

# Analysis of the Post-Service Earnings, Wealth, and Well-Being of Military Retirees

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## About This Report

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This report documents research and analysis conducted as part of a project entitled *Analysis of the Post-Service Earnings of Military Retirees*, sponsored by Office of the Quadrennial Defense Review, Deputy Chief of Staff, G-8. The purpose of the project was to compare the expected lifetime earnings and Social Security and pension wealth of Army officers and enlisted soldiers with similar observable characteristics (e.g., demographics and job characteristics) between those who departed the Army before becoming eligible for military retirement benefits, e.g., after their initial service obligation, and those who served at least long enough to qualify for retirement benefits, using available data sources.

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## Summary

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*The research reported here was completed in June 2022, followed by security review by the sponsor and the U.S. Army Office of the Chief of Public Affairs, with final sign-off in May 2023.*

Serving 20 years on active duty in the U.S. military entitles a service member to the military retirement benefit immediately upon leaving the military. The option to receive this entitlement is part of a service member's compensation from when they start their military service. Most entrants into the military will not serve long enough to become eligible for the military retirement benefit, but those who do are the senior leaders of the military; the combination of post-service earnings opportunities and the military retirement benefit must be collectively sufficient to convince high-quality leaders to pursue a military career. With an average active-duty military retirement age of 43 for enlisted personnel and 47 for officers (U.S. Department of Defense, Office of the Actuary, 2021) in 2020, most military retirees will enter the civilian labor market for a second career, meaning that potential post-service earnings are an important complement to the military retirement benefit and an important contributing factor in the financial tradeoffs for service members considering military service as a long-term career.

This report provides a descriptive baseline for the life cycle outcomes of alternative career pathways. We compared life cycle earnings and wealth, health, and well-being in retirement of service members who qualified for military retirement with those who did not qualify for the military retirement benefit and those who never served. We used the Health and Retirement Study (HRS), which conducts a large civilian longitudinal survey that interviews respondents every two years from 1992 to the present and links survey responses on household characteristics, health, wealth, income, and well-being to administrative data on annual income from work, which we call *earnings*, over their life (HRS, 2008). Military-related variables include self-reported measures of veterans status; year when the individual started and ended active duty; and whether the respondent receives a military retirement benefit, and if so, when it started and how much is received. We controlled for differences in age and birth year, but our findings are descriptive. We did not estimate the causal effect on lifetime earnings of staying until military retirement; there might be unobserved factors, such as military-specific talents, military service, or in-service characteristics, such as aptitude test scores taken prior to enlisting or subsequent military performance that may be correlated with earnings and with staying until military retirement eligibility. We analyzed a cohort of men born between 1931 and 1941, which is before the modern all-volunteer force (AVF). Analyzing this group allowed us to take a long perspective on these respondents' life cycle outcomes and ensured we had sufficient sample sizes for our comparisons. However, military pay increased dramatically during the early years of the AVF, and the quality of personnel improved dramatically as well (Asch et al., 2020), so newer

entrants may be eligible for better civilian opportunities and better post-service earnings than draft-era personnel.<sup>1</sup>

Despite these caveats, our analysis shows how earnings of retirees differ from the earnings of those who did not complete a full military career and non-veterans. Our analysis focused on four research questions:

1. Do members who stay until retirement fare financially better or worse over their entire careers than those who leave before becoming eligible for retirement?
2. Do military retirement benefits offset any post-service reduction in earnings?
3. What is the role of pension wealth accumulation in explaining wealth differences between retirees and non-retirees?
4. Is the well-being and satisfaction of retirees higher or lower than non-retirees?

## Are There Differences in Career Earnings?

We compared service members who stayed until retirement with service members who did not stay. For those who did not stay, we had no comparable retirement age. We used the mean age of retirement by educational achievements as a benchmark for service members who did not stay until retirement (40 with less than a bachelor's degree; 45 with a bachelor's degree). We found that military retirees are 13 to 16 percentage points less likely to work five years after retirement than veteran non-retirees, depending on educational achievement. Using person-level data, we identified that this is primarily attributable to persistent non-employment rather than churning in and out of employment. It is unknown whether the non-employed retirees are not working because of a choice or an inability to find a job.

Military retirees with less than a bachelor's degree had lower earnings before and after they separated from the military compared with veteran non-retirees. Military retirees with at least a bachelor's degree had broadly similar earnings on average before they separated from the military compared with veteran non-retirees but lower earnings for the ten years after retirement from the military. We understated the earnings of veterans, regardless of education grouping for both military retirees and veteran non-retirees before separation because nontaxable allowances (and the tax advantage associated with these military allowances) are excluded from earnings while in service.

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<sup>1</sup> The 1931 to 1941 birth cohort differs from other pre-AVF cohorts in terms of education and other demographics, so earnings comparisons for this cohort may not be representative for these earlier cohorts (Tamborini, Purcell, and Olsen, 2019).

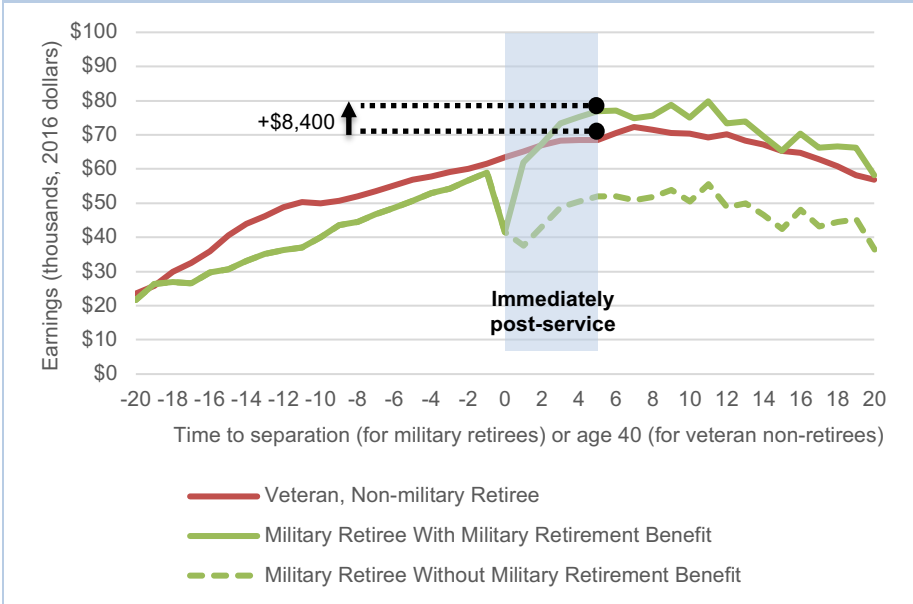
# Does the Military Retirement Benefit Offset Post-Service Earning Reductions?

The average life cycle earnings before and after retirement for military retirees and veteran non-retirees are shown in Figure S.1 for those with less than a bachelor’s degree and in Figure S.2 for those with at least a bachelor’s degree. These figures also show the annual military retirement benefit that military retirees begin receiving immediately after retirement from the military. All financial variables in our analysis are reported in 2016 dollars and adjusted using the consumer price index for urban consumers (Bureau of Labor Statistics, 2017).

We found that military retirement benefits effectively offset the earnings gap for those with less than a bachelor’s degree. Five years after retirement, military retirees who worked earned \$16,400 less on average than veteran non-retirees of a similar age before accounting for the military retirement benefit. Accounting for this benefit, they earned \$8,400 more on average.

We found that military retirement benefits more than offset the gap for military retirees with at least a bachelor’s degree. Five years after retirement, these military retirees earned \$3,700 less on average than veteran non-retirees of a similar age before accounting for the military retirement benefit. Accounting for this benefit, they earned \$44,600 more per year on average.

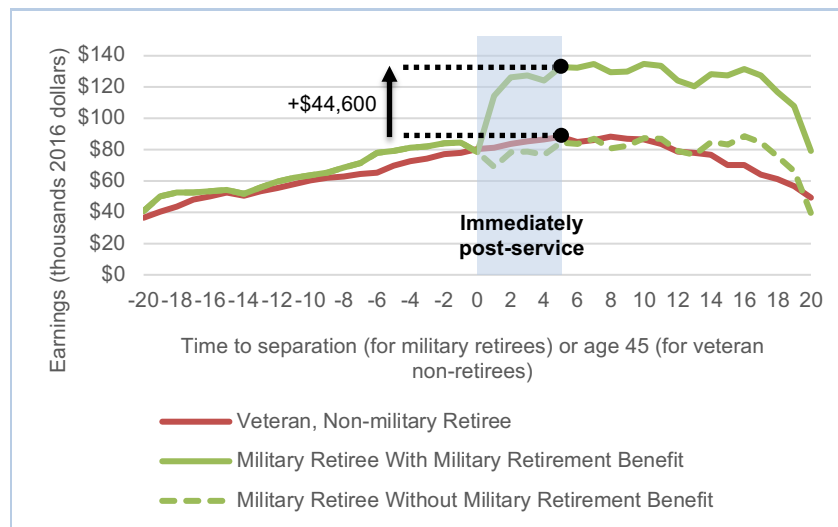
**Figure S.1. Average Earnings Plus Military Retirement Benefits by Time to Separation or Age, Conditional on Work: Men with Educational Attainment of Less than a Bachelor’s Degree**



SOURCE: Author’s tabulations using HRS and Social Security Master Earnings File data for the HRS cohort born 1931 to 1941 (HRS, undated; HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: *Working* is defined as having nonzero earnings. The blue background corresponds to the five years immediately following a military retiree’s retirement. The black dotted lines highlight the difference of \$8,400 between the two points at five years after separation or age 40.

**Figure S.2. Average Earnings Plus Military Retirement Benefits by Time to Separation or Age, Conditional on Work: Men with Educational Attainment of at Least a Bachelor's Degree**



SOURCE: Author's tabulations using HRS and Social Security Master Earnings File data for the HRS cohort born 1931 to 1941 (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: *Working* is defined as having nonzero earnings. The blue background corresponds to the five years immediately following a military retiree's retirement. The black dotted lines highlight the difference of \$44,600 between the two points at five years after separation or age 45.

## Are There Wealth Differences?

Net wealth is measured at the household level as the sum of net housing wealth, business and auto wealth, savings and checking accounts, stocks, bonds, certificates of deposit, individual retirement accounts, and other liquid assets, less outstanding debt. Wealth levels and differences by age are reported in Table S.1. We found that military retirees accumulated less wealth in nonretirement accounts than veteran non-retirees, ranging from \$171,000 less at ages 55 to 56 to \$177,000 less at ages 70 to 71 in 2016 dollars, but these differences are not statistically significant owing to the wide variation in wealth accumulation in our sample. However, the military retirement benefit is substantial and available to beneficiaries at comparatively young ages. Accounting for pensions and annuities, military retirees had greater accumulated wealth—at ages 55 to 56, military retirees had on average \$292,000 more. But wealth differences with veteran non-retirees narrowed at older ages as veteran non-retirees worked longer and became eligible for private pension benefits—by ages 70 to 71, the difference in accumulated wealth was only \$103,000 and the difference was not statistically significant.

**Table S.1. Wealth in 2016 Dollars, Health, and Well-Being Outcomes at Select Older Ages**

	<b>Military Retirees</b>	<b>Veteran Non-Retirees</b>	<b>Difference</b>
Net wealth (excluding pensions)			
Age 55–56	\$240,007	\$411,283	–\$171,277
Age 70–71	\$533,351	\$710,152	–\$176,801
Net wealth + present discounted value of pension wealth			
Age 55–56	\$916,154	\$623,771	+\$292,383**
Age 70–71	\$1,023,003	\$920,027	+\$102,976
Fraction “very satisfied” with retirement			
Age 62–63	66%	62%	+5%
Age 65–66	77%	62%	+15%***
Age 70–71	70%	59%	+11%**
Fraction with good or better self-reported health			
Age 55–56	86%	81%	+5%
Average subjective probability of living to age 75			
Age 55–56	66%	65%	+1%

SOURCE: Authors’ tabulations using the HRS (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: Data are for the HRS cohort born between 1931 and 1941. Values in 2016 dollars. Analyses at other ages are available in the body of this report. Asterisks represent whether the outcome for veteran non-retirees is statistically different from military retirees: \*  $p < 0.10$ ; \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

## Are There Differences in Well-Being and Satisfaction in Old Age?

Military retirees also fared better in terms of their level of satisfaction with retirement (see Table S.1). At ages 62 to 63, the earliest eligibility age for Social Security benefits and historically a focal retirement age, 66 percent of military retirees reported being very satisfied with retirement, 4 percentage points more than veteran non-retirees. As they aged, a greater share of military retirees expressed being very satisfied with retirement, and 70 percent were very satisfied by ages 70 to 71.

Military retirees also fared at least as well off as veteran non-retirees in terms of health outcomes. Across the health-related outcomes we evaluated, we did not find statistically significant differences between military retirees and veteran non-retirees. Where differences existed, they favored military retirees. For example, military retirees were 5 percentage points more likely to report being in very good or excellent health at ages 55 to 56 and were 1 percentage point more likely to expect to live to age 75 (see Table S.1).

## Conclusions

We compared life cycle earnings and wealth, health, and well-being in retirement of service members who qualified for military retirement with those who did not qualify for the military retirement benefit and found that after accounting for the military retirement benefit, military retirees born between 1931 and 1941 typically fared better than veteran non-retirees. This finding also extends to non-veterans, and differences tended to be larger when comparing military retirees with non-veterans. Our findings are not causal—we cannot determine whether the differences were due to continued military service or unobserved characteristics, such as innate ability or different skill sets. We found important differences by educational achievement. Military retirees with at least a bachelor’s degree did comparatively better financially and health-wise along all these dimensions than those with less than a bachelor’s degree or non-veteran retirees.

For military leaders concerned with whether the military retirement benefit is sufficient to offset negative post-service earnings outcomes, the answer is yes—benefits are sufficient for the cohort studied here. Given our sample, we cannot definitively determine whether this finding would extend to cohorts born after 1941, but we believe the direction of personnel and pay reforms during the AVF would favor military retirees (and hence further favor pursuing a military career). Military pay and personnel quality increased dramatically during the early years of the AVF. Pay during a service member’s career is now at about the 85th percentile of their civilian counterparts based on educational achievement (Smith, Asch, and Mattock, 2020). AVF-era service members are likely able to command better civilian opportunities and have better post-service earnings than draft-era personnel. Educational attainment in terms of high school graduation rates also increased among the U.S. population (Harris, 2020) but not as dramatically as the increase in education among military personnel. Our estimates suggest that accounting for the military retirement benefit offsets the gap in earnings for military retirees who entered during the draft era; the direction of subsequent selection in personnel quality leads us to expect that AVF-era service members are less likely to experience long-term compensation differentials relative to draft-era service members. Consequently, in the AVF era there is little reason to expect that average post-service earnings, accounting for the military retirement benefit, would be worse than lifetime earnings of service members who do not stay for a career; in fact, earnings are likely better.

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# Chapter 1. Introduction

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To recruit and retain personnel with the talents and capabilities it needs, the Army needs to ensure that serving in the military is viewed as a more attractive alternative than pursuing civilian opportunities. A component of this is ensuring that post-service earnings are comparable with earnings of workers who did not serve. Earnings are compensation for work. Numerous studies and commissions have compared military pay at each year of service in a given calendar year with the pay of civilians with similar observed demographics. For example, Hosek, Asch, and Mattock (2012) found that regular military compensation was at least at the 80th percentile of the earnings of civilians with comparable education and age. But the evidence on the post-service earnings potential of veterans relative to their civilian counterparts is mixed, and little information is available regarding the post-service earnings of military retirees.<sup>2</sup>

Military retirees are veterans who qualify for military retirement benefits, either by serving at least 20 years on active duty in the U.S. Army, Air Force, Navy, or Marine Corps or by being medically retired from those services. Military retirees may also retire from the reserves at age 60 with 20 qualifying years of service, but those retirees are not the subject of this report. With an average active-duty military retirement age of 43 for enlisted members in 2020,<sup>3</sup> most military retirees will enter the civilian labor market for a second career. Most military entrants will not serve long enough to become eligible for military retirement benefits, but those who do are the senior leaders of the military. From the standpoint of military readiness, it is critical that military members with the talents and capabilities to serve in senior leadership positions find earnings over a military career adequately attractive, including post-service civilian earnings opportunities, to induce them to stay for a career and seek higher-ranked positions where they are best suited.

Only a handful of studies have examined the post-service earnings of military retirees, and these studies find mixed results regarding whether military retirees received an earnings premium. Cooper (1981) and Borjas and Welch (1986) compared the earnings of a 1977 sample

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<sup>2</sup> Several studies have examined the post-service earnings of veterans. Veterans are a broader group of former service members that includes military retirees and service members who did not qualify for military retirement benefits. Some have attempted to estimate the effect of military service on subsequent civilian earnings. Early evidence (Angrist 1989, 1990, and 1998; Angrist and Krueger, 1994) found that military service reduces the civilian earnings of veterans. More-recent evidence for enlisted personnel indicates that military service yielded an earning premium relative to civilians who did not serve (Loughran et al., 2011; Martorell et al., 2014). Some recent studies found that veterans' earnings are equivalent to civilians' (Makridis and Hirsch, 2021) while Brown and Routon, 2016, found that military service increased earnings at and below the median earnings of veterans but decreased earnings for those with earnings above the median.

<sup>3</sup> See the U.S. Department of Defense, Office of the Actuary (2021). The military retirement system offers a lifetime annuity to regular retirees (members with at least 20 years of service). Given an average entry age of about 20, typical retirees are in their forties.

of military retirees with a sample of veterans from the March Current Population Survey, and both studies found that military retirees earned less than their civilian counterparts when they separated; however the earnings of retirees caught up as they gained civilian experience. Borjas and Welch (1986) argued that while in the military, retirees accumulated human capital specific to the military and required a period of “retooling” in which they accumulated sufficient civilian labor market experience to improve their general human capital and civilian earnings. Borjas (1994) later argued, in an analysis of the earnings of immigrants versus native-born workers, that the “convergence” effect, where earnings catch up with the comparison group, could be an artifact of the data and importantly, of not controlling for the age or birth cohort of individuals being compared. Borjas (1994) also later argued that the human capital argument could not explain why immigrant earnings would overtake native earnings, or in the context of military retirees, why retiree earnings would overtake non-retiree earnings. He pointed out that the overtaking of earnings would probably be explained by positive selection, meaning that only the most hardworking and motivated individuals would immigrate, or in the context of military retirement, would serve in the military until retirement.

Loughran (2002) makes a similar criticism about the observed convergence of military retiree earnings with civilian earnings, estimated by Borjas and Welch (1986) and later by Cardell et al. (1997). Loughran compared the earnings of military retirees from a 1996 Department of Defense survey with the earnings of civilians with similar observable characteristics from the Current Population Survey and found that among military personnel retiring between 1984 and 1994, the retirees’ civilian earnings in their year of retirement from the military were lower than the mean earnings of comparable civilian workers. This negative gap persisted over the rest of the retirees’ civilian work-life. By controlling for cohort, Loughran found that the relative earnings of retirees at separation fell among later cohorts. He also found that military retirement benefits more than covered the negative earnings gap between retirees and civilians and that the overwhelming majority of military retirees reported a high degree of satisfaction with retirement, despite their lower earnings. In contrast to the Loughran study, Mackin and Darling (2004) found little evidence that military retirees earned less than comparable veteran non-retirees when comparing the earnings of retirees in a 2003 Department of Defense survey with the earnings of veterans in the Current Population Survey.

These previous studies relied on survey responses rather than actual earnings data from administrative data. Furthermore, the studies relied on data with a limited panel component. In general, little is known about the post-service earnings, wealth, or labor supply (e.g., labor force participation, part-time or full-time status, hours worked per week, weeks worked per year) of military retirees, how the earnings compared with military earnings when the retirees were still in the military, and how their combined income from work and their military retirement benefit, wealth, and labor supply compared with those of similar personnel who left the military before reaching retirement eligibility. Information on the lifetime compensation of military retirees would provide insight on the adequacy of military compensation of those who are or will become

senior military leaders and whether the military is sufficiently doing right by its senior leaders in terms of providing career compensation that recognizes the contributions and sacrifices of these personnel.

Given the Army's interest in the extent of the financial success of military retirees, the Army requested that the RAND Corporation Arroyo Center compare the expected lifetime earnings and retirement wealth of Army officers and enlisted soldiers with similar observable characteristics (e.g., demographics and job characteristics) between those who departed the Army before becoming eligible for military retirement benefits, e.g., after their initial service obligation, and those who served at least long enough to qualify for retirement benefits, using available data sources. We summarize the results of the analysis in this report.

Our analysis focused on four research questions:

1. Do members who stay until retirement fare financially better or worse over their entire careers in the labor force than those who leave before becoming eligible for retirement?
2. Do military retirement benefits offset any post-service reduction in earnings?
3. What is the role of pension wealth accumulation in explaining wealth differences between retirees and non-retirees?
4. Is the well-being and satisfaction of retirees lower than non-retirees?

To address these questions, we used the data from the Health and Retirement Study (HRS), a longitudinal data set that is representative of the U.S. population over age 50 (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).<sup>4</sup> The survey is conducted biennially, and respondents are asked questions about their background, health, work, income, and assets. Military-related variables include self-reported measures of veteran status, year when the individual started and ended active duty, whether the respondent receives a military retirement benefit, when it started, and how much is received. For our analysis of work and earnings over the life cycle, we used a restricted version of the HRS that linked responses to annual Social Security earnings and benefit data over service members' lifetime (HRS, undated). In addition to providing information on earnings during military service, post-service earnings, and retirement benefits, the HRS provided information on the health, wealth, and well-being of military retirees, veteran non-retirees, and those who did not serve in the military. We used the original HRS survey cohort composed of households in which a person was born between 1931 and 1941 because it was the largest cohort sample with more than twice as many respondents per birth year as cohorts born after 1941. The additional sample size of this cohort was needed given that military retirees are a relatively small portion of the overall population.

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<sup>4</sup> The HRS is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan. We used the RAND HRS Longitudinal File 1992–2016 (V2), RAND HRS Detailed Imputations 1992–2016 (V2), and the RAND HRS Fat Files 1992–2016, which are easy-to-use data sets based on the original HRS survey data (see RAND Corporation 2020a, 2020b, 2020c). These files were developed at RAND with funding from the National Institute on Aging and the Social Security Administration.

Our analysis of post-service earnings was descriptive and exploratory in nature. It was descriptive because we did not estimate the causal effect of staying until military retirement on lifetime earnings. We were unable to control for retiree characteristics other than age and post-service educational attainment, especially characteristics related to occupation and other features of military service. In addition, unobserved factors could affect the descriptive results, such as military-specific talents that are correlated with earnings and with staying until retirement. The analysis is exploratory because the HRS consists mostly of personnel who served during the draft era and so is of questionable relevance to members who served during the all-volunteer force (AVF) era. Furthermore, we were unable to distinguish Army personnel from personnel serving in other services. We could improve on these data by merging Army data that provides information on the characteristics of retirees and veterans from the AVF era with lifetime earnings data provided by the Social Security Administration. The advantage of merging Army data with the Social Security Administration data is that we would have data on AVF era cohorts of military personnel and we would be using Army-specific information about the characteristics and careers of these personnel. Although we pursued this avenue for data, we were unable to access the requisite data in a timely manner. Despite these caveats, our analysis provides the groundwork for future analysis by showing results for the first time on how earnings of retirees differ from the earnings of those who did not complete a full military career.

## Organization of the Report

In Chapter 2, we describe the HRS data that we used and provide details on how we compared the earnings of military retirees with veteran non-retirees and non-veterans. Chapter 3 shows our results with respect to the demographics, health, assets, and satisfaction of military retirees relative to veteran non-retirees and non-veterans. In Chapter 4, we present employment and earnings comparisons. The report's conclusions are summarized in Chapter 5.

## Chapter 2. Data and Approach

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The objective of the data analysis was to compare differences between military retirees and veteran non-retirees in terms of their financial well-being at retirement, post-service work history, demographics, and health status. We measured financial well-being by examining lifetime earnings, private sector pension wealth, Social Security wealth, military retirement benefits, and insurance coverage for health care and long-term care. This chapter begins with a description of the HRS sample we used for our analysis. We then describe the approach we used to compare military retirees and veteran non-retirees.

### Health and Retirement Study Data

The HRS, sponsored by the National Institute on Aging and conducted by the University of Michigan, is a biennial survey of the U.S. population over age 50. The HRS began in 1992, and the original HRS sample consisted of individuals born between 1931 and 1941. Since 1992, additional cohorts before and after these birth years have been added; in addition, the original sample was reinterviewed to ensure that the HRS was representative of the U.S. population over age 50. Survey respondents were interviewed every two years until their death. For our analysis of military retirees, veteran non-retirees, and non-veterans, we used the original sample because it was larger than the others, with approximately 1,150 respondents per birth year compared with less than 560 in other cohorts. The HRS is designed as a repeated cross-sectional survey of each cohort, with weighting designed to represent the U.S. population at that time. Spouses and partners reported by respondents at any previous wave were included in later waves. Additional information about the HRS can be found in HRS (2008).

The biennial survey asked detailed questions about background, health, work, income, and assets and linked to administrative earnings data from the Social Security Administration. The HRS also contained questions about military service, including self-reported veteran status, year active-duty service started and ended, and income from veteran benefits or a military retirement benefit. Using these variables, we categorized respondents into three categories:

- non-veterans: those with no military service
- veteran non-retirees: those who were not receiving military service-related income, had fewer than 20 years of service, or were receiving a military service-related income for reasons other than retirement from active duty

- military retirees: those who reported at least 19 years of service and who were receiving a military service-related income for retirement from active duty.<sup>5</sup>

The HRS survey did not distinguish the source of the military benefits. Military service-related benefits could arise for several reasons (e.g., receiving benefits from the Department of Veterans Affairs [VA], the Department of Defense, or both because of a disability; receiving military retirement benefits based on reserve service). A complication with respect to our research is that before 2004, military retirement benefits were offset by the amount of VA disability benefits that the retiree received. In 2004, Congress permitted concurrent receipt of both benefits. Consequently, benefits are larger after 2004, all else being equal, because before 2004, the military service-related benefit reflected the offset for those who received VA disability compensation. After 2004, retirees received both the military retirement benefit and VA benefit. As we discuss next, the military benefit is computed as the median value of the reported (non-missing) benefit over the HRS survey years. Given that the survey has been ongoing since 1992, we would expect continuous respondents to have six measures before 2004 and seven measures since 2004. Consequently, the median will slightly tend to reflect values that occurred during the period after concurrent receipt is allowed.

We analyzed these three groups at four age snapshots: ages 55 to 56, 62 to 63, 65 to 66, and 70 to 71. We conducted the analysis by age group because the earnings outcomes we considered and other metrics of health and wealth are strongly related to age. Tabulations were unweighted because the sample weights were for cross-sectional use only and could not be used across waves. However, our earnings comparisons used data on the HRS cohort (reaching ages 51 to 61 in 1992), and we weighted these results using the 1992 sample weights.

Administrative data on earnings from the Social Security Administration supports our analysis of life cycle earnings discussed in Chapter 4. These data are restricted, and we received permission to access these data for this project.<sup>6</sup> We used earnings data from the Social Security Master Earnings File for the years 1951 through 2013. These data are censored at the earnings cap for Social Security earnings, which varies over time. We used the Social Security Master Earnings File that includes one record per year for each consenting respondent in HRS surveys occurring during 2004, 2006, 2008, 2010 and/or 2012 who received wages during the years 1980 to 2012 (HRS, undated). Military personnel received nontaxable allowances, such as allowances for living quarters and for subsistence, which could substantially increase their income, including the value of the tax advantage.<sup>7</sup> Those who received government-provided housing because they

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<sup>5</sup> While 20 years is required to be eligible for the military retirement benefit from active service, we included individuals whose survey responses would suggest that they only had 19 years of service. We suspected that these individuals might incorrectly recollect their separation dates.

<sup>6</sup> Our research complied with all Human Subjects Protection Committee requirements.

<sup>7</sup> In 1997, the military housing allowance system was changed. Prior to that date, members received a basic allowance for quarters, and those in high-cost areas were given the variable housing allowance. These allowances

lived on a military base did not receive the housing allowance, although the in-kind benefit had value that was not included in income. As nontaxable income, the Social Security Master Earnings File excluded these sources of earnings. Consequently, we understated military earnings, including allowances and the tax advantage, while members were in service. As a result, comparisons of earnings of military retirees and veteran non-retirees with those of non-veterans were understated.

All financial variables in our analysis are reported in 2016 dollars and adjusted using the consumer price index for urban consumers (Bureau of Labor Statistics, 2017). Furthermore, we limited our analysis to men, given that men and women have different employment and earnings histories, and the vast majority of military retirees during our sample period were men. However, the post-service earnings and welfare of women retirees will be an important area of future research as their presence in the armed forces grows.

## Analytic Approach

We analyzed differences between military retirees and other veterans and non-veterans in terms of demographic characteristics, work history and earnings, self-reported health status, assets, and pension wealth.

For the earnings comparisons, we created average earnings profiles before and after military service for a sample of men who were born in similar years (e.g., born in 1931 to 1941 in the original HRS cohort). Because we did not have information on whether a military retiree or a veteran non-retiree was enlisted or officer, we proxied their grade status with education and conducted the analysis for those with education achievement less than a bachelor's degree (proxied for enlisted) and those with at least a bachelor's degree. For non-military retirees, we identified "before and after service" as age 40 for men with less than a bachelor's degree and age 45 for men with at least a bachelor's degree. These were the approximate median exit ages for military retirees in 2013 (U.S. Department of Defense, Office of the Actuary, 2014). In addition to comparing earnings before and after exit from service, we also examined the labor force participation of each of the three groups before and after their exit from service (or before and after the aforementioned age thresholds in the two educational groups, for the veteran non-retirees and non-veterans) where we defined *labor force participation* as having nonzero earnings. Finally, to understand the extent to which military retirement benefits supplemented civilian earnings for military retirees, we also examined earnings plus military retirement benefits before and after service where there was only a difference after service when we added military retirement benefits.

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were replaced with the basic allowance for housing in 1997. None of these allowances were or are subject to taxation, including Social Security taxes.

We also compared the wealth of military retirees versus veteran non-retirees and non-veterans and pension wealth (including military retirement benefits). We measured wealth as the sum of net housing wealth, business and auto wealth, savings and checking accounts, stocks, bonds, certificates of deposit, individual retirement accounts, and other liquid assets. From this total, we netted out debt. Our measures of wealth did not include pensions or annuities.

Defined benefit pensions and annuities, including the military retirement benefit, represent a substantial amount of wealth that is not fully captured in the HRS surveys. These pensions and annuities are paid for the duration of a respondent's life once started. Respondents are unlikely to know the present value of existing and expected future pension and annuity income flows. Pension wealth is a conceptual measure meant to reflect the present discounted value of those expected income flows at a particular point in time. The HRS did not provide a measure of pension wealth. Instead, we computed the civilian and military pension wealth discounted to each survey date as follows: First, we imputed the value of both military and civilian pension income. To do so, we identified the waves in which a respondent reported a nonzero pension income. Pension income was asked in two parts. First, in a section on government income sources, the HRS asked respondents whether they were receiving any income from veteran benefits or a military pension; second, respondents were asked about pension income in a section on retirement pensions. Using this information, we identified the respondents who ever reported receiving each type of pension income. HRS respondents were not always consistent in their pension income reports across interview waves. Given the persistent nature of pension income, we corrected for inconsistent responses by identifying a starting period and imputing a pension income using all subsequent survey reports for a pension income type. For those respondents who received pension income, the income was defined as starting in the wave in which the first nonzero pension income was reported. Once the first pension income wave was identified for each recipient, the pension income was imputed by taking the median real value (in 2016 dollars) of pension income reported in the first income wave and all subsequent waves, including waves in which a pension income of \$0 was reported and excluding waves in which the pension income was missing. This imputed value was then applied to all waves starting in the first year of pension receipt. All waves prior to the start of the pension income were imputed a pension income of \$0.<sup>8</sup>

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<sup>8</sup> There were various technical issues that we note for interested readers. First, the HRS survey question pertaining to veterans benefits and the military retirement benefit combined both incomes. Therefore, our military pension measure did not separate the military retirement benefit from other benefits, such as a VA disability benefit. We reclassified military pension incomes as *missing* if the amount was below 75 percent of the value of the pension that a military retiree with a rank of E-5 would be eligible to receive (E-5 being a lower bound of rank achievement for 20 years of service) or if the start date or age would be inconsistent with the start of a military retirement benefit from active duty (e.g., disability retirees would likely start before 20 years of service and reserve retirees would start at later ages). Second, individuals may report their military retirement benefit in the retirement benefits section, leading to duplicate reporting or misreporting. Using the reported start date of pension benefits and the amount, we reviewed reported retirement benefits to see if they were consistent with a military retirement benefit. This approach

Once we imputed a value for the civilian and military pension incomes, we then calculated the discounted wealth of each pension. Using Social Security Administration period life tables (U.S. Social Security Administration [SSA], 2017), and assuming a real discount rate of 2.3 percent, we calculated a discount coefficient representing the present value of \$1 of income every year until death, for each birth year, age, and time of pension start. We thus could calculate a present value for a pension that had not yet begun and for ongoing pension incomes. This discount coefficient was then multiplied by the imputed value of the pension income to yield a real discounted pension wealth value.<sup>9</sup>

## Caveats

Although the HRS is a rich source of information on older Americans, it has several drawbacks from the standpoint of our analysis. First, the analysis was not Army specific. Second, our earnings comparisons did not control for differences between military retirees and veterans and non-veterans in terms of characteristics that could affect earnings other than age and educational attainment nor for selection effects (both into military service and into retirement at a particular time). For example, the analysis did not control for aspects of the member's military service, such as their occupation, or entry characteristics, such as aptitude scores, or other demographics, such as race and ethnicity. Third, the data covered those who served during the

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made use of the fact that most military retirement benefits start at ages that are unlikely for other retirement benefits (e.g., before age 50). If they appeared to be a duplicate, they were removed. If a military pension was missing and the value and characteristics of the retirement pension were consistent with a military retirement benefit, we reclassified it as a *military pension* in the interview wave. Third, some civilian retirement pensions had a Social Security leveling option, which increased the payment's value before Social Security's earliest eligibility age (age 62). If a respondent benefited from a Social Security leveling option, then using pension income to estimate pension wealth prior to this age would overestimate pension wealth. Our approach of using the median of reported pension benefits should generally overcome this issue because the number of interviews after age 62 should typically exceed the number of interviews during a period covered by pension income that was temporarily increased because of Social Security leveling.

<sup>9</sup> Military retirees under any of the pre-1986 retirement systems received a full cost-of-living adjustment (COLA). Those under the 1986 retirement reform received COLA – 1 percent until age 62, when benefits were fully inflation-adjusted and then were COLA – 1 percent thereafter.

To clarify, *COLA* is a percentage, often equal to the consumer price index (CPI). *COLA – 1 percent* is a term of art used in the retirement and pension literature that means the COLA was equal to the CPI minus 1 percent. (For example, if the CPI were 3 percent, the COLA would be 2 percent.) The 1986 reform allowed for a one-time adjustment at age 62. For example, the annuity of a person who retires from the military at age 50 is adjusted annually equal to COLA – 1 percent. Because that person does not get the full COLA, their retirement annuity loses real value each year. Under the 1986 reform, the annuity is recomputed when the recipient turns 62, and the annuity's real value is fully restored to the value it was when the person was 50. Every year after age 62, the adjustment remains COLA – 1 percent.

For simplicity, we assumed that all pensions were fully adjusted for cost of living. While this might not have been the case, it was a conservative assumption because it made the difference between civilian pension wealth and military pension wealth appear smaller than it actually was. Similarly, military retiree pensions are received until the recipient dies. We assumed the same of civilian pensions, as a conservative assumption. Thus, all discounted wealth calculations assumed an adjustment for cost of living and receipt of the pension until the death of the respondent.

draft era. Military pay increased dramatically during the early years of the AVF, and the quality of personnel, as measured by aptitude test scores at entry, improved dramatically relative to before the start of the AVF (Asch et al., 2020). These higher quality personnel would likely command better civilian opportunities and better post-service earnings than draft-era personnel. Consequently, we expected post-service earnings to be lower for draft-era relative to AVF-era personnel.

Finally, federal law limits the amount of earnings subject to Social Security taxes, and our data did not observe earnings above this cap, which also changes over time. The Social Security earnings variable we used in the HRS is subject to this cap so that observed earnings of respondents were censored at the cap if actual earnings exceeded the cap. Earnings for the purpose of Medicare taxes have not been subject to a cap since 1991. Thus, we could identify uncapped earnings after 1991 but not before that date. The implication of the cap for our analysis was that earnings would be censored for high-earning respondents, meaning we would understate the earnings of those subject to the cap, and the extent of this bias could differ for military retirees versus other groups if the extent of censoring differed. In Chapter 4, we investigate this censoring issue and consider alternative earnings comparison approaches to address it.

## Chapter 3. Comparisons of Demographics, Health, Assets, and Satisfaction

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In this chapter, we discuss the comparisons of selected demographic characteristics of the three samples of interest from the HRS: military retirees, veteran non-retirees, and non-veterans. We also compared their health status, assets, and satisfaction with retirement. These tabulations provided context for the comparisons of work and earnings histories we show in Chapter 4. Those comparisons used data from the HRS cohort only (born 1931 to 1941), and so the tabulations in this chapter also used data for this cohort. We show tabulations holding age constant, although age is shown in two-year intervals, e.g., ages 55 to 56, given the biannual nature of the HRS.

### Selected Demographics

Table 3.1 shows tabulations of selected demographics of the HRS cohort, ages 55 to 56. Observationally, military retirees look similar to veteran non-retirees. Non-veterans were less likely to be married at the time of the survey, had fewer marriages, and were less likely to be white and non-Hispanic compared with military retirees. The most notable difference between military retirees and the other groups was in educational attainment. In particular, the sample of military retirees was more likely to have at least a bachelor's degree (37 percent) compared with veteran non-retirees (20 percent) and non-veterans (21 percent). Although both military retirees and veteran non-retirees would have benefited from post-service GI Bill educational benefits, the higher educational attainment of retirees was likely due to selection effects. Officers are required to have at least a bachelor's degree and officers are more likely than enlisted personnel to reach 20 years of service and qualify for retirement benefits (Asch, Hosek, and Mattock, 2014). Consequently, the retiree sample was more likely to consist of officers. In Chapter 4, we present tabulations of the work and earnings histories of each group, by education level and specifically by whether the respondents in each sample had a bachelor's degree. This allowed us to control for the differences in educational attainment across groups, shown in Table 3.1. Furthermore, given that the data did not allow us to distinguish veterans who were enlisted versus officers, it also allowed us to roughly approximate veterans who were enlisted (designated as having less than bachelor's degree in our tabulations) and who were officers (designated as having at least a bachelor's degree).<sup>10</sup> Table 3.1 also shows that retirees were more likely to be married and less

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<sup>10</sup> This is a rough approximation because estimates from Smith, Asch, and Mattock, 2020, Table 2.4, indicate that 30 percent of enlisted personnel in 2017 with 20 years of service (and who qualified for military retirement) had at least a bachelor's degree.

likely to be separated or divorced. This also could be a selection effect related to education and officer status; officers are more likely to be married than enlisted personnel (America’s Promise Alliance, 2010). It could also be an incentive effect because those who serve in the military marry earlier than their civilian counterparts (Hogan and Siefert, 2010).

**Table 3.1. Selected Demographic Characteristics of Respondents, Ages 55 to 56**

	Non-Veterans	Veteran Non-Retirees	Military Retirees
Fraction married	84%*	85%	91%
Fraction separated or divorced	11%	11%	9%
Average number of marriages	1.3**	1.5	1.5
Average number of children	3.2	3.1	3.2
Fraction white, non-Hispanic	67%***	83%	82%
Fraction with at least a bachelor’s degree	21%***	20%***	37%
Fraction with a father who has 16+ years of education	7%	8%	9%
Fraction with a mother who has 16+ years of education	5%	5%	3%

SOURCE: Authors’ tabulations using the HRS (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: Data are for the HRS cohort born between 1931 and 1941. Asterisks represent whether the outcome for non-veterans or veteran non-retirees are statistically different from military retirees: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

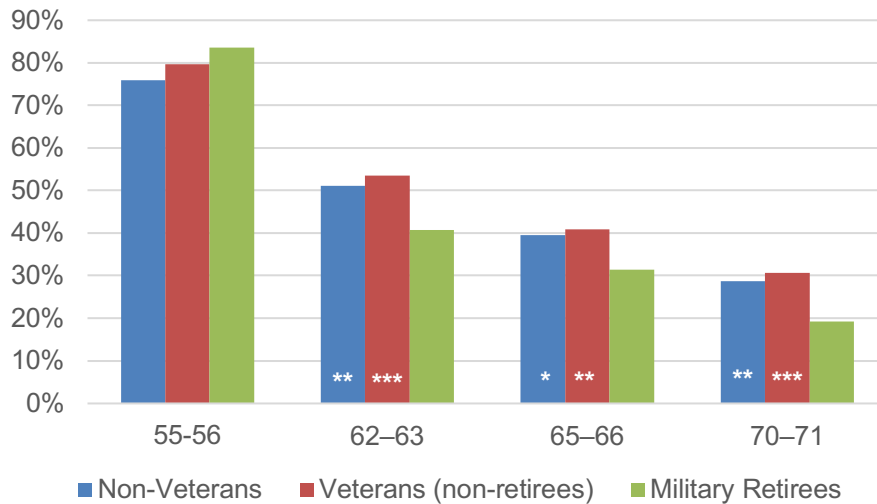
## Work and Satisfaction

Investigating the fraction of military retirees working for pay, we found in Figure 3.1 that more than 75 percent of persons in each group were working at ages 55 to 56 with no statistically significant differences in the percentages across groups. However, from age 62, we saw that military retirees were significantly less likely to be working for pay.

A possible explanation for the difference is that non-military retirees might be more likely to partially retire or work part-time at later ages if they are not able to fully cover their recurring costs. Figure 3.2, conditional on working for pay, shows that the fraction working full-time did not differ across groups, regardless of age. However, Table 3.2 shows that there were significant differences in working conditions, with non-military retirees significantly more likely to report having jobs at ages 55 to 56 that required lots of physical effort: lifting heavy loads and stooping, kneeling, or crouching. Non-military retirees were also more likely to belong to a union, and non-veterans reported working three or more hours per week more than military retirees on average. However, we found no statistically significant differences in nonphysical job characteristics, such as the need for good eyesight or stress between retiree veterans and the other two groups. Finally, Figure 3.3 shows that we found no significant differences in earnings

between military retirees and the other groups at ages 55 to 56, but we found that by ages 62 to 63 and beyond, military retirees who continued to work had significantly greater earnings. Although we could not ascertain people’s preferences, these earnings results combined with the finding that military retirees were less likely to work at ages 62 and beyond (Figure 3.1) suggest that the military retirees who worked at later ages were a different group than non-military retirees.

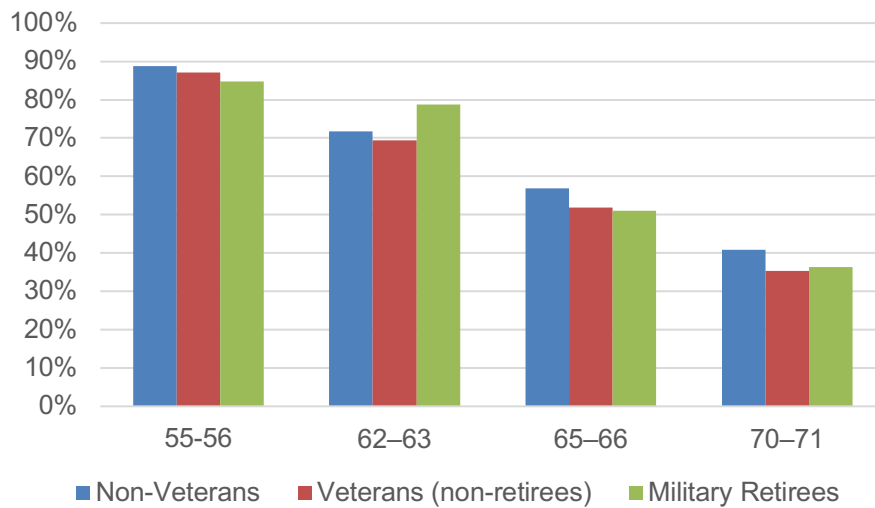
**Figure 3.1. Percentage of Respondents Working for Pay, by Age**



SOURCE: Authors’ tabulations using the HRS (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: Data are for the HRS cohort born between 1931 and 1941. Tabulations are conditioned on those reporting that they were fully retired. Differences between military retirees and the other groups are statistically significant at the following levels: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Figure 3.2. Percentage of Respondents Working Full-Time, Conditional on Working for Pay, by Age**



SOURCE: Authors' tabulations using the HRS (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: Data are for the HRS cohort born between 1931 and 1941. Tabulations are conditioned on those reporting that they were fully retired. Differences between military retirees and the other groups are statistically significant at the following levels: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

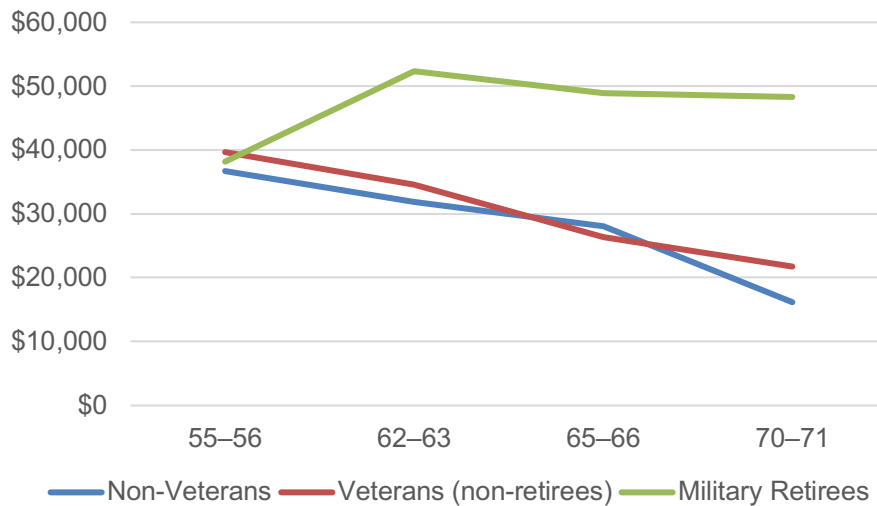
**Table 3.2. Reported Current Job Characteristics of Working Respondents, Ages 55 to 56**

	Non-Veterans	Veteran Non-Retirees	Military Retirees
Most or all of the time, current job requires			
lots of physical effort	45.1%***	37.0%**	24.6%
lifting heavy loads	20.8%**	17.8%*	9.2%
stooping, kneeling, or crouching	31.6%**	30.6%**	16.9%
good eyesight	86.2%	87.0%	92.3%
lots of stress	62.4%	62.4%	61.5%
Hours worked at current job	44.4*	44.1	41.6
Belongs to a union	25.5%*	25.4%*	15.2%

SOURCE: Authors' tabulations using the HRS (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: Data are for the HRS cohort born between 1931 and 1941. Asterisks represent whether the outcome for non-veterans or veteran non-retirees was statistically different from military retirees: \*  $p < 0.10$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$ .

**Figure 3.3. Earnings from Work, by Age**



SOURCE: Authors' tabulations using the HRS (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

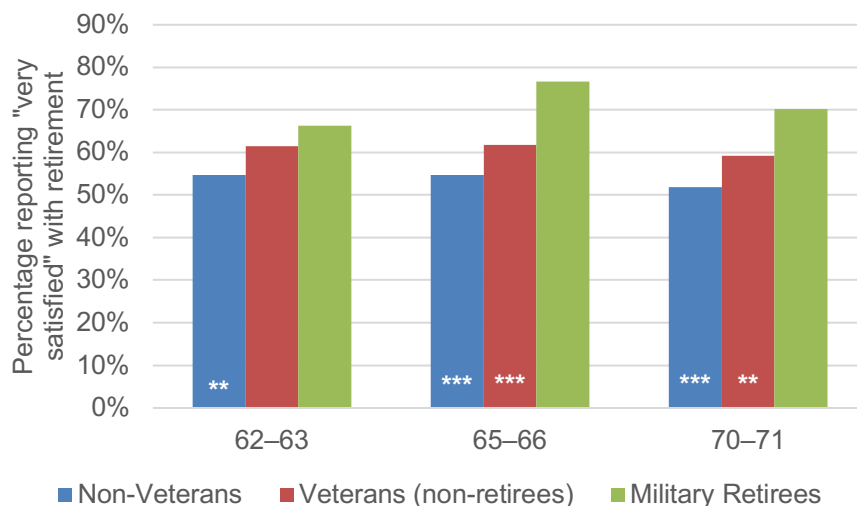
NOTE: Earnings measured in 2016 dollars. Data are for the HRS cohort born between 1931 and 1941. Analysis is conditional on working for pay. Differences between military retirees and the other groups were not statistically significant at ages 55 to 56 but were statistically significant at all later age ranges ( $p < 0.01$ ).

Using data from a 1996 survey of retired military personnel and comparing that data with civilians from the Current Population Survey, Loughran (2002) found that military retirees earned substantially lower wages than their civilian peers when entering the civilian labor market. Nonetheless, in the Loughran study, 91 percent of the military retirees reported being satisfied with their civilian life. It is unclear why they were satisfied, given their lower wages upon entering the civilian labor market, but it is possible that military retirement benefits allowed retirees to search longer for a job that better suited their interests. Alternatively, because retirees received retirement benefits, they might have chosen lower-wage jobs that were more fulfilling, thereby explaining both the lower pay and higher satisfaction. Yet another explanation is that military retirees were healthier (as we discuss in the next subsection for the HRS samples), leading to higher satisfaction. We investigated the extent of satisfaction with retirement across the HRS groups.

Figure 3.4 shows a comparison of the percentage of each HRS subgroup that reported being “very satisfied” with retirement, by age group in the HRS cohort, conditional on reporting that they were “fully retired.” A larger share of the military retiree subgroup reported being “very satisfied” with retirement, compared with veteran non-retirees and non-veterans. The largest differences were for the aged 65 to 66 group, in which 77 percent of military retirees reported being “very satisfied” compared with 55 percent of non-veterans and 62 percent of veteran non-retirees. The greater extent of being “very satisfied” among military retirees could be due to factors mentioned in the previous paragraph, such as better health, but it could also be due to

being more content in general. For instance, military retirees, who stayed until retirement despite the hardships of military life, might be a selective set of individuals who were already conditioned to be satisfied despite hardships.

**Figure 3.4. Percentage of Respondents Reporting Being “Very Satisfied” with Retirement, by Age**



SOURCE: Authors’ tabulations using the HRS (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: Data are for the HRS cohort born between 1931 and 1941. Tabulations are conditioned on those reporting that they were fully retired. Differences between military retirees and the other groups are statistically significant at the following levels: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Those ages 55 to 56 were excluded because most individuals were not retired.

## Health Status

Another aspect of well-being is health status. Differences in health status could explain differences in satisfaction. They could also explain differences in work and earnings outcomes during retirement. Table 3.3 shows tabulations of the percentage of each subgroup, ages 55 to 56, who reported different aspects of their health status.

In general, military retirees reported better health and a higher subjective probability of living until age 75, although differences with the veteran non-retiree group were not statistically significant from zero. For example, 86 percent of the military retirees reported good or better health compared with 81 percent of veteran non-retirees and 76 percent of non-veterans. Military retirees had a lower Center for Epidemiological Studies–Depression (CES–D) score.<sup>11</sup>

<sup>11</sup> The CES-D is a 20-item measure that asks respondents to rate how often over the past week they experienced symptoms associated with depression, such as feeling lonely. Response options range from 0 to 3 for each item, so a total score can range from 0 to 60 with higher scores indicating greater depressive symptoms (American Psychological Association, 2011).

Furthermore, 66 percent of military retirees expect to live to age 75, compared with 65 percent of veteran non-retirees and 61 percent of non-veterans, ages 55 to 56. On the other hand, a higher fraction of military retirees reported ever smoking than the other groups.

**Table 3.3. Self-Reported Health Status of Respondents, Ages 55 to 56**

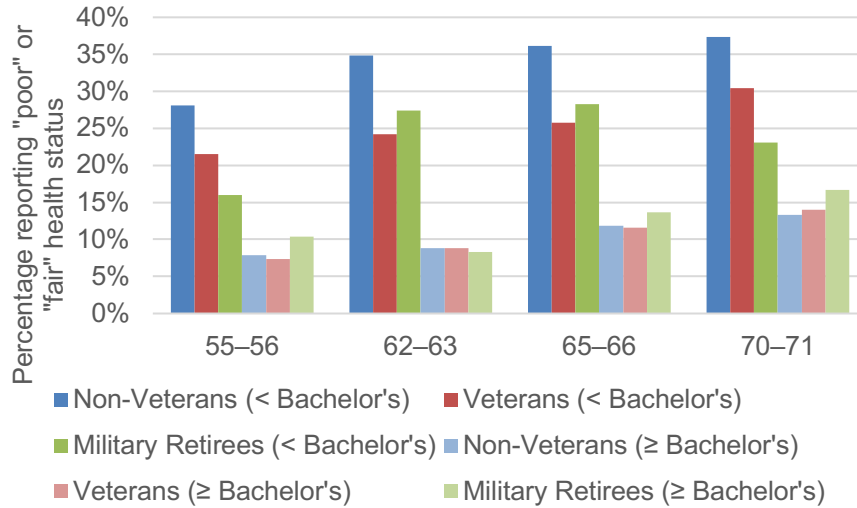
	Non-Veterans	Veteran Non-Retirees	Military Retirees
Fraction with good or better self-reported health	76%***	81%	86%
Fraction reporting that health limits work	24%	21%	20%
Fraction reporting ever having arthritis	31%	29%	29%
Fraction reporting ever smoked	69%***	79%**	90%
Fraction reporting smoking now	25%	32%	30%
Average CES-D score (lower means better mental health)	1.4**	1.1	0.7
Average body mass index	27.5	27.5	27.2
Average subjective probability of living to age 75	61%***	65%	66%

SOURCE: Authors' tabulations using the HRS (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: Data are for the HRS cohort born between 1931 and 1941. Asterisks represent whether the outcome for non-veterans or veteran non-retirees are statistically different from military retirees: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

The tabulations in Figure 3.5 provide additional information of self-reported health status and specifically the percentage reporting “poor” or “fair” health status, by age and educational achievement (less than a bachelor’s degree or at least a bachelor’s degree). Respondents with less than a bachelor’s degree were typically two to three times more likely to report being in poor or fair health compared with those with at least a bachelor’s degree by veteran status and age group. Comparing within an educational group, we found that among those with less than a bachelor’s degree, military retirees (the green bar) were less likely to report “poor” or “fair” health status than non-veterans (blue bar). This difference is statistically significant at ages 55 to 56 and ages 70 to 71 but not in between. Unlike non-veterans, military retirees and veteran non-retirees may qualify for VA health care. Among those with at least a bachelor’s degree, military retirees were neither more nor less likely to report poorer health status across the four age groups. We investigated whether the differences in health status could be due to differences in health insurance coverage. As shown in Figure 3.6, military retirees were more likely to have health insurance than those in the other two groups for ages 55 to 56 and 62 to 63. We suspect that the gap between groups was closed among those ages 65 to 66 and 70 to 71 because eligibility for Medicare begins at age 65.

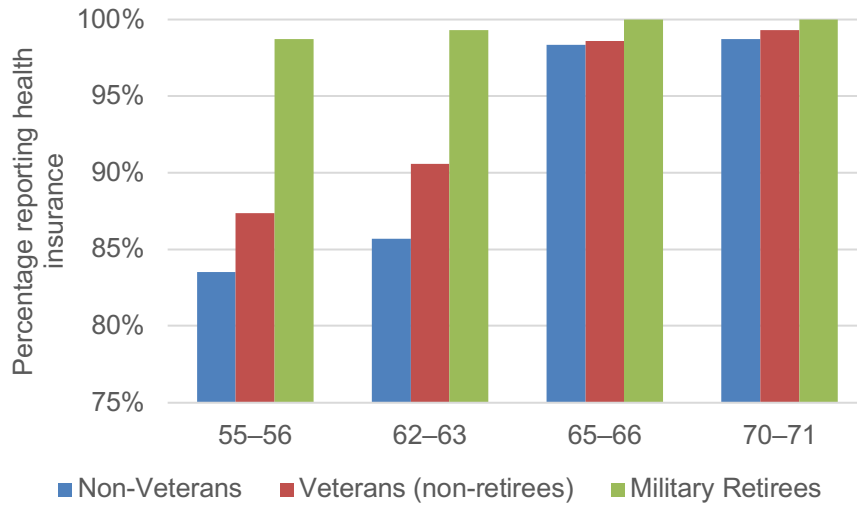
**Figure 3.5. Percentage Reporting “Poor” or “Fair” Health Status, by Age**



SOURCE: Authors’ tabulations using the HRS (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: Data are for the HRS cohort born between 1931 and 1941. Differences between military retirees and the other groups were not statistically significant except for non-veterans at ages 55 to 56 and ages 70 to 71 ( $p < 0.05$ ).

**Figure 3.6. Percentage Reporting Health Insurance Coverage, by Age**



SOURCE: Authors’ tabulations using the HRS (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

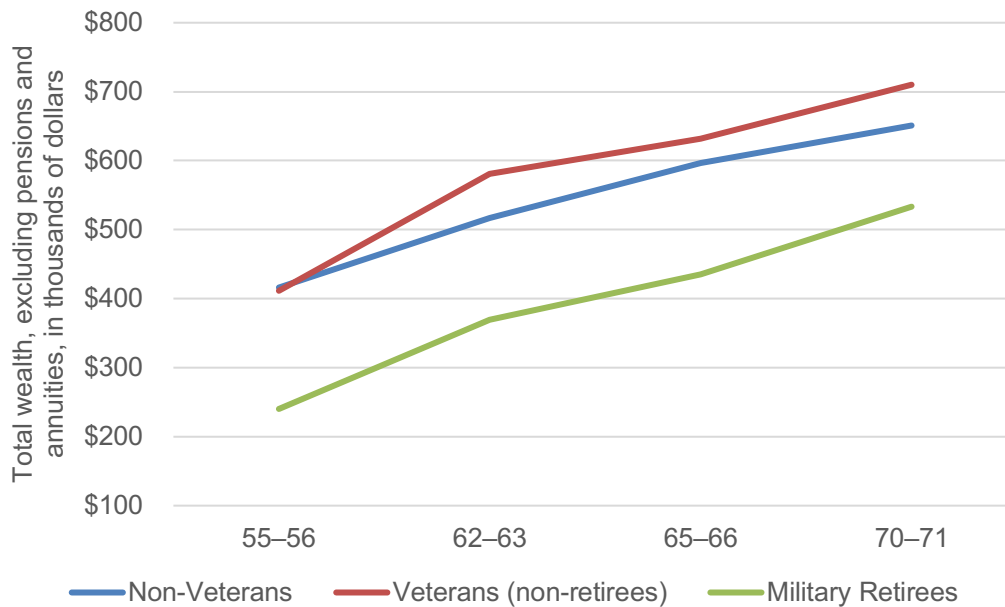
NOTE: Data are for the HRS cohort born between 1931 and 1941. Differences between military retirees and the other groups were statistically significant at ages 55 to 56 and ages 62 to 63 ( $p < 0.01$ ). Differences were not statistically significant otherwise.

## Wealth

Although the focus of this research is on the post-retirement earnings of military retirees, the financial well-being of retirees was also captured by their assets or wealth. As noted in Chapter 2, wealth is measured as the sum of net housing wealth, business and auto wealth, savings and checking accounts, stocks, bonds, certificates of deposit, individual retirement accounts, and other liquid assets. From this total, we netted out debt. Our measure did not include pensions or annuities.

Figure 3.7 shows total wealth, excluding pensions and annuities, in constant 2016 dollars, by age for each subgroup. We found that military retirees had less accumulated wealth, not including pensions and annuities, than either non-veterans or veteran non-retirees, for each age group, but these differences were not statistically significant. For example, as shown in Figure 3.7 and in the first row in Table 3.4, military retirees had accumulated about \$240,000 at ages 55 to 56 compared with \$416,000 for non-veterans and \$411,000 for veteran non-retirees.

**Figure 3.7. Total Wealth, Excluding Pensions and Annuities, in Constant 2016 Dollars, by Age**



SOURCE: Authors' tabulations using the HRS (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: Data are for the HRS cohort born between 1931 and 1941. Differences between military retirees and the other groups were not statistically significant except for veteran non-retirees at ages 62 to 63 ( $p < 0.10$ ).

**Table 3.4. Total Wealth in 2016 Dollars, Ages 55 to 56**

	<b>Non-Veterans</b>	<b>Veteran Non-Retirees</b>	<b>Military Retirees</b>
Total wealth (excluding pensions)	\$416,022	\$411,283	\$240,007
PDV of pension wealth	\$152,572***	\$212,487***	\$676,147
Total wealth + PDV of pension wealth	\$568,594***	\$623,771**	\$916,154
Fraction ever receiving civilian pension	40%	48%*	38%
Fraction ever receiving military pension <sup>a</sup>	1%***	10%***	100%
PDV of civilian pension, given receipt	\$306,948	\$321,904	\$230,676
PDV of military pension, given receipt <sup>a</sup>	\$143,827***	\$197,633***	\$559,349

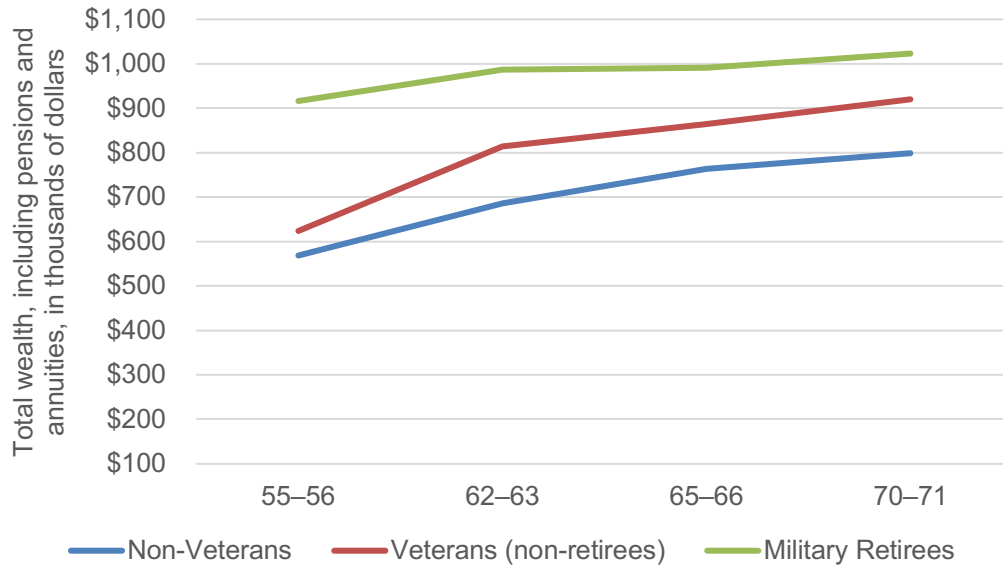
SOURCE: Authors' tabulations using the HRS (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: PDV = present discounted value. Data are for the HRS cohort born between 1931 and 1941. Asterisks represent whether the outcome for non-veterans or veteran non-retirees are statistically different from military retirees: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

<sup>a</sup> Non-military retirees may receive a military pension if they have service-related disability that entitles them to benefits from the Department of Defense or VA or if they qualify for a military retirement benefit based on reserve-duty service. Additionally, the PDV of household military pension wealth may be nonzero if a spouse is entitled to a military service-related benefit. Robustness checks excluding this group did not substantively change the results in this table.

Pensions and annuities are an important element of wealth, especially for military retirees who receive a lifetime annuity when they retire with at least 20 years of service, often at ages as young as 40. Table 3.4. shows that present discounted value of pension wealth was substantially higher for military retirees, \$676,147, compared with \$212,487 for veteran non-retirees and \$152,572 for non-veterans. In addition to receiving a military pension, 38 percent of the HRS cohort ages 55 to 56 also had ever received a civilian pension, slightly lower than the 40 percent of non-veterans who had ever received a civilian pension and significantly lower than the 48 percent of veteran non-retirees who had ever received a civilian pension. Including pension and annuity wealth, total wealth was higher for military retirees than for those in the other two groups. As shown in Table 3.4, military retirees ages 55 to 56 had accumulated wealth over \$900,000 compared with \$569,000 for non-veterans and \$624,000 for veteran non-retirees. Figure 3.8 shows that accumulated wealth, including pensions and annuities, was also higher for older military retirees. In part, the higher wealth of military retirees was due to their higher likelihood of owning a home, although their net housing wealth did not differ from other groups, conditional on owning a home (Figures 3.9 and 3.10, respectively).

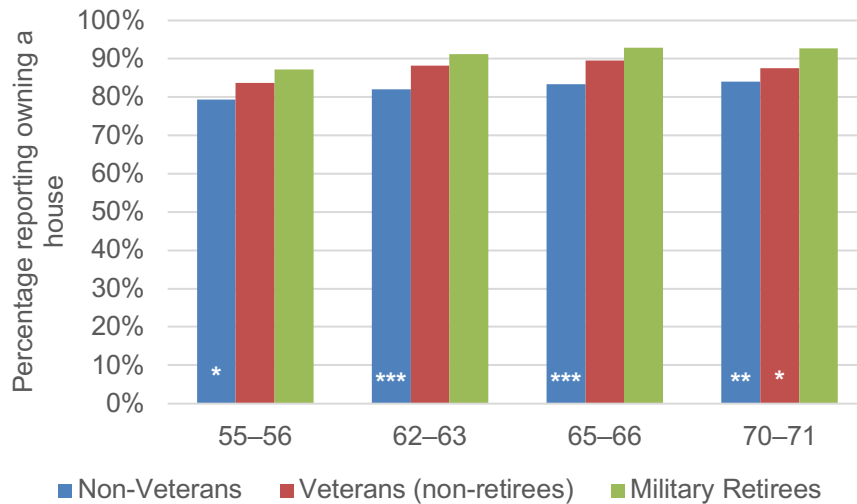
**Figure 3.8. Total Wealth, Including Pensions and Annuities, in Constant 2016 Dollars, by Age**



SOURCE: Authors' tabulations using the HRS (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: Data are for the HRS cohort born between 1931 and 1941. Differences between military retirees and the other groups were not statistically significant except for at ages 55 to 56 ( $p < 0.05$ ) and at ages 62 to 63 for non-veterans ( $p < 0.05$ ) and at ages 65 to 66 for non-veterans ( $p < 0.10$ ).

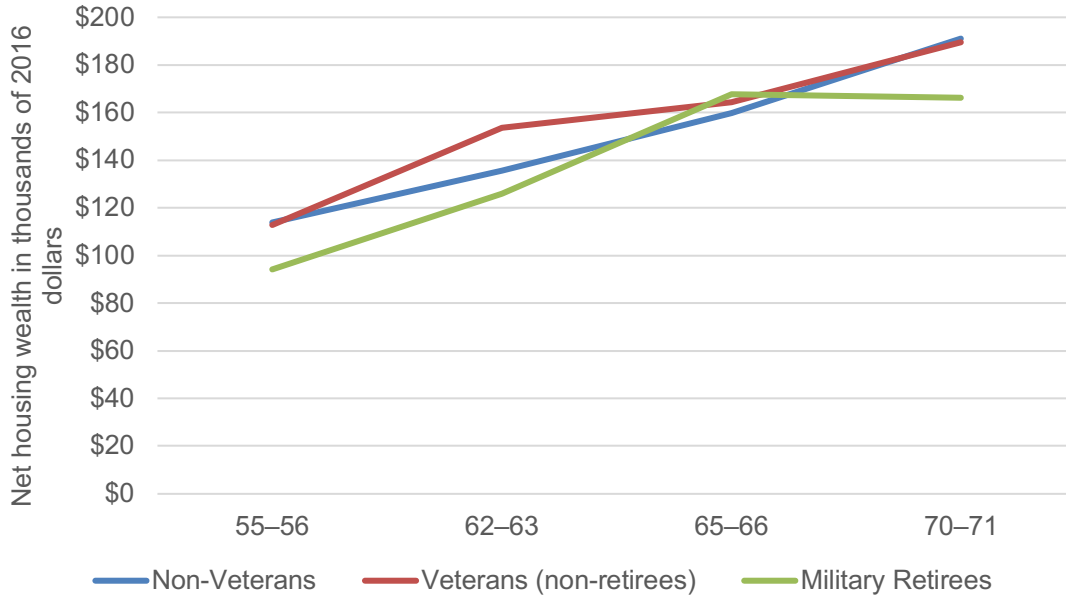
**Figure 3.9. Percentage Reporting Owning a Home, by Age**



SOURCE: Authors' tabulations using the HRS (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: Data are for the HRS cohort born between 1931 and 1941. Differences between military retirees and the other groups are statistically significant at the following levels: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Figure 3.10. Net Housing Wealth in Thousands of 2016 Dollars, by Age**



SOURCE: Authors' tabulations using the HRS (HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: Data are for the HRS cohort born between 1931 and 1941. Differences between military retirees and the other groups were not statistically significant.

## Summary

Analysis of the HRS cohort indicated that military retirees were better educated than veteran non-retirees and non-veterans, and a higher fraction of retirees had at least a bachelor's degree. We found that retirees were more likely to be satisfied with retirement in their late sixties and early seventies compared with veteran non-retirees and non-veterans, with some of the difference attributable to their overall mental well-being as measured by a CES-D score. We also found that retirees were more likely to report good health and had a higher subjective probability of reaching age 75 relative to non-veterans, but their health measures were not statistically different from veteran non-retirees. Finally, we found that accumulated wealth was lower for military retirees, but when we included pensions and annuities, their combined wealth was higher in their fifties, and the wealth difference narrowed over time. The narrowing of the wealth difference over time reflects greater wealth growth on the part of veteran non-retirees and non-veterans, which might be a consequence of these groups continuing to work at later ages relative to military retirees. This is the subject of Chapter 4.

## Chapter 4. Comparisons of Employment and Earnings

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In this chapter, we present tabulations on the work history and earnings of military retirees versus non-retiree and veterans and non-veterans before and after separation from military service. As discussed in Chapter 2, for veteran non-retirees and non-veterans, we compared earnings before and after age 40 for those with less than a bachelor's degree and after age 45 for those with at least a bachelor's degree. Furthermore, these tabulations were based on men in the HRS cohort born between the years 1931 and 1941. That is, unlike earlier analyses of the post-service earnings histories of military retirees discussed by Loughran (2002), we controlled for the age or birth cohort of the sample. Work histories were tabulations of individuals who had nonzero earnings. In both the analysis of work histories and earnings histories, we used the HRS data linked with Social Security earnings data, as discussed in Chapter 2. In addition to considering earnings histories, we also examined earnings histories plus military retirement benefits for retirees to understand the extent to which military retirement benefits filled any gap in earnings between retirees and the other two groups.

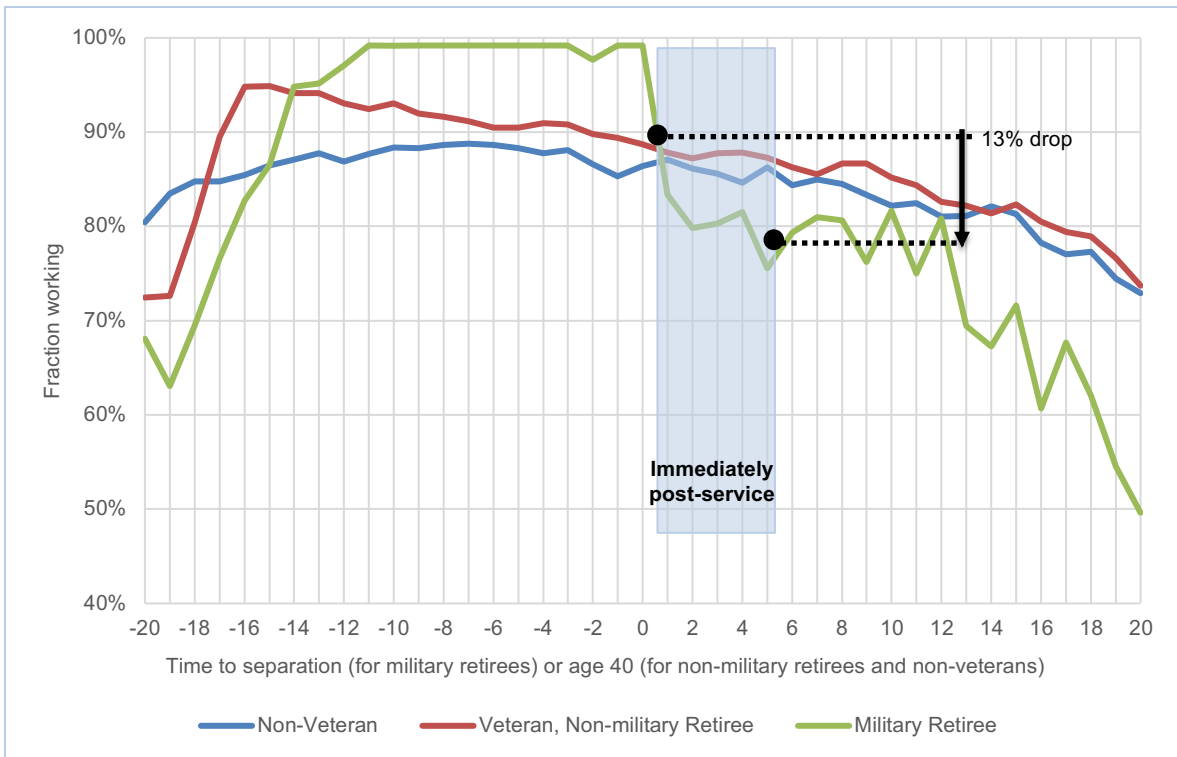
### Employment

Figures 4.1 and 4.2 show the fraction of men with less than a bachelor's degree and at least a bachelor's degree, respectively, who worked: We compute the fraction who work by time to separation or to each age. Both figures show that prior to separation, virtually 100 percent of military retirees (the green line) were employed, as expected because employment prior to retirement was a condition of being an active-duty military retiree. In the earliest years, between 20 and 14 years before separation, the percentage is less than 100 percent for both military retirees and veteran non-retirees. As the note states in these figures and others in this chapter, the fraction working might be understated for these two groups in their earliest years because service members did not contribute to Social Security until 1957, so earnings prior to 1957 were missing. We include the tabulations for this earliest period for completeness and to provide information on the non-veteran group while noting the limitations of our data.

Figures 4.1 and 4.2 also show that five years after separation, the fraction that were employed was 76 percent, or 24 percentage points lower, among retirees with less than a bachelor's degree and 71 percent, or 29 percentage points lower, among retirees with at least a bachelor's degree. Beyond five years, employment rates continued to be lower than prior to separation for both those with and without a bachelor's degree. These results could suggest that retirees had difficulty transitioning to civilian employment once they retired. These results are also consistent with the possibility that military retirement benefits subsidized nonwork and enabled these retirees to work less and pursue nonearning activities.

The figures also highlight the difference in the fraction working at separation for the veteran non-retiree group and the fraction working after five years for the retiree group (the dotted lines in each figure). The fraction who worked was 13 percentage points lower for retirees than veteran non-retirees among those with less than a bachelor's degree and 16 percentage points lower for those with at least a bachelor's degree. Although the fraction who worked decreased with more years since separation, as more individuals aged and left the workforce, the fraction of retirees who worked remained consistently and substantially lower than for the other two groups, consistent with the findings in Figure 3.1. The lower likelihood of working among military retirees between ten and 20 years after separation might be attributable to the differences in job characteristics and earnings observed in Table 3.2 and in Figure 3.3 for the military retiree group versus the other two groups. It might also be due to the receipt of disability compensation from the VA (Coile, Duggun, and Guo, 2015). In sum, we found that military retirees were more likely to work before separation but were less likely to work after separation than those in the comparison groups.

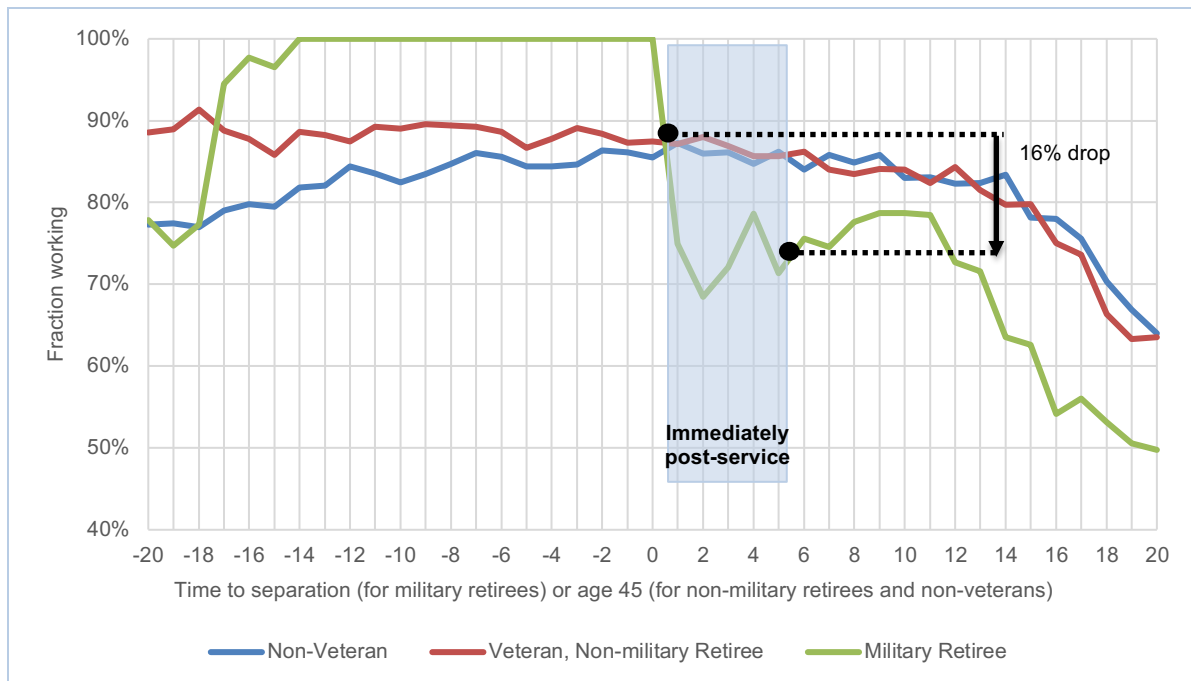
**Figure 4.1. Fraction of Men with Less than a Bachelor's Degree Who Work, by Time to Separation or Age**



SOURCE: Authors' tabulations using HRS and Social Security Master Earnings File data for the HRS cohort born 1931 to 1941 (HRS, undated; HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: *Working* is defined as having nonzero earnings. The blue background corresponds to the five years immediately following a military retiree's retirement. The fraction working may be understated for veterans and military retirees in their earliest years because service members did not contribute to Social Security until 1957, so earnings prior to 1957 are missing. The black dotted lines highlight the 13% difference between at separation and five years after separation or age 40.

**Figure 4.2. Fraction of Men with at Least a Bachelor’s Degree Who Work, by Time to Separation or Age**

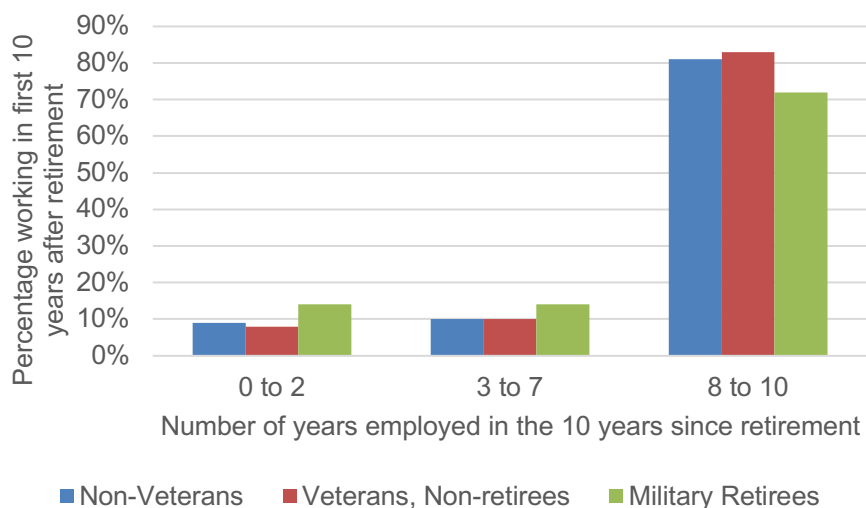


SOURCE: Authors’ tabulations using HRS data for the HRS cohort born 1931 to 1941 (HRS, undated; HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).  
 NOTE: *Working* is defined as having nonzero earnings. The blue background corresponds to the five years immediately following a military retiree’s retirement. The black dotted lines highlight the 16% difference between at separation and five years after separation or age 45.

We exploited our detailed person-level data over time to better understand the lower employment rate of retirees after separation from military service by investigating whether retirees were persistently not employed or whether they churned in and out of employment. The latter might suggest difficulty finding a good job match in the civilian labor market. Because this issue might be more relevant to those with less educational attainment, we tabulated the percentage of men with less than a bachelor’s degree working in each of the ten years following separation or after age 40 for the comparison groups. Given the lower fraction of military retirees employed in the ten years after retirement compared with their civilian counterparts, evidence of churn would be revealed in a comparable or smaller share of military retirees with zero to two years of employment in those ten years relative to the other groups. Figure 4.3 summarizes the results. We found that military retirees were more likely to persistently stay out of the labor force, i.e., work zero to two years in the ten years following separation, than the other two groups. Specifically, we found that 14 percent of retirees worked zero to two years, compared with 8 percent of veteran non-retirees, a six-percentage point gap. These results suggest that there was little evidence of greater churn for military retirees than the other two groups and that

the difference in labor force participation was reflective of military retirees being persistently out of the labor force.

**Figure 4.3. Percentage of Men with Less than a Bachelor’s Degree Who Are Working in Years 1 to 10 After Reporting Retirement, by Time to Separation or Age**



SOURCE: Authors’ tabulations using HRS and Social Security Master Earnings File data for the HRS cohort born 1931 to 1941 (HRS, undated; HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

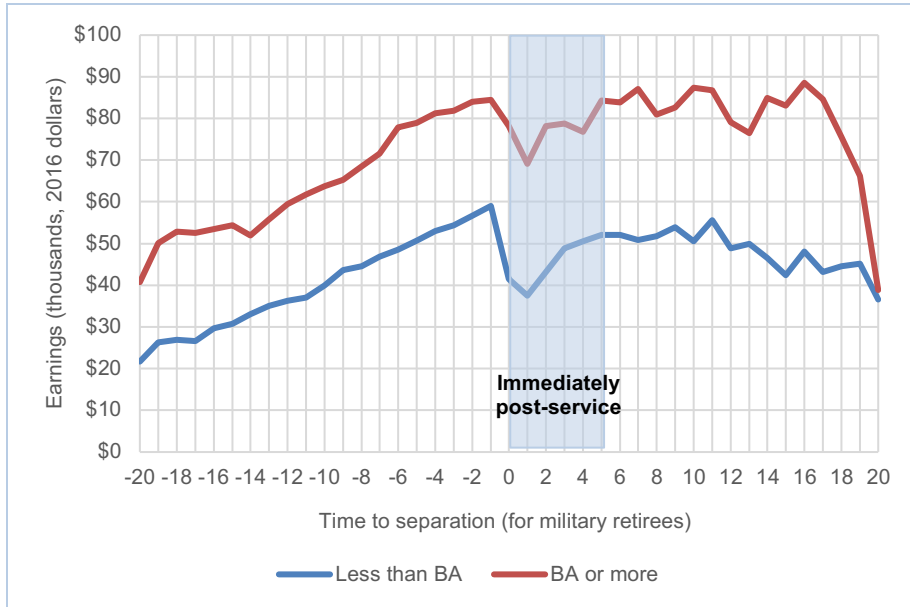
NOTE: *Working* is defined as having nonzero earnings.

## Earnings

We next present analyses of mean earnings of military retirees before and after retirement and of veteran non-retirees and non-veterans before and after age 40 or 45. As before, we conducted the analysis by whether respondents had at least a bachelor’s degree.

Figure 4.4 shows mean earnings before and after retirement for military retirees, conditional on working, for those with and without at least a bachelor’s degree. As expected, those with a bachelor’s degree had higher mean earnings over their career, including while in the military. For those with less than a bachelor’s degree, mean earnings declined following retirement from the military and remained below preretirement levels. Mean earnings for those with at least a bachelor’s degree also dropped at the point of separation but thereafter rose, reaching the preretirement levels. As noted in Chapter 2, earnings in the years prior to separation were understated because they did not include nontaxable allowances or the tax advantage of receiving allowances tax-free, including the housing and subsistence allowances.

**Figure 4.4. Mean Earnings by Time to Separation for Military Retirees, Conditional on Work: Men with Educational Attainment of Less than or at Least a Bachelor’s Degree**



SOURCE: Authors’ tabulations using HRS and Social Security Master Earnings File data for the HRS cohort born 1931 to 1941 (HRS, undated; HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: *Working* is defined as having nonzero earnings. The blue background corresponds to the five years immediately following a military retiree’s retirement.

The drop in earnings following retirement, followed by earnings growth as the retiree gained additional civilian labor market experience, was consistent with the human capital argument made by Borjas and Welch (1986). They hypothesized that military retirees accumulated human capital specific to the military and accumulated less general human capital relevant to the civilian labor market than civilians who did not serve in the military. Retirees experienced a drop in earnings when they transitioned to the civilian labor market but experienced earnings growth as they gained civilian labor market experience. Borjas and Welch (1986) found that retiree earnings eventually converged with civilian earnings, although a later criticism of this work was that the study failed to control for cohort effects. Unlike this earlier study, our analysis controlled for cohort. An alternative hypothesis for the earnings drop that followed separation from service is that the receipt of military retirement benefits allowed retirees to consume more leisure—work fewer hours—and to find more satisfying, possibly lower-paying civilian jobs. However, this hypothesis cannot explain the earnings growth as the retiree gained more civilian experience.

A potential concern in interpreting the earnings profiles in Figure 4.4 and the profiles of veteran non-retirees and non-veterans shown later is that our analysis relied on Social Security earnings, and these earnings are capped. That is, Social Security taxes are only withdrawn from earnings up to a maximum earnings amount. This cap increased over time but was binding for a larger fraction of workers before 1979 because of inconsistent changes in the maximum earnings

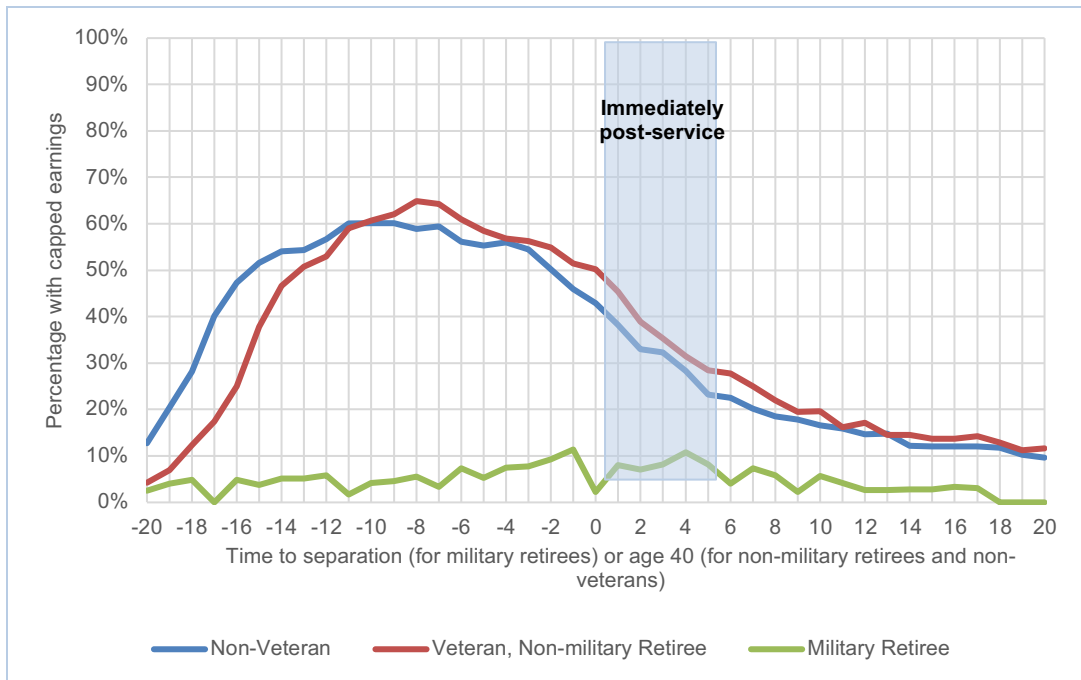
amount.<sup>12</sup> By *binding*, we mean that earnings were observed as equal to the cap, implying that actual earnings equaled or exceeded the cap. Importantly, if the earnings of retirees or of veteran non-retirees or non-veterans exceeded the cap, the earnings information in the data would be truncated, thereby imparting a bias on the computation of mean earnings. Insofar as the cap affected the groups differently, the cap could bias comparisons of mean earnings across groups.

We investigated the potential role of the Social Security cap by showing the percentage of respondents with capped earnings, conditional on working, by time to separation or age in Figure 4.5 for those with less than a bachelor's degree and in Figure 4.6 for those with at least a bachelor's degree. For those with less than a bachelor's degree, we found that a relatively small share of military retirees had capped earnings, compared with veteran non-retirees and non-retirees. For example, eight years prior to separation, or age 32 for non-military retirees, 6 percent of retirees had capped earnings, compared with 59 percent of non-veterans and 65 percent of veteran non-retirees. The low percentage of military retirees subject to the Social Security cap suggests that we do not substantially understate earnings for this group, but we may understate earnings for the other groups—although after five or more years after separation, the fraction subject to the cap for these groups is relatively small.

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<sup>12</sup> By *large fraction*, we mean binding for more than 10 percent of the contributing workers. See Table 4.B4 in SSA (2021) for fraction earnings below the maximum earnings amount by year.

**Figure 4.5. Percentage with Capped Earnings, Conditional on Working: Men with Educational Attainment of Less than a Bachelor's Degree**

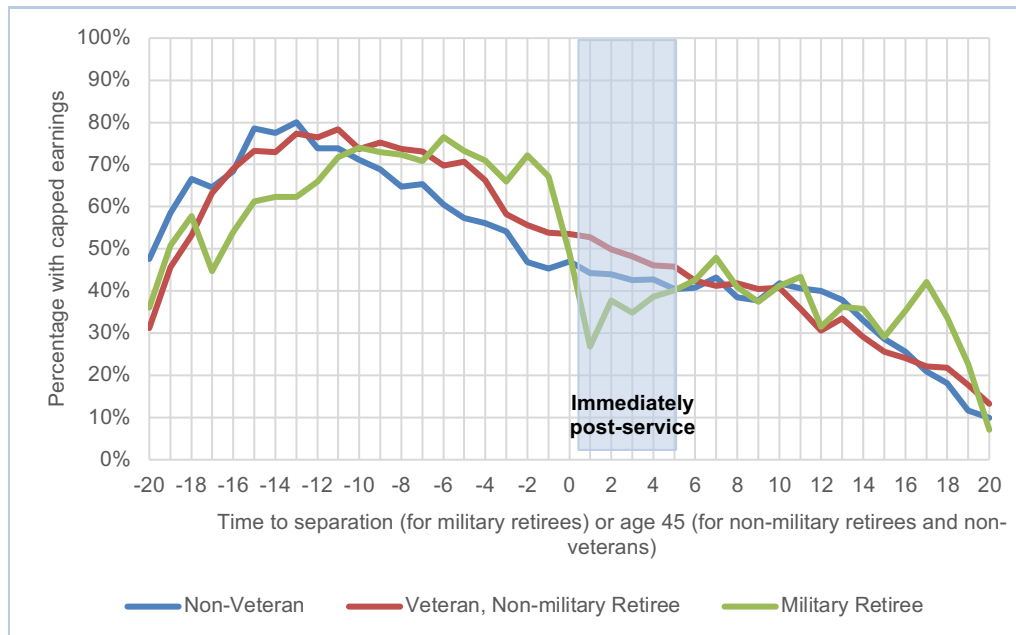


SOURCE: Authors' tabulations using HRS and Social Security Master Earnings File data for the HRS cohort born 1931 to 1941 (HRS, undated; HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: *Working* is defined as having nonzero earnings. The blue background corresponds to the five years immediately following a military retiree's retirement.

Among those with at least a bachelor's degree, a significant fraction of retirees had capped earnings, although the fraction declined after separation from service. For example, eight years prior to separation, or age 38 for non-military retirees, 72 percent of retirees had capped earnings, compared with 65 percent of non-veterans and 74 percent of veteran non-retirees.

**Figure 4.6. Percentage with Capped Earnings, Conditional on Working: Men with Educational Attainment of a Bachelor's Degree or More**



SOURCE: Authors' tabulations using HRS and Social Security Master Earnings File data for the HRS cohort born 1931 to 1941 (HRS, undated; HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: *Working* is defined as having nonzero earnings. The blue background corresponds to the five years immediately following a military retiree's retirement.

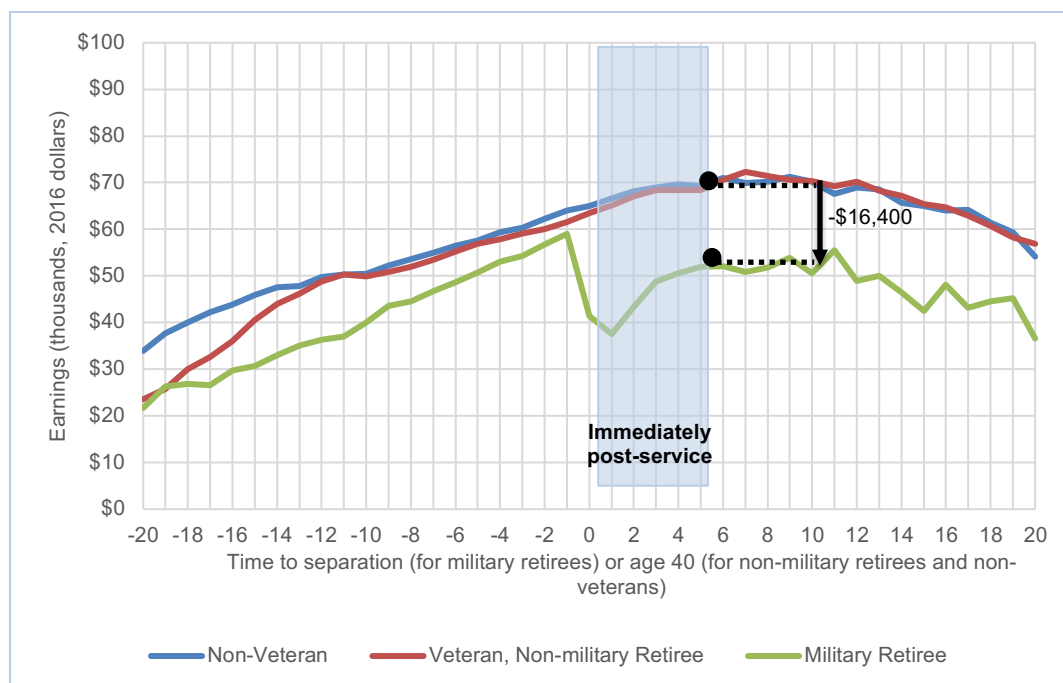
To address the biases created by the cap, we compared the earnings of military retirees with the earnings of the other groups using not only mean earnings but also the 25th and 50th percentiles. It is unlikely that those at the 25th percentile of earnings were subject to the cap. Furthermore, because mean earnings will be higher if there are outliers with particularly high income, we also compared earnings at the 50th percentile. We expected earnings at the 50th percentile to be less likely than mean earnings to be subject to the cap. Overall, we found consistent life cycle patterns regardless of whether the mean, median, or 25th percentiles were used. In the remainder of this chapter, we first compare earnings for those with less than a bachelor's degree and then for those with at least a bachelor's degree.

### *Less Than a Bachelor's Degree*

Figures 4.7 and 4.8 show the trajectory of earnings for those with less than a bachelor's degree, where we compared mean earnings in Figure 4.7 and the 25th and 50th percentiles of earnings in Figure 4.8. In all three cases, we found that military retirees had lower earnings, especially in the post-retirement years, relative to veteran non-retirees and non-veterans. The graphs highlight the difference in earnings five years after separation. When we compared mean earnings, military retirees earned \$16,400 less than their counterparts. Figure 4.5 shows that

about 25 percent of non-veterans and of veteran non-retirees had earnings subject to the Social Security cap at five years after separation, suggesting that mean earnings were understated for these groups. The comparisons of the 25th and 50th percentiles in Figure 4.8 show that earnings of retirees were even lower—\$19,700 and \$27,600 less, respectively.

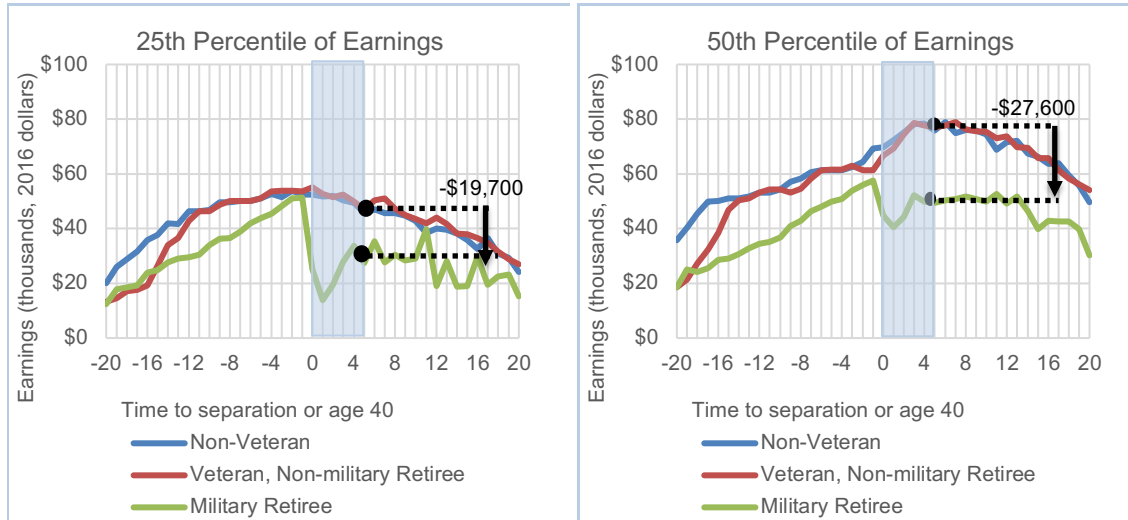
**Figure 4.7. Mean Earnings by Time to Separation or Age, Conditional on Work: Men with Educational Attainment of Less than a Bachelor’s Degree**



SOURCE: Authors’ tabulations using HRS and Social Security Master Earnings File data for the HRS cohort born 1931 to 1941 (HRS, undated; HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: *Working* is defined as having nonzero earnings. The blue background corresponds to the five years immediately following a military retiree’s retirement. The black dotted lines highlight the difference of \$16,400 between the two points at five years after separation or age 40.

**Figure 4.8. 25th Percentile and 50th Percentile of Earnings by Time to Separation or Age, Conditional on Work: Men with Educational Attainment of Less than a Bachelor’s Degree**



SOURCE: Authors’ tabulations using HRS and Social Security Master Earnings File data for the HRS cohort born 1931 to 1941 (HRS, undated; HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: *Working* is defined as having nonzero earnings. The blue background corresponds to the five years immediately following a military retiree’s retirement. The black dotted lines highlight the differences at five years after separation or age 40.

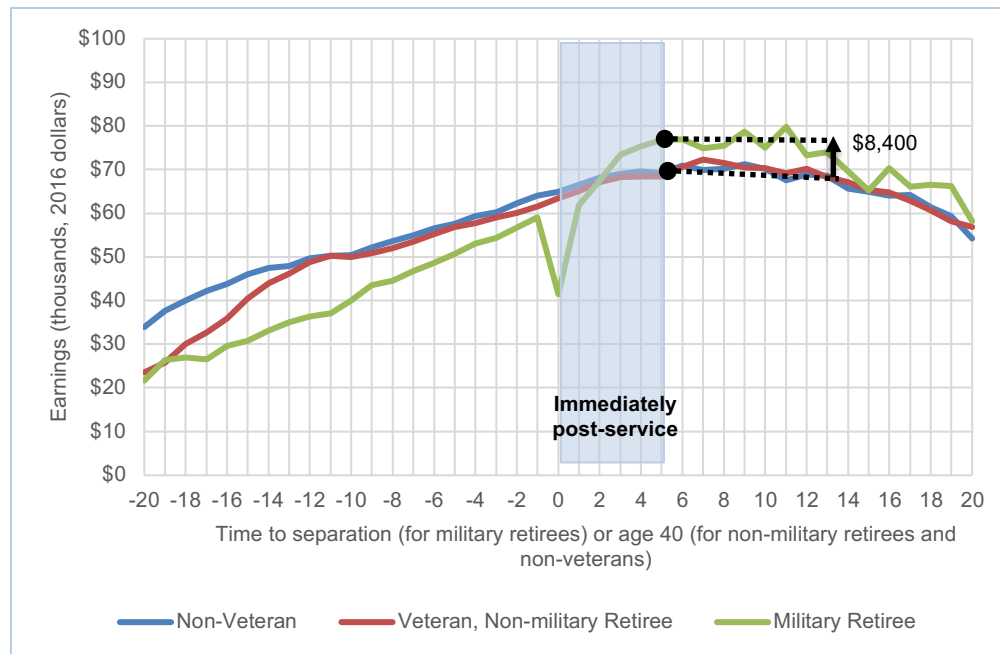
These earnings comparisons indicate that military retirees earned less in their post-retirement years, conditional on working, than non-veterans and veteran non-retirees with less than a bachelor’s degree. This result is consistent with the findings of Loughran (2002). Less clear is whether the well-being of retirees was worse. Retirees might have chosen civilian jobs that were more gratifying but paid less, given that they also received military retirement benefits. Consistent with this hypothesis, military retirees were more likely to report that they were satisfied with retirement than retirees in the other groups, as shown in Figures 3.1 and 3.2 in Chapter 3. We next consider how the addition of military retirement benefits affected the earnings comparisons of retirees with the other groups.

Figure 4.9 shows the effects on the earnings comparison of adding military retirement for those with less than a bachelor’s degree when we consider mean earnings, while Figure 4.10 shows the effects when we consider the 25th and 50th percentiles of earnings. The key result is that we no longer found that the earnings of retirees were lower than the earnings of non-veterans and veteran non-retirees in the post-retirement years when military retirement benefits were added.<sup>13</sup> In the comparison of mean earnings, military retirees earned \$8,400 more five years

<sup>13</sup> As noted in Chapter 2, the HRS survey does not distinguish between sources of military service-related benefits received by a respondent. The introduction of concurrent receipt in 2004 would increase a person’s benefits, although our method of computing benefits relied on six periods prior to 2004 and seven periods after 2004.

after retirement than those in the other two groups. This difference dropped to \$5,200 and to virtually \$0 when we considered the 25th and 50th percentiles, respectively. Thus, military retirement benefits offset the negative post-retirement earnings differences between retirees and non-veterans and veteran non-retirees.

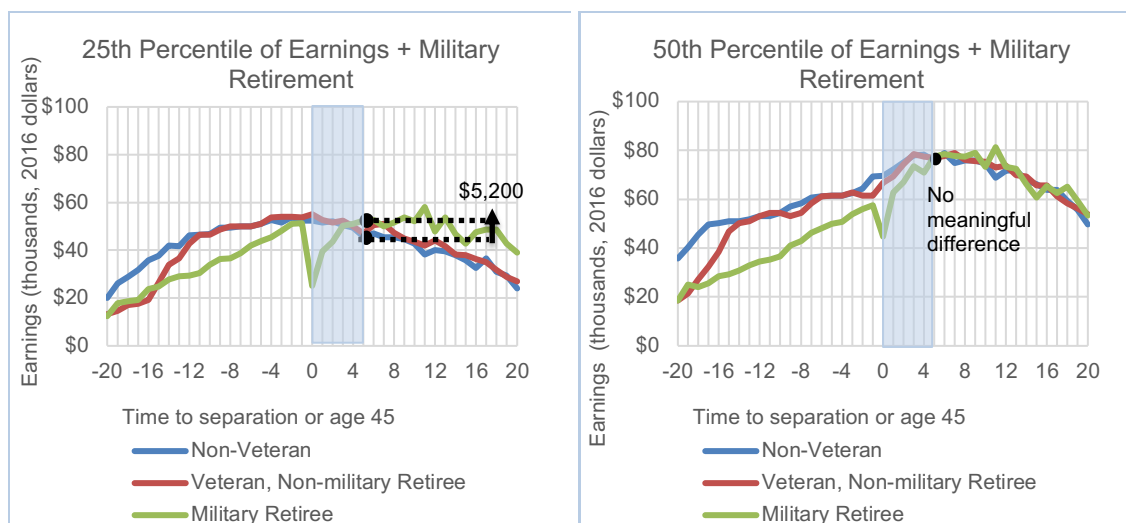
**Figure 4.9. Mean Earnings Plus Military Retirement Benefits by Time to Separation or Age, Conditional on Work: Men with Educational Attainment of Less than a Bachelor’s Degree**



SOURCE: Authors’ tabulations using HRS and Social Security Master Earnings File data for the HRS cohort born 1931 to 1941 (HRS, undated; HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: *Working* is defined as having nonzero earnings. The blue background corresponds to the five years immediately following a military retiree’s retirement. The black dotted lines highlight the \$8,400 difference at five years after separation or age 40.

**Figure 4.10. 25th Percentile and 50th Percentile of Earnings Plus Military Retirement Benefits by Time to Separation or Age, Conditional on Work: Men with Educational Attainment of Less than a Bachelor’s Degree**



SOURCE: Authors’ tabulations using HRS and Social Security Master Earnings File data for the HRS cohort born 1931 to 1941 (HRS, undated; HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

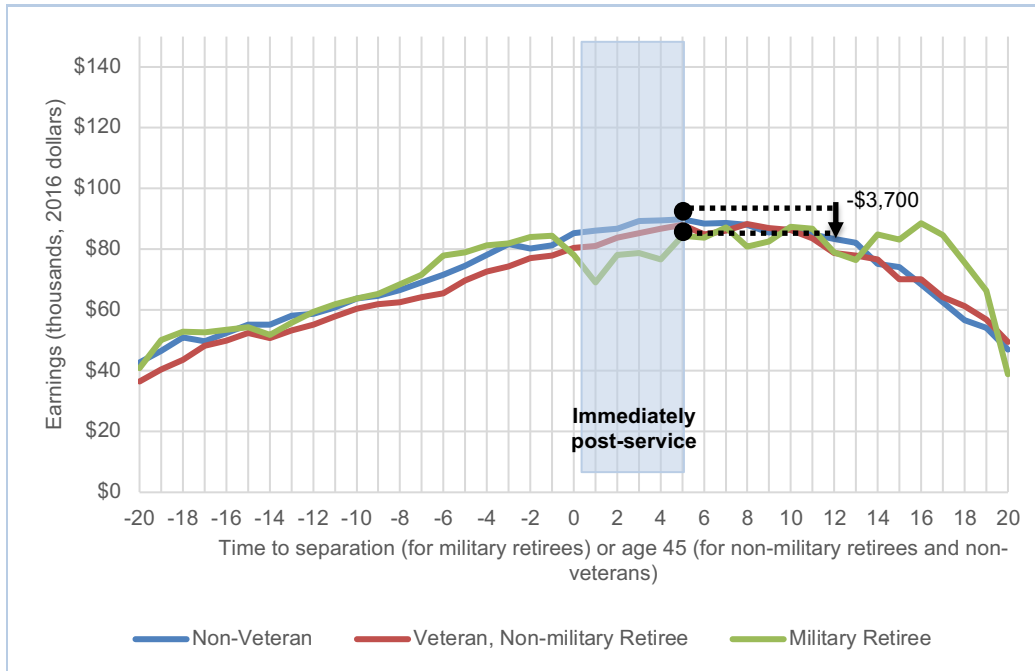
NOTE: *Working* is defined as having nonzero earnings. The blue background corresponds to the five years immediately following a military retiree’s retirement. The black dotted lines highlight the differences at five years after separation or age 45.

### *At Least a Bachelor’s Degree*

We next made similar comparisons for respondents with at least a bachelor’s degree. We found that except for the initial years following separation when earnings were lower, military retirees had broadly similar earnings before and after separation, conditional on working, than did non-veterans and veteran non-retirees, similar to the results of Mackin and Darling (2004). (Recall that we understated earnings of veterans prior to separation because of the exclusion of nontaxable allowances.) Figure 4.11 shows the comparisons of mean earnings while Figure 4.12 shows the comparisons of the 25th and 50th percentiles. Each figure highlights the comparison five years after separation. As shown in Figure 4.11, military retirees had mean earnings \$3,700 below those of non-veterans after five years of service. We found no difference in mean earnings seven years following separation, conditional on working. Retiree earnings might have been lower in the initial years as retirees transitioned to the civilian labor market and identified jobs where they were well matched. Eventually, earnings were broadly similar to the earnings of non-veterans and veteran non-retirees. When we compared the 25th and 50th percentiles of earnings in Figure 4.12, we found decreases of \$4,400 and \$9,000, respectively, five years after separation, but the gap closed with the passage of more years after separation. Military retiree earnings showed a different pattern than the other two groups after 13 years of separation in both Figures 4.11 and 4.12. In Chapter 3, we determined that differences were not driven by part-time

work by retirees. These earnings results together with the findings in Figures 3.1, 4.1, and 4.2 suggest that military retirees who worked at later ages were a different group from non-military retirees.

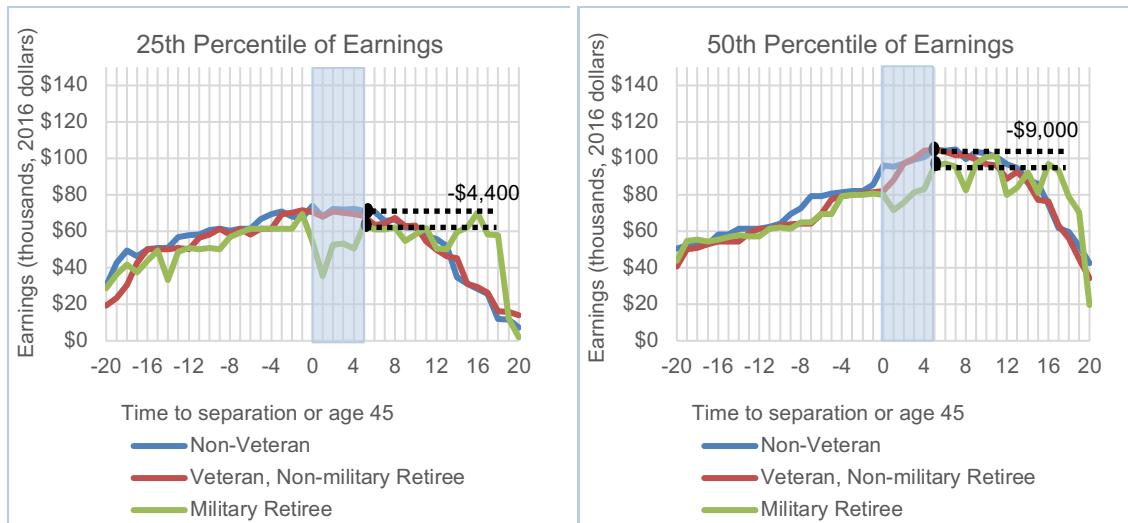
**Figure 4.11. Mean Earnings by Time to Separation or Age, Conditional on Work: Men with Educational Attainment of at Least a Bachelor's Degree**



SOURCE: Authors' tabulations using HRS and Social Security Master Earnings File data for the HRS cohort born 1931 to 1941 (HRS, undated; HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: *Working* is defined as having nonzero earnings. The blue background corresponds to the five years immediately following a military retiree's retirement. The black dotted lines highlight the -\$3,700 difference at five years after separation or age 45.

**Figure 4.12. 25th Percentile and 50th Percentile of Earnings by Time to Separation or Age, Conditional on Work: Men with Educational Attainment of at Least a Bachelor’s Degree**



SOURCE: Authors’ tabulations using HRS and Social Security Master Earnings File data for the HRS cohort born 1931 to 1941 (HRS, undated; HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

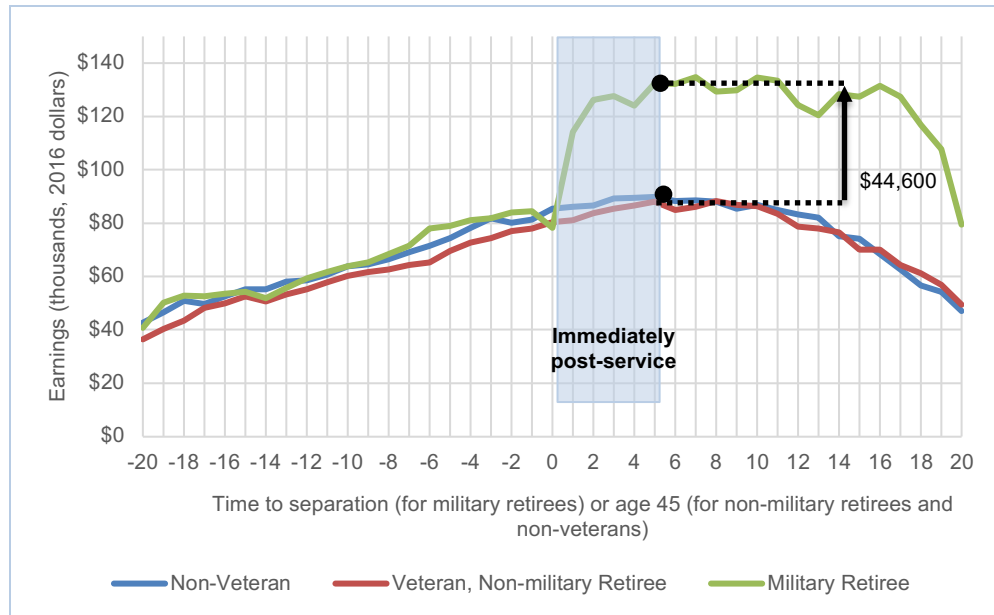
NOTE: *Working* is defined as having nonzero earnings. The blue background corresponds to the five years immediately following a military retiree’s retirement. The black dotted lines highlight the differences at five years after separation or age 45.

The difference in results for those without versus with at least a bachelor’s degree is striking. We found a persistent earnings gap after separation from service for retirees without a bachelor’s degree experience but no persistent gap for those with a bachelor’s degree. Unfortunately, we lack sufficient information to explain this difference. One possibility is that less educated retirees had more difficulty translating their military career into a successful civilian career. That is, their human capital was specific to the military, and they were unable to accumulate sufficient human capital relevant to the civilian labor market to overcome the earnings gap. In contrast, those with more education might have had more transferable skills and chose to work more hours, conditional on working. Another possibility is that less educated retirees had a stronger preference for leisure and worked less intensely.

We next consider how the addition of military retirement benefits affected the comparisons for those with at least a bachelor’s degree. As shown in Figures 4.13 and 4.14, military retirement benefits more than offset any post-separation gap in earnings, regardless of whether we considered mean earnings, the 25th percentile, or the 50th percentile. As shown in Figure 4.13, mean earnings were \$44,600 higher five years following separation for military retirees with the addition of military retirement benefits than for non-veterans or veteran non-retirees. The differences were somewhat smaller when we used the 25th or 50th percentile metrics, \$26,800 and \$37,200, respectively, but still quite substantial. Thus, military retirees with at least

a bachelor's degree were financially better off in terms of earnings when military retirement benefits were also considered in the comparison.

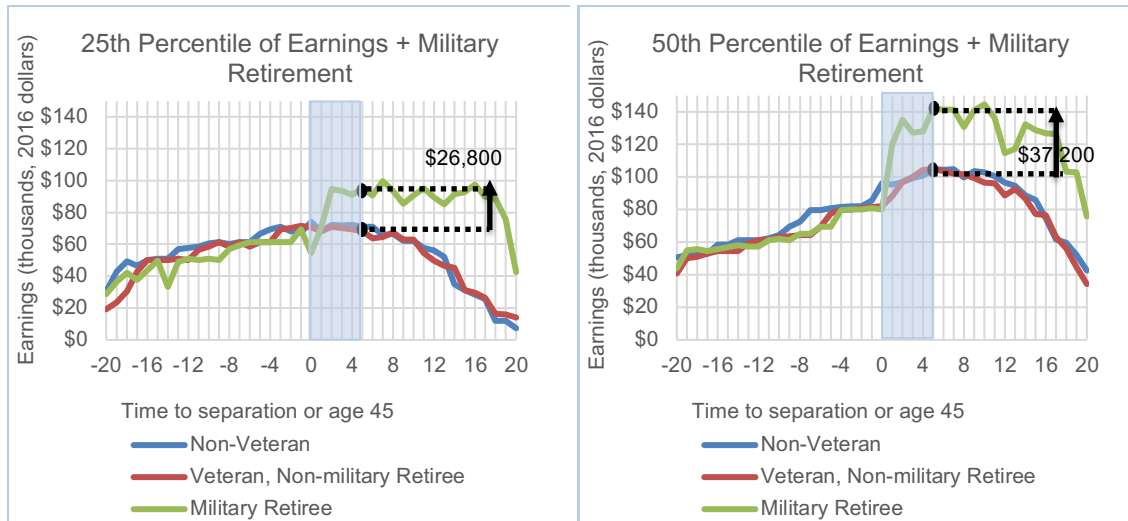
**Figure 4.13. Mean Earnings Plus Military Retirement Benefits by Time to Separation or Age, Conditional on Work: Men with Educational Attainment of at Least a Bachelor's Degree**



SOURCE: Authors' tabulations using HRS and Social Security Master Earnings File data for the HRS cohort born 1931 to 1941 (HRS, undated; HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: *Working* is defined as having nonzero earnings. The blue background corresponds to the five years immediately following a military retiree's retirement. The black dotted lines highlight the \$44,600 difference at five years after separation or age 45.

**Figure 4.14. 25th Percentile and 50th Percentile of Earnings Plus Military Retirement Benefits by Time to Separation or Age, Conditional on Work: Men with Educational Attainment of at Least a Bachelor's Degree**



SOURCE: Authors' tabulations using HRS and Social Security Master Earnings File data for the HRS cohort born 1931 to 1941 (HRS, undated; HRS, 2020a; HRS, 2020b; RAND Corporation, 2020a; RAND Corporation, 2020b; RAND Corporation, 2020c).

NOTE: *Working* is defined as having nonzero earnings. The blue background corresponds to the five years immediately following a military retiree's retirement. The black dotted lines highlight the differences at five years after separation or age 45.

## Summary

This chapter compared the work and earnings histories of military retirees before and after separation from the military with the histories of non-veterans and veteran non-retirees in the HRS cohort, using Social Security earnings data. We found that military retirees were more likely to work than non-veterans and veteran non-retirees in the years prior to separation from the military but were less likely to work in the years after separation, for both those with and without at least a bachelor's degree. We found that for those with less than a bachelor's degree, military retirees had lower earnings after separation than non-veterans and veteran non-retirees; retiree earnings were broadly similar after separation to those in the other groups for those with at least a bachelor's degree, except for the years initially following separation when retiree earnings were lower. We also found that military retirement benefits offset the earnings gap for those with less than a bachelor's degree and more than offset the gap for those with at least a bachelor's degree.

## Chapter 5. Conclusions

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Using the HRS sample of men who were either military retirees, veteran non-retirees or non-veterans, we answered four research questions.

### Are There Differences in Career Earnings?

Military retirees with less than a bachelor's degree had lower earnings before and after they separated from the military compared with veteran non-retirees or non-veterans. Military retirees with at least a bachelor's degree had broadly similar earnings on average before they separated from the military compared with veteran non-retirees or non-veterans but lower earnings for the ten years after. We understated the earnings of veterans regardless of education grouping for both military retirees and veteran non-retirees before separation because nontaxable allowances (and the tax advantage) were excluded from earnings while they were in service.

We also found that military retirees were less likely to work five years after retirement than veteran non-retirees or non-veterans. Differences in the fraction working were primarily determined by military retirees who were persistently not employed following their retirement. It is unknown whether the non-employed retirees were not working because of a choice or an inability to find a job.

### Does the Military Retirement Benefit Offset Post-Service Earning Reductions?

We found that the military retirement benefit offset the earnings gap for those with less than a bachelor's degree and more than offset the gap for military retirees with at least a bachelor's degree. By including military retirement benefits in the comparison, we found that military retirees fared financially as well as or better off than non-veterans and veteran non-retirees.

### Are There Wealth Differences?

We found that military retirees had accumulated less wealth than non-veterans and veteran non-retirees, excluding pensions and annuities (including military retirement benefits), but these differences were not statistically significant. Accounting for pensions and annuities, military retirees had greater accumulated wealth at ages 55 to 56. But wealth differences with veteran non-retirees narrowed at older ages as veteran non-retirees worked longer and became eligible for private pension benefits—by ages 70 to 71, the difference in accumulated wealth was not statistically significant.

Military retirees were more likely to own a home, but they had similar housing wealth as non-veterans and veteran non-retirees.

## Are There Differences in Well-Being and Satisfaction in Old Age?

Military retirees also fared better in terms of their level of satisfaction with retirement than either group, and military retirees fared at least as well as non-veterans and veteran non-retirees in terms of educational and health outcomes. In particular, retirees ages 55 to 56 were more likely to have achieved a bachelor's degree and, relative to non-veterans, were more likely to report being in good health and having higher expectations of living to age 75.

## Discussion

As noted in the introduction, our analysis is subject to several important caveats. It was descriptive because we did not estimate the causal effect of staying until military retirement on lifetime earnings; there might have been unobserved factors, such as military-specific talents, that were correlated with earnings and with staying until retirement. Furthermore, the analysis might have limited relevance to retirees during the AVF era because the HRS cohort we used consisted of personnel who entered during the draft era. Finally, we were unable to distinguish Army personnel from personnel serving in other services, and we were unable to control for in-service characteristics, such as their aptitude test scores taken prior to enlisting or their subsequent military performance and other features of their military service. Our analysis could be improved in several ways. First, the data could be improved by merging Army data that provides information on the characteristics of retirees and veterans from the AVF era with lifetime earnings data provided by the Social Security Administration. Although we pursued this avenue for this research, we were unable to access the requisite data in a timely manner.

Despite these caveats, our analysis showed for the first time how the earnings of retirees differed from the earnings of those who did not complete a full military career and non-veterans. Although we cannot conclude that staying until military retirement causes employment and earnings to fall relative to the employment and earnings of non-veterans and non-retirees for less-educated respondents, the results suggest that retirees did work and earned less than those who did not stay for a full military career or who were non-veterans. On the other hand, military retirement benefits offset the gap for service members without a bachelor's degree and more than offset any differences for those with at least a bachelor's degree. On net, retirees were better off financially relative to other groups. Military pay increased dramatically during the early years of the AVF, and, since the 1980s, the quality of military personnel improved dramatically as well in terms of education and aptitude scores (Asch et al., 2020). These higher quality personnel would likely command better civilian opportunities and better post-service earnings than draft-era personnel. Consequently, we expected post-service earnings to be higher for AVF-era personnel relative to draft-era military personnel. Although the quality of non-veterans also increased in the

AVF era to the extent that high school graduation rates and college enrollment among recent graduates increased in the U.S. population over this period (Harris, 2020; ThinkImpact, undated), the increase in the educational attainment of military recruits was more dramatic. Because our estimates suggest that accounting for the military retirement benefits offset the gap in earnings for military retirees who entered during the draft era, the direction of subsequent selection in personnel quality leads us to expect that AVF-era service members were less likely to experience long-term compensation differentials relative to draft-era service members. Consequently, in the AVF era, there was little reason to expect that average post-service earnings, accounting for the military retirement benefit, would be worse (and was likely better) than lifetime earnings of service members who did not stay for a career.

## Abbreviations

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AVF	all-volunteer force
CES–D	Center for Epidemiological Studies–Depression
HRS	Health and Retirement Study
VA	Department of Veterans Affairs

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