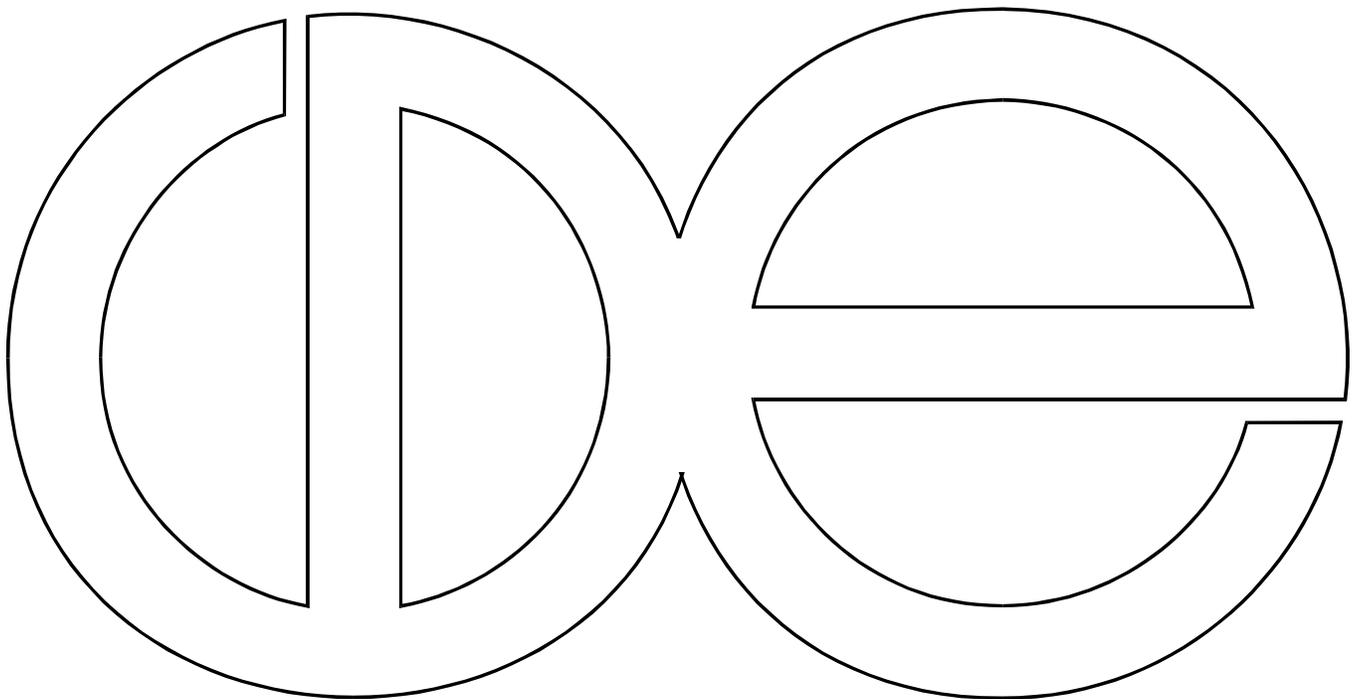


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**Lessons from the Cold War:
Military Service and College Education**

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ABSTRACT

Military service is commonly viewed as a route to a college education, yet veterans have attained less education than non-veterans for decades. In the following paper, I consider three competing explanations for this discrepancy. Military service may have: 1. Reproduced civilian status; 2. Benefited disproportionately veterans from disadvantaged backgrounds; or 3. Disrupted the educational portion of the transition to adulthood. Using a new version of the continuation ratio model, I find that military service diverted men from their prior college plans, consistent with the third explanation. However, less academically promising men were also more likely to serve in the military.

“I was going to go to [college] in January of ‘58.... I didn’t prepare myself back in high school. I was in the top third of my class, but I didn’t take difficult subjects.... If I had gone to college, I probably would have went a different career path.”

Andrew Garland, air force veteran¹

Since the end of World War II, the US military has provided funds to help veterans further their education (Angrist 1993; Fligstein 1976; Mason 1970; Veterans Administration 1975; Xie 1992). Ambitious men, and later women, could enlist, serve, and then use government funds to get a college degree. The military has long used these benefits to recruit individuals to the army, navy, air force and marines (Segal 1989). Even in the year immediately following the attacks of September 11, potential recruits were less likely to cite patriotism and more likely to cite educational financing as a primary reason for joining the military (Fountain 2002).

Indeed, World War II and Korean veterans attained more years of schooling than non-veterans (Fligstein 1976; Mason 1970; Nam 1964). These veterans had an educational advantage because of the lower relative educational attainment of civilians (Segal 1989; Xie 1992). However, since the Vietnam War, veterans have received relatively fewer years of schooling than non-veterans (Card 1983; Cohen, Segal, and Temme 1986; Cohen, Warner, and Segal 1995; Segal 1989). During the 1950s, the overall rates of college attendance and completion were lower than they have been in subsequent decades. In the early 1950s, educational funding for veterans constituted almost a third, while civilian educational benefits accounted for less than a tenth of government welfare expenditures. Because of GI bill benefits, veterans were more likely to go on to get a college education than were civilians. By the early 1970s, the relative size

of civilian and veteran educational funding had reversed (Angrist 1993; Segal 1989). Since the Vietnam war, civilians have been increasingly likely to go on to college. The lower relative educational attainment of veterans, then, is a consequence of increases in civilian college education, rather than a decline in the education of former service-members. For at least the last four decades, there has therefore been a discrepancy between the perception and reality of the role of the military in furthering the education of enlisted men and women. Why do recruits continue to think that joining the military will increase schooling, when, on average, veterans get less education than non-veterans?

This discrepancy can be explained by one of three competing narratives drawn from sociological theory and research. The following paper adjudicates among these three narratives. The first narrative says that the effect of military service on educational levels differs by class, status or income. In this view, since military service reproduces civilian status, military service should have no effect on educational attainment. I refer to this as the neutral narrative. The second narrative says that serving in the armed forces allows individuals to overcome constraints imposed by their prior civilian status, disproportionately benefiting individuals from lower-income and lower-status families. According to this view, military service does not increase the average education of the individuals who serve in the military, but does help veterans from disadvantaged family backgrounds alter their life trajectories. Such service allows individuals to move from a disadvantaged background to attain more education than they would have otherwise, providing a “bridging environment.” I refer to this as the positive narrative. The third

¹ Pseudonym, interviewed October 14, 2002.

narrative says that military service does enable some individuals to get more schooling, but halts the educational trajectories of many more, particularly those who showed academic promise prior to enlistment. This narrative claims that service in the armed forces disrupts the transition to adulthood that would normally consist of completing school, getting a job, and starting a family. I refer to this as the negative narrative.

I use logistic models to adjudicate between these three competing accounts. I examine the effect of military service on college attendance and graduation among men who served in the military during the Korean and Vietnam Wars, and the intervening peacetime Cold War. In brief, I find that military service diverted men who were academically promising and those who planned to go to college from doing so. In other words, military service kept men from furthering their education, thereby disrupting the transition to adulthood. These findings support the negative narrative. The negative effect of military service applied regardless of whether the men served during wartime or peacetime. The effect did not differ by length of service, applying to men who served for less than a year as well as those who served for longer periods. Among men who planned to go to college, military service made it less likely that they would follow through on those plans. Among men who had no such plans, military service actually increased the odds of getting a college education. These men, however, were still less likely to attend and graduate from college than men who planned to go to college, regardless of veteran status. I find no evidence that the effect of military service differed by social origins.

Status Reproduction

The status reproduction, or neutral narrative says that military service should affect individuals differently based on prior civilian status. This narrative is based on the following assumption: Individuals are born into different class positions that determine their military service and rank, which, in turn, affect how far they go in school (Levy 1998). According to this narrative, military service should have no effect on educational attainment net of family background. This view predicts that individuals who join the military often come from less privileged family backgrounds and would have been less likely to go on to education after high school had they not served in the military (Card 1983; Elder 1986). Some veterans, however, do come from higher status families. They should be more likely to use GI bill benefits, but they would have likely increased their education anyway (Angrist 1993; Nam 1964). In the long run, military service should have no net effect on educational attainment.

Individuals born to wealthy families will benefit from higher status and income in their education and military service. They are unlikely to enlist in the military (Moskos 1970). In times of war, they can call on a doctor to exempt them from the draft (Appy 1993; Fallows 1975). If they do serve in the military, they usually attend officer training or military academies, leading to higher rank (Moskos 1970; Stouffer 1949). They are the veterans most likely to use GI bill benefits as a subsidy to complete their education (Angrist 1993).

By contrast, individuals born to poor or low-status families do not have the same early advantages and, as a consequence, will remain in the lower end of the status and income distributions. During times of war, they are the first to enlist in the military. If drafted, they

usually comply with their orders. They are assigned to dangerous combat positions where they are more likely to be killed (Appy 1993; Fallows 1975; Mayer and Hoult 1955; Zeitlin, Lutterman and Russell 1973). In line with this narrative, the Vietnam war has been called a “class war,” in which the sons of working class parents were more likely to fight and die in Southeast Asia (Appy 1993; Fallows 1975; Levy 1998; also Zeitlin, Lutterman and Russell 1973).

This neutral narrative explains the discrepancy between the perception and reality of the effect of military service in the following manner. Military service does not affect average education. The apparent negative effect of military service stems from the fact that those who serve would have been less likely to go on to college based on their prior characteristics. The perception of the positive effect of military service stems from the fact that some people use GI bill benefits to fund their education, but they would have likely increased their education without these benefits.

Bridging Environment

The bridging environment, or positive narrative suggests that military service increases the educational attainment of individuals from lower-income and lower-status backgrounds. As in the preceding narrative, family background shapes individuals’ life trajectories. However, the bridging environment narrative suggests that these trajectories can be altered by a decisive experience, such as joining the military (Elder 1986, 1987; Elder and Hareven 1993). In this view, veterans from poor and lower status families should therefore attain more education than non-veterans from similar backgrounds.

According to this narrative, veterans from disadvantaged families do better in school than they would have otherwise because they benefit from several attributes of military service. Individuals who join the military often leave home and become independent for the first time, going to a new state or country. Military service expands their horizons (Elder 1986, 1987; Elder and Hareven 1993). Military service cuts these individuals off from their families and friends, creating a break from a negative past (Brotz and Wilson 1946; Elder 1986, 1987; Elder and Hareven 1993). For instance, young men who had committed crimes have been sent to the military to turn their lives around (Johnson and Kaplan 1991). Military service helps individuals move from a negative context to a positive one, by way of the “bridge” of the military environment.

This positive view of military service accounts for the discrepancy between perception and reality in the following way. The measured negative effect of military service stems from the fact that veterans have lower average education than non-veterans. However, the perception of the military as increasing educational attainment stems from the fact that some veterans from disadvantaged backgrounds do, in fact, complete more education than they would have, had they not served in the military.

Disruption of the Transition to Adulthood

Like the preceding narrative, the transition to adulthood, or negative narrative sees military service as an interruption, but, this time, as a negative one. Unlike the preceding narrative, this narrative focuses on the timing of events. According to this narrative, military service should make veterans who would otherwise have gone on to college less likely to do so.

The transition to adulthood narrative is based on anthropological research, which has identified different cultures' rites of passage. These rites signify that an individual has become an adult. According to this narrative, the rite of passage in the United States consists of a normative sequence of events: leaving school, getting a job, and starting a family (Elder 1986; Hogan 1978). If these events are delayed or the order is confused, the transition has been disrupted. This narrative thus emphasizes timing and posits a normative order and sequence for the accomplishment of the transition.

In the contemporary United States, military service is not considered a typical component of the transition. Serving in the military may delay or change the timing of education, particularly college attendance and graduation (Elder 1986; Hogan 1978; Hogan and Astone 1986; McDonagh 1946). The effect of military service may differ for different types of individuals (Bidwell 1961; Stouffer 1949). For those who would otherwise go on to get more education, military service generally takes place at a time when they would enroll in college. Military service should therefore be most negative for individuals who plan to go to college or are academically promising. For these individuals, military training is irrelevant to their future civilian lives (Moskos 1970).

This negative narrative accounts for the discrepancy between perception and reality in the following way. On average, men who serve in the military are less likely to go on to get further education. Those who plan to go to college become less likely to do so after serving in the military, because their service has disrupted at least the educational component of the transition to adulthood. As in the status reproduction narrative, the positive perception of military service

stems from the fact that military service does increase the likelihood that some men further their schooling. More broadly, military service may substitute for formal education, thereby constituting an alternative component of the transition to adulthood.

Data and Methods

Data

To examine the effect of military service on schooling, I use two distinct, but related data sets, derived from the Wisconsin Longitudinal Study (WLS). The WLS contains information provided by 8,500 individuals who graduated from Wisconsin high schools in 1957, along with 5,300 of their siblings. WLS data were collected from the 1957 graduates or their parents in 1957, 1964, 1975, and 1992-93. Data were collected from the siblings in 1977 and 1993-4. 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.

One data set contains responses that the graduates provided. I refer to this as the original sample. The other combines these responses with those provided by the siblings of the graduates. I refer to this as the pooled sample. Each sample has different strengths. The members of the original sample provided information before they served in the military, while their siblings did not. Yet, these original respondents all graduated from high school in the same year. Therefore, the pooled sample has the advantage that its members were born and could have

served in the military at different times. This allows me to test for differences in the effects of military service by cohort or period of service.

Because very few women served in the military, I limit both samples to men. As shown in figure 1, more than half of the veterans in the original sample began serving in 1957-8, when the sample had just finished high school, and another quarter entered service in 1961-2, when many of them had completed college. Figure 1 also puts the WLS respondents into perspective, showing the number of military personnel in the armed forces after 1950 for the United States as a whole. Between 1950 and 1953, enlistment approached 4 million, when the US was engaged in the Korean War. Enlistment reached another peak in the late 1960s, during the US's official involvement in Vietnam, which stretched from 1964 to 1972. Today, approximately 1.4 million men and women serve in the military. Most of the WLS respondents entered the military after the end of the Korean War and before the beginning of the Vietnam War.

{Figure 1 about here}

In order to assess the effect of military service on educational attainment, I restrict the analyses to the men who never served in the military and those who entered the military during the period when they would have been most likely to enter college, the years immediately after high school. The original sample includes those who joined the military in the year and a half following high school graduation, 1957 and 1958. It excludes men who joined the military after 1958. The veterans in this original sample entered the military between the ages of 17 and 20. The pooled sample used in the following analyses incorporates only those siblings who never

served in the military or who entered the military when they were between 17 and 20 years old. Figure 2 shows the distribution of the years of entry for the members of the pooled sample. Clearly, the respondents who entered in 1957-8 dominate the sample. This sample excludes the male siblings who began serving when they were older than 20. The veterans in both samples had no more than a high school diploma, or twelve years of education, when they entered the military. I exclude veterans who had thirteen or more years of education prior to entering the military.

{Figure 2.}

Dependent variable

The dependent variables are two conditional educational transitions: college attendance given high school graduation and college graduation given attendance.

Independent variables

Military service may be associated with greater or lesser educational attainment because of selection and screening. The military may disproportionately draw individuals who would not otherwise have gone on to get a college education. This is, in fact, one assumption underlying the status reproduction argument (Appy 1993; Fallows 1975). To address the issue of selection into the military, I include measures of family background that may be associated with military service. In addition, the military screens for mental and physical characteristics. The military may tend to draw people from the middle of the ability distribution (Mare and Winship 1984).

To address the issue of screening, I include measures of prior academic achievement, as well as aspirations prior to joining the military.

Military Service

The key variable of interest is military service, which denotes whether the person has “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.” Education prior to entering the military is derived from “Highest Grade Completed Prior to Active Duty,” which is calculated based on dates of entering military service and dates of education. These are composed of answers given in 1975, 1977 and 1992-3.

Duration of Military Service

As shown in figure 3, 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 continuous, but falls into discrete categories. Men who served less than two years 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 5 and a half years of reserve duty. 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 2 years; 2 = at least 2 years but less than 3; 3 = at least 3 years, but less than 4; 4 = at least 4 years, but less than 5; and 5 = More than 5 years.

{Figures 3a and 3b}

Timing

I measure timing in two ways: historical and individual. Historical timing is embodied in cohort membership. The pooled sample, though not the original sample, also includes a variable for cohort. This is defined by splitting the siblings into three “cohorts,” those born at a time that would make their service (if they did serve) overlap with: 1. the Korean War (1950-53), 2. the post-Korean Cold War (1954-1963), and 3. the Vietnam War (1964-1972). All of the graduates are assigned to the Cold War category. By definition, the 1957 graduates who served during the Vietnam war are excluded from the sample.

Individual timing is embodied in which transition is being considered, college attendance given high school graduation or college graduation given high school attendance. Both samples include a measure of transition.

Academic achievement

In both samples, early academic achievement is measured by IQ score. IQ scores are based on the Henmon-Nelson IQ tests taken in Junior and Freshman years.

In the original sample, there is an additional measure of academic achievement: rank in high school class. High school rank reflects percentiles calculated within each school, based on

high school grades. Both the IQ and High School rank measures are normalized with a mean of 100. To allow for non-linearities in the effects of these variables, I make them categorical, with individuals assigned to one of four quarters.

Family Background

I use six measures of family background: average family income, father's occupational status, parental education, number of siblings, size of high school hometown, and Catholic religion of family during high school. 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 were 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. The Catholic

measure is a dummy variable coded one if a respondent reported that his or her family was Catholic when the respondent was in high school.

Aspirations

Both samples include a measure of aspirations. In the original sample, the measure is prospective, asked in 1957, during the respondents' senior year in high school. 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 construct two aspirations variables: military service and college education. In the pooled sample, the measure is retrospective, asked in 1975-7. The graduates were asked to recall whether they planned to go to college during their senior year in high school. The siblings were asked to recall their college plans when they were 16 years old. The retrospective report is not perfect. Among the men with both retrospective and prospective reports, approximately one quarter of those who said that they planned to go to college when asked during their senior year, retrospectively said that they did not plan to do so. However, the measure does not simply reflect whether the respondents actually went to college. Nearly one quarter of those who did go to college said that they did not plan to do so in their senior year in high school.

Missing data

To deal with missing data, I delete cases for which there is not complete data on all the variables in the full model. These deletions result in a loss of approximately 10 percent of the pooled sample and 12 percent of the original sample. In both samples, success at making the conditional college transitions is not predicted by the missing-ness of the data net of the

independent variables included in the full models. Therefore, I do not use multiple imputation or other, more elaborate methods for dealing with missing data.

Methods

The following analysis is concerned with how family background, academic achievement, and aspirations affected the odds of conditional college attendance and graduation differently for veterans compared to non-veterans. I use a modification of the model introduced by Mare to examine how the effects of social background on education changed for different cohorts (Mare 1981, also Whelan and Hannan 1999). The dependent variable is the log odds of success or failure in making the transition from one educational level to the next. The models allow a formal test of whether the odds of making a particular transition differ according to veteran status. In addition, when siblings are included in the model, the fact that the unconditional odds of attending and graduating from college have increased does not affect the results. The baseline model assumes that transition rates differ for veterans and non-veterans, but are the same for both transitions.

$$\log_e \left(\frac{p_i}{1-p_i} \right) = \lambda_1 + \sum_s \lambda_{1s} X_{is} + Z_{ij} \quad [1]$$

In the models, p_i denotes, for the i -th individual, the probability of making an educational transition, given making the previous transition, where i indexes individuals. X_{is} is the value, in this first model, of the s -th variable, in which s indexes the background, achievement and aspirations variables. As described above, in both samples, the family background variables are

the same. However, academic achievement variables differ by sample. In addition, the pooled sample has a measure of cohort. Z_{ij} is a measure of transition, where $j=(1,2)$, the two transitions. Finally, λ_{1s} measures the effect of a unit change in X_s on the log odds of success or failure in making the transition and λ_1 is a constant.

In order to allow for the possibility that the effect of prior characteristics on the odds of making educational transitions decreased or increased uniformly, I interact a composite of the independent variables with a variable measuring transition. This model is based on Hauser (2003). I use maximum likelihood estimation to derive this model based on the following equation.

$$\log_e \left(\frac{p_i}{1-p_i} \right) = \lambda_n + \sum_s \lambda_{ns} X_{nis} + \gamma_n Z_{ij} \sum_s \hat{\lambda}_{n-1,s} X_{1is} + Z_{ij} \quad [2]$$

In this case, the components of the equation are defined as above, with the addition of γ , which estimates the interaction of the transition variable, Z_j , with the estimated values for each observation derived from the preceding model. When Z_j is 1, it can be seen that:

$$\sum_s \lambda_{ns} X_{nis} (1 + \gamma_n)$$

Therefore, the proper interpretation of γ is with reference to 1. A value of 0 indicates that there is no interaction, and the effect of the background variables is unchanged across the transitions.

A positive value indicates that the effect of the background variables has increased, while a negative value indicates that they have decreased. I compare this model to one in which each independent variable is interacted separately with the transition variable.

I then test whether the effect of transition has an additional interaction with military status. In the pooled sample, I also test whether cohort has an effect and whether the effect of military service differs by cohort. In both samples, I estimate several other models to add in the main effects of family background, IQ scores, and aspirations. These variables are interacted with military service. In the original sample, I test whether or not high school rank affected the odds of making the transitions, and whether they may have moderated or mediated the effect of military service.

The preferred model is chosen using standard chi-square comparisons and BIC (Raftery 1995). I calculate BIC as follows:

$$BIC = -\chi^2_{k0} + p_k \log n \quad [3]$$

where χ^2 is the likelihood ratio test statistic for comparing the model M_k to the null model, with no independent parameters, and p_k is the number of parameters in M_k . Negative values of BIC suggest that the M_k is preferable to the null model. Differences of -6 constitute strong evidence that a particular model is preferable to another model (Raftery 1995).

In the pooled sample, I also correct for clustering that may occur as a result of the siblings being related to each other. Among male sibling pairs, military service is correlated at .19, and college attendance is correlated at .34.

To test whether the effect of serving in the military corresponds to the neutral, positive, or negative narratives described above, I derive the following predictions regarding the relationship of military service to educational attainment.

The Neutral Narrative (Status Reproduction): According to this argument, it appears that military status affects subsequent civilian status. However, this effect is spurious, explained by the joint dependence of military experience and later civilian status on social background. If this argument is true, the effect of military service should be explained by the addition of family background variables.

The Positive Narrative (Bridging Environment): This argument implies that the armed forces foster social mobility. If this is true, military status should have a positive effect on subsequent education for certain individuals. Individuals from more disadvantaged backgrounds who serve in the military should be more likely to graduate from college than individuals from similar backgrounds who do not serve in the military.

The Negative Narrative (Disrupting the Transition to Adulthood): This argument suggests that individuals who serve in the military experience a disadvantage relative to those who do not serve. If this is true, military service should have a negative effect on subsequent education. Individuals who serve in the military should be less likely to graduate from college than similar individuals who do not. In particular, those who plan to enter college should experience a negative effect of military service.

To test these hypotheses, I estimate a series of models. I examine the effects of military service along with the independent variables divided into the following categories: timing; academic achievement; family background; and aspirations. Within each set of models defined by category, I test for interactions between military service and the measures of theoretical

interest and then select the preferred model in that category. I then combine these interaction effects and main effects into a final preferred model. Below, I describe each set of models.

Models of the baseline effect of military service: These naïve models estimate the effect of military service on educational transitions. They present preliminary evidence regarding the direction and strength of the relationship between military service and educational transitions. If the effect is negative, the models suggests that the military disrupted the transition to adulthood. A variation of this model looks at the effect of length of military service. This allows the effect of service to vary according to how long a man served in the military. I compare these non-nested models to decide whether military service should be specified as a single, dummy variable or as a series of dummy variables defined by the length of military service.

Models of the effect of timing: These models introduce controls for period of service. They allow a test of the historical argument that the effect of military service has changed and that educational benefits have been civilianized (Angrist 1993; Segal 1989). They also allow a test of whether military service affected the odds of attending and graduating from college differently.

Models of the effect of academic achievement: These models introduce variables to control for screening into the military on the basis of IQ scores in both the pooled and original samples and high school rank in the original sample. These measures are interacted with military service to see if the effect of military service differed by academic achievement.

Models of the effect of family background: These models introduce measures of family background to control for selection into the military on this basis. If the controls explain the

effect of military service, the status reproduction argument is supported. If there is a negative interaction between military service and income, or status, the bridging environment is supported.

Models of the effect of aspirations: These models contain variables to control for individual aspirations. If there is a negative interaction between college plans and military service, this suggests that men who planned to go to college were less likely to do so after serving in the military. In other words, the military disrupted the transition to adulthood.

Findings

The models based on both the pooled and original samples reveal the mechanism by which military service negatively affected educational attainment -- such service altered the effects of the plans that men had made.² It made men who planned to attend college less likely to do so, and men who did not plan to continue their schooling more likely to further their education. This role of the military as an interruption is consistent with both the negative and positive narratives. However, the military did not disproportionately benefit those from disadvantaged backgrounds as predicted by the positive or “bridging environment” narrative.

In this section, I present results derived from both samples (as described above). The original sample is composed of the male WLS graduates, who were eligible to serve during the

² The members of the original sample were all born in the same time period, thus models based on their responses cannot test for historical change in the effect of military service. However, the findings described above for the pooled sample showed that the negative effect of military service did not vary by cohort. This suggests that the effect of military service on education applied equally to men who served during the Korean and Vietnam wars, as well as the peacetime cold war.

post-Korean Cold War. The pooled sample combines these respondents with the male and female graduates' male siblings, some of whom were eligible to serve during the Korean and Vietnam Wars.

Table 1 presents descriptive statistics for the original sample, and table 2 presents such statistics for the pooled sample. The statistics are reported for the entire samples and by military service. These tables show that veterans differed from non-veterans on nearly every measured characteristic. Slightly less than half the men in both samples served in the military. These veterans served for widely varying lengths of time. In the original sample, a quarter of the veterans served for less than a year, and almost half for more than three years. In both samples, on average, the veterans came from families with lower family income, paternal status and parental education. They had lower IQ scores and, in the original sample, lower high school rank than non-veterans. In the original samples, approximately half the veterans had planned to enter the military and 17 percent had planned to go to college. Among the non-veterans, only 10 percent had planned to enter the military, and more than half had planned to go to college.

{Tables 1 and 2 about here.}

Tables 3 and 4 present the fit statistics from a series of models which were estimated in order to identify preferred models to describe the effect of military service on the odds of attending and graduating from college. The dependent variables are conditional educational transitions: college attendance given high school graduation and college graduation given attendance. I develop the preferred model in the following fashion. First, I choose between two possible measures of military service. Then I add all of the other independent variables. Next, I

choose between two possible methods of interacting these variables with the measure of transition. This measure indicates which transition is being attempted, college attendance or graduation. Finally, I test whether military service interacts with a number of independent variables of theoretical interest. I test for seven different interactions in the original sample and six interactions in the pooled sample. I use BIC to compare each model to the others. This allows me to compare both nested and non-nested models.

{Tables 3 and 4 about here.}

Based on these criteria, I choose models in which military service is indicated by a dummy variable rather than broken out by length of service. In both samples, model 1 describes military service the following way. The respondents are coded 1 if they served in the military and 0 if they did not. Model 2 gives more detail about how long the respondents served in the military. Model 1 is preferred to model 2 based on the BIC statistic. Therefore, in subsequent models, respondents are simply coded as non-veterans or veterans regardless of how long they served.

The model is further refined to include a global interaction between transition and all of the other independent variables. The base model, model 3, includes all of the additional variables that measure family background, academic achievement and aspirations, as well as the transition variable. In model 4a, I interact a composite of the independent variables with the transition variable. This model indicates that the effect of the independent variables decreased or increased by the same amount depending on whether the respondent went on to graduate from college given attendance. In both samples, the model with this global interaction, model 4a,

represents a substantial improvement of fit over model 3. In model 4b each independent variable is interacted with transition separately. This model says that the effect of each independent variable increased or decreased across the transitions to a unique extent. Model 4a is preferred to model 4b based on BIC. Therefore, in subsequent models, I include the global interaction between all of the independent variables and transition.

Next, I test for the additional interactions between military service and variables divided into the following categories: transition, prior academic achievement, family background, and aspirations. In both samples, these tests indicate that the preferred model includes interactions between military service and the following two variables: transition and college plans. In the original sample, model 7b is preferred, while in the pooled sample, the equivalent model, model 7 is preferred according to BIC. These models say that military service had different effects depending on the respondent's prior college plans. The models that allow military service to vary by parents' status and income (6a and 6b) do not improve the fit of the model. This suggests that the effect of military service did not vary by these measures of family background. This lack of an interaction suggests that the "bridging environment," or positive narrative does not accurately describe the effect of military service in this sample.³ In the pooled sample, model 5 says that the effect of military service varied by IQ score. In the original sample, a model with only high school rank is preferred to a model with rank and IQ score or a model with just IQ score. This suggests that IQ score is a proxy for high school rank and does not

independently affect the probability of graduating from college. According to the chi-square criterion, these interactions improve the fit of the model. However, models with these interactions are not preferred according to BIC. Therefore, I do not report the parameter estimates of these interactions.

Tables 5 and 6 present the parameter estimates from a series of models in each sample. The main finding is that military service affected the college prospects of some men positively and others negatively depending on educational aspirations. Among men who planned to go to college, military service reduced the odds that they would get a college education. According to model 7, these men with college ambitions were less likely to attend and graduate from college if they entered the military than if they did not. Among men who did not plan to go to college, this effect was reversed. This suggests that military service disrupted the transition to adulthood among those who aspired to continue their education, but had a positive effect among men who did not have such aspirations. Figure 4 shows the predicted probability of college graduation for men with and without college plans, by veteran status.⁴ This figure is based on the full model. All control variables are held at their means.

{Tables 5 and 6 about here.}

{Figure 4 about here.}

³ The lack of an interaction effect may stem from the fact that the original sample was limited to white men with high school diplomas. Approximately 6 percent of the men in the pooled sample had less than a high school degree. An interaction effect might be uncovered in a sample with more racial and educational diversity.

⁴ Because the results for the pooled and original samples are so similar, I present figures based only on the original sample.

The main effects of the transition variable in models 6 and 7 show that all individuals were more likely to graduate from college given attendance, than they were to attend college given high school graduation. The interaction term, gamma, shows that the background variables had a 25 to 50 percent smaller effect on the odds of graduating from college than they had on the odds of attending college.

Overall, according to model 1, men who served in the military during the peacetime cold war were less likely to attend and graduate from college. Much of the negative effect of military service was explained by individual characteristics. As described above, when compared to non-veterans, veterans had lower grades, lower IQ scores, and were less likely to plan to go to college. Model 3 controls for college plans and model 4 controls for IQ score in the pooled sample, and both high school rank and IQ score in the original sample. These controls substantially reduce the negative effect of military service. In model 6, in the original sample, when all the control variables are included, the effect of military service is not statistically different from zero. In other words, military service did not have a direct, negative effect on college attendance and graduation. This suggests that men who would not otherwise have gone to college decided to enter the armed forces. By contrast, in the pooled sample, the effect of military service is still negative in the model that includes the main effects of all of the control variables. The pooled sample, however, does not include a measure of high school rank. These findings present preliminary evidence for the status reproduction or neutral account of military service.

However, the results do not strictly correspond with the neutral account of military service, which says that family background affects military status, and, in turn, affects subsequent civilian status. In order for this account to have been fully supported, the negative effect of military service would have to be explained by the addition of family background variables. As shown above in tables 1 and 2, men who entered the military did tend to come from families with lower income and with fathers who worked in lower status occupations. Yet the negative effect of military service is not substantially reduced by these controls. Model 5 controls for these and other family background variables. When men with similar backgrounds are compared, those who served in the military were still less likely to attend and graduate from college than those who did not.

Nor do the results provide evidence for the “bridging environment” or positive account of military service. In order for this account to have been supported, military service should have had a positive effect on the odds of continuing education among men who came from lower status and lower income families. These men from more disadvantaged backgrounds should have been more likely to attend and graduate from college if they served in the military than if they did not. However, as described above in tables 3 and 4, military service did not interact with these measures of family background. Military service had the same effect on the odds of attending and graduating from college regardless of one’s position in the status and income distributions. Figure 5 demonstrates that veterans were still less likely to graduate from college than non-veterans regardless of whether their families were above or below the median for

family income. The figure is based on a model that includes only the measures of family background. All control variables are held at their means.

{Figure 5 about here.}

Conclusion

To return to the question that opened the chapter: Why do military recruits continue to view the armed forces as a way to get a college education, when veterans have attained less education than civilians for at least the last half century? I have shown that military service disrupted the transition to adulthood among men who were more academically promising. Such service decreased the odds that men with higher academic achievements and aspirations would go to college. However, it increased the odds that some men would continue their schooling -- men who did not plan to do so, as well as men who did less well in high school. It is likely that this positive effect on some men's educational attainment contributes to the perception that serving in the military is a good way to further one's education.

Previous researchers have shown that men who served in the military received less education than those who did not since at least the 1960s (Cohen et al. 1986; Cohen et al. 1995). They attribute this negative effect, in part, to selection into the military. In other words, men who served in the armed forces would have been less likely to continue their education than men who did not. This paper has extended this finding backward to veterans who served in the Korean War and the peacetime Cold War. It may be that the only individuals to benefit educationally from their military service were the first ones covered by the GI bill, the veterans from World War II. To be sure, selection did indeed determine a portion of the negative effect of

military service among the Cold War veterans. However, the analysis showed that the negative effect of military service was especially pronounced among those who planned to continue their schooling.

In the preceding analysis, I looked at how military service affected the educational trajectories of individuals, focusing particularly on those who served during the Cold War. During this era, military service was much more common than it is today. More than half of the men who graduated from Wisconsin high schools in 1957 served in the military.⁵ However, these men who served in the military differed from men who did not on both socioeconomic and academic measures. Therefore, I controlled for a variety of measured characteristics to capture the factors that determined who served in the military, as well as who was likely to go on to college. I also included variables to control for screening by the military. I did this because there are two senses in which individuals may be more likely to get a college education. First, individuals from families with higher status and income are more likely to go on to college. Family background may afford individuals better access to higher education. Second, individuals do well in school and on tests, and are academically ambitious. Individual achievements and aspirations also lead to more schooling.

Men who served in the Cold War military were much less likely than men who did not to go on to college. Much of this effect was explained by men's academic achievements and ambitions prior to their military service. Men who did worse in school, as measured by high

⁵ By way of comparison, less than 4 percent of 18 to 22 year olds served in the armed forces in the year 2000.

school grades and IQ scores, were more likely to enter the military. Said another way, less academically promising men entered the military rather than go to college in the year and a half immediately following high school graduation. These differences in academic achievement partially explained the effect of military service. In other words, prior academic achievements determined who went into the military, in addition to determining subsequent academic achievements.

In addition, men who planned to go to college were much less likely to enter the military. However, when these academically ambitious men did serve in the military, they were much less likely to go on to college than if they did not. Thus, military service altered effects of the plans that men made during their senior year in high school. Men who planned to go to college were less likely to increase their schooling after serving in the military, while men who did not plan to go to college were more likely to do so. The effect of military service was moderated by college aspirations. Military service diverted men who planned to go to college from doing so. Such service disrupted at least a component of the transition to adulthood -- finishing school -- among men who planned to continue their schooling after high school.

According to the transition to adulthood narrative, the transition consists of the following components: finishing school, getting a job, and starting a family. The preceding analysis focused on the first component of this sequence: finishing school. Military service does not directly figure into the sequence. In some cases, individuals get a high school diploma with no intention of going on to college. Since men could only begin serving in the military when they were 17, these individuals usually could enter the military after completing their education. In

other cases, individuals intend to go to college. These individuals could therefore enter the military before finishing school. Military service was therefore able to divert them from the higher education that they intended to get.

In keeping with this narrative, the armed forces disrupted the plans of those who served in them. For academically ambitious men, this disruption was negative, as predicted by the narrative. For other men, the disruption was positive, increasing the probability that men who did not plan to go to college would do so. However, the disruption was not positive in the sense implied by the “bridging environment” narrative. This narrative predicted that veterans from lower status and lower income families would advance further than non-veterans from similar backgrounds. In contrast to this prediction, such veterans did not benefit from their service. These veterans from lower status and income backgrounds were still less likely to attend and graduate from college than were non-veterans from similar families.

Nor did military service simply reproduce status. The “status reproduction” narrative predicted that the negative effect of military service would be explained by socioeconomic differences. Yet, military service continued to have a negative effect when socioeconomic differences were taken into account. Veterans typically did come from families with lower status and income than did non-veterans. However, these differences in socioeconomic background did not explain the negative effect of military service on education. Veterans were less likely to go on to college than were non-veterans at all levels of socioeconomic status.

For the last four decades, sociologists, historians, and economists have debated the impact of the GI bill. According to some, the law successfully expanded access to higher

education, allowing individuals who would not otherwise have done so to go to college (Fligstein 1976; Mason 1970; Nam 1964). According to others, the benefits merely subsidized the education of those who would have continued their schooling anyway (Angrist 1993; Cohen 2003).

The preceding findings cast doubt on both interpretations. They turn the latter argument on its head, suggesting that military service made men who intended to continue their schooling less likely to do so. The findings also do not support the contention that military service expanded access to higher education. Overall, men who served in the military were less likely to go on to college.

This analysis raises a number of questions: did military service substitute for formal education? Did veterans learn skills in the military that made further education unnecessary? Did military service provide them with the credentials or skills they needed to do well at work? Did they get jobs with more desirable characteristics -- higher status and income, more control and authority -- than they would have had they not served in the military? Alternatively, did military service simply derail them from attaining higher education, without enabling them to work at "good" jobs, however these are measured?

In future work, I plan to look at whether this disruption had long-term consequences for the lives of the Cold War veterans. It may be that military service substituted for formal education. It may be that employers looked as favorably at potential workers with a high school diploma and an honorable discharge from the military as they did at men who had attended and

graduated from college. During the course of their lives, veterans may have caught up with non-veterans in terms of income and occupational status, despite having less education.

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Table 1. Means and Standard Deviations and Proportions
by Military Status, for men in the original sample

Variable	Total Sample		Non-military		Military	
Family Background Variables						
Average Family Income	6,270.67	(6,230.66)	6,481.11	(6,272.24)	5,961.86	(6,159.24)
Father's SEI	34.03	(22.90)	35.30	(23.66)	32.17	(21.61)
Father's Education	9.67	(3.36)	9.86	(3.49)	9.39	(3.14)
Mother's Education	10.48	(2.80)	10.55	(2.87)	10.37	(2.69)
Number of Siblings	3.11	(2.37)	2.95	(2.25)	3.35	(2.51)
Size of Place	3.22	(1.60)	3.20	(1.63)	3.25	(1.55)
Catholic	0.38	(0.49)	0.37	(0.48)	0.40	(0.49)
Academic Achievement Variables						
IQ score	101.31	(15.06)	103.19	(15.84)	98.56	(13.38)
High School Rank	97.60	(14.59)	100.78	(15.03)	92.94	(12.53)
Education	13.91	(2.50)	14.45	(2.71)	13.13	(1.91)
Aspirations						
Planned to Serve in Military	0.32		0.10		0.64	
Planned to continue schooling	0.39		0.53		0.17	
Served in the Military	0.41					
Officer Status					0.03	
Time in the military						
Less than a year					0.23	
1-2 years					0.15	
2.1 - 3 years					0.20	
3.1 - 4 years					0.24	
More than 4 years					0.19	
N	2,465		1,466		999	

Table 2. Means and Standard Deviations and Proportions
by Military Status, for men in the pooled sample

Variable	Total Sample		Non-military		Military	
Family Background Variables						
Average Family Income	6,165.51	(5,689.03)	6,377.89	(5,764.68)	5,860.47	(5,566.15)
Father's SEI	33.73	(22.68)	35.06	(23.54)	31.82	(21.24)
Father's Education	9.67	(3.31)	9.85	(3.47)	9.42	(3.05)
Mother's Education	10.42	(2.80)	10.52	(2.84)	10.28	(2.73)
Number of Siblings	3.25	(2.50)	3.06	(2.30)	3.52	(2.74)
Size of Place	3.16	(1.62)	3.14	(1.65)	3.19	(1.59)
Catholic	0.40		0.39		0.41	
Academic Achievement Variables						
IQ score	101.48	(15.23)	103.44	(15.83)	98.65	(13.85)
Education	13.85	(2.48)	14.38	(2.70)	13.08	(1.88)
Aspirations						
Planned to continue schooling	0.44		0.56		0.26	
Served in the Military	0.41					
Cohort						
Korean War	0.06		0.05		0.09	
Cold War	0.82		0.82		0.82	
Vietnam War	0.11		0.13		0.09	
Time in the military						
Less than a year					0.17	
1-2 years					0.15	
2.1 - 3 years					0.21	
3.1 - 4 years					0.27	
More than 4 years					0.21	
N	3,981		2,347		1,634	

Table 3. Goodness of Fit Statistics for Models of Effect of Military Service on College Transitions, Original Sample

		L^2	parameters	p	BIC
Military Service and Duration					
Model 1	Military service	173.77	1	.000	-165.55
Model 2	Duration of Service	180.92	5	.000	-139.84
Base Model					
Model 3	Model 1 + main effects of independent variables	1442.68	26	.000	-1229.04
Interaction with transition					
Model 4a	Model 3 + composite interacted with transition	1503.09	27	.000	-1281.23
Model 4b	Model 3 + each variable separately interacted with transition	1565.99	51	.000	-1146.93
Model 4c	Model 4a + interaction of military and transition	1514.36	28	.000	-1284.29
Prior Academic Achievement					
Model 5a	Model 4a + interaction of military and IQ	1511.77	30	.000	-1265.26
Model 5b	Model 4a + interaction of military and high school rank	1519.32	30	.000	-1272.81
Model 5c	Model 4a + both interactions	1521.72	33	.000	-1250.56
Family Background					
Model 6a	Model 4a + interaction of military and family income	1504.62	30	.000	-1258.11
Model 6b	Model 4a + interaction of military and father's status	1507.45	30	.000	-1260.94
Aspirations					
Model 7a	Model 4a + interaction of military and college plans	1549.73	28	.000	-1319.66
Model 7b	Model 4a + interaction of military and military plans	1505.79	28	.000	-1275.72
Nested Model Contrasts					
		L^2	parameters	p	
Additional effect of interaction of military and transition (4c-4a)		11.27	1	.001	
Effect of interaction of military and IQ (5a-4a)		8.68	3	.034	
Effect of interaction and high school rank (5b-4a)		16.23	3	.001	
Effect of interaction of military and income (6a-4a)		1.53	3	.675	
Effect of interaction of military and status (6b-4a)		4.36	3	.225	
Effect of interaction of military and college plans (7a-4a)		46.64	1	.000	
Effect of interaction of military and military plans (7b-4a)		2.70	1	.100	

Table 4. Goodness of Fit Statistics for Models of Effect of Military Service on College Transitions, Pooled Sample

		L^2	parameters	p	BIC
Military Service and Duration					
Model 1	Military service	224.93	1	.000	-216.531
Model 2	Duration of Service	227.47	5	.000	-185.477
Base Model					
Model 3	Model 1 + main effects of independent variables	1509.58	23	.000	-1316.411
Interaction with transition					
Model 4a	Model 3 + composite interacted with transition	1606.93	24	.000	-1405.363
Model 4b	Model 3 + each variable separately interacted with transition	1677.33	43	.000	-1316.189
Model 4c	Model 4a + interaction of military and transition	1646.2	25	.000	-1436.234
Prior Academic Achievement					
Model 5	Model 4a + interaction of military and IQ	1631.79	27	.000	-1405.027
Family Background					
Model 6a	Model 4a + interaction of military and family income	1608.74	27	.000	-1381.977
Model 6b	Model 4a + interaction of military and father's status	1608.86	27	.000	-1382.097
Aspirations					
Model 7	Model 4a + interaction of military and college plans	1684.43	25	.000	-1474.464
Cohort					
Model 8	Model 4a + interaction of military and cohort	1608.41	26	.000	-1390.045
Nested Model Contrasts					
		L^2	parameters	p	
Additional effect of interaction of military and transition (4c-4a)		39.27	1	.000	
Effect of interaction of military and IQ (5-4a)		24.86	3	.000	
Effect of interaction of military and income (6a-4a)		1.81	3	.613	
Effect of interaction of military and status (6b-4a)		1.93	3	.587	
Effect of interaction of military and college plans (7-4a)		77.50	1	.000	
Effect of interaction of military and cohort (8-4a)		1.48	1	.687	

Table 5. Log Odds from Logistic Regressions of College Graduation on Military, Family Background, Academic Achievement and Aspirations, Original Sample

	Baseline Models						Full Model
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Military Service	-0.565 (0.043)		-0.173 (0.057)	-0.297 (0.048)	-0.539 (0.045)	-0.085 (0.061)	0.362 (0.106)
Duration in Military							
<1 year		-0.586 (0.077)					
1-2 years		-0.619 (0.094)					
2.1-3 years		-0.648 (0.082)					
3.1-4 years		-0.595 (0.075)					
>4 years		-0.39 (0.08)					
Military Service*College Plans							-0.694 (0.118)
Military Service*High School Rank							
Second Quarter							-0.134 (0.125)
Third Quarter							-0.154 (0.143)
Fourth Quarter							-0.525 (0.174)
Military Service*Transition							-0.162 (0.114)
Officer Status			0.597 (0.191)	0.227 (0.195)	0.528 (0.191)	0.372 (0.201)	0.46 (0.201)
Military Plans			0.229 (0.064)			0.196 (0.068)	0.135 (0.068)
College Plans			1.355 (0.053)			1.193 (0.066)	1.429 (0.079)
High School Rank							
Second Quarter				0.266 (0.059)		0.239 (0.064)	0.327 (0.093)
Third Quarter				0.546 (0.068)		0.576 (0.075)	0.672 (0.100)
Fourth Quarter				1.071 (0.079)		1.179 (0.094)	1.353 (0.118)

IQ score			
Second Quarter	0.423	0.356	0.376
	(0.067)	(0.073)	(0.073)
Third Quarter	0.628	0.506	0.525
	(0.068)	(0.074)	(0.075)
Fourth Quarter	0.908	0.718	0.729
	(0.076)	(0.085)	(0.086)
Father's Occupational Status			
Second Quarter	-0.043	-0.09	-0.078
	<i>(0.069)</i>	<i>(0.077)</i>	<i>(0.078)</i>
Third Quarter	<i>0.175</i>	0.06	0.072
	<i>(0.070)</i>	<i>(0.079)</i>	<i>(0.079)</i>
Fourth Quarter	0.266	0.081	0.098
	(0.076)	<i>(0.086)</i>	<i>(0.087)</i>
Average Family income, 1957-60			
Second Quarter	0.123	0.099	0.091
	<i>(0.063)</i>	<i>(0.070)</i>	<i>(0.071)</i>
Third Quarter	0.224	<i>0.17</i>	<i>0.169</i>
	(0.066)	<i>(0.073)</i>	<i>(0.074)</i>
Fourth Quarter	0.255	0.207	0.21
	(0.071)	(0.080)	(0.080)
Father's Education			
High School Grad	0.271	0.194	0.171
	(0.055)	(0.061)	(0.061)
Some College	0.326	0.319	0.331
	(0.095)	(0.106)	(0.107)
College Grad	0.597	0.647	0.678
	(0.106)	(0.120)	(0.122)
Mother's Education			
High School Grad	-0.005	-0.063	-0.066
	<i>(0.051)</i>	<i>(0.056)</i>	<i>(0.057)</i>
Some College	0.348	0.267	0.256
	(0.088)	(0.097)	(0.098)
College Grad	0.392	0.407	0.365
	(0.109)	(0.123)	(0.125)
Number of Sibs	-0.028	-0.018	-0.016
	(0.010)	<i>(0.011)</i>	<i>(0.011)</i>
Size of Place of Origin	0.055	0.088	0.091
	(0.017)	(0.019)	(0.019)
Catholic	-0.011	0.003	0.009
	<i>(0.046)</i>	<i>(0.051)</i>	<i>(0.051)</i>

Transition (College Attendance Omitted)
College Grad

0.57 **0.736**
(0.127) **(0.158)**

Gamma

-0.513 **-0.583**
(0.066) **(0.072)**

3,703 3,703 3,703 3,703 3,703 3,703 3,703

Figure 1. Enlistment in Armed Forces, US and WLS

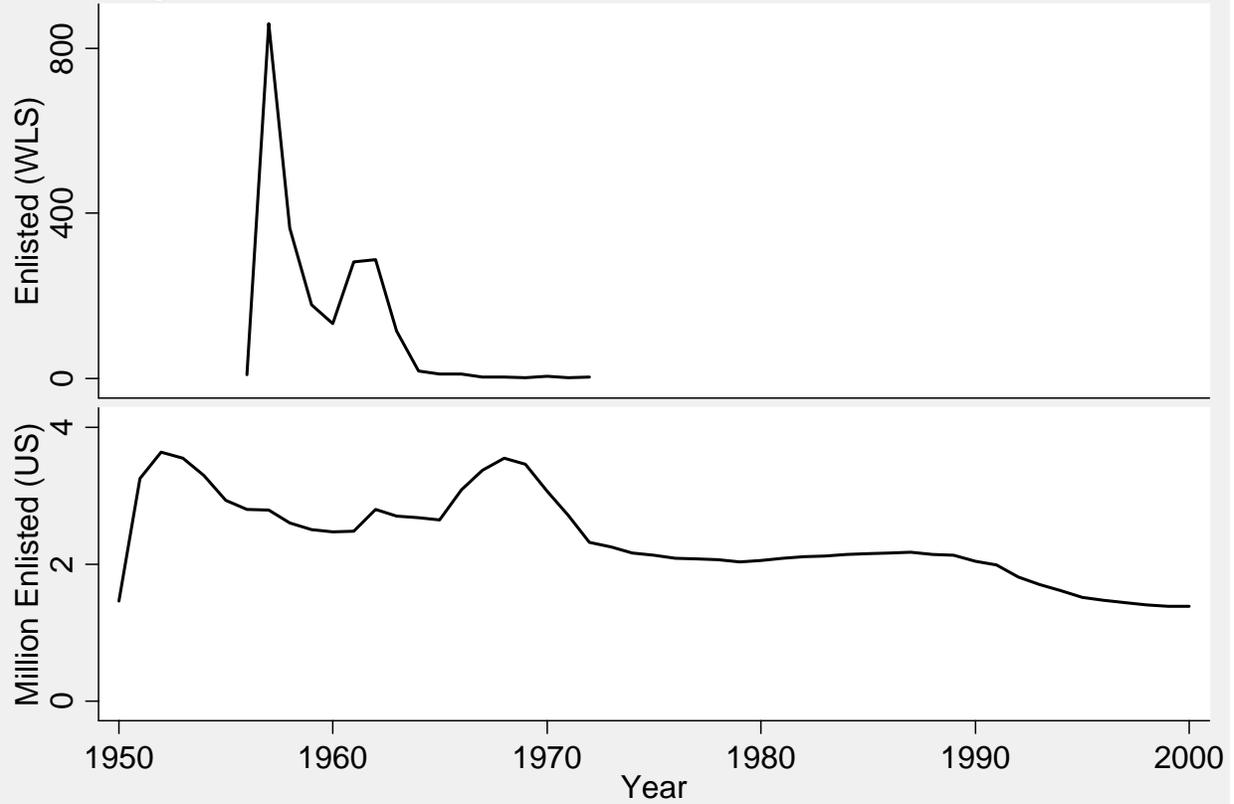


Figure 2. Date Pooled Sample Entered Military Service

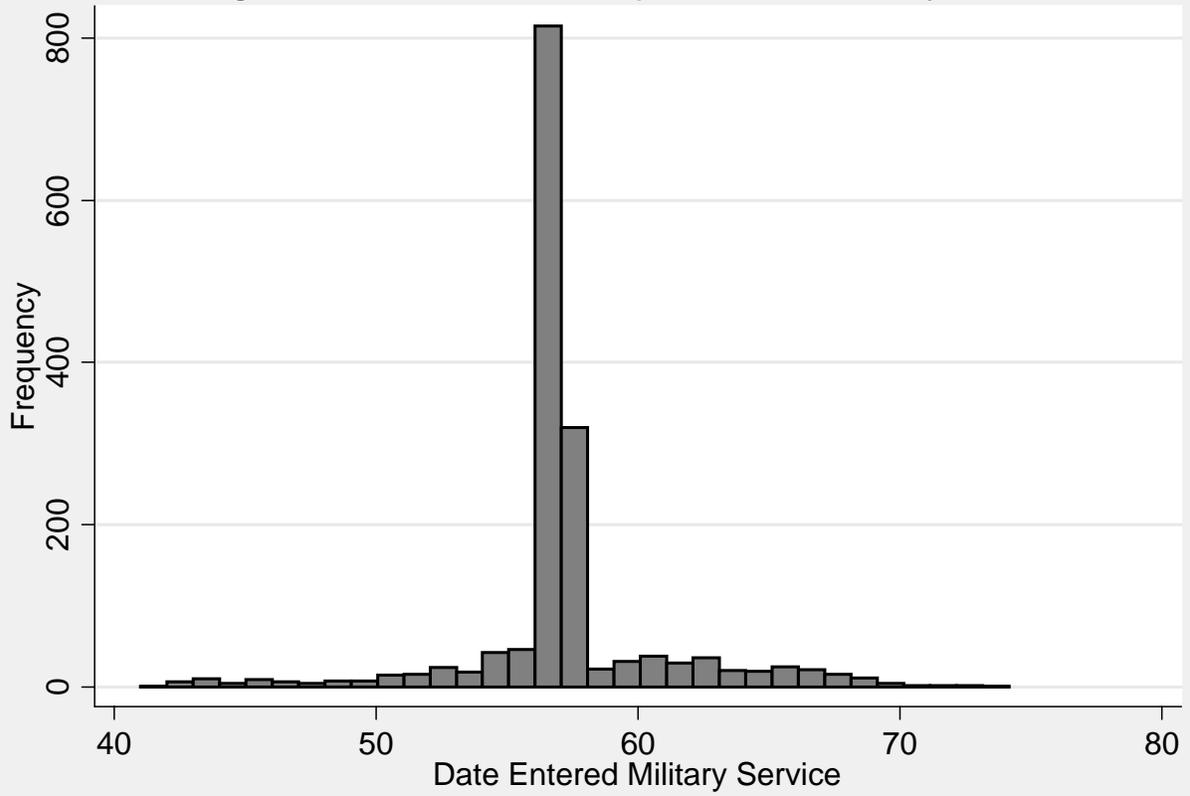


Figure 3. Duration in the Military, Both Samples

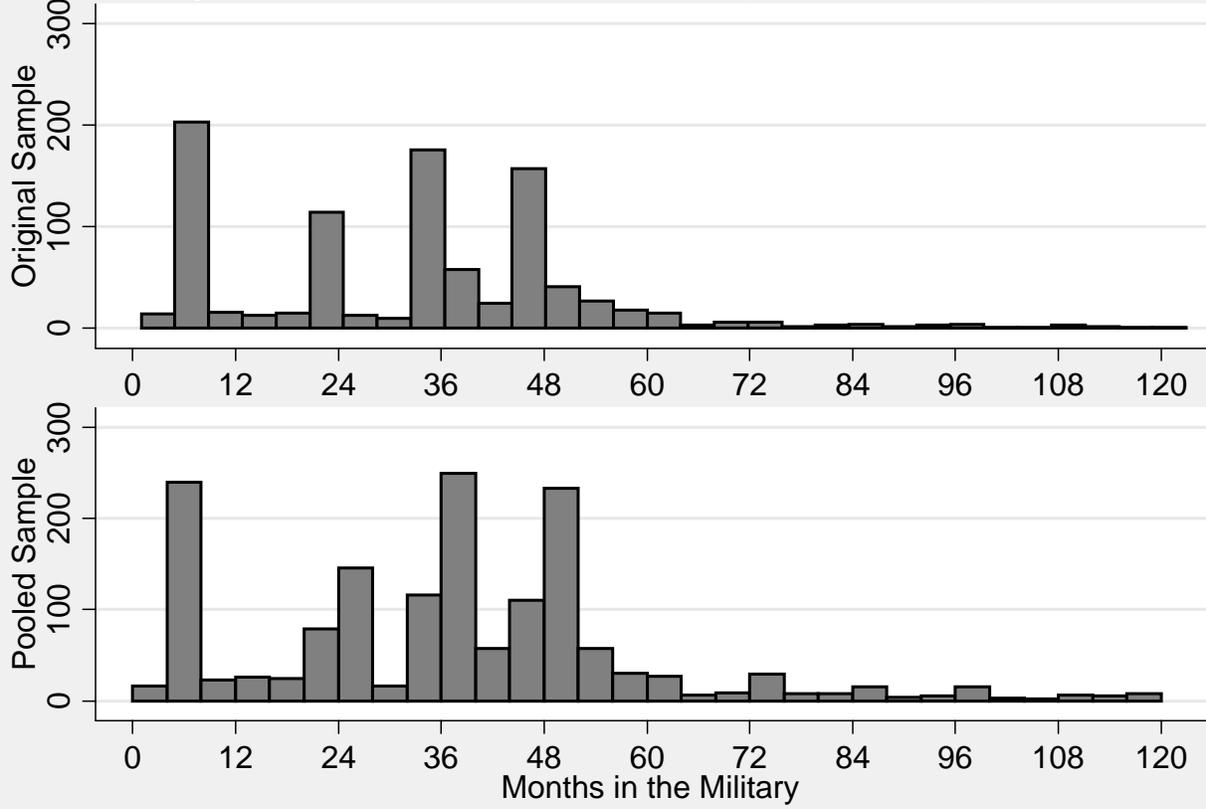


Figure 4. Predicted Probability of College Graduation
by Post-High School Plans

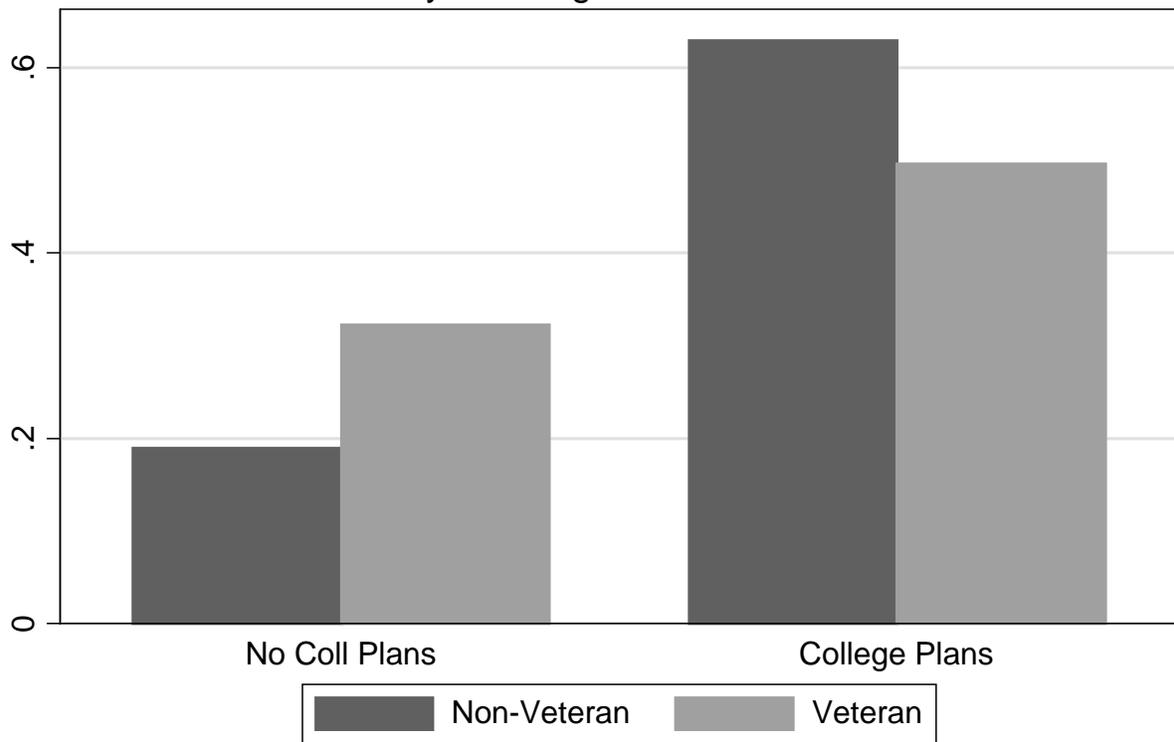
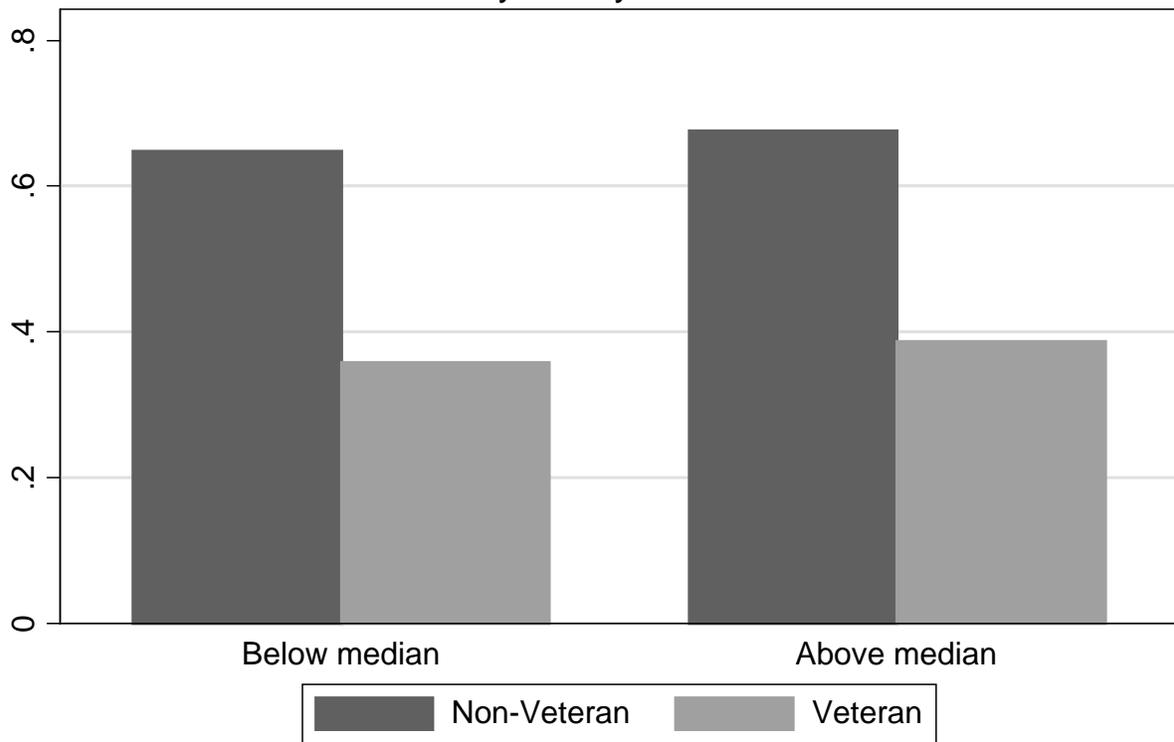


Figure 5. Predicted Probability of College Graduation
by Family Income



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