
Racial Differences in the Impact of Military Service on the Socioeconomic Status of Women Veterans

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While women have become increasingly integrated into traditionally male occupations,¹ it is still unclear what long-term payoffs will accrue to them from their nontraditional work histories. This is

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especially true given that many women enter, leave, and re-enter the labor market due to child-rearing responsibilities, the net effect of which is to curtail the cumulative advantage which men usually get from human capital. Men typically enter the labor market while young and remain active in it with no long disruptions. They accumulate years of work at certain jobs and increase their job skills and their likelihood of being eligible for other jobs based on longevity in their present one.

One highly gender-segregated area of work that has received little attention from sociologists is the military. There, women constitute only about 14 percent of the total labor force, and are restricted from participating fully in all aspects of the work environment. But, like many of their male counterparts, it is widely assumed that women in the military get access to training opportunities and organizational experience that will help them either advance in the military or serve them well in the civilian labor market. This assumption has been conceptualized by Browning, Lopreato, and Poston² as “bridging,” a process through which their human capital is significantly increased by their military service.

For men, there are both costs and benefits to time spent in the military,³ and these vary by race and by historical period. Racial and ethnic minority men have benefited, while whites, and especially the well-educated, have not or have benefited comparatively less. Furthermore, the benefits accruing to men from their military service were stronger prior to the Vietnam War. However, almost nothing is known about the consequences of military service for women. It is reasonable to hypothesize, though, that military service has similar consequences for diverse disadvantaged segments of the labor force and would operate for women much the way it has for minority men. We ask one broad question: How does time spent in the military affect women’s post-service economic outcomes? We also ask: How does this experience vary by race?

Research on the effect of military service on socioeconomic status has tended to exclude women veterans from study (at least until 1984). We focus on women veterans of the post-1973 all-volunteer force (AVF). This was the first period since World War II in which large numbers of women have served in the armed forces, but it is also a period during which returns on military service for men were uncertain. We use a human capital perspective, largely based on the work of Browning, Lopreato, and Poston,⁴ who suggested that the military may serve as a “bridging environment” for some individuals: one “in which the individual may acquire new skills and abilities, which, after military service, could help him [or her] in his [or her] civilian career.”

Human Capital Theory and the Bridging Environment

Human capital theory can be thought of as a cost/benefit analysis of the decisions one makes in life,⁵ frequently measured in terms of socioeconomic status. The life decisions one makes can be seen as investment decisions.⁶ One investment an individual can make is to join the military. Browning, Lopreato, and Poston⁷ theorize that the military provides its members with certain skills and abilities that increase their post-service marketability in the civilian labor force. In this way, the military provides a bridge between service and post-service careers.

This occurs in several ways. First, the military offers opportunities to gain both training and education.⁸ Women veterans are able to apply their training to their civilian job about 50 percent of the time,⁹ a rate greater than for male veterans and only slightly less than that of their women civilian counterparts. More important, many women receive military training in traditionally male jobs that may translate into increased earnings in the civilian sector.¹⁰ The military also has provided veterans with educational benefits¹¹ which fund higher education, such as the G.I. Bill.¹² According to Berger and Hirsh,¹³ approximately 50 percent of veterans of the Vietnam era took advantage of such benefits.

Second, the military increases veterans' independence by severing their ties to the areas from which they came, and integrates many dissimilar people into the same unit.¹⁴ Independence may also provide the motivation necessary to relocate after the completion of military service.¹⁵ In addition, integration provides minorities "exposure to mainstream achievement values"¹⁶ and experience with living and working in the "milieu of the majority group."¹⁷

Third, the military may increase women's potential socioeconomic status by socializing them to a dominant male environment. There they are exposed to such characteristics as "independence, self-confidence, leadership and a masculine orientation," attributes that employers in male-dominated occupations may desire.¹⁸ In addition, they may be more willing to compete for traditionally male jobs and more willing to move for the benefit of their careers.¹⁹

A fourth way that the military may act as a bridging environment for some individuals is by giving them the "capability to cope with and manipulate the large-scale organizational structures that increasingly typify U.S. society."²⁰ Minorities benefit especially from this aspect of the bridging environment.²¹ So too may this provide women veterans an advantage over their civilian counterparts.

Fifth, the military may best serve as a bridge for those with the least amount of human capital upon entering the service.²² In particular, it is those with less education and minorities who are most likely to have been disadvantaged in their opportunities to gain human capital, and therefore most likely to benefit from military service.²³

As with any investment decision, there is always a risk that capital will depreciate or more beneficial opportunities will be forgone. In the military case, one risk is foregoing years of education and labor force experience. To the extent that these lost opportunities may be more beneficial than military service, veterans will be at a disadvantage relative to their non-veteran counterparts.

Research on Male Veterans

Most of the studies on the economic behavior of veterans have included only men in their samples. Three major trends emerge from this literature. First, military service is, on average, more beneficial (or less costly) to minority male veterans than to white male veterans.²⁴ This is congruent with what one would expect based on the bridging environment hypothesis.

Second, male World War II and Korean War-era veterans tend to do better, relative to non-veterans of the same age, than veterans of other cohorts.²⁵ Third, male veterans of the Vietnam era tend to receive the least benefit (or incur the most cost) from military service relative to other cohorts.²⁶

There is strong evidence that the change over eras is explained by the increase in the education level of the non-serving population through the decoupling of federal aid for education from military service during the Vietnam era.²⁷ Not only did the relative “benefit” of veteran’s educational benefits decrease, but non-veterans could get similar benefits without delaying their education for military service.

A clear trend has yet to emerge on how veteran status affects those who have served in the post-1973 AVF. Cohen, Warner, and Segal²⁸ suggest that the Vietnam disadvantage, in terms of education, continues into the AVF era. They find that veterans of the AVF, regardless of gender or ethnicity, attain significantly less education than their non-veteran counterparts. Phillips et al.,²⁹ however, looking at earnings, found that white, non-Hispanic male veterans gain an advantage over their non-veteran counterparts, while minority male veterans receive neither an advantage nor disadvantage. Jackson,³⁰ on the other hand, suggests that there is not much difference between the earnings of young

AVF veterans and non-veterans who have relatively equal time in service and civilian labor force experience. Teachman and Call,³¹ controlling for the selectivity of the military, found that white male veterans of the early AVF received an educational benefit, but that post-service income and occupational prestige were not significantly affected. Although this educational benefit persisted into the later AVF, there was some evidence that the income of white male veterans was negatively affected by their military service in this later period. African American male veterans of the early AVF suffered an education penalty as a result of their service, while occupational prestige and earnings were unaffected. In the later AVF, the education, occupational prestige, and income of African American male veterans were not significantly affected. In general, then, the results for male veterans are mixed and not always consistent.

Research on Female Veterans

Few studies have been done on women veterans, and there is insufficient analysis to establish a trend on how veteran status operates with respect to women. Poston, Segal, and Butler³² found that white and African American women veterans (serving between 1944 and 1980) earned more than their non-veteran counterparts. However, they did not compare veterans to non-veterans by period of service, which, given previous research on male veterans, is likely to be of some importance.

Warner³³ and DeFleur and Warner³⁴ explored the relationship between veteran status and the early socioeconomic status attainment of female veterans of the AVF. Warner³⁵ found no significant relationship between veteran status and early career earnings for women (white or minority). This held even if career continuity of occupations was controlled. This study, however, is limited by the youth of its veterans (ages 17-24 in 1982), who may have not had time to transition into the civilian labor force or receive any delayed benefit that might come from military service. DeFleur and Warner³⁶ claim that women veterans of the AVF appear to be advantaged in terms of annual earnings relative to their non-veteran counterparts, across levels of education, but their results are more suggestive than definitive.

Mangum and Ball³⁷ examined AVF-era veterans' ability to transfer their military skills to the civilian labor market and assessed the impact this had on post-service earnings. They found that 49.8 percent of women veterans were able to transfer their military-provided training to the civilian labor market. In comparison, women who had not served in

the military were able to transfer their civilian training to their employment 57.8 percent of the time. The percentage of men who were able to transfer their training to their employment was 45.8 percent for veterans and 56.3 percent for civilians. Controlling for the effect of employer-specific training, though, the veteran and non-veteran rates are about equal. They also found that, for women, military-related variables (e.g., veteran status, weeks on active duty) were all insignificant determinants of wages, while men experienced a premium for the number of weeks they were on active duty. Thus, although women veterans transfer their military skills to civilian occupations at a higher rate, they benefit less than men from their service. This is probably because women are still concentrated in traditionally female occupations within the military.³⁸

Cohen, Warner, and Segal³⁹ found that military service costs female veterans more than three-fourths of a year of school and male veterans about two-thirds of a year. In addition, they found that length of service was negatively correlated with educational attainment for white women and men, but it had little effect for African Americans.

Using data on both veteran and non-veteran reservists, Mehay and Hirsch⁴⁰ found that women veterans were at a significant economic disadvantage to non-veterans, receiving a 9 percent wage penalty. White women veterans experienced a 12 percent wage penalty, while non-white women veterans earned only 2 percent less. This disadvantage held to some degree for women who served prior to the AVF and after its implementation, as well as across education levels. However, using another data set, Mehay and Hirsch⁴¹ also found an unadjusted 6.5 percent wage advantage for female veterans over like non-veterans, largely due to the higher average education of the veterans in this sample. Prokos and Padavic⁴² also found that female veterans are at a disadvantage in terms of earnings. However, it is the younger veterans who are experiencing the disadvantage, while after age 35, women veterans start to realize a premium. Overall, "older women, particularly African Americans, and women with low levels of education benefit[ed] most from military service."⁴³ This finding is consistent with the bridging hypothesis.

Military Women and Military Families

The military, theoretically, may benefit women more indirectly than predicted by the bridging environment hypothesis. One method of indirect influence may occur through familial variables such as marital

status and fertility. Inasmuch as serving in the military influences a woman's propensity to marry or have children, there is a potential indirect effect on that woman's post-service socioeconomic status attainment.

Segal,⁴⁴ extending Coser's⁴⁵ argument, characterizes both the military and the family as greedy institutions. Coser⁴⁶ describes greedy institutions as those that:

...make total claims on their members and which attempt to encompass within their circle the whole personality. ...they seek exclusive and undivided loyalty and they attempt to reduce the claims of competing roles and status positions on those they wish to encompass within their boundaries. ...they exercise pressures on component individuals to weaken their ties, or not to form any ties, with other institutions or persons that might make claims that conflict with their own demands.⁴⁷

Segal argues that both the institution of the family and the military institution exhibit these characteristics. Individuals on active duty are frequently forced to make sacrifices within one of these institutions due to the demands of the other. The military is intrinsically greedy due to the set of demands it places on its members (e.g., risk of death, geographic mobility, and geographic separations from family members).⁴⁸ The family can also be greedy, especially of women to whom many of the domestic responsibilities fall.⁴⁹

The greed which the military exerts on, and the commitment which it extracts from, women are often in direct competition with family demands.⁵⁰ Therefore, women on active duty may try to limit either the military or familial demands placed on them. While they are likely to have little control over the military demands, they can actively control the extent to which they are burdened by their culturally defined duties within the institution of the family. Hence, women on active duty may choose not to marry or to limit the number of children that they have, thereby limiting the greed of the family. Because of the way in which men's and women's roles are culturally defined, men are less likely to experience as much familial greed.

There is some evidence to support this hypothesis. Segal⁵¹ reports that "Military women are less likely than military men to be married and to have children." According to the results of a 1985 Department of Defense survey, 60 percent of enlisted males were married while only 53 percent of enlisted women were married.⁵² Overall, 81 percent of

male officers and only 49 percent of female officers were married.⁵³ In addition, about 47 percent of enlisted men and 65 percent of male officers had dependent children, while only 35 percent of enlisted women and 26 percent of female officers had children.⁵⁴

Analysis of more recent data provides comparable results. Fiscal year 1992 data from the Defense Manpower Data Center (DMDC) indicate that while 56 percent of enlisted males aged 18-44 were married, only 46 percent of enlisted women in the same age group were married.⁵⁵ While enlisted women aged 22 or under were slightly more likely to be married than their male counterparts, the marriage rate of enlisted men exceeds that of enlisted women starting at age 23.⁵⁶ For enlisted personnel over the age of thirty, 81 percent of men, compared to 62 percent of women, are married.⁵⁷ Since some of these marriages are not first marriages and those who are divorced would be counted in the 'not married' category, it may be more accurate to look at the percentage of individuals who are single, never married. Schumm et al.⁵⁸ cite Sample Survey of Military Personnel (SSMP) data from 1991 and 1994 that indicate that, in both years, enlisted women and women officers were more likely to have never been married than their male counterparts.

It is also relevant to compare military women to the entire population on marriage rates and parenthood. The U.S. Bureau of the Census⁵⁹ reports that, in 1990, 58.4 percent of women between the ages of 15 and 44 have had a child. If those women aged 15 to 19 are eliminated from the sample (to provide a better sample match for women in the military), we find that over 74 percent of women have had a child.⁶⁰ In comparison to the 26 percent of female officers and 35 percent of enlisted women who have dependent children, the difference—using either statistic—is remarkable. While having a child in the civilian sector and having a dependent child in the military are not exactly equivalent, there is some basis for comparison. Additional support comes from data from the Defense Enrollment Eligibility Reporting System (DEERS), which indicates that the percentage of first-term enlisted women who gave birth to their first child in fiscal year (FY) 1991 was only one-sixth that of civilian wives of first-term enlisted men.⁶¹

In terms of comparing the marital status of military and non-military personnel, Schumm et al.,⁶² in a summary of research concerning marriage trends in the U.S. Army, report that "past the age of 25, slightly fewer female soldiers have ever married than their civilian counterparts." Comparing FY 1992 DMDC data with data from the September 1992 Current Population Survey (CPS) file, we find that

only 46 percent of enlisted women aged 18 to 44 are married, while the percentage of their 18- to 44-year-old civilian counterparts who are currently married is 58 percent.⁶³ This statistic, however, ignores the fact that some of those who are not currently married may have been married at one time.

Since women in the military are less likely to be married, marry less frequently (in particular, those over the age of 25), and remain childless more frequently than similar non-veterans, one would predict that, on average, women veterans would gain a socioeconomic advantage indirectly via the competition between military service and familial demands that they had experienced while on active duty. It is important to note that the greed of the military, relative to familial demands, is not just a perception; for some time, it was law. The military employed various policies in earlier years that limited the participation of married or pregnant women, often calling for their immediate discharge upon the occurrence of either.⁶⁴

Furthermore, many women voluntarily leave the service upon becoming a parent or entering into marriage,⁶⁵ or in order to do so. These veterans, however, are still likely to have postponed a few of their familial demands. That is, they will have “used up” some of their limited number of childbearing years during their military service and may have a lower completed fertility, thus gaining some socioeconomic advantage. However, the familial responsibilities of women veterans upon leaving the service may defer or negate service-based advantages.

Hypothesis

Although research findings on various aspects of status attainment for women veterans have been inconsistent, the bridging environment hypothesis suggests that overall, women veterans should achieve greater socioeconomic status than their non-veteran counterparts. Using earnings and family income as two indicators of socioeconomic status, as is commonly done in research on male veterans, we hypothesize that women veterans will receive greater earnings and a higher family income than similar non-veteran women (Hypothesis 1). Also, we expect that minority women veterans will receive more of an earnings and family income premium (or less of a cost, if there is one) for their veteran status relative to similar minority non-veterans than white women veterans receive relative to similar white non-veterans (Hypothesis 2). We further expect that the benefits or costs received by female veterans will be affected by familial responsibilities (Hypothesis 3).

Methods

Sample Description

We used the 1990 Public Use Microdata Sample L (PUMS-L).⁶⁶ This is a .45 percent sample and includes records on 1,139,142 individuals. It is considerably different from other PUMS data sets in its geographic delineation. Tolbert and Sizer⁶⁷ divided the United States into 741 commuting zones based on individuals' journey-to-work data from the 1990 Census. These commuting zones use counties (or their equivalents) as the basic unit of analysis and aggregate them to provide a picture of the areas in which individuals both live and work. The commuting zones were then combined into 394 labor market areas (LMAs) and certain areas were oversampled to ensure that each LMA contained the records of at least 100,000 individuals.

Sampling weights are included to compensate for the oversampling of certain LMAs. However, preliminary analysis showed that sample weighting did not substantively impact the results of this analysis. In addition, as Teachman and Call⁶⁸ note, "the use of weights undermines the asymptotic theory upon which the calculation of the standard errors of the regression coefficients is based." For these reasons, we used non-weighted data for our analysis.

We have limited this sample by including only women aged 19 to 40 who are not currently on active duty and whose prior military service was not exclusively in the National Guard or reserve components. We chose the lower age limit because this is the youngest a veteran could be in 1989 based on entering the service at age seventeen and serving a minimum two-year active-duty commitment. As we are focusing only on veterans of the AVF, those who served prior to May 1975 are excluded. While the AVF began in 1973, the coding of the data provided no closer alternative cutoff date. To make the age range of the veterans and non-veterans comparable, we also eliminated women aged forty-one or over from our analysis.

We also limit our sample on the basis of education. Since 1974, at least 90 percent of all women on active duty have had a high school diploma.⁶⁹ To make the veteran women and non-serving women groups more comparable and to limit the effects of selection bias, we dropped all individuals without a high school diploma or general equivalency diploma (GED) from this study.

We excluded from analysis of earnings women who earned nothing or had negative earnings in 1989, and those who were not employed. The

socioeconomic status of these women may be better measured by family income. This excluded group draws relatively evenly from the racial categories and veteran status groups.

In the analysis of family income, we excluded certain individuals as well: those who have missing values for family income and those whose family income is less than or equal to zero. The U.S. Bureau of the Census did not calculate family income for individuals living in group quarters, such as college dormitories and military barracks. Thus, these individuals have missing values for family income. Of the original sample (restricted by age and education), these women accounted for less than 1 percent of the veterans and 2 percent of individuals with no military service. Racially these women accounted for 2 percent of white women and 3 percent of African American women. An additional 1,298 women with negative family incomes were excluded. They comprise fewer than 1 percent of the original sample (restricted by age and education).

Applying these limitations, our final sample consists of the 14,819 African American women and 131,004 non-Hispanic white respondents described in Table 1: African American and white women veterans (who have served only during the AVF era from May 1975 on) and women who have had no military service. These women are aged 19-40 years old and have earned a high school diploma or GED. Because of the small number of white, Hispanic women veterans (56) and women veterans of other ethnicities (82), we have excluded them from this analysis. African American women are somewhat overrepresented among women veterans. This reflects the higher proportion of African American women who have served in the military since the beginning of the AVF,⁷⁰ which climbed to 32 percent of active-duty women in 2000.⁷¹

Measures

Our dependent variables are earnings and family income during 1989. To reduce the positive skew associated with each of these measures, we transformed these variables by taking their natural logarithms.⁷² Our primary independent variable is veteran status. This is a dummy variable in which veterans (defined as those who have previously served on active duty with the U.S. Armed Forces, but are no longer on active duty) are coded as 1. Table 2 lists the intervening and control variables which we have used in this study.

Table 1**Racial Composition of Sample**

Racial Group	Total Sample	Veteran	Non-Serving
White	90% (131,004)	83% (1,195)	90% (129,809)
African-American	10% (14,819)	17% (243)	10% (14,576)
Total	100% (145,823)	100% (1,438)	100% (144,385)

Note: *N* in parentheses

Results

Description

Table 3 presents selected characteristics of the women in this sample by race and veteran status. On average, white women veterans are twenty-nine years old, one year younger than their non-serving counterparts. In terms of education, veterans have about 0.2 years of education less than non-serving individuals ($p \leq .01$). However, looking at the percentage of individuals who have completed at least a bachelor's degree, we see a much more substantial difference. More than 20 percent of non-serving individuals fall into this category, while only about 14 percent of veterans do ($p \leq .01$).

Work experience, for veterans, can basically be divided into that experience gained while on active duty (as measured by length of service) and potential civilian labor market experience. While non-serving individuals have a definitive edge in potential civilian labor market experience, the combined total experience (length of service and potential civilian labor market experience) of veterans is only about one year less than that of non-serving individuals, which can be accounted for by the difference in age.

Familial variables tell an interesting story about the difference between white veterans and non-veterans. They are equally likely to be married, but the percentage of veterans who are divorced, widowed, or separated is significantly greater ($p \leq .01$) than the percentage of non-serving women. In addition, veterans are significantly less likely to be single, never married ($p \leq .01$) despite being younger on average. In terms of child bearing, veterans have slightly fewer children than non-

Table 2**Intervening and Control Variables****Intervening Variables**

Length of Service (LOS) - This continuous variable is an individual's number of years of military service.

Potential Civilian Labor Market Experience - This is a continuous variable constructed using the formula: Age – Years of Education – LOS – 5. The square of this variable is also used in regression analysis to compensate for the declining value of civilian experience over time.

Educational Attainment - This variable is approximately equal to the number of years of education an individual has: 12 = high school diploma or GED; 13 = some college, no degree; 14 = associate degree; 16 = bachelor's degree; 18 = master's degree; and 21 = doctorate or professional degree.

Percent of Occupation that is Male ÷ 10 - For each three-digit occupational category, we constructed a continuous variable that indicates the percentage of individuals employed in that occupation who are men (based on individual-level data from all employed individuals in the PUMS-L data set aged 16 or older). This variable is only calculated for employed individuals.

Marital Status - This is a set of two dummy variables. One indicates married (not separated) or otherwise, and the other indicates whether an individual is divorced, widowed, separated, or not. The excluded category is single, never married.

Number of Children - This is a continuous variable that represents the number of children ever born.

Children Under 6 Years Old - This variable is a dummy variable that indicates whether a woman has her own child/children present who are under the age of six. This variable is not calculated for men, as the data for men were not in the PUMS-L data set.

Control Variables

Age - This is a continuous variable equal to the age, in years, of the respondent. Because this variable is a linear combination of an individual's length of military service, potential civilian labor market experience, and education, age is excluded from all regression equations.

Enrolled in School - This is a dummy variable that indicates whether an individual was attending school at any time between 1 February 1990 and the time of enumeration (1 = enrolled).

Approximate Number of Hours Worked in 1989 ÷ 40 - This is the usual number of hours worked per week in 1989 multiplied by the number of weeks worked in 1989 divided by 40 (hours in one full-time work week).

Table 3

Selected Characteristics of Women by Race and Veteran Status

Characteristic	White			African American			Racial Difference		
	Veteran N = 1,195	Non-Serving N = 129,809	Difference	Veteran N = 243	Non-Serving N = 14,576	Difference	Veteran White minus African American	Non-Serving White minus African American	
Age in years	% or Mean	% or Mean	% or Mean	% or Mean	% or Mean	% or Mean	% or Mean	% or Mean	% or Mean
	29.0	30.0	-1.0 [*]	29.2	29.2	0.0	-1	0.0	8 ^{**}
Years of education	13.3	13.5	-0.2	13.1	13.1	0.0	.2	0.0	.4 [*]
% with B.A. degree or higher	14.2	20.5	-6.3	11.1	13.2	-2.1	3.1	-2.1	7.4 ^{**}
% enrolled in school	17.7	16.8	0.9	16.0	18.6	-2.6	1.6	-2.6	-1.9 ^{**}
Years of military service	3.2	2.1	1.1	3.7	0.0	3.7 ^{**}	-5 ^{**}	3.7 ^{**}	0.0
Years of potential civilian experience	7.5	4.5	3.0	7.3	11.1	-3.8 ^{**}	.1	-3.8 ^{**}	.4 ^{**}
% married, not separated	61.8	64.3	-2.5	47.3	34.4	12.9 ^{**}	14.5 ^{**}	12.9 ^{**}	30.0 ^{**}
% divorced, widowed, separated	19.0	11.3	7.7 ^{**}	24.3	17.4	6.9 ^{**}	-5.3	6.9 ^{**}	-6.1 ^{**}
% single, never married	19.2	24.4	-5.2	28.4	48.3	-19.9 ^{**}	-9.2 ^{**}	-19.9 ^{**}	-23.8 ^{**}

Note: Levels of significance (two-tailed t-test): * $p \leq .05$, ** $p \leq .01$

Table 3 (cont.)

Characteristic	White			African American			Racial Difference				
	Veteran N = 1,195		Non-Serving N = 129,809		Veteran N = 243		Non-Serving N = 14,576		Difference		
	% or Mean	Std Dev	% or Mean	Std Dev	% or Mean	Std Dev	% or Mean	Std Dev	Veteran minus Non-Serving	Veteran minus Non-Serving	
Number of children ever born	1.2	1.2	1.3	1.3	1.4	1.4	1.4	1.4	0.0	-0.2	-0.2
% childless	36.4		37.6		28.8		31.7		-2.9	7.6	5.9
% with child(ren) under 6 yrs old	42.2		33.3		42.8		32.7		10.1	-0.6	0.6
% employed	68.9		72.5		64.2		67.4		-3.2	4.7	5.0
% unemployed	6.9		3.7		14.0		10.1		3.9	-7.1	-6.3
% not in the labor force	24.3		23.8		21.8		22.5		-0.7	2.4	1.4
Number of hours worked in 1989	1400.5	931.9	1289.1	910.4	1321.0	935.6	1236.5	930.3	84.5	79.5	52.6
% of occupation that is male	38.8	30.4	32.3	26.0	35.3	27.6	32.0	25.0	3.3	3.5	0.3

Note: Levels of significance (two-tailed t-test): * $p \leq .05$, ** $p \leq .01$

serving individuals (only 0.1 fewer) and are significantly more likely to have a child under six years old ($p \leq .01$).

White women veterans are employed at a significantly lower rate than non-serving women, and unemployed at a significantly greater rate. Veterans usually worked more hours than their non-serving counterparts ($p \leq .01$) and in occupations that contained a higher proportion of employed men ($p \leq .01$).

African American veterans in this sample are, on average, about the same age as their non-serving counterparts. As expected, then, total experience of veterans and individuals with no service is about equal. Educationally, African American women veterans, unlike white veterans, do not differ significantly on any measure of education from their non-serving counterparts. It is also noteworthy that while African American veterans do not differ significantly (at the 0.05 level of significance) from their white veteran counterparts in terms of their years of education or the percentage who have earned at least a four-year degree, African American women with no military service are significantly less likely to have earned a bachelor's degree than their white counterparts.

African American women veterans are more likely to be married ($p \leq .01$) as well as divorced, widowed, or separated ($p \leq .01$) than non-serving women. Although, on average, veterans have the same number of children as non-serving individuals, the veterans are more likely to have preschool children ($p \leq .01$). Similar to white veterans, African American veterans experience unemployment more frequently than those without military service ($p \leq .05$). Unlike white veterans, though, these women did not differ significantly from their non-serving counterparts in terms of the time spent at work in 1989 or in the percentage of males employed in their occupations.

Comparison of Dependent Measures

As an initial test of Hypothesis 1, a difference-of-means test was used to make comparisons between the earnings and family income of veterans and individuals with no military service. An alpha level of 0.05 was used to test the equality of the variances (using an F -test) in the difference-of-means test to determine the appropriate formula for calculating the t -statistic. We used a two-tailed t -test to judge the statistical significance of the observed differences. The differences between the logarithmically transformed dependent variables of veterans and non-veterans are converted to approximate percentage differences using the following equation⁷³:

$$\text{Percentage differential} = [\text{EXP (Logarithmic Differential)} - 1] \times 100 \quad (1)$$

Within racial groups, white women veterans have a significant overall family income (but not earnings) disadvantage of about 15 percent ($p \leq .01$) relative to similar non-serving individuals (Table 4). African American women veterans did not differ significantly from their non-serving counterparts in terms of their earnings or family income. For both veterans and non-veterans, white women report significantly higher family income (but not earnings) than African American women. This reflects the higher likelihood of white women being married.

Multivariate Regression: Military Status, Earnings, and Family Income

Using a multivariate regression model⁷⁴ to control simultaneously for various factors associated with earnings and family income, the net

Table 4
Ln (Dependent Variables) of Women by Race

	<u>Veteran</u>			<u>Non-Serving</u>			<u>Difference</u>
	<i>N</i>	Mean	Std Dev	<i>N</i>	Mean	Std Dev	Veteran minus Non-Serving
<i>Earnings</i>							
White	790	9.288	0.955	90997	9.254	0.976	0.034
African American	150	9.321	0.859	9379	9.248	0.952	0.073
White minus African American		-.032			.005		
<i>Family Income</i>							
White	1,182	10.128	0.798	126205	10.291	0.843	-0.163**
African American	235	9.891	0.878	13939	9.825	1.063	0.066
White minus African American		.237**			.466**		

Note: Levels of significance (two-tailed t-test): * $p \leq .05$, ** $p \leq .01$

veteran advantage or disadvantage can be ascertained by examining the coefficient of the veteran status dummy variable (Table 5). While the coefficients for all variables used in these equations are presented, we are, for the purpose of this section, concerned only with the coefficient of the veteran status variable. Separate regression equations were estimated for each racial group.

The coefficient of the veteran status variable is interpreted relative to the reference (excluded) group, non-veterans. Therefore, a significant positive coefficient for the veteran status variable can be interpreted as an advantage for veterans over non-serving women, controlling for the other factors in the equation. The opposite interpretation can be applied to significant negative coefficients (i.e., a veteran disadvantage). These coefficients relate to a logarithmically transformed dependent variable, and can be converted to approximate percentage differences between women veterans and non-serving women by using the following equation⁷⁵:

$$\text{Percentage differential} = [\text{EXP}(b) - 1] \times 100 \quad (2)$$

where b is the regression coefficient of the variable of interest.

Looking at the $\ln(\text{earnings})$ and $\ln(\text{family income})$ equations for white women, we find that veterans have about a 12.5 percent ($p \leq .01$) disadvantage in terms of their earnings and a 11.7 percent ($p \leq .01$) disadvantage in their family income relative to those with no military service, net of the effects of the other variables in these equations. For African American women there is no statistically significant difference between veterans and women with no military service controlling for the other variables in the regression equation for either earnings or family income.

Multivariate Regression: Comparing Women Veterans and Non-Serving Women—A Closer Look

Since the slopes of the various regression coefficients in the previous equations for each racial group are constrained by the model to be equal across all military status groups (e.g., the relationship between education and earnings for both veteran and non-serving women is assumed to be equal), we are unable to distinguish whether veterans are more or less able to capitalize on their various individual characteristics or the characteristics of their occupations when compared to their non-veteran counterparts. We therefore estimated separate

Table 5

Multivariate Regression Equations^a for White and African American Women

X	Ln (Earnings)				Ln (Family Income)			
	White N = 91,787		African American N = 9,529		White N = 127,387		African American N = 14,174	
	b	s.e. p	b	s.e. p	b	s.e. p	b	s.e. p
Veteran	-0.133	0.044**	0.035	0.104	-0.124	0.040**	-0.094	0.109
Years of military service	0.060	0.011**	0.030	0.024	0.024	0.010*	0.015	0.025
Years of potential civilian experience	0.067	0.002**	0.074	0.005**	0.010	0.002**	-0.048	0.005**
Experience squared ^b	-0.002	0.0001**	-0.002	0.0002**	0.0003	0.0001**	0.002	0.0002**
Years of education	0.124	0.001**	0.133	0.004**	0.085	0.001**	0.084	0.005**
Enrolled in school	-0.056	0.007**	-0.007	0.020	-0.008	0.006	0.071	0.021**
Married	0.032	0.007**	0.058	0.017**	0.382	0.007**	0.605	0.019**
Divorced, widowed, or separated	0.041	0.009**	0.028	0.021	-0.455	0.009**	-0.191	0.023**
Number of children ever born	-0.099	0.003**	-0.060	0.006**	-0.030	0.002**	-0.081	0.007**
Has a child under 6 years old	0.051	0.006**	0.019	0.017	-0.022	0.006**	-0.165	0.018**
% of occupation that is male + 10 ^c	0.011	0.001**	0.018	0.003**	--	--	--	--
# hrs worked in 1989 ± 40	0.034	0.0001**	0.032	0.0004**	0.007	0.0001**	0.017	0.0003**
F	8823.11**		832.00**		2861.89**		537.55**	
R ²	0.536		0.510		0.198		0.295	
Adj. R ²	0.536		0.510		0.198		0.294	

Note: Levels of significance (two-tailed t-test): * $p \leq .05$, ** $p \leq .01$

a No interaction terms are used between military status and the independent/control variables in these regression equations, as this would negate the interpretation of the military status dummy variables' coefficients for all levels of the independent variables except when all independent variables equal zero.

b Because of the collinearity that often occurs between an X variable and its square, variables that are to be used in this manner are often centered. However, in models used in this study, the collinearity between experience and its square had little impact (based on an analysis of models excluding the squared term and an examination of variance inflation factors). In addition, centering the variables, while reducing collinearity, had no significant impact on the rest of the model. Therefore, uncentered values of experience are used.

c Not used in ln(family income) equations

ln(earnings) and ln(family income) models for veteran and non-serving women within each racial group. In order to test the significance of the differences between the coefficients of veterans and non-veterans in these separate models, we also we ran equations that interacted veteran status with each variable in the model.⁷⁶ While these interaction models are not explicitly presented in this paper, significant differences (at the

0.05 level) between the coefficients of veterans and non-veterans are shaded in the appropriate rows of Table 6 and Table 7, and are discussed in the text.

As with the regression models used in the previous section, the parameter estimates in the following equations relate to a logarithmically transformed dependent variable, and thus can be converted to the approximate percentage change in the dependent variable due to a one-unit change in the independent variable with Equation 2.

As Table 6 shows, years of military service is a significant determinant of white veteran $\ln(\text{earnings})$, adding about 6 percent ($p \leq .01$) to earnings per year served. For white veterans, years of military service

Table 6

$\ln(\text{Earnings})$ Multivariate Regression Equations for White and African American Veteran and Non-Serving Women

X	White						African American					
	Veteran <i>N</i> = 790			Non-Serving <i>N</i> = 90,997			Veteran <i>N</i> = 150		Non-Serving <i>N</i> = 9,379			
	b	s.e.	<i>p</i>	b	s.e.	<i>p</i>	b	s.e.	<i>p</i>	b	s.e.	<i>p</i>
Years of military service ^a	0.059	0.011**		--	--		0.019	0.024		--	--	
Years of potential civilian experience	0.041	0.016*		0.067	0.002**		0.030	0.036		0.076	0.005**	
Experience squared	-0.001	0.001		-0.002	0.0001**		-0.0002	0.002		-0.002	0.0002**	
Years of education ^b	0.090	0.013**		0.124	0.001**		0.139	0.032**		0.133	0.004**	
Enrolled in school	-0.106	0.064		-0.055	0.007**		0.065	0.153		-0.007	0.020	
Married	0.048	0.064		0.032	0.007**		-0.106	0.138		0.060	0.017	
Divorced, widowed, or separated	0.026	0.073		0.041	0.009**		-0.070	0.160		0.028	0.021	
Number of children ever born	-0.029	0.028		-0.100	0.003**		-0.053	0.057		-0.060	0.007**	
Has a child under 6 years old	-0.151	0.059*		0.053	0.006**		0.200	0.124		0.015	0.017	
% of occupation that is male ÷ 10	0.015	0.008*		0.011	0.001**		0.014	0.019		0.019	0.003	
Number of hours worked in 1989 ÷ 40	0.035	0.001**		0.034	0.0001**		0.033	0.003**		0.032	0.0004**	
<i>F</i>	90.89**			10491.7**			12.92**		984.47**			
<i>R</i> ²	0.562			0.536			0.507		0.512			
Adj. <i>R</i> ²	0.556			0.536			0.468		0.512			

Note: Levels of significance (two-tailed *t*-test): * $p \leq .05$, ** $p \leq .01$

a Not used in non-serving equation

b Shaded rows indicate that the difference in the coefficients for that X variable between women veterans and non-serving women is significant at the 0.05 level of significance using an interaction model which interacted veteran status with each X variable.

are more valuable than their years of potential civilian labor market experience. Although white veterans appear to earn slightly less per year of civilian experience than non-serving individuals, this difference did not reach statistical significance. However, the difference between white veterans' and non-serving individuals' ability to convert their education into earnings was statistically different. While white women veterans converted their education into earnings at the rate of 9 percent ($p \leq .01$) per year of education, non-serving women earned about 13 percent ($p \leq .01$) per year. In addition, non-serving individuals suffered an earnings penalty of about 5 percent ($p \leq .01$) for being enrolled in school, while the white veterans' earnings penalty for school enrollment, though larger, was not significant.

In terms of familial variables, marital status was insignificant in determining earnings for white veterans, but being married or being divorced, widowed, or separated was associated positively with the earnings of non-serving women (relative to those single, never married). Having additional children was significantly more costly for non-serving women in terms of earnings than it was for white veterans, but having a young child was much more costly for white veterans. In fact, having a child under six years old resulted in a 14 percent ($p \leq .05$) earnings penalty for white veterans, while non-serving women actually earned a 5 percent ($p \leq .01$) premium for having a young child. African American women veterans did not differ significantly from their non-serving counterparts on any coefficient of any variable in their $\ln(\text{earnings})$ equation. In fact, the only coefficients that were significant were for education and the number of hours worked per week divided by 40. This non-significance may, in part, be driven by the low N for this equation.

One significant difference in family income between veterans and non-serving individuals occurs in the coefficients of the dummy variable for being divorced, widowed, or separated (Table 7). Non-serving women are penalized more for falling into this category than veterans. The other significant difference can be seen in the contribution of the number of hours worked per week in 1989 to family income, with veterans having a slight advantage. While the number of children ever born and having a child under six years old were not significant in the white veteran $\ln(\text{family income})$ equation, both were negatively related to family income for non-serving women.

In terms of family income, the only significant difference between African American veterans and non-serving individuals occurred in the coefficient for the number of hours worked in 1989 divided by 40. Here,

Table 7

Ln (Family Income) Multivariate Regression Equations for White and African American Veteran and Non-Serving Women

X	White						African American				
	Veteran <i>N</i> = 1,182			Non-Serving <i>N</i> = 126,205			Veteran <i>N</i> = 235		Non-Serving <i>N</i> = 13,939		
	b	s.e.	<i>p</i>	b	s.e.	<i>p</i>	b	s.e.	<i>p</i>		
Years of military service	0.021	0.010*		-. ^a	-. ^a		0.039	0.024		-. ^a	-. ^a
Years of potential civilian experience	0.012	0.014		0.010	0.002**		-0.008	0.035		-0.050	0.005
Experience squared	0.0001	0.001		0.0003	0.0001**		0.001	0.002		0.002	0.0002**
Years of education	0.073	0.012**		0.086	0.001**		0.074	0.036*		0.084	0.005**
Enrolled in school	0.024	0.056		-0.009	0.006		-0.156	0.145		0.073	0.021**
Married	0.472	0.060**		0.381	0.007**		0.340	0.132*		0.611	0.019**
Divorced, widowed, or separated ^b	-0.271	0.070**		-0.457	0.009**		-0.311	0.156*		-0.189	0.024**
Number of children ever born	-0.026	0.022		-0.030	0.002**		-0.018	0.052		-0.082	0.007**
Has a child under 6 years old	-0.092	0.051		-0.021	0.006**		-0.033	0.128		-0.167	0.018**
Number of hours worked in 1989 + 40	0.009	0.001		0.007	0.0001**		0.011	0.002**		0.017	0.0004**
<i>F</i>	36.19**			3454.51**			6.16**		652.30**		
<i>R</i> ²	0.236			0.198			0.216		0.297		
Adj. <i>R</i> ²	0.230			0.198			0.181		0.296		

Note: Levels of significance (two-tailed *t*-test): * $p \leq .05$, ** $p \leq .01$

a Not used in non-serving equation

b Shaded rows indicate that the difference in the coefficients for that X variable between women veterans and non-serving women is significant at the 0.05 level of significance using an interaction model which interacted veteran status with each X variable.

a forty-hour period worked by veterans contributed significantly less to family income than did the time worked by non-veterans.

Discussion

Based on the assumption that women are a disadvantaged segment of the labor market, and given that previous research demonstrates that

disadvantaged males benefit most from military service, we hypothesized that women veterans would achieve some gain in earnings and family income relative to their non-serving counterparts (Hypothesis 1). These gains would possibly be produced by bridging hypothesis variables such as gains in education and training, increased independence, socialization to a male-dominated work environment, or increasing familiarity with working within a bureaucracy. Gains may have been realized because of how selective the military has been with the women that they allow into the ranks. That is, the women who were selected by the military may have already had the characteristics that they needed to succeed in the civilian labor market. Further advantage may have been gained indirectly through decreased fertility and decreased likelihood of marriage.

However, the veteran advantage, overall, never materialized for either racial group. In fact, when the data were disaggregated by race and military status, no group of women veterans had an advantage over their non-serving counterparts in terms of either earnings or family income. This finding held even when several variables were controlled in our regression models. The best that women veterans could do was break even, which African American women veterans did. White non-Hispanic women veterans did not fare so well. Overall, they were disadvantaged relative to similar non-serving women in terms of their family income and, once relevant factors were controlled in the regression equations, a veteran penalty was evident in both earnings and family income.

This finding lends credence to our second hypothesis that minority veterans receive more of a benefit (or less of a cost) for their veteran status relative to minority non-veterans than do non-minority veterans relative to similar non-veterans (Hypothesis 2). Why white veterans are disadvantaged is a bit more difficult to explain. In terms of earnings, it appears that education may play a significant role in this difference. That is, white veterans have significantly less education than their non-serving counterparts and are significantly less able to convert their years of education into earnings. This is likely to be driven by the fact that significantly fewer white veterans than non-veterans have completed a bachelor's degree. Our findings here parallel those of Cohen, Warner, and Segal.⁷⁷

Another issue that is likely driving down the earnings of white veterans is the timing of the births of their children (Hypothesis 3). While information is not available on birth timing, one can infer that many of these women veterans waited until they were either on their way

out of the service or were already out of the service before having a child. Thus, women veterans would have younger children than their non-veteran counterparts who did not have children or chose to wait. The presence of younger children may make it more difficult for women veterans to complete their four-year degrees. In addition, having young children during the period in which the veteran is attempting to transition back into the civilian labor force may be especially harmful. Having a child under six years old is significantly more detrimental in terms of earnings to white veterans than it is to non-veterans. One possible explanation for this is that white women who leave the military to have children are less job- or career-motivated than those who stay in or those who never serve.

Another possible explanation for the pattern of earnings differences found in this study is that those white women who enter the military had preexisting characteristics (e.g., had lower intelligence or came from families with less educated parents or parents of lower socioeconomic status) that would likely have been negatively reflected in their socioeconomic status regardless of whether they served in the military. On the other hand, black women who enter military service may be more or less equal to black women who do not serve on such characteristics and, thus, do not differ much from them after they leave the military.

There is some evidence to support this explanation, but such evidence is more applicable to male veterans. Several studies find that black men who enter the military generally have levels of these valued characteristics that are either higher than⁷⁸ or at least equal to⁷⁹ those black men who do not serve, while white men who serve generally have lower levels of such characteristics or come from a lower socioeconomic background than those white men who do not serve.⁸⁰ For women, however, the picture is less clear, as the background characteristics of women are much less predictive of which women will actually serve in the military.⁸¹ That is, while the differences between those women who serve and those who do not are generally in the same direction as for men, the differences are not nearly as strong.

White women veterans are also disadvantaged in terms of their family income. The reason for this disadvantage is likely to be twofold. First, some of the veteran family income penalty is a result of the earnings disadvantage which we have already discussed. A second portion of this penalty might be explained by the marital patterns of these women. White women veterans are significantly more likely to be divorced, widowed, or separated than their non-serving counterparts (as are African Americans), which is associated with a substantial family income penalty.

Conclusion

The bridging environment hypothesis was first posited by Browning, Lopreato, and Poston.⁸² They viewed the military as an investment opportunity where those individuals lacking in human capital or in their ability to convert human capital into socioeconomic status could invest a few years of their lives in exchange for education and training, motivation and independence, and skills that they could utilize to operate more effectively within a bureaucratic system. The greater the initial human capital deficit, the more likely a profit would be realized. The risk in this investment, though, is that by joining the military, the chance to invest in other opportunities, which may yield more of a profit, is forgone or delayed.

This theory was developed almost a quarter of a century ago when opportunities for minorities and women were much more limited than they are today or were in 1990, when our data were collected. Therefore, a more recent investment in the military may be a higher investment risk than it was in the early 1970s. Indeed, that is what we found: groups of individuals who have been traditionally thought of as disadvantaged in terms of human capital or their ability to convert their capital into status (i.e., minorities and women) may no longer receive a profit from military service—or at least, a profit that is more beneficial than the foregone or delayed opportunities.

Instead of conceptualizing this change in the process of status attainment as a loss for veterans, it may be better to view the lack of a veteran advantage as a depreciation of veteran benefits relative to the benefits of citizenship in general. As Segal⁸³ points out, most benefits of citizenship are no longer tied to obligations of citizenship. Yesterday's veterans' benefits are today's non-veterans' entitlements. The prime example of this is the federal support and subsidization of civilian education. Moskos⁸⁴ refers to this as the "GI Bill without the GI." It appears that the benefits of military service during the AVF allow minority women veterans to keep pace with their civilian counterparts, but do not offer the extra payoff that previous research on minority males seemed to demonstrate. White women veterans appear to lose ground relative to their civilian counterparts through military service.

The reason why a veteran disadvantage only surfaces in the analysis of white women may be a reflection of the increased opportunities which white non-veterans have over minority non-veterans in the civilian labor force. In other words, those white women who do not serve in the military are able to take advantage of an opportunity structure in the

civilian labor force that allows them to advance their socioeconomic status, in part, by increasing their earnings and/or family income. Military service is a deviation from such an opportunity structure for white women, and thus white women veterans do not keep pace with their non-serving counterparts. On the other hand, the opportunity structure for black women in the civilian labor force may be more limited. Thus, military service, while still a deviation, does not set black women veterans back from those black women who do not serve.

This study also points to the significance of the interaction of military service with family life and education. A delay in veteran childbearing due to military service may result in veterans' having children, or at least having younger children, at a point in their life cycle when it may be very disadvantageous, in terms of socioeconomic status attainment, to have a young child. Having a young child may make the transition back into the civilian labor force more difficult or delay educational attainment (e.g., completion of a bachelor's degree). In addition, veterans, on average, have married younger and are more likely to be divorced. They are also less likely to go to college directly after high school—postponing attainment of higher education. Furthermore, as many women veterans are married to military men, there are earnings penalties and career costs for military spouses due to the frequent movement of military families⁸⁵ and the lower average wages for women in areas where the military is a major employer.⁸⁶

The military, despite its status as a major institution in American life, remains under-analyzed by social scientists and especially sociologists. It is our hope that this study provides a springboard for future research on the interaction of military service with the institution of the family and the processes of educational and socioeconomic status attainment. In particular, our results suggest that specific attention should be paid to the ordering and timing of life events. Future research should also compare the status attainment of women veterans and non-veterans in later phases of their life cycle. As the women in our sample were relatively young, there is the possibility that the predicted veteran advantage may not appear until later in life.

In conclusion, the military may be conceptualized as a greedy institution, demanding individual and institutional loyalty against all competing claims (indeed, a loyalty oath is sworn when entering the military). And yet, we know that individuals must weigh the consequences of their actions when assessing matters of nation and employer against family and loved ones. The military is a battleground for many of the social forces which characterize America more fully. Gender, race, marriage, fertil-

ity—all are found in the military, in some cases (e.g., minorities) in unusually large proportions. Our research is one small step at trying to determine ways in which those on this battleground have their lives influenced, for better and worse, by this experience.

Notes

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72. The natural logarithm of a number is the base- e logarithm of that number, where e is defined as the limit of $(1 + 1/x)^x$ as x goes to infinity (approximately 2.71828). In other words, the natural logarithm answers the question, "To what power must e be raised to equal a given number?" (e.g., $\ln(e^2) = 2$). Practically speaking, transforming the dependent variables using the natural logarithm function makes the distribution of those variables more normal (i.e., less skewed) and provides a better fit between the data and our regression models. Once the variables are transformed,

however, the interpretation of differences in earnings and family income between groups (e.g., veterans and non-veterans), as well as the changes in the dependent variables associated with changes in the independent variables in regression analysis, is also transformed. Using Equations 1 and 2, such differences can be converted to percentage differences between two groups or, in the case of regression, the percentage change in the dependent variable associated with a change in an independent variable.

73. Mehay and Hirsch, "Postmilitary Earnings," 205; Robert J. Thornton and Jon T. Innes, "Interpreting Semilogarithmic Regression Coefficients in Labor Research," *Journal of Labor Research* 10, 4 (Fall 1989): 443-447, 444.
74. All of the regression models used in this analysis are semilogarithmic models. In this case, such models relate a logarithmically transformed dependent variable (see note 72, above) to a set of non-transformed independent variables using ordinary least squares (OLS) regression. The simplest form of this model could be represented by the equation: $\ln(Y) = a + bX$, where $\ln(Y)$ is the transformed dependent variable, X represents an independent variable, and b represents the change in the $\ln(Y)$ associated with a change in X . The coefficient b can be converted to the percentage change in Y associated with a change in X using Equation 2.
75. Mehay and Hirsch, "Postmilitary Earnings," 205; Thornton and Innes, "Semilogarithmic Regression," 444.
76. The coefficients of the interaction terms in such a model can be interpreted as the difference in the coefficients between the reference group (in this case, non-serving individuals) and veterans. Their test of significance is the test that the difference between the veteran and non-serving coefficients is statistically different from 0.
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