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ABSTRACT

The composition, wealth and employment of male veterans and nonveterans are analyzed for four cohorts from the Health and Retirement Study, ages 51 to 56 in 1992, 1998, 2004 and 2010. Half of the men in the two oldest cohorts served in the military. Only 16 percent of the men in the youngest cohort, the only cohort subject to the All-Volunteer Military, served. One fifth to one third of the members of each cohort who served saw combat, mainly in Viet Nam and in the First Gulf War.

Among those 51 to 56 in 1992, veterans were better educated, healthier, wealthier, and more likely to be working than nonveterans. By the 2010 cohort, 51 to 56 year old veterans had lost their educational advantage over nonveterans, were less healthy, less wealthy and less likely to be working.

After standardizing in multiple regressions for the influence of major observable characteristics, for the original 1992 HRS cohort the wealth of veterans is no longer higher than the wealth of nonveterans. In contrast, the wealth of veterans from the youngest cohort, those 51 to 56 in 2010, remains about 10 to 13 percent below the wealth of nonveterans from that cohort.

There also is a decline from older to younger cohorts of veterans compared to nonveterans in the probability of being not retired, of working more than 35 hours per week, and in the likelihood of holding a job for more than 10 years.

Comparisons are made within the group of veterans by years of service, officer rank and other covariates.

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There has been considerable debate and indecision about veterans' retirement benefits. For example, after first deciding to reduce the benefits of younger, early military retirees, Congress then reversed itself in February, 2014. Proposals for changing military pensions remain on the table. For example, the report of the Military Compensation Commission (2015) proposes reducing the basic defined benefit pension for those who served twenty or more years in the military, while introducing a 401(k) type plan with employer matching that would vest after two years.

Veterans' benefits are shaped by conflicting concerns. On the one hand, there is enormous gratitude for the service and sacrifice of military veterans. On the other hand, cost considerations have led to continuing pressures to reduce veterans' benefits. Concerns about shaping military turnover have also played a role. Thus long serving veterans receive pensions; those who were disabled as a result of their military service receive special benefits; those from older cohorts receive special credits toward their Social Security for time spent in the military, and military pensions are indexed. Yet at the same time these programs also have unusual features not normally found in private sector pensions that are designed to reduce military pensions, such as twenty year vesting.[1]

A central policy concern is how well prepared veterans are for retirement. Paradoxically, however, there is little evidence on the wealth of veterans nearing retirement, and how their preparation for retirement compares to nonveterans. One reason is that evidence based on administrative data from the Department of Defense paints only a partial picture of veterans' preparation for retirement. Administrative data typically pertains only to the individual veteran, rather than to the veteran's household. Yet wealth is determined at the household level. Moreover, studies of military pensions and their adequacy often ignore many assets beside military pensions, e.g., Social Security, private pensions and housing. Moreover, data on veterans should be placed in perspective. Yet administrative data often

[1] For a description of veterans' pensions, see Congressional Budget Office (2012, pp. 22-24.). For a description of Social Security benefits for veterans, see Social Security Administration (2013).

pertain only to veterans, so that resulting policy studies have difficulty in comparing outcomes to those for nonveterans.[2]

Our aim is to help fill the gaps in information on the economic status of veterans as they approach retirement. We examine the differences in wealth between veterans and nonveterans who are nearing retirement, consider trends in these differences, and discuss some of the reasons for these differences. After examining demographic, educational, health, disability and service related differences between veterans and nonveterans, we relate these measures to the course of differences in preretirement wealth. We also analyze differences in wealth within the veterans group, as well as work and retirement for members of different cohorts.

Our analysis suggests there has been a decline in the relative status of veterans over time. Findings are based on four cohorts from the Health and Retirement Study (HRS), all ages 51 to 56 in the baseline year the cohort entered the survey. In the original HRS cohort, veterans ages 51 to 56 in 1992 were better educated, healthier, wealthier, and more likely to be working than nonveterans. By 2010 veterans had lost their educational advantage, were less healthy, less wealthy and less likely to be working at ages 51 to 56 than nonveterans.

There are two main reasons for the decline in the status of veterans who are nearing retirement. First, there is a major change in the composition of the veterans group. Many fewer males in the younger cohorts are veterans. The share of males who had served in the military has fallen from half of the older cohorts, to 16 percent of those 51 to 56 in 2010. Along with the decline in the share of the cohort who served, the selection of new members has changed greatly over time. Most notably, the All-Volunteer Military replaced the draft. But even within the oldest three cohorts, all subject to the draft, the likelihood of exemption from service increased as the share of the cohort required by the military

[2] One of the few comprehensive studies is presented by Fitzgerald (2006), who examines the relation of time spent in the military to wealth accumulated by men in the first wave of the Health and Retirement Study. Unfortunately, he does not include pensions or Social Security in his calculation of wealth.

declined. This has been accompanied by major changes in the characteristics of veterans, characteristics that are associated with earnings.

Second, there are many changes in retirement programs over time. These affect comparisons of wealth and retirement between veterans and nonveterans in different cohorts. Finally, members of different cohorts had different economic experiences over their lifetimes.

In measuring the wealth of those approaching retirement age, it is very important to include both Social Security and pensions. Together they account for half or more of the total wealth of near retirees (Gustman, Steinmeier and Tabatabai, 2010). The Health and Retirement Study provides a unique opportunity to study the Social Security and pension benefits received by former members of the military at retirement, and to determine the influence of changes in these retirement benefits on the total wealth accumulated by veterans and nonveterans as they approach retirement. We use Social Security earnings histories and respondent reports of expected pension benefits from the HRS to create a comprehensive measure of the retirement wealth of near retirees. These data include credits toward Social Security benefits earned while in the military.

The four HRS cohorts included in our study are: the original HRS cohort, born from 1936 to 1941 who entered the HRS in 1992; the War Baby cohort, born from 1942 to 1947, who entered the HRS in 1998; the Early Boomer cohort, born from 1948 to 1953, who were first interviewed by the HRS in 2004; and the Mid Boomer cohort, born from 1954 to 1959, who entered the HRS in 2010. These four cohorts include veterans of Viet Nam and the First Gulf War, as well as many veterans who did not see combat.

Section II of the paper describes changes in the characteristics and service histories of the veteran and nonveteran populations among cohorts. Differences between veterans and nonveterans in wealth and its components are described for each of the cohorts in Section III. Section IV reports regressions for

wealth that standardize for the effects of observable demographic characteristics. Section V discusses differences in retirement and other labor market outcomes between veterans and nonveterans in each of the HRS cohorts. Section VI concludes.

II. Characteristics and service histories of the veteran and nonveteran populations over time.

To begin with, Table 1 reports several key dates for each of the HRS cohorts. Row 1 reports the year when members of the cohort who were ages 51 to 56 first entered the HRS. Row 2 reports the years the members of the cohort were born, and row 3 indicates the years the respondents in the cohort turned age 18.

Row 4 indicates that members of the three oldest cohorts were subject to the draft, while most of the youngest cohort, the Mid Boomers, came of age after the All-Volunteer Military was established. Row 5 indicates the wars in progress at the time members of each cohort turned age 18. When the original HRS cohort turned age 18, the Korean War had just ended. War Babies and Early Boomers turned 18 during the Viet Nam War, while that war had ended by the time most members of the Mid Boomer cohort reached their 18^{th} birthday. As seen in row 6, if the respondent stayed in the military for twenty years, members of all four cohorts were of age to serve in Viet Nam. Those from the Early and Mid Boomer cohorts who stayed in the military at least twenty years were of age to have served in the First Gulf War. Finally, the bottom row of Table 1 shows unemployment during the base year the cohort members were interviewed by the HRS. Unemployment was relatively high at the time of entry for the original HRS cohort and the Mid Boomers (7.5% and 9.6% respectively), and relatively low at the time the War Babies and Mid Boomers entered (4.5% and 5.5%). These differences in labor market state may have affected both the wealth and retirement of members of these cohorts. Indeed, the wealth of Mid Boomers is measured after the incidence of the Great Recession.

Table 1: HRS Cohorts Included in the Study

	Original HRS Cohort	**War Babies**	**Early Boomers**	**Mid Boomers**
Year when age 51 to 56	1992	1998	2004	2010
Year Born	1936-1941	1942-1947	1948-1953	1954-1959
Year Age 18	1954-1959	1960-1965	1966-1971	1972-1977
Draft	Yes	Yes	Yes	Volunteer Army began 1973
Conflict at age 18	Just after Korea (1950-1953)	Viet Nam (1960-1973)	Viet Nam (1960-1973)	Viet Nam (1960-1973)
Conflict if stayed in military 20 years	Viet Nam	Viet Nam	Viet Nam First Gulf War (1990-1991)	Viet Nam and First Gulf War (1990-1991)
Unemployment in Base Year	7.5%	4.5%	5.5%	9.6%

Table 2: Military History of Males in the HRS Cohorts

	Original HRS Born 1936-41	War Babies Born 1942-47	Early Boomers Born 1948-53	Mid Boomers Born 1954-1959
1. Percent Veterans Who Are Female	2%	1%	3%	12%
Males				
2. Percent Ever Served	50	48	29	16
3. Percent Length of Service < 10 Years	92	93	92	87
4. Percent Length of Service 10-19 Years	2	2	3	7
5. Percent Length of Service 20 or More Years	6	5	5	6
6. Percent Combat Veterans*	18	34	33	18
7. Percent Veterans Who Were Officers**	6	7	8	10
8. Total Number of Males in Military	1145	466	363	270

* The information is provided in the 2008 and 2010 surveys and also in the 'left behind' questionnaire in the 2006, 2008 and 2010 survey years. Members of earlier cohorts who were not interviewed in those three survey years are missing this information. For example, in 1992, only 775 cases out of 1185 were asked the question. 141 of them reported having fired a weapon in combat.
** The rank question is asked only in the 2008 and 2010 surveys. Members of earlier cohorts who were not interviewed in the 2008 or 2010 survey years are missing this information.

Next we consider the service histories of the male veterans in the four HRS cohorts. Throughout this paper, the sample is restricted to males who were 51 to 56 in the base year they were first included in the HRS. We focus on males because there are very few female veterans in the HRS cohorts to analyze. This can be seen in the first row of Table 2. Only 1 to 3 percent of the veterans in the three oldest cohorts were women. Twelve percent of the members of the military from the Mid Boomer cohort were women.

From row 2 of Table 2, roughly half the males in the Original HRS and War Baby cohorts served in the military. The decline in the share of males with military experience began before the abolition of the draft, with 29 percent of males from the Early Boomer cohort having served. After the draft lottery was instituted in December of 1969, the number drafted declined sharply.[3] Once the All-Volunteer Military was instituted, only 16 percent of the Mid Boomers served.

Major shifts in the share of the population serving could generate differences in both self-selection into the military and in screening by the military. As a result, both the observable and unobservable characteristics of veterans and nonveterans may differ among cohorts.

Using descriptive data and adjusting for differences in observables, Angrist (1990) finds that Viet Nam era war veterans had lower earnings than nonveterans. This conclusion was not changed when he instrumented for unobservables related to the draft lottery, which affected the selection of some of those who served in Viet Nam. Among those subject to the lottery, white Viet Nam era veterans had lower

[3] The size of the draft for members of the Early Boomer cohort by year is as follows:

Year	Number drafted
1967	228,263
1968	296,406
1969	283,586
1970	162,746
1971	94,092
1972	49,514

Source: http://www.landscaper.net/draft70-72.htm#Induction Statistics
By 1973, 646 individuals were drafted.

earnings than nonveterans. However, there were no differences between nonwhite veterans and nonveterans. Angrist attributes his findings to the lower labor market experience of veterans.

In view of the finding of lower earnings for Viet Nam veterans, Angrist and Krueger (1994) tried to explain why World War II veterans had higher earnings than nonveterans. They found they could explain these earnings differences by observable and unobservable differences between veterans and nonveterans. Indeed, after adjusting for these differences, World War II veterans had lower earnings than similar nonveterans.

In a follow up study aimed at isolating the effects of voluntary military service, Angrist (1998) examined earnings of veterans vs. nonveterans in the 1980s. In one approach, he compared applicants who entered the military to applicants who did not. In another approach, he instrumented on the basis of scores on exams given to military applicants during a short period in which the test scores were misnormed. Angrist concluded that military service led to lower civilian earnings for white veterans and to a modest increase in the civilian earnings of nonwhite veterans.

Unfortunately, we are not in a position to instrument for unobservables associated with changes over time in the selection criteria into the military. There are major differences among HRS cohorts in criteria used for selection into the military. These differences mean there is no consistent set of instruments available to adjust for unobservable dimensions of quality. The draft lottery, instituted in 1969 and used by Angrist to construct an instrument for unobservable characteristics of veterans is relevant for members of the Early Boomer cohort. But members of the War Baby cohort and the original HRS cohort were subject to draft boards with criteria that varied over time and place. The Mid Boomers were, for the most part, not subject to the draft at all.

Without a consistent set of instruments to use across these cohorts, we cannot distinguish the effects of unobservables from the effects of military service *per se*. However, there is some evidence from

Nelson (1986) of mismanagement during the early years of the All-Volunteer Force, from about 1976 to 1980, that might account for a decline in unmeasured indicators of potential productivity of recruits. Military pay was not at the competitive levels envisioned at the beginning of the All-Volunteer force. Moreover, the Armed Forces Qualification Test (AFQT) was badly misnormed. As a consequence, the fraction of recruits who were both high school graduates and had an Armed Forces Qualification Test (AFQT) score above the fiftieth percentile fell substantially in this period. For example, Nelson (1986, Table 5.8) finds that the percent of Army recruits in the top half of the AFQT fell from 89 percent in 1976 to 59 percent, 61 percent, 54 percent and 50 percent in 1977-1980, the prime years for Mid Boomers to have entered the military.

Turn again to Table 2 and consider the longest spell of military service by men in each HRS cohort. Looking across row 3, 92 to 93 percent of the members of the three oldest cohorts served less than ten years in the military. For the Mid Boomers, 87 percent served less than a decade. From row 5, notice that whatever the cohort, only 5 or 6 percent of male veterans served a spell of twenty or more years, the amount of service typically associated with eligibility for a retirement pension from the military. This suggests that the economic position of most veterans will not be influenced by military pensions alone.

Row 6 of Table 2 suggests that just over one third of veterans from the War Baby and Early Boomer cohorts experienced combat. Fewer than one fifth of the veterans from the Original HRS cohort, and a similar fraction of the Mid Boomers, experienced combat. As seen in row 7, the fraction who were officers increased from six or seven percent of the oldest cohorts to 10 percent of the Mid Boomers.

Table 3: Education, Demographic Characteristics, Health and Disability of Male Veterans and Nonveterans in Four HRS Cohorts

	Original HRS Born 1936-41	War Babies Born 1942-47	Early Boomers Born 1948-53	Mid Boomers Born 1954-59
Education				
1. Mean Years of Education Veterans	13.2	13.7	13.6	13.4
2. Mean Years of Education Nonveterans	12.2	12.9	13.8	13.5
3. Percent Some College Veterans	51	58	67	57
4. Percent Some College Nonveterans	39	49	65	58
Marital Status				
5. Percent Veterans Married	79	80	74	63
6. Percent Nonveterans Married	79	77	77	72
Race				
7. Percent Veterans Nonwhite	13	13	20	29
8. Percent Nonveterans Nonwhite	25	24	23	25
Health Status				
9. Percent Veterans in Fair or Poor Health	13	17	25	27
10. Percent Nonveterans in Fair or Poor Health	19	21	20	21
11. Percent Veterans with Health Problem Limiting Work	17	16	20	33
12. Percent Non-veterans with Health Problem Limiting Work	17	18	17	17
13. Percent Veterans SSDI/SSI	5	9	9	18
14. Percent Nonveterans SSDI/SSI	6	7	7	8
15. Number of Males Who Served in the Military	1145	466	363	270
16. Number of Males Who Did Not Serve	1281	519	885	1394

Table 3 compares education, demographic characteristics, health and disability status of veterans and nonveterans from the four cohorts. From rows 1 and 2, column 1, in the oldest cohort, veterans had one

more full-year of schooling than nonveterans, 13.2 vs. 12.2 years. Over the eighteen year period between the entry of the original HRS cohort and the entry of the Mid Boomer cohort into the HRS, the education of veterans grew much more slowly than that of nonveterans. The relative growth of education for nonveterans was rapid enough to close the gap between veterans and nonveterans by the time of the Mid Boomer cohort, with 13.4 years of schooling for veterans and 13.5 years for nonveterans. There is a similar closing of the gap when we compare the percentages of veterans and nonveterans with at least some college. In the original HRS cohort, the fraction of veterans with at least some college exceeded the fraction of nonveterans by 12 percentage points. Once again, between the oldest and youngest cohorts, the percentage of nonveterans with at least some college grew much more rapidly than the percent of veterans with some college. The percentage of nonveterans with at least some college increased from 39 percent in the Original HRS cohort to 58 percent for the Mid Boomers. In the case of veterans, the comparable increase was from 51 to 57 percent. Thus in the Mid Boomer cohort, there was virtually no difference in the fractions of veterans and nonveterans with at least some college. The substantial gap in education in favor of veterans in the original HRS cohort disappeared entirely by the time the Mid Boomers entered the HRS.

Consider next the differences in the probability of being married. There was no difference in the probability of being married between veterans and nonveterans in the original HRS cohort (79 percent). By the Mid Boomer cohort, veterans were nine percentage points less likely to be married than nonveterans (63 vs. 72 percent), a difference that will be of importance in explaining the course of household wealth.

The racial composition of veterans has also changed sharply relative to the nonveteran population. As seen in row 7 of Table 3, in the original HRS cohort, 13 percent of veterans and 25 percent of

nonveterans were nonwhite. By the Mid Boomer cohort, 29 percent of veterans and 25 percent of nonveterans were nonwhite.

Consider next the relative health of veterans and nonveterans in the oldest and youngest cohorts. We begin with the oldest cohort using three different measures of health status: those reporting they were in fair or poor health (13 percent of veterans and 19 percent of nonveterans); the percent reporting a health problem that limited their work (17 percent of veterans and nonveterans); and the percent on or having applied to SSDI or SSI (5 percent of veterans and 6 percent of nonveterans). While in the original HRS cohort, veterans were healthier than nonveterans, between the oldest and youngest cohorts, the health status of veterans age 51 to 56 deteriorated sharply relative to nonveterans. By the time the Mid Boomer cohort was interviewed by the HRS in 2010, the share of veterans reporting fair or poor health exceeded the share of nonveterans (27 to 21 percent)[4]; the share of veterans reporting health problems limiting work exceeded the share of nonveterans (33 percent to 17 percent); and the share of veterans on (or who applied for) SSDI or SSI exceeded the share of nonveterans (18 percent to 8 percent).[5]

As we have seen above, there is a large change in the racial composition of the military between the oldest and youngest cohort. Indeed, this change is evident when comparing the members of the original HRS cohort with members of the Early Boomer cohort, a cohort that reached military service age before the advent of the All-Volunteer Military. The change in racial composition is even larger with the advent of the All-Volunteer force. Given these large changes in the racial composition of the military, it is

[4] Wilmoth, London and Parker (2010) report different later life health trajectories for veterans and nonveterans, and for veterans of Viet Nam compared to veterans from other conflicts.

[5] Coile, Duggan and Guo (2015) find a decline in the labor force participation rate of veterans that coincides with the growth of the Veteran's Disability Compensation program. They also find that veterans have become more sensitive to economic shocks than nonveterans as the DC program has grown. Autor et al. (2015) report a 5 percent enrollment increase in the Veterans' Disability Compensation program by veterans who had served in-theater in Viet Nam and were diagnosed with diabetes. They conclude that the 2001 Agent Orange decision reduced labor force participation by 18 percent among eligible veterans who enrolled in the program.

useful to ask how changes in education and health differed within racial groups of veterans and nonveterans.

Table 4 shows the changes in education and health among cohorts, by race. As seen in the first two rows, between the original HRS cohort and the Mid Boomers, average years of schooling decreased modestly for white veterans, from 13.6 to 13.3 years. In contrast, for nonwhite veterans, average years of schooling increased from 12.5 to 13.7 years.

Regarding health, in the base year of the original HRS cohort, nonwhite veterans were less healthy than white veterans. The proportionate gap was roughly the same in the Mid Boomer cohort.

In sum, over time, compared to nonveterans, male veterans in younger cohorts have become less likely to be married, more racially diverse, no longer better educated, and less healthy. The ratios of each of the outcomes for veterans compared to nonveterans are summarized in Figure 1. In that figure, if the characteristics of veterans and nonveterans were equal, the ratios would fall along the horizontal line at 1.0. The widening dispersion over time is most noticeable for the health related measures. Notice that the differences in health limitations on work and in participation in disability programs between veterans and nonveterans within the Mid Boomer cohort, widen to around a 2 to 1 ratio. That is, by the Mid Boomer cohort, adverse health is twice as likely among veterans as it is among nonveterans.

III. Wealth and its components by veteran status and major covariates.

With an increased understanding of the changing composition of veterans and nonveterans among cohorts, we now turn to the wealth data from the HRS. Once again the sample includes only males who were ages 51 to 56 in the year their cohort entered the HRS. The sample is then divided into those who were veterans and those who were not. Observations are weighted using the individual weights for male respondents included in the tables.

A prime area of emphasis, one that is central to our work, is on Social Security and pension wealth. We are interested in Social Security and pension wealth at two levels. First, we identify the total value of Social Security earned by veterans, and the total value of their pensions, and compare those totals with the pensions and Social Security benefits earned by nonveterans. Although we would like to also report the values of all pensions resulting from military service, we can only identify those pensions associated with a single spell of at least twenty years of active service in the military. This measure omits pensions resulting from noncontiguous periods of service and pensions resulting from service in the reserves. Moreover, the sample of male veterans age 51 to 56 who report at least twenty years of continuous service in the HRS is quite small: 66 respondents to the 1992 survey, 14 to the 1998 survey, 11 respondents to the 2004 survey, and 12 respondents to the 2010 survey.

Second, we are interested in the total wealth of households as they enter retirement. We wish to know how households with a veteran are faring relative to households with no veteran. For that purpose, we include the total values of Social Security earned by both spouses, and similarly the total values of all household pensions. Here, the values of housing, liquid and other household assets are all added to the household's total Social Security and pension wealth. With the exception of pension and Social Security wealth measures, which we estimate ourselves, the other components of total wealth are taken from files created by Rand for the HRS (2015).

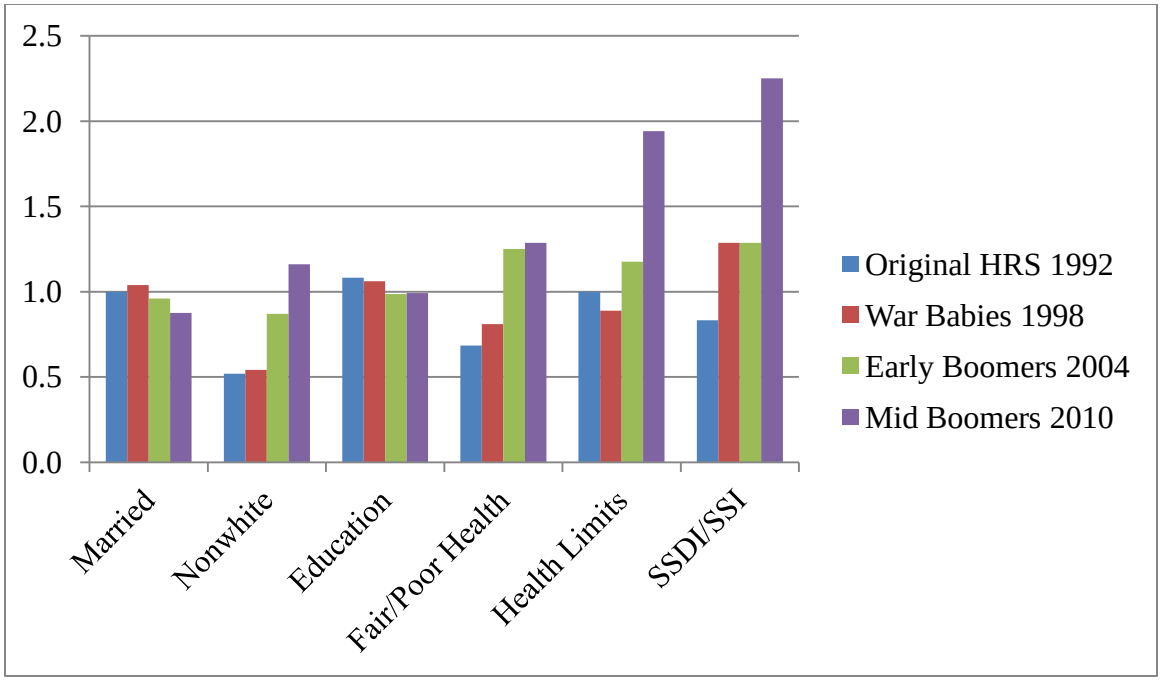
A veteran household is defined as a household with at least one member who is a male veteran age 51 to 56 in the base year. Nonveteran households are defined similarly. All dollar figures are reported in 2010 dollars.

Table 4: Education and Health Status of Military Veterans by Race

	Original HRS Born 1936-41	War Babies Born 1942-47	Early Boomers Born 1948-53	Mid Boomers Born 1954-1959
Education				
Average Years of Schooling White Veterans	13.6	13.7	13.7	13.3
Average Years of Schooling Nonwhite Veterans	12.5	13.6	13.4	13.7
Health				
Percent White Veterans with Health Problem Limiting Work	12	16	19	31
Percent Nonwhite Veterans with Health Problem Limiting Work	15	20	25	38
Percent White Veterans SSDI/SSI*	2	7	9	16
Percent Nonwhite Veterans SSDI/SSI*	5	10	13	22
Percent White Veterans with Military Disability	-	8	16	15
Percent Nonwhite Veterans with Military Disability	-	27	25	26

*Receiving or applied for SSDI or SSI.

Figure 1: Ratios of Characteristics of Male Veterans/Non Veterans by HRS Cohort



We begin by considering Social Security and pension values resulting from the male respondent's ***own work*** and compare them between veterans and nonveterans. Social Security wealth is calculated using the Social Security Administration's ANYPIA program. Inputs into the calculation of PIA and own benefits include the individual's covered worker history, employment in and pensions earned from uncovered work, and the dates of military service, the latter required for special Social Security benefit adjustments for military. Social Security benefits resulting from the individual's own covered work also include any spouse and survivor benefits accruing to the male's spouse. Own Social Security benefits accruing to the spouse from her own work are not included here, nor are spouse or survivor benefits accruing to the male from his wife's work. But they are included when we compare total wealth between veteran and nonveteran households.

Table 5 reports Social Security and pension related outcomes for members of each cohort. Note that certain program rules have changed over time, differentially affecting veterans and nonveterans within cohorts. For example, before 1956, the military was not included in Social Security while civilians were. From 1957 on those on active duty were covered by Social Security. In addition, from 1957 to 2001, those on active military service were credited with up to an additional $1,200 in covered earnings. Since 1988, inactive duty service has also been covered.[6]

[6] Other changes affect the availability of disability benefits. There are two types of service related disability benefits for veterans, one from the Veterans Administration, the other from the Department of Defense. Recently, there have been changes in how these disability benefits are offset against military pensions. Before 2004, disability pensions were fully offset against pension payments. That offset was abolished through CRDP (Concurrent Retirement Disability Pay) in 2004 for those who had a high enough disability rating. In 2009, CRSC (Combat Related Special Compensation) abolished the offset for those wounded in combat, so that a person could receive the sum of their military pension and disability benefits. These changes, together with increasing efforts to recognize the effects of agent orange, have increased the incentive for veterans to claim disability benefits. Other changes in military compensation have been instituted over time. For example, those who stay until retirement now receive enhanced retiree health benefits that were not available to members of older cohorts.

Table 5: Primary Insurance Amounts (PIAs), Present Value of Social Security Benefits, and Pension Values, for Male Veterans and Nonveterans from Households with a Member Age 51 to 56 when the Cohort Entered the HRS (weighted) in thousands of 2010 dollars.

	Original HRS Born 1936-41	War Babies Born 1942-47	Early Boomers Born 1948-53	Mid Boomers Born 1954-1959
Veterans' Social Security and Pension Benefits ($000)				
R's PIA – at expected age of receiving benefits	16	19	18	19
PV of SS benefits generated by the R	176	217	239	214
Present value of all pensions due to R's work.	182	188	145	111
Present value of pensions identified from continuous military service (values are averages for those with military pensions)	681 (66)*	763 (16)	447 (12)	373 (13)
PV of all non-military pensions for those with 20 or more years of service	54 (66)	42 (16)	23 (12)	61 (13)
PV of all nonzero non-military pensions for those with less than 20 years of service	212 (723)	237 (313)	221 (211)	181 (124)
Number of Observations	1,139	466	363	270
Nonveterans' Social Security and Pension Benefits ($000)				
R's PIA – at expected age of receiving benefits	15	18	19	23
PV of SS benefits generated by the R	165	206	249	257
Present value of all pensions due to R's work	120	133	145	112
PV of all nonzero pensions due to R's work	200 (735)	219 (310)	236 (524)	199 (681)
Number of Observations	1,274	519	885	1,394

*Number of observations matched with a pension job.

The first two rows of each section of Table 5 report Social Security values in 2010 dollars.[7] These include, respectively, the respondent's Primary Insurance Amount (PIA) expressed on an annual basis,

[7] We calculate the Primary Insurance Amount as of the respondent's full retirement age, and discount that value back to the base year the respondent entered the HRS. We calculate benefits by

and the present value of his expected benefits as of the base year, including spouse and survivor benefits generated by the male respondent.[8] The top section reports results for veterans, the bottom section for nonveterans.

Compare the first row of each panel. From columns 1 and 2, the Primary Insurance Amounts for veterans from the two oldest cohorts exceed the PIAs of nonveterans by about $1,000. The relationship reverses for Early Boomers, where the PIA of nonveterans exceeds the PIA of veterans by about $1,000. By the 2010 cohort of Mid Boomers, the PIA for veterans is $4,000 below the PIA for nonveterans, a difference of over twenty percent.

Turning to row 2 of each panel in Table 5, for the Original HRS cohort and the War Babies, the present value of Social Security benefits generated by veterans exceeds the present value of Social Security benefits of nonveterans by around $11,000. Between the Original HRS and Early Boomer cohorts, the difference in the present value of Social Security benefits rises much more sharply for nonveterans than for veterans. As a result, the present value of Social Security benefits of nonveterans exceeds the present value of benefits of veterans by about $10,000. For the Mid Boomers, the gap widens further in favor of nonveterans to $43,000, a difference of twenty percent.

The next row reports the total value of all pensions earned by the male respondent. Importantly, pension wealth includes the present value of benefits from defined benefit pensions as well as the value of defined contribution accounts. Pensions from the individual's current job and all previous jobs lasting at least five years are included in the total.

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adjusting the PIA by the expected date of claiming. All values are then discounted to the base year the respondent entered the HRS. From there, we use the actual inflation rate between the year of entering the HRS and 2010 to express base year values in 2010 dollars.

[8] We use the actual nominal interest rate minus CPI for calculating the present value of Social Security benefits as of the year of entitlement. For future years where we don't have actual interest rates we use the Social Security Administration's intermediate future rates. These benefits are discounted back to their expected age of receiving benefits, and then back to the base year the cohort entered into the HRS.

Pension values for veterans from the two oldest cohorts exceed the pension values of nonveterans. The difference is considerable, $62,000 dollars or 52 percent in favor of veterans for the 1992 cohort, and $55,000, or 41 percent for the 1998 cohort. This large gap in favor of veterans disappears for the two youngest cohorts. Both veterans and nonveterans from the Mid Boomer cohort suffered significant declines in the value of their pension vis-à-vis comparable members of the Early Boomer cohort. This decline is presumably the result of the Great Recession.

The fourth row in the veterans panel reports the present value of pensions identified as resulting from 20 years of continuous military service. This is a limited measure that understates the value of veterans' pensions earned from military service. The HRS does not ask directly about military pensions. Our approach to identifying pensions originating from military service is to match the start and end dates for the period of employment associated with each pension with the start and end dates reported by the respondent for his period of military service. We have little trouble in identifying pensions from military service for those who served twenty or more years in a single period of active duty. The problem comes in identifying pensions from military service that are the result of two or more periods of active duty that are not contiguous, or a period of active duty and service in the reserves. The HRS asks only about active duty service, and then only about the longest period of active service. Consequently we cannot identify military pensions resulting from multiple, noncontiguous periods of service totaling at least twenty years, perhaps with some years in the active military and some in the reserves.

Our estimates of the value of pensions resulting from military service are limited in another way. They refer to the present value of benefits beginning with the year the respondent was age 51 to 56 in the base year for the cohort. They do not take into account the value of the pension payments received before the respondent entered the HRS, or before the respondent attained ages 51 to 56.

This is important because veterans who accumulate twenty years of active duty service are eligible to receive an annual pension payment from the time they first accumulate 20 years of service. Thus even when we identify a pension as resulting from twenty continuous years of active duty, we may understate the total amount of payments from the military pension. That is, we estimate the present value of pension wealth to be paid from ages 51 to 56 forward, not the total payment under the military pension.

One last caveat. We have very few observations of males with at least twenty years of service. These range from 66 respondents in the original HRS to 11 and 12 respondents in the Early and Mid Boomer cohorts respectively.

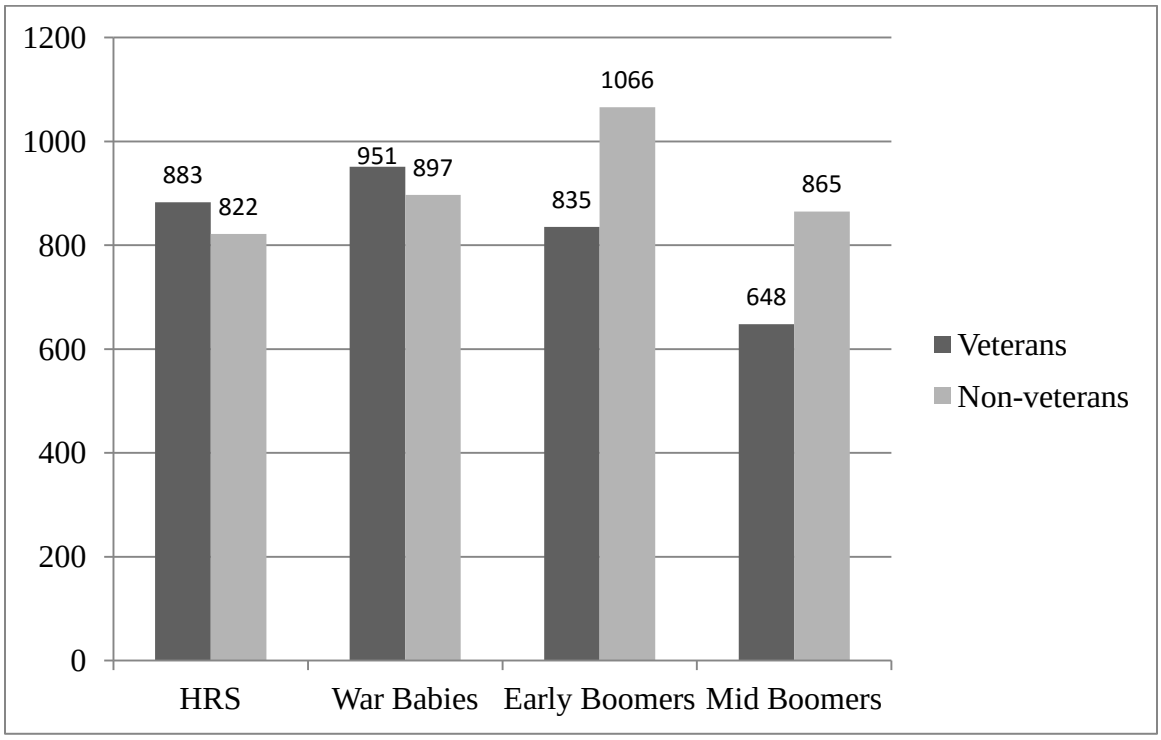
Bearing all of these issues in mind, we calculate the present values of military pensions in row 4 of the top panel of Table 5. They decline quite sharply, from $681,000 for members of the original HRS cohort and $763,000 for War Babies, down to $447,000 for members of the Early Boomer cohort and $373,000 for members of the Mid Boomer cohort. In the following row in the top panel of Table 5, for those with military pensions we report the average value of additional pensions. This includes zero values for those among veterans with a military pension who did not have another pension. These amount to a fraction of the value of the military pension.

By way of comparison, in the next to last row of both panels, we then report the present values of pensions for veterans and nonveterans who did not have a pension from twenty years of consecutive service in the military, but had reported one or more other pensions. As can be seen, in the two oldest cohorts, military pensions were roughly three times as valuable as pensions held by veterans whose pension did not originate from the military. For the two younger cohorts, the gap was smaller, but still considerably more than two to one.

Next we consider the differences in total wealth and its components between the veterans' households and nonveterans' households in each cohort. Figure 2 compares total wealth among HRS cohorts by veteran status. The reversal of fortune of veterans relative to nonveterans across cohorts is readily apparent. In the Original HRS and War Baby cohorts, the total wealth of households with an age eligible male veteran exceeds that of nonveteran households by 7.5 percent (883/822) for the HRS cohort and 6 percent (951/897) for the War Babies. In contrast, the wealth of veteran households falls below the wealth of nonveteran households by 22 percent (835/1066) and 25 percent (648/865) for the Early Boomer and Mid Boomer households respectively.

Differences in wealth among cohorts reflect differences in the earnings histories of each household member, differences in Social Security and pension opportunities, differences in the history of growth of assets, and also differences in the state of the business cycle during the period of observation. Most importantly, asset values reported in Table 9 for the Mid Boomer cohort were affected by the Great Recession.

Figure 2: Total Wealth of Households of Male Veterans and Households with Male Nonveterans by Cohort, in Thousands of 2010 Dollars



We now turn to information on the components of household wealth for veteran and nonveteran households in each of the four cohorts. These are reported in Tables 6 to 9. The first row of each table repeats the information on total wealth for each cohort from Figure 2. The next rows report the values of the components of total wealth. The first column of each table reports the components of total wealth for all age eligible households in the cohort. The remaining columns report values for households with a male veteran, values for households with an age eligible nonveteran male in the year the cohort was first interviewed, and the ratio of values for veteran households over values for nonveteran households in each of the components of wealth. Once again, all amounts are expressed in 2010 dollars.

The second row of Tables 6 to 9 reports household Social Security wealth. This is the present value of the total Social Security benefits earned by both the husband and wife. It differs from the Social Security wealth reported in Table 5, which was confined to the value of Social Security benefits paid in the household due to the earnings of the 51 to 56 year old male. That is, the total Social Security benefits of the household include own benefits of each spouse, as well as the top up to either spouse's monthly payment due to spouse or survivor benefits. From column 1, row 2 of each table, comparing Social Security wealth of All Households, the present value of Social Security benefits of households is lower in households from the Mid Boomer cohort than from households from two of the older cohorts, the War Babies and Early Boomers. These differences among cohorts over time reflect differences in the real earnings of members of each cohort, including major changes in the labor force participation of wives in these households, changes in the payroll tax ceiling over time, changing marital status among cohorts, the Great Recession, as well as changes in the Social Security rules governing the benefits of members of different cohorts. On net, these changes have apparently reduced the total Social Security wealth of households in the Mid Boomer cohort compared to households from the two immediately older cohorts.

Veterans and nonveterans in each cohort are subject to the same rules. Thus it is useful to ask about changes in the relative position of veterans' Social Security wealth. The Social Security wealth of veterans' households deteriorates vis-à-vis the Social Security wealth of nonveterans. However, the deterioration in relative Social Security wealth of veterans is not as severe as the deterioration observed for total wealth. Thus we find in the last column, row 2, that Social Security wealth of households is 6 percent higher for households with a veteran in 1992 and 10 percent higher for households with a veteran in 1998. But there is a reversal within the Early Boomer cohort in 2004, where the Social Security benefits of veterans fall below those of nonveterans by 5 percent. By 2010,

Social Security wealth of veterans is thirteen percent lower than Social Security wealth of nonveteran households. In contrast, the total wealth of veteran households is 7 percent higher than nonveteran households in 1992, while it is 25 percent lower than nonveteran households in 2010.

In row three of each table, the Social Security wealth due to the male's own covered work is reported. This number, which is reproduced from Table 5, does not include the wife's own benefits. Nor does it include any top up to the veteran's benefits based on his spouse's own earnings, which arises in those cases where the spouse's covered earnings exceed the covered earnings of the male in the household. We find analogous changes in the relative position of the Social Security benefits earned by the individual veteran respondents compared to nonveterans. Although there are some differences in ratios, the bottom line is the same. The Social Security wealth of veterans at first exceeds, but then falls below the Social Security wealth of nonveterans.

Row 4 pertains to the total wealth from all pensions. The pensions of each spouse are added. Here we find a large difference in pension values in favor of veterans in the original cohorts. For later cohorts this difference reverses, so that pensions of nonveterans exceeded the pensions of veterans from the two youngest cohorts. Specifically, the pension wealth of veteran households exceeds the pension wealth of nonveteran households by 42 percent in 1992 and by 43 percent in 1998. By the 2010 cohort, the pension wealth of veteran households is 1 percent below the pension wealth of nonveteran households. The results in row 5 for pensions earned by the respondent are analogous.

Row 6 repeats the pension values from Table 5 for those veterans we can identify as having served 20 years or more in the military and for whom we were able to match the time in the military with the pension from that job.

Looking down the remaining rows of columns 2 and 3 of Table 6, which reports the findings for the original HRS cohort, with the exception of Real Estate and Business Assets, where veterans fall short by 33 and 30 percent respectively, there are no remarkable differences in the other forms of wealth held by veterans and nonveterans. House Values, Net Values of Vehicles, and Financial Assets are all within 5 percentage points. IRA assets are 17 percent higher for veterans within the original HRS cohort.

In contrast, there are enormous differences in favor of nonveterans within the 2010 cohort of Mid Boomers. The House Values of veterans, their Real Estate, and their Financial Assets are all less than half the values of these assets held by nonveterans. The Business Assets held by Mid Boomer veterans are 22 percent lower than the Business Assets held by nonveterans, while IRA Assets are 43 percent lower for veterans.

For each of the wealth categories in Tables 6 through 9, Table 10 computes the relevant ratios of wealth held by veterans and nonveterans, ages 51 to 56, in Mid Boomer vs. Original HRS cohort, and Early Boomer vs. original HRS cohort. Columns 1 and 3 compare the Mid Boomer cohort to the original HRS cohort. By the Mid Boomer cohort, total wealth held by veterans declined by twenty seven percent relative to the HRS cohort. In contrast, the total wealth of the comparable nonveteran cohort rose by 5 percent. While there was only a five percent decline in wealth between veterans from the Early Boomer cohort and the original HRS cohort, the wealth of non-veterans grew by 29 percent between the Early Boomer cohort and the original HRS cohort.

Comparing columns 4 and 3, Social Security and pension wealth of nonveterans grew relative to the original HRS cohort even for the Mid Boomers, but that growth was lower than the prerecession growth observed between the Early Boomer cohort and the original HRS cohort. In contrast, for the veterans there was a modest decline in values of Social Security and pensions, one that became very

wide between the Mid Boomers and the original HRS cohort. Most of the decline in the relative wealth of veterans and its key components occurred after the Early Boomer cohort entered the HRS. It seems to coincide with the change to an All-Volunteer military.

The declines in other components of wealth for veterans are also much larger than the decline for nonveterans. For example, despite the Great Recession, the housing wealth of nonveterans increased by 18 percent when comparing Mid Boomers to members of the original HRS cohort (row 7, column 3). In contrast, the value of housing wealth declined by 50 percent between veterans from the Mid Boomer cohort and veterans from the original HRS cohort (row 7, column 1). Both veterans and nonveterans had experienced very large declines in relative house value compared to their situation in 2004. At that time, the house values for nonveteran Early Boomer households were worth 28 percent (148/116) more than house values for the original HRS cohort, while house values of veterans were worth about 96 percent (114/119) of the house values of veterans from the original HRS cohort.

Now we wish to relate the observed differences in wealth to the most important of the demographic characteristics. From Table 11, we see that within all educational categories but one, the wealth of both veterans and nonveterans from the Mid Boomer cohort was lower in real terms than in the original HRS cohort. In all of these cases, the decline in wealth is greater for veterans than nonveterans. For example, from row 4 of each panel, between the original HRS and Mid Boomer cohorts, the real wealth of college graduates who were veterans declined by much more ($1.250 million to $519 thousand) than did the real wealth of college graduates who were not veterans ($1.199 million to $1.181 million).

Table 6: Components of Wealth from Households with at Least One Member Who Is A Male Age 51 to 56 When the Cohort Entered the **HRS Cohort** in 1992- Veterans and Non-veterans (weighted) in 2010 dollars

	All Households	Households With A Male Veteran	Nonveteran Households	Veteran/Nonveteran Households
Total Wealth	852 k	883 k	822 k	1.07
Total Household Social Security Benefits	364	375	354	1.06
Social Security Benefits Earned by the Individual Respondent	266	276	257	1.07
Total Value of All Household Pensions	178	210	148	1.42
Pensions Earned by the Respondent	152	181	125	1.45
Pension Earned from 20 Years of Active Military Service	-	681	-	-
Net House Value	117	119	116	1.03
Real Estate	47	41	53	0.77
Business Assets	39	32	46	0.70
Net Value of Vehicles	22	22	22	1.00
Financial Assets	57	55	58	0.95
IRA Assets	26	28	24	1.17
Observations*	2,383	1,106	1,276	0.87

*****The sample excludes the top and bottom 1 percent of wealth holding households.
** Number of observations matched with a pension job.

Table 7: Components of Wealth from Households with at Least One Member Who Is A Male Age 51 to 56 When the **War Baby Cohort** Entered the HRS in 1998- Veterans and Non-veterans (weighted) in 2010 dollars

	All Households	Households With A Male Veteran	Nonveteran Households	Veteran/Nonveteran Households
Total Wealth	922 k	951 k	897 k	1.06
Total Household Social Security Benefits	392	413	374	1.10
Social Security Benefits Earned by the Individual Respondent	283	293	274	1.07
Total Value of All Household Pensions	199	238	166	1.43
Pensions Earned by the Respondent	160	190	133	1.43
Pension Earned from 20 Years of Active Military Service	-	763 (16)**	-	-
Net House Value	113	105	121	0.87
Real Estate	44	38	49	0.78
Business Assets	35	30	40	0.75
Net Value of Vehicles	22	22	22	1.00
Financial Assets	75	68	80	0.85
IRA Assets	42	39	45	0.87
Observations*	985	466	519	0.90

*****The sample excludes the top and bottom 1 percent of wealth holding households.

** Number of observations matched with a pension job.

Table 8: Components of Wealth from Households with at Least One Member Who Is A Male Age 51 to 56 When the **Early Boomer Cohort** Entered the HRS in 2004- Veterans and Non-veterans (weighted) in 2010 dollars

	All Households	Households With A Male Veteran	Nonveteran Households	Veteran/Nonveteran Households
Total Wealth	998 k	835 k	1,064 k	0.78
Total Household Social Security Benefits	402	386	408	0.95
Social Security Benefits Earned by the Individual Respondent	280	271	284	0.95
Total Value of All Household Pensions	193	184	197	0.93
Pensions Earned by the Respondent	147	146	148	0.98
Pension Earned from 20 Years of Active Military Service	-	446 (12)**	-	-
Net House Value	165	114	187	0.61
Real Estate	40	20	47	0.43
Business Assets	39	25	45	0.56
Net Value of Vehicles	19	18	20	0.90
Financial Assets	93	58	107	0.54
IRA Assets	48	30	55	0.55
Observations*	1,018	293	723	0.41

*****The sample excludes the top and bottom 1 percent of wealth holding households.

** Number of observations matched with a pension job.

Table 9: Components of Wealth from Households with at Least One Member Who Is A Male Age 51 to 56 When the **Mid Boomer Cohort** Entered the HRS in 2010- Veterans and Non-veterans (weighted) in 2010 dollars

	All Households	Households With A Male Veteran	Nonveteran Households	Veteran/Nonveteran Households
Total Wealth	831 k	648 k	865 k	0.75
Total Household Social Security Benefits	376	332	383	0.87
Social Security Benefits Earned by the Individual Respondent	250	211	258	0.82
Total Value of All Household Pensions	152	151	152	0.99
Pensions Earned by the Respondent	112	108	113	0.96
Pension Earned from 20 Years of Active Military Service	-	373 (13)**	-	-
Net House Value	125	60	137	0.44
Real Estate	32	15	35	0.43
Business Assets	31	25	32	0.78
Net Value of Vehicles	17	13	18	0.72
Financial Assets	58	28	64	0.44
IRA Assets	41	25	44	0.57
Observations*	1,650	263	1,387	0.19

*****The sample excludes the top and bottom 1 percent of wealth holding households.

** Number of observations matched with a pension job.

Table 10: Proportionate Change in Components of Households' Wealth Between Original HRS and **EB and Mid Boomer Cohorts**

	Households with At Least One Member Who Is Male Veteran		Non-veteran Households Excluding Single Females	
	Ratio of Values (Mid Boomer/ Original HRS)	Ratio of Values (Early Boomer/ Original HRS)	Ratio of Values (Mid Boomer/ Original HRS)	Ratio of Values (Early Boomer/ Original HRS)
Total Wealth	0.73	0.95	1.05	1.29
Total Household Social Security Benefits	0.89	1.03	1.08	1.15
Social Security Benefits Earned by the Individual Respondent	0.76	0.98	1.00	1.11
Total Value of All Household Pensions	0.72	0.88	1.03	1.33
Pensions Earned by the Respondent	0.60	0.81	0.90	1.18
Pension Earned from 20 Years of Active Military Service	0.55	0.65	-	-
Net House Value	0.50	0.96	1.18	1.61
Real Estate	0.37	0.49	0.66	0.89
Business Assets	0.78	0.78	0.70	0.98
Net Value of Vehicles	0.59	0.82	0.82	0.91
Financial Assets	0.51	1.05	1.10	1.84
IRA Assets	0.89	1.07	1.83	2.29
Observations*	0.24	0.26	1.09	0.57

*****The sample excludes the top and bottom 1 percent of wealth holding households

Table 11: Wealth by Education and Race for Households with at Least One Member a Male Age 51 to 56 by HRS Cohort (weighted)

	Original HRS Born 1936-41	War Babies Born 1942-47	Early Boomers Born 1948-53	Mid Boomers Born 1954-1959
Veterans				
Wealth by Education Level				
Less than high school	505 k	531 k	534 k	432 k
High school	759	804	752	436
Some college	874	982	801	879
College graduate	1,250	1,098	1,074	519
Post college	1,325	1,309	1,082	1,031
Wealth by Race				
White	926	967	898	651
Nonwhite	592	841	570	641
Observations	1,106	448	293	263
Nonveterans				
Wealth by Education Level				
Less than high school	475	453	446	414
High school	716	797	798	722
Some college	936	860	1,006	729
College graduate	1,199	1,187	1,332	1,181
Post college	1,336	1,397	1,482	1,336
Wealth by Race				
White	910	1,017	1,184	972
Nonwhite	542	509	639	548
Observations	1,276	533	723	1,387

The sample excludes the top and bottom 1 percent of wealth holding households.

The differences in wealth between the original HRS cohort and the Mid Boomers vary considerably by race and veterans status. The wealth of white veterans fell from $926,000 for members of the original HRS cohort to $651,000 for members of the Mid Boomer cohort. In the case of white nonveterans, there is a slight increase in wealth from the Original HRS to the Early Boomers, from $910,000 to $972,000. For nonwhite veterans, the difference in total wealth is $49,000 (641 – 592). For nonwhite nonveterans the difference is $6,000 (548-542).

IV. A Multivariate Analysis of the Relation of Veteran Status to Wealth

This section considers the relation of wealth to veteran status in a multivariate context. Table 12 reports results for the coefficients of a dummy variable indicating veteran status. The four columns report results for regressions run within each of the HRS cohorts. Observations and sample weights are for males who were within the 51 to 56 year age range at the time they joined the HRS. The dependent variable is the ln of wealth. We again use a comprehensive measure of total wealth which includes all pension and Social Security wealth of the household. The sample has been trimmed to eliminate households with the highest and lowest 1 percent of wealth.

The rows report the effects of including additional covariates. In row 1, no covariates are included beyond the variable indicating that the individual served in the military. Thus the coefficient shows the differences in total wealth between veterans and nonveterans whatever their military history and whatever their household and demographic status. Looking across row 1 we see the decline in the relative standing of veterans between older and younger cohorts, a decline that is readily apparent in the descriptive statistics. In the original 1992 HRS cohort, the wealth of veterans is 13.6 percent higher than nonveterans. Wealth is also higher for veterans in the 1998 War Babies cohort. By the 2004 Early Boomer cohort, veterans' wealth is lower than that of nonveterans. In the 2010 Mid Boomers cohort, the wealth of veterans is 31 percent below that of nonveterans.

Row 2 adds indicators of length of military service, rank, exposure to combat, and officer status as covariates. For the first three cohorts, these measures of service weaken the coefficient of the dummy variable indicating veteran status, but the thrust of the story is not changed. For the Mid Boomers, the coefficient on veteran status suggests that veterans have 38 percent lower household wealth than nonveterans.

Row 3 includes only two covariates, the measure of veteran status together with an indicator of whether the individual is single. Since we are dealing with household wealth, the indicator of household type standardizes for the difference in wealth between couple and single households. For the older two cohorts, standardizing for household composition has little effect on the coefficient of the veteran indicator variable. But for the Early and Mid Boomer cohorts, holding household composition constant reduces the coefficient on the indicator of veteran status. By 2010, including single status in the regression reduces the difference in wealth between veterans and nonveterans to 20 percent. The comparison between column 4, rows 1 and 3 suggests one reason for lower relative wealth of veterans under the All-Volunteer Army is that veterans are more likely to come from single households than nonveterans. As seen in Table 3, veterans from older cohorts were just as likely to be married as were nonveterans. By the Mid Boomer cohort, however, veterans were ten percent less likely to be married than nonveterans.

Table 12: Coefficient on Veteran Status Dummy Variable in Regressions for Log of Total Wealth By Cohort (t-statistics are in parentheses)

Included Covariates	Original HRS Cohort, 1992, Born 1936-41	War Babies, 1998, Born 1942-47	Early Boomers, 2004, Born 1948-53	Mid Boomers, 2010, Born 1954-1959
Veteran Status Only	.1357 (4.24)	.1707 (3.27)	-.1274 (-1.69)	-.3142 (-4.33)
Veteran Status, Military Experience and Rank	.0768 (2.34)	.1478 (2.60)	-.0852 (-0.98)	-.3789 (-4.68)
Veteran Status, Single	.1338 (4.65)	.1675 (3.68)	-.0697 (-1.04)	-.2028 (-3.12)
Veteran Status, Military Experience and Rank, Demographics, Health and Disability Status	.0026 (0.10)	.0830 (1.82)	.0362 (0.49)	-.1285 (-1.80)

Military Experience and Rank includes Tenure in Military, Combat Experience, Officer Status
Demographics include Single Member Household, Race, Education, Health and Disability Status.
The sample is trimmed to eliminate the top and bottom one percent of wealth holding households.

Row 4 of Table 12 adds the measures of military service and a number of other covariates, including indicators of education, race, and marital status, as well as various measures of health problems limiting work, including disability status. As seen in the first three columns, for the three older HRS cohorts, differences in wealth between veterans and nonveterans is strongly influenced by differences in observable demographics health and disability. That is, for these older cohorts, the composition of the military, as well as any disabilities associated with military service, account for much of the differences in wealth between veterans and nonveterans.

While the difference in wealth between veterans and nonveterans is also reduced when we standardize for these other covariates, the wealth of veterans remains about 13 percent below the wealth of nonveterans even after these observable covariates are included in the regression. This suggests either that differences in wealth between veterans in the All-Volunteer force and nonveterans result from unobservable characteristics associated with lower earning capacity of those choosing to serve in the military, or that there are insufficient opportunities or incentives for veterans from the All-Volunteer force to accumulate assets to support themselves in retirement.

The regressions underlying Table 12 allow for the full interaction of the cohort indicator with the dummy variable indicating veteran status. That is, the coefficients of all independent variables are allowed to vary among cohorts. As evidenced by the change in value of the coefficient on the measure of veteran status, the interaction of cohort and veteran status is crucial. In contrast to the coefficient on the dummy variable measuring veteran status, the coefficients of other covariates in Table 12 do not vary sharply across the cohorts.

Table 13: Pooled Regression of ln Total Household Wealth on Military Experience, Demographic Measures, Health and Disability Status for Males. Uses Individual Respondent Weights.

	Coefficient	t-statistic
Intercept	13.6692	302.49
War Baby Cohort	.0223	0.51
Early Boomer Cohort	.0588	1.45
Mid Boomer Cohort	-.0395	-1.02
HRS - Veteran	.0019	0.04
War Baby - Veteran	.0684	1.55
Early Boomer - Veteran	-.0408	-0.89
Mid Boomer - Veteran	-.0983	-1.84
Single	-.9539	-39.44
Nonwhite	-.3701	-14.42
Less than HS	-.4071	-11.82
Some College	.0463	4.98
College Graduate	.0895	11.14
Postgraduate	.0934	14.40
Military Tenure 10-19	.0378	0.33
Military Tenure >=20	.3345	4.09
Experienced Combat	-.0975	-2.26
Officer	.1090	1.48
Poor Health	-.2246	-6.51
SSDI/SSI	-.3936	-7.69
Military Disability	-.1521	-2.51
Age 51	-.1313	-3.39
Age 52	-.0584	-1.63
Age 53	-.0082	-0.23
Age 54	-.0241	-0.67
Age 55	.0239	0.66
Adjusted R^2	.3732	
Number of Obs.	6272	

Table 13 pools the observations from the four HRS cohorts. When pooling the observations in Table 13, we allow an indicator of cohort to interact with veteran status. In view of the finding that the coefficient on other independent variables does not vary greatly among cohorts, we enter the other independent variables without allowing full interactions.[9]

When cohort and age dummies are included along with the other covariates, we see from rows 4 through 8 that while wealth is no higher for veterans from the original HRS cohort, it is about 10 percent lower for veterans from the Mid Boomer cohort. That is, veterans from this 2010 cohort of 51 to 56 year old males have about ten percent lower wealth than others in full sample.

Now focus on the remaining covariates. Living in a single household, being nonwhite, having less education, being in poor health, or reporting a disability, all lead to substantially less wealth accumulation before retirement. Wealth is higher for those with military tenure of more than twenty years, for officers (controlling for education), and is lower for those who experienced combat. These findings confirm that the results from the descriptive statistics and the regressions run within cohorts hold up when the full sample is pooled.

Note however that if health and disability status, and perhaps other covariates, are the result of military service, relying on regressions with the full set of included covariates is likely to understate the shortfall in wealth associated with military service. This is consistent with our finding of a much larger shortfall in those regressions in Table 12 that included fewer covariates.

[9] There are twenty four individual years of birth in our sample, representing members of the four cohorts, with six different ages in the base year. We tried including twenty four separate interaction variables, where these individual years of birth were interacted with an indicator of veteran status. However, the cells are too thin to allow reliable estimation of the coefficients for each of these interaction variables.

Table 14: Self-Reported Retirement Status of Male Veterans and Nonveterans ages 51 to 56 in 1992, 1998, 2004, and 2010. Weighted

	Original HRS Cohort, 1992, Born 1936-41	War Babies, 1998, Born 1942-47	Early Boomers, 2004, Born 1948-53	Mid Boomers, 2010, Born 1954-1959
Veterans				
Not retired	79	80	76	61
Completely retired	7	6	12	10
Partially retired	5	5	3	6
Other Not Working*	9	8	9	23
Percent working 35 or more hours per week	76	79	70	57
Percent 10 or more years on the job	49	50	43	30
Number of obs.	1,145	466	363	270
Nonveterans				
Not retired	76	76	78	72
Completely retired	6	6	3	5
Partially retired	6	4	7	6
Other Not Working*	10	13	12	17
Percent working 35 or more hours per week	74	75	74	67
Percent 10 or more years on the job	46	49	44	45
Number of obs.	1,281	519	885	1394

*Other Not Working category includes respondents who were not working and reported not retired or partially retired and those who reported "Not Relevant" when they were asked about their retirement status. The number of years required to answer "Not Relevant" varies between survey years.

V. Differences in Retirement and Related Labor Market Outcomes Between Veterans and Nonveterans.

Table 14 reports some basic statistics on retirement and related outcomes for veterans and nonveterans. We calculate retirement status based on the number of hours and weeks worked per year and, in ambiguous cases, by self-reported retirement status as well. Respondents working at least 30 hours per week and 1560 hours or more per year are classified as not retired. Respondents working less than 100 hours per year are classified as not working. Those working at least 100 hours per year and 25 hours or less per week, or 1250 hours or less per year, are partially retired. If the number of hours per year worked is between 1250 and 1560, but the self-reported retirement status is either retired or not relevant, a partially retired status is assigned to the respondent. Respondents who report between 1250 and 1560 hours worked, but report not retired to the self-reported retirement status question, are considered to be not retired. Those who report they are not working in response to the working for pay question, and report they are not retired or partially retired in response to the retirement status question, are considered to be Not Retired or Partially Retired and Not Working. If they report they are not working, and also report themselves as retired, they are considered to be retired. If they report "not working" and in answer to the self-reported retirement status question answer "not relevant", they are assigned to the "not relevant" category.[10]

[10] The self-reported retirement status question in 1994 to 1998 is different from that question in 1992 and from 2000 forward. The difference is in the definition of the "Not relevant" response. From 1994 to 1998 "Not relevant" is defined as "Question not relevant to R, Does not work for pay or is homemaker, has ***not worked for 1 or more years***". In 1992, the question differs in the number of years not worked. The relevant phrase is "***not worked for 10 or more years***". From 2000 forward the question is modified to "Question not relevant to R. Does not work for pay or is homemaker, etc.".

Turn to the first row in each of the panels in Table 14, the upper panel for veterans, the lower panel for nonveterans. The share of male veterans who are not retired declines from 79 percent to 62 percent over the four cohorts. The share of male nonveterans who are not retired also declines, but by much less, from 75 percent to 71 percent. Similar pictures emerge when examining the differences among cohorts in the fraction working 35 or more hours per week and the fraction with ten or more years on the job. For veterans, the fraction working 35 or more hours per week declines from 76 percent of males in the original HRS cohort to 58 percent of males in the Mid Boomer cohort. For nonveterans, the comparable decline is from 74 percent to 67 percent. Similarly, the percentage of male veterans with 10 or more years of job tenure declines from 49 percent to 31 percent. For nonveterans, the comparable decline is again much shallower, from 46 percent to 44 percent.

We have seen that the wealth of veterans has deteriorated relative to the wealth of nonveterans. We now see that this decline is exacerbated by a decline in employment for older veterans.

VI. Conclusions.

When the economic status of veterans is compared to nonveterans in older HRS cohorts, the veterans had higher wealth. There has been a reversal in status in the younger HRS cohorts. Veterans whose service was primarily in the All-Volunteer military have lower wealth than nonveterans. When we standardize for differences among households in observable covariates, including demographic, education, health, disability and service related measures, the gap in wealth in favor of veterans is eliminated for 51 to 56 year olds in 1992. In contrast, for those 51 to 56 in 2010, the gap in wealth in favor of nonveterans is not eliminated.

In support of this finding, there are reasons to suspect that those from the youngest HRS cohort, who entered the military in the first few years after the advent of the All-Volunteer military, had unobserved characteristics associated with lower earnings. The military had paid this cohort less than planned, affecting the selection of military volunteers adversely, and the exams for entrance into the military were misnormed, admitting individuals who normally would not have been accepted for military service due to their low scores.

We had only limited data with which to measure military pensions paid to those who qualify. Nevertheless, by any measure, pensions paid directly by the military represent only a small share of the pension wealth and total wealth of all who served in the military. To be sure, pensions paid by the military are quite substantial for those who receive them. But twenty year vesting means that most veterans do not receive a military pension.[11]

The proposal from the Military Compensation Commission to introduce a 401(k) type matching plan which would vest after two years of service would increase the military pensions of those who serve less than twenty years. There continues to be debate about the effect of this proposal, which is combined with a twenty percent reduction in the DB benefit from the current military pension, on the pensions of those who serve long term.

Our findings suggest that policies meant to increase the benefits of veterans who are already retired should be designed differently and targeted separately for members of different

[11] Our findings in Table 5 indicate that the present value of pensions collected by individuals in the Mid Boomer cohort with at least twenty consecutive years of military service are two times greater than the present value of all pensions collected by veterans who served fewer than 20 consecutive years. For older cohorts, the differences are even wider. Taken together, the total value of pensions due to all work of veterans from the Mid Boomer cohort, including work outside of the military, is $111,000. For nonveterans, the present value of all pensions is $112,000. Again considering the Mid Boomer cohort, the present value of Social Security benefits of veterans, at $214,000, falls below the present value of Social Security benefits of nonveterans, at $257,000.

cohorts. Veterans from the two oldest HRS cohorts are better prepared for retirement than nonveterans from those cohorts, and there is no difference when covariates are included in the regression. The problem arises for the youngest HRS cohort.

Whether veterans from still younger cohorts will have preretirement wealth comparable to nonveterans from their cohort remains to be seen. Those who will be 51 to 56 in years after 2010 are no longer subject to the mistakes made in the first few years of the All-Volunteer force. We suspect that the unmeasured differences between veterans and nonveterans will not disappear entirely in future generations.

From a policy perspective, a fundamental question is whether any remaining gap in wealth between veterans and nonveterans is due to unobservable factors? Alternatively, do those in the All-Volunteer military have lower wealth because they do not have the same opportunities to save and accumulate wealth as do nonveterans? It would be of special concern if this economic handicap somehow arises from their service, as suggested by Angrist (1990). Even if the gap is due to differences in unobserved characteristics, would policy makers nevertheless like to equate the wealth of veterans nearing retirement to nonveterans with comparable observed characteristics?

Appendix 1: Calculation of Social Security Benefits

The sample includes all households with an observed male member from ages 51 to 56.

1. ***Total Household Social Security benefits:***

   a. **Married and both in the sample.**

R1's Benefits = R1's own benefit + top up spouse benefits from R2 + top up survivor benefits from R2.
R2's Benefits = R2's own benefit + top up spouse benefits from R1 + top up survivor benefits from R1.

Household benefits= R1's Benefits + R2's Benefits

   b. **Married and female spouse is constructed.**

R1's Benefits received = R1's own benefit + top up spouse benefits from R2 + top up survivor benefits from R2.
R2's Benefits = R2's own benefit + top up spouse benefits from R1 + top up survivor benefits from R1.

Household benefits= R1's Benefits received + R2's Benefits

   c. **Divorced and the female spouse is constructed.**

R1's Benefits = R1's own benefit + top up spouse benefits from R2 + top up survivor benefits from R2.

Household benefits= R1's Benefits

   d. **Widower and the female spouse is constructed.**

R1's Benefits = R1's own benefit + top up from the constructed female + top up for survivor benefits from the constructed female.

Household benefits= R1's Benefits received

   e. **Never married if male.**

Household benefits = own benefit

2. ***Social Security benefits earned by the individual respondent:***

It includes benefits generated by the individual respondent's earnings.

R's Benefits generated = R's own benefit + top up from own earnings to the spouse + top up for survivor benefits from own earnings to the spouse.

Appendix 2: Assumptions Underlying Calculations

Imputations: We use a nearest neighbor approach to impute pensions, Social Security and other missing variables. However, we do not impute answers to questions related to veteran status, whether for respondents or missing spouses. When imputing Social Security benefits for respondents, we use the respondent's veteran status when selecting donors.

- **Veteran status:** Used the veteran question. This question and the dates of the service are asked at the respondents' first interview.
- **Veterans' Tenure:** Used start and end date of the military service years. A few (3 cases) dk/rf on the dates. No imputations done. Those cases have missing tenure values.
- **Military Rank:** If veterans reported they were officers, we identified them as officers. The missing, dk/rf responses are included in the enlisters' category. This question was asked beginning in 2008. There was a preload for respondents first interviewed in earlier waves in that wave. Rs who were not in that survey or exited the survey are missing this information.
- **Exposure to combat:** If veterans reported ever fired a weapon in combat or been fired upon in combat, we identified them as being in combat. The missing, dk/rf responses are included in the non-combat category. This question was asked beginning in 2006. There was a preload for respondents first interviewed in earlier waves in that wave. Rs who were not in that survey or exited the survey are missing this information.
- **Identifying military service jobs and pension from that job:** We have matched the start and end date of military service years with current job, last job and the three previous pension jobs. We have used a margin of plus and minus 3 years for matching. Pension values for veterans may be understated. They include the present value of those

pensions as of a specific date. Pension receipts that started some earlier years are not included in the pension values for those years that were prior to the specific wave.

- **Expected retirement date:** Used the date respondents reported they would stop working if partially retired or not retired.
- If reported never; used age 70.
- If retire year= dk/rf or missing; use age 62.
- If retire after age 70; use 70.
- -adjusted the retire year if last year of earnings is after the reported retire year.
- - if retire year < last year then retire year = last year of earnings.
- **Entitlement year:** Use expected Social Security age.
- Adjust the entitlement year by using the last year of SS earnings:
- If entitlement year is less than last year of earnings; entitlement year = last year
- If entitlement year < 62; use birth year + 62
- If entitlement year > 70; use birth year + 70

Appendix 3

Appendix Table 1: Number of Male Veterans/non-veterans with their pension values in 1992, 1998, 2004, and 2010: weighted

	1992	1998	2004	2010
Veterans with 20 or more years tenure				
Number of Rs with 20 or more years tenure	72	25	19	25
Number of Rs with 20 or more years tenure & a matched job	66	16	18	22
With non-zero military pension	63	16	11	12
PV of military pension in 2010 dollars	700,938 (63)	762,978 (16)	485,198 (11)	467,069 (12)
PV pension from all jobs in 2010 dollars	754,419 (63)	805,300 (16)	508,655 (11)	543,128 (12)
Veterans with less than 20 years tenure				
PV pension from all jobs in 2010 dollars	148,620	167,486	135,117	98,770
Number of veterans with less than 20 years of tenure	1,067	441	344	245
Total number of veterans	1,139	466	363	270
Non-veteran Males				
Pension value in 2010 dollars	120,135	133,302	144,797	112,180
Number of non-veterans	1,273	507	885	1,394

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