes the same set of intervening factors, I include all of the independent variables in all five MIMIC models. For instance, in the model that describes only military service as affecting the outcomes, I incorporate the other independent variables as intermediate variables. Thus, military service affects the outcomes indirectly as mediated by the other variables as well as directly. The other variables may also have direct effects on the outcome that are not a product of military service. However, I do not report these independent, direct effects of the intermediate variables. I then report only the total effects, both direct and indirect, of military service. Similarly, when I incorporate the family background characteristics into the model, I continue to include the other independent variables as intervening variables. Subsequent models follow this same procedure. To take the simplest example, Figure 2 shows the outlines of the structural portion of the model when the independent variables of interest exclude the measures of total educational attainment. In these models, equations #1 and #3 described above stay the same, though the number of variables,

and therefore the size of the vectors and matrices change. Equation #2 must now incorporate

errors in the *n-1* intermediate variables. This equation is now calculated by:

$$\eta = B\eta + \Gamma\xi + \zeta \qquad\qquad [4]$$

where η is now an *n* by 1 random vector of latent dependent variables; B is an *n* by *n* matrix of

structural coefficients; Γ is a *n* by *(20-n-1)* matrix of coefficients of the relationship between

the ξ and η_1; ξ is a *(20-n-1)* by 1 vector of latent independent variables; ζ is a *(n-1)* by 1 vector

of errors in the relationship between ξ and η.

A further potential problem with estimation is that a number of the variables are highly

correlated. For example, the variable measuring military service is correlated at greater than .9

with the variables measuring draft, rank, training, as well as college attendance and graduation

before service. These relationships follow from the way that the variables are defined, for only

individuals who have served in the military could, to take one example, be drafted. This

multicollinearity means that the matrix to be analyzed is not "positive definite." One solution

is to drop the correlated variables from the analyses. However, the effects of these variables

are of interest. A second solution is to add ridge constant to the matrix, multiplying the

diagonal elements, in order to analyze it. I use this latter alternative.

The preferred model is chosen using the Bayesian Information Criterion (BIC). BIC is

a measure of goodness of fit that takes into account sample size (Raftery 1995). I calculate BIC

as follows:

$$BIC = \chi_k^2 - df_k \log n$$

$$[5]$$

23

where χ^2 is the likelihood ratio test statistic for comparing the model M_k to the saturated model,

that with all data points described exactly. df_k is the degrees of freedom associated with M_k,

and *n* is the sample size. Negative values of BIC suggest that the M_k is preferable to the

saturated model. Differences of -6 constitute strong evidence that a particular model is

preferable to another model (Raftery 1995).

Missing data

There are 4,992 men in the initial sample of the WLS. I exclude the 12 men who

entered military service in the 1970s, for a total sample of 4,981. Of these 1,011 or 20 percent

did not provide information for the 1992 survey. This represents a large loss of data due to

wave non-response (Schafer and Graham 2002). There is also significant item non-response.

Of the total sample of 3,970 who answered the survey in 1992, 1,026 respondents (26 percent)

are missing data on one of the 7 dependent variables. This ranges from 492 cases missing data

on income in 1992 to 26 cases missing data on wealth in 1992. Another 306 or 10 percent are

missing values for one of the independent variables. This ranges from 194 cases missing data

regarding their high school rank, to 1 case missing data on the number of siblings ever born.

Because of the magnitude of the missing data problem, I generate multiple imputation

estimates of the covariance matrix and means using the multiple imputation procedure in Prelis

(Joreskog and Sorbom 2001, 2003). This procedure begins with the observed mean and

covariance structure, and then calculates:

$$E(y_{imiss} \mid y_{iobs}; \hat{\mu}, \hat{\Sigma}); \text{ and } Cov(y_{imiss} \mid y_{iobs}; \hat{\mu}, \hat{\Sigma}), i = 1, 2, ..., N$$

The means and covariances for the observations with missing values are then used to generate updated estimates of μ and Σ until $(\hat{\mu}_{k+1}, \hat{\Sigma}_{k+1}) \approx (\hat{\mu}_k, \hat{\Sigma}_k)$. I then use these imputed means and covariances to estimate the MIMIC models.

Predictions

In the following brief section, I consider what each of the five hypotheses outlined in the introductory section predicts about the effects of military service on socioeconomic outcomes. The predictions of the five hypotheses are summarized in Table 1.

Negative Effect: Disruption Hypothesis. The disruption hypothesis predicts that military service will have a negative effect on occupational attainment over the life course. This hypothesis predicts that veterans will have lower income, status, and wealth than non-veterans. This negative effect should apply even if individuals from lower status backgrounds disproportionately choose to serve in the military. For instance, veterans from these backgrounds should earn less than non-veterans with the same background characteristics. Military service should also negatively affect veterans at all levels of prior academic achievement and aspirations. In addition, veterans who had higher aspirations and worked at jobs with higher occupational status may be disproportionately negatively affected by their time in the armed forces. These veterans may not progress as quickly as equivalent non-veterans.

Positive Effect: Apprenticeship Hypothesis. This hypothesis predicts that military service will have a positive effect on subsequent income, status, and wealth. According to the hypothesis, military service is an alternative to higher education. Veterans from lower status backgrounds should progress farther than they would have had they not served in the armed forces. In addition, veterans who were less academically promising and less ambitious may

25

also benefit from their time in the military. In particular, veterans who use their military training in subsequent work should perform jobs with higher wages and occupational status. Additionally, veterans who began their careers in lower status jobs may be most likely to benefit from military service. The positive effect of military service should remain when all other competing explanatory measures are included.

Positive Effect: Additional Education Hypothesis. The additional education hypothesis predicts that military service will have a positive effect. Some veterans may have used their military service as a way to attain more education than they would have otherwise. This additional education may allow them to earn more later and work at higher status jobs than they would have otherwise. The apparent positive effect of military service should be explained by the inclusion of the total educational variables.

Neutral Effect: Status Reproduction Hypothesis. The status reproduction hypothesis predicts that military service will have no effect on occupational status, income, and wealth when veterans' prior characteristics are taken into account. According to this hypothesis, the apparent negative (or positive) effect of military service stems from social background factors that cause both military service and later occupational attainment. Therefore the effects of all military variables should be neutral when social background characteristics are considered. Veterans should come from family backgrounds that predict their later accomplishments.

Neutral Effect: Selection Hypothesis. This hypothesis also predicts a neutral effect of military service when pre-service characteristics are considered. It suggests that veterans may have academic achievements and aspirations that explain their later income, status, and wealth. Any apparent negative or positive association between military service and socioeconomic

outcomes should be based on the veterans' individual characteristics prior to service, such as academic achievement and ambition. Thus the net neutral association with military service would be a consequence of selection.

Findings

Differences Between Veterans and Non-veterans

Table 2 presents the statistics describing the entire sample and broken out by veteran status. This table is derived from the data with complete information on all cases. Veterans tend not to come from families with different average characteristics than those of non-veterans. However, they had lower average IQ scores and high school rank than non-veterans. In addition, they made different immediate and long-term plans while in high school than did non-veterans. They were more likely than non-veterans to have planned to enter the military when they were in high school and less likely to have planned to continue their schooling. They were also less likely to plan to work at professional occupations and more likely to plan to enter managerial occupations in their later lives. These differences suggest that veterans differed systematically from non-veterans in terms of their individual characteristics, which is consistent with the selection hypothesis. At both the middle and end of their careers, they worked at jobs with lower status as measured by occupational education. They earned less income than non-veterans when they were in their mid-thirties. By the time they had reached their early fifties, they had caught up in terms of income. At this age, however, they had accumulated less wealth than non-veterans.

27

Veterans did not all experience the armed forces in the same way. Approximately 8 percent of veterans had achieved officer status by the time they left the armed forces. Approximately 12 percent had been drafted. A quarter said that they used training they received in the military in their subsequent work. Two-thirds of the veterans entered the armed forces in the 1950s, while the remainder entered in the 1960s. Said another way, the majority of the veterans entered the military immediately after high school, while most of the rest entered around four years later. A quarter of the veterans spent less than a year on active duty in the military, while another quarter spent 1-2 years in the military.

Model Fit: The Best Measures of Military Service

Surprisingly, the MIMIC models fit the data well. In these models, all of the independent variables are constrained to have proportional effects on the two groups of socioeconomic outcomes, which are measured nearly two decades apart. These measures encompass occupational status measured in two different ways and income, measured at the middle of the work life. These three variables are then recorded again, almost two decades later, in addition to wealth. That the model fits so well implies that the relationship between early life experiences and characteristics, and outcomes across the entire work life is consistent. This consistency might imply that the effect on later life outcomes are the consequences of selection or of individuals' unchanging abilities and ambitions. However, the model also constrains the effects of social background to be the same through the work life. This implies that individuals are at least partly tracked in their later socioeconomic lives on the basis of their family's income and status when they were young.

Table 3 shows the goodness of fit measures for the MIMIC model when estimated with military service measured in three ways: as a dummy variable; as date of entry, which may also correspond to age; and as length of service. The MIMIC model in which military service is indicated by just a dummy variable fits the data best. For this model, chi-square was 7.59, with 114 degrees of freedom. The BIC for the model is -962.91, which suggests that the model fits well by both traditional chi-square criterion and according to BIC. Therefore, I use military service measured as a simple dummy variable throughout the remaining models.

There are two possible explanations for the fact that the effect of military service does not depend on duration. The military service variable may measure selection into the military on individual characteristics, in which case, differences in duration of service would have no further effect. Alternatively, the effect of military service may be accomplished by events occurring in the first year of such service. This latter interpretation is consistent with statements made in interviews with veterans that suggest that the most important feature of military service is basic training, which happens within the first two months of service.

In addition, row 2 of table 3 also contains the fit statistics for the preferred model when the loadings of the outcomes that are measured in the same metrics are equated across time. In other words, the effect of the intervening variable on occupational education is constrained to be the same at both the middle and end of the career. This model represents an improvement of fit over the model in which the effects of the intervening variable change over time. Thus, the preferred model says that the effects of the intervening variable on the socioeconomic outcomes of the same metric do not change over time.

The Intervening Factors: How prior characteristics affect socioeconomic outcomes

Table 4 presents the loadings on the underlying socioeconomic construct of the different socioeconomic outcomes: status, income, and wealth. Loadings describe the relative effects of all of the independent variables on the dependent variables. In this case, the intervening factor is normalized on the log of wealth in 1992. According to the model, the effect of the independent variables does not change over time on the variables measured by a similar metric. However, the loadings suggest that the effects of the independent variables are strongest for occupational education. These effects are almost twice as large on the log of wealth than they are on the log of earnings.

The privileges of rank

Table 5 presents the effects of all of the independent variables on the intervening factor just described, expressed as the log of income in 1992. The variables are entered into the model as described above, in a sequence determined by their order in the life course. Model 1 describes just the effect of military service. Model 2 includes various measures of the differences between veterans, such as the effects of being drafted, of having served as an officer, and of using military training in subsequent civilian work. Model 3 incorporates a set of family background variables, including average family income and father's occupational status. Model 4 includes pre-service aspirations and attainment. This model includes aspirations and test scores while in high school, as well as college attendance and graduation prior to service. Finally, the full model incorporates overall educational attainment, which may include education after service.

In all of the models, veterans benefit from having served as officers. Officers achieved higher occupational status, earnings, and wealth throughout the life course. In the full model, where all prior characteristics, as well as ultimate educational attainment are controlled, veteran officers earned approximately 1.2 percent more at the mean for income than veteran enlisted men. By way of comparison, in the same model, college graduates earned 2 percent more than high school graduates. In 1992, the mean income for the sample was $45,250. Translated into dollars, officers earned $370 more, plus or minus $311, than non-veterans with the same characteristics. By way of contrast, college graduates earned $920 dollars more, plus or minus $215, than men with only a high school diploma. Thus, officers earned a premium that was worth somewhat more than a third of the premium earned by college graduates. According to the model, this premium operated across the seven different outcomes affected by the intervening factor. Officers benefited from a similar premium in terms of the occupational status of their jobs, and the wealth that they held as they approached retirement. These findings suggest that officers received either skills or credentials that they were able to translate into a benefit in the civilian labor market. Among officers, therefore, the armed forces provided an apprenticeship program.

A portion of the officer premium is explained by the inclusion of measures of family background. Approximately five percent of the initial effect of officer status is explained by differences in social background between non-officers and officers. That is, officers tended to come from families with different average characteristics than did non-officers. Model 2 includes only measures of military service, while Model 3 introduces such measures of social background as mother's and father's educational attainment. When these family background

measures are added, the benefit to officers drops from $600 to $560, though this change is not statistically different from no change. That is, men who came from different social backgrounds were more likely to become officers when they entered the military and this accounts for some of the apparent effect of having been an officer on status, earnings and wealth throughout the life course. This finding is consistent with the status reproduction hypothesis.

A larger share of the officer premium is explained by differences in pre-service educational attainment and aspirations. Model 4 differs from Model 3 by introducing individual measures such as college plans and high school rank. When these two models are compared, the officer premium drops from $560 to $390. Approximately 20 percent of the initial officer effect is explained by the inclusion of these individual achievement variables. Individuals who had characteristics that enabled them to do better socioeconomically were more likely to complete their military service with a higher rank than individuals who did not share these average characteristics. Officers were more likely than enlisted men to have entered the military with a college degree. These findings are consistent with the argument that the association between military service and later life outcomes operates through selection.

Veterans received a separate benefit from entering the military after completing college. Officers therefore often received an additional, complementary benefit from their greater average formal education. Yet, even enlisted men benefited socioeconomically from completing college before entering the military. In the full model, the benefit of entering the military with a college degree was greater than that of being an officer. The effect of pre-service education is only reduced slightly by the inclusion of total education. According to the

full model, enlisted men who completed college before entering the military earned $1,400, plus or minus $540, more than non-veteran high school graduates. The difference between the premium earned by veterans with a pre-service college degree and non-veteran college graduates is approximately $500, though this difference is not statistically significant from zero. Therefore, completion of college before entering the military is not just a proxy for having a college degree. Veterans who pursued their education before entering the armed forces benefited more from additional education than veterans who completed additional education after service.

Conclusion

At the beginning of the paper, I asked the following question: Did military service provide veterans with the credentials or skills they needed to do well at work? The answer to this must be a qualified yes, for military service did advance the socioeconomic prospects of the minority of veterans who became officers. Yet, the officer premium was not as large as that afforded to college graduates, and therefore cannot be considered a direct substitute for a college degree.

In addition, the process by which individuals became officers was governed by selection. Veteran officers had different overall pre-service achievements and aspirations than non-officers, which partially explains their greater average socioeconomic success. They were more likely than veteran enlisted men to have graduated from college. They benefited from formal education, as well as the privileges of rank. Thus, they benefited from military skills or credentials that were, for the most part, in addition to their greater pre-service formal educational advantage.

Ironically, veterans benefited socioeconomically if they entered the military after graduating from college. They were also more likely to serve as officers. Thus, military service was not a substitute for a college degree. Rather, military service was more potentially beneficial and less disruptive if individuals completed college before entering the armed forces.

By contrast, the majority of veterans, those who served as enlisted men, did neither better nor worse than non-veterans over the course of their civilian work lives. Military service had a neutral effect on socioeconomic attainment, and therefore did not substitute for additional formal education among these veteran enlisted men.

To a limited extent, Cold War military service also reproduced prior civilian status. When all men are considered, veterans did not systematically differ from non-veterans in terms of their family backgrounds. Yet, even during the peacetime Cold War, men from families with lower occupational status and income were less likely than men from a more privileged social background to become officers. They were therefore less likely benefit from the military's apprenticeship features. These findings cast light on the debate regarding whether or not military enlistment and service have been governed by class bias (Appy 1993; Card 1983; Fallows 1975; Mayer and Hoult 1955; Zeitlin, Lutterman, and Russell 1973). The preceding analysis suggests that even during peacetime men from less advantaged backgrounds were also less likely to benefit from higher rank.

Do these findings have relevance for troops serving today? Certainly, individuals today are at greater risk than the Cold War veterans of seeing combat. Soldiers exposed to combat may experience longer term trauma and stress and potentially more damaging effects on their later life attainment (Card 1983; Elder and Clipp 1989; Hoge, Castron, Messer, McGurk,

Cotting, and Koffman 2004). Yet, the minority of military recruits participate in combat even in wartime. In World War II, only 27 percent of the Army had been in "actual combat" (Stouffer 1949, pp. 164-5). Today, the risk of seeing combat is still quite low. Only 13 percent of today's military recruits are trained in combat specialty occupations, such as the infantry and artillery. Just 15 percent of individuals on active duty in the armed forces are stationed in Iraq and Afghanistan. Five times as many troops are stationed in the United States (Department of Defense 2002). Among these troops, the risk of combat is as low as it was among the men who served in the peacetime Cold War.

Thus, some of the findings may apply to those who are not exposed to combat, the majority of troops. As did the Cold War veterans, non-combatant veterans of today's military may also benefit from delaying entry until after college graduation or from becoming officers, while the rest may see no effect of their service on their later life attainment.

Table 1: Predictions of Different Hypotheses

Hypothesis	Zero Order Military Effects	Parameter Estimates Explained by	Net Military Effects
Disruption	Negative	--	Negative
Apprenticeship	Positive	--	Positive
Additional education	Positive	Total Education	Neutral
Status reproduction	Positive or negative	Family Background	Neutral
Selection	Positive or negative	Individual Characteristics	Neutral

Table 2. Means, Standard Deviations, and Proportions by Military Status

Variable	Total Sample		Non-military		Military	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Family Background Variables						
Log Average Family Income	8.67	(0.59)	8.67	(0.60)	8.67	(0.58)
Father's SEI	35.16	(23.44)	35.88	(23.78)	34.62	(23.17)
Father's Education	9.90	(3.48)	10.00	(3.54)	9.82	(3.42)
Mother's Education	10.67	(2.82)	10.63	(2.87)	10.70	(2.78)
Number of Siblings *	3.10	(2.42)	2.92	(2.24)	3.24	(2.54)
Size of Place	3.25	(1.61)	3.21	(1.60)	3.28	(1.61)
Academic Achievement Variables						
IQ score *	102.61	(15.00)	104.73	(15.49)	101.00	(14.42)
High School Rank *	98.59	(14.31)	101.84	(14.60)	96.12	(13.58)
College Education						
Attended, but no grad *	0.34		0.45		0.26	
Graduated*	0.15		0.13		0.17	
Attended before military					0.13	
Graduated before military					0.11	
Aspirations						
Serve in Military *	0.28		0.10		0.42	
Continue schooling *	0.46		0.59		0.36	
Work as professional *	0.40		0.51		0.32	
Work as manager *	0.21		0.19		0.23	
Served in the Military	0.57					
First job characteristics						
Professional *	0.29		0.40		0.21	
Managerial	0.06		0.05		0.06	
Job in 1974 characteristics						
Occupational Education *	-0.47	(1.76)	-0.10	(1.93)	-0.74	(1.56)
Occupational Income	-0.45	(1.11)	-0.43	(1.13)	-0.46	(1.10)
Income *	9.70	(0.43)	9.73	(0.47)	9.68	(0.40)
Job in 1992 characteristics						
Occupational Education *	0.62	(1.45)	0.83	(1.54)	0.46	(1.36)
Occupational Income	-0.45	(1.18)	-0.44	(1.18)	-0.45	(1.18)
Income	10.72	(0.69)	10.74	(0.74)	10.71	(0.65)
Wealth *	12.14	(1.34)	12.23	(1.36)	12.06	(1.32)

Table 2. Means, Standard Deviations, and Proportions by Military Status (cont)

Variable	Total Sample		Non-military		Military	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Drafted into military	0.07				0.12	
Officer Status					0.08	
Used military training					0.26	
Decade entered the military						
Fifties					0.62	
Sixties					0.38	
Decade entered the military						
Time in the military						
Less than a year					0.25	
1-2 years					0.24	
2.1 - 3 years					0.18	
3.1 - 4 years					0.20	
More than 4 years					0.14	
N	2,463		1,062		1,401	

Table 3. Goodness of fit for models with different measures of military service

	Chi-Square	df	BIC	BIC difference
Military Service	7.59	114	-962.913	
With Loadings fixed	12.47	117	-983.573	-20.660
Duration of Service	380.91	114	-589.593	373.320
Decade of Entry	612.31	120	-358.373	604.540

Table 4. Loadings of socioeconomic outcomes on underlying construct, intervening factor normalized on log of wealth

	Loading	Standard Error	Standardized Loading
1974			
Occupational Education	2.75	(0.78) **	0.60
Occupational Income	1.46	(0.42) **	0.32
Log of earnings	0.53	(0.16) **	0.12
1992			
Occupational Education	2.75	(0.78) **	0.60
Occupational Income	1.46	(0.42) **	0.32
Log of earnings	0.53	(0.16) **	0.12
Log of wealth	---		0.22

* significant at .05

** significant at .01

Table 5. Effects of independent variables on socioeconomic construct, normalized on Income in 1992

	Model 1: Military Service	Model 2: Military Variables	Model 3: + Family Background	Model 4: +Pre-service Attainment & Plans	Full Model: + Total Educational Attainment
Military Measures					
Military Service	-0.0029	-0.0043	-0.0042	-0.0046	-0.0041
	(0.0031)	(0.0032)	(0.0032)	(0.0032)	(0.0031)
Drafted		-0.0045	-0.0042	-0.0044	-0.0041
		(0.0032)	(0.0031)	(0.0031)	(0.0031)
Officer Status		0.0174 **	0.0165 **	0.0131 **	0.0123 **
		(0.0043)	(0.0042)	(0.0038)	(0.0037)
Used military training		0.0035	0.0033	0.0030	0.0030
		(0.0031)	(0.0031)	(0.0031)	(0.0031)
Education prior to Military					
College attendance				0.0061	0.0056
				(0.0032)	(0.0032)
College graduation				0.0158 **	0.0146 **
				(0.0041)	(0.0040)
Family Background					
Family Income			0.0135 *	0.0113 *	0.0106
			(0.0057)	(0.0055)	(0.0054)
Father's occupational status			0.0004 **	0.0003 *	0.0003 **
			(0.0002)	(0.0001)	(0.0001)
Father's education			0.0023 *	0.0019 *	0.0018
			(0.0010)	(0.0010)	(0.0009)
Mother's Education			0.0023 *	0.0019	0.0017
			(0.0012)	(0.0011)	(0.0011)
Size of place of origin			0.0039 *	0.0034	0.0033
			(0.0019)	(0.0018)	(0.0018)
Number of siblings			-0.0040	-0.0031	-0.0029
			(0.0027)	(0.0026)	(0.0026)
Academic achievement					
IQ score				0.0008 **	0.0007 **
				(0.0002)	(0.0002)
High school rank				0.0007 **	0.0007 **
				(0.0003)	(0.0002)

Table 5. Effects of independent variables on socioeconomic construct, normalized on Income in 1992 (cont)

	Model 1: Military Service	Model 2: Military Variables	Model 3: + Family Background	Model 4: +Pre-service Attainment & Plans	Full Model: + Total Educational Attainment
Aspirations					
College plans				0.0144 **	0.0133 **
				(0.0040)	(0.0038)
Military plans				-0.0040	-0.0035
				(0.0031)	(0.0031)
Professional plans				0.0141 **	0.0131 **
				(0.0039)	(0.0038)
Managerial plans				0.0030	0.0030
				(0.0031)	(0.0031)
Educational attainment					
College attendance					0.0038
					(0.0031)
College Graduate					0.0201 **
					(0.0046)
Observations	4,980	4,980	4,980	4,980	4,980

Standard errors in parentheses
* significant at .05
** significant at .01

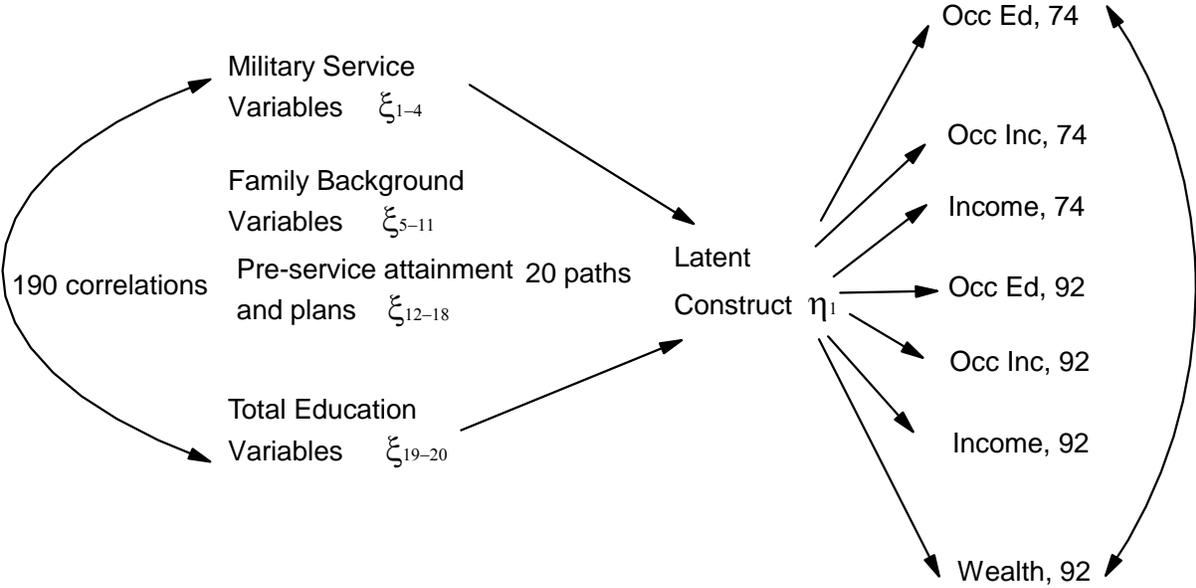Figure 1: MIMIC model of early life characteristics and experiences effects on later life socioeconomic outcomes

Military Service
Variables ξ_{1-4}

Family Background
Variables ξ_{5-11}

Pre-service attainment 20 paths
and plans ξ_{12-18}

190 correlations

Total Education
Variables ξ_{19-20}

Latent
Construct η_1

Occ Ed, 74

Occ Inc, 74

Income, 74

Occ Ed, 92

Occ Inc, 92

Income, 92

Wealth, 92

Figure 2: Relationship of Independent and Intermediate variables
to latent construct
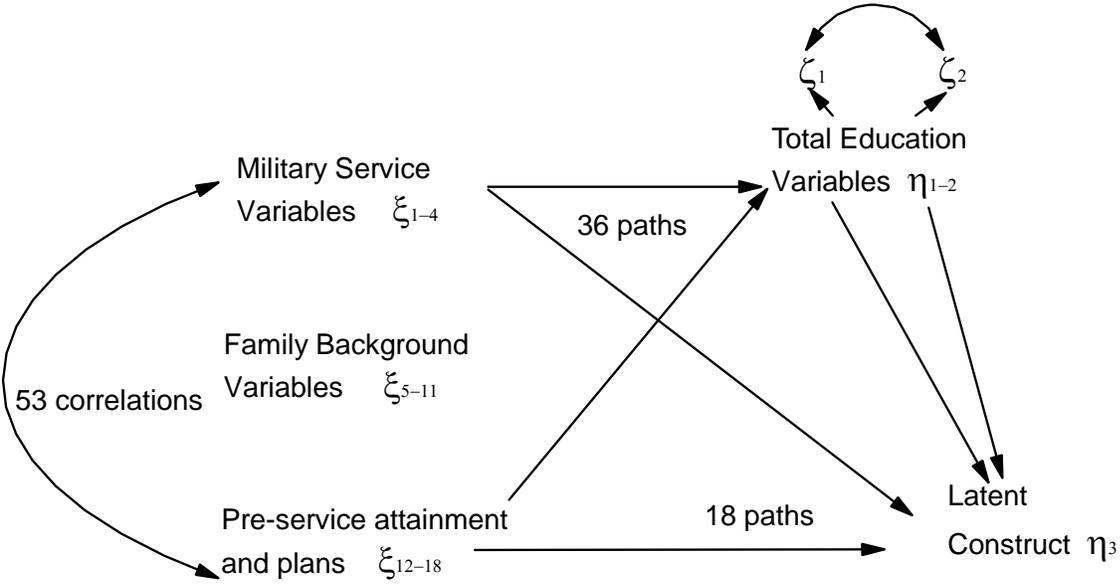
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