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The Effect of Veteran Status on Economic Reintegration

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Executive Summary

Veteran unemployment rates are often understated in reports due to the generalization of the individuals that make up the veteran population. While veterans overall suffer a larger penalty than non-veterans in the civilian labor market, different demographics of veterans deal with diverse consequences of service. Specifically looking at Gulf War Era-II veterans compared with their similarly aged civilian peers, two linear regressions are used with main effects and differential effects to show the different probabilities of unemployment for distinct groups. Veterans' probability of unemployment is 0.66 percent higher than their non-veteran peers. However, I find that Black veterans have a 1.86 percent lower probability of unemployment and American Indian/Aleut/Eskimo veterans have a 3.03 percent lower probability of unemployment than their respective non-veteran peers. Policies and benefits should be examined to determine the efficiency and efficacy of reintegrating veterans into the civilian labor market after service separation.

Introduction

Approximately 200,000 service men and women fulfil their military obligation, leave the service, and look to enter the civilian workforce every year (U.S. Department of Veteran Affairs, 2018). Service members face many challenges when trying to transition out of the military and into civilian life despite the fact that veterans have diverse backgrounds and experiences that can make their communities better with their contributions of leadership, lessons, skills, and commitment. Helping veterans transition from military to civilian life is necessary to grow our communities and give back to those who have served. The Transition Assistance Program (TAP) is a required course that is completed within one year of separation or within two years of retirement and is meant to help service members transition from military to civilian life and has focus areas on civilian employment (U.S. Departmet of Labor, 2021). The TAP class combined with education benefits in the Post-9/11 GI Bill (PGIB) strive to make the transition to civilian life easier and improve veterans' quality of life.

Federal tax motivations also exist, to incentivize employers to hire veterans. The Work Opportunity Tax Credit (WOTC) and the VOW to Hire Heroes Act give employers a tax credit if they hire an eligible individual from a target group that has "consistently faced barriers to employment" and Veterans are on the list (Internal Revenue Service, 2021). Data from the last decade show a change in unemployment rate differences between veterans and non-veterans, where veterans had higher unemployment rates in the early 2010s but now seem to be on par with their non-veteran counterparts when it comes to unemployment. As of 2019, there were 4.4 million veterans who had served during the Gulf War-era II (September 2001 to present) and their unemployment rate was 3.8 percent, which compares closely to the non-veteran

unemployment rate of 3.5 percent (U.S. Bureau of Labor Statistics, 2020). Figure 1 shows the

changes in unemployment for veteran and non-veterans from 2007 through 2019.

Figure 1: Unemployment Rates of Gulf War-era II Veterans and Non-veterans (2007-2019)
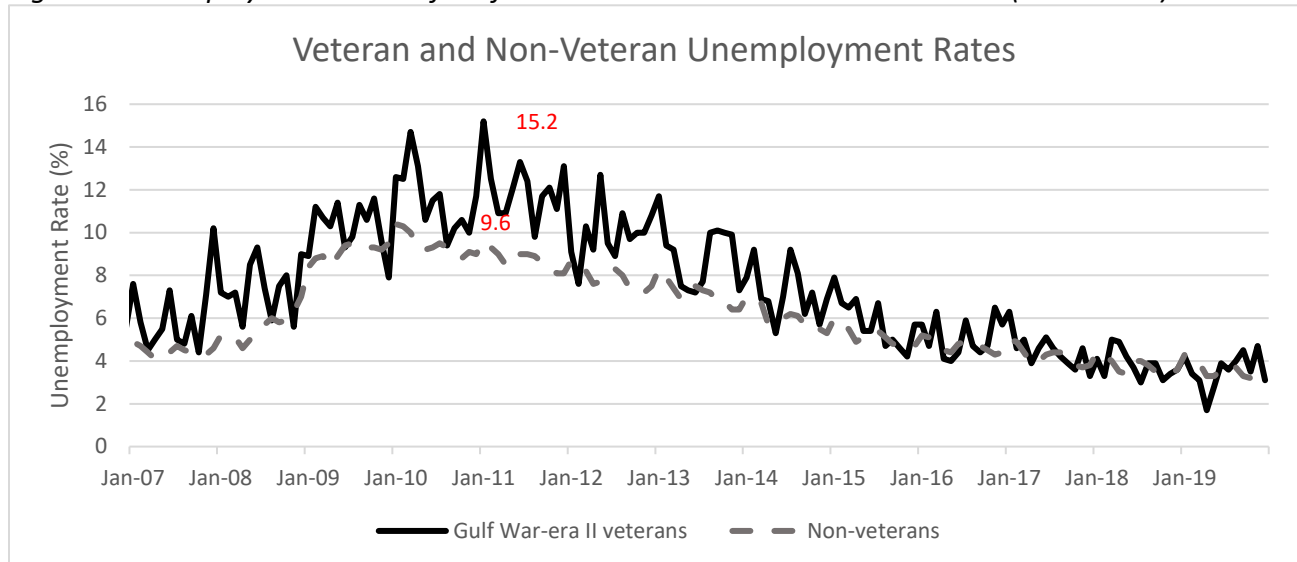
Source: (U.S. Bureau of Labor Statistics)

The Gulf War-era II veteran unemployment rate has not always mirrored the

unemployment rate for non-veterans but has improved over the past decade. At its highest,

the difference in unemployment rates between veterans and non-veterans was 5.6 percent in

January 2011, with Gulf War-era II veterans peaking at 15.2 percent (U.S. Bureau of Labor

Statistics, 2021).   Although the veteran unemployment rate has drastically decreased and the

disparity between their non-veteran peers is almost gone, unemployment does not affect all

veterans equally. Basic statistics of unemployment rates do not adequately describe how

different factors including demographics influence the economic reintegration of veterans back

into society after they leave military service.

Research Question and Hypotheses

Recognizing the effect veteran status can have on an individual's propensity to be unemployed can lead to changes in programs or services that assist underserved groups. While there are many benefits and training programs available to veterans, disagreements still exist on whether military service is advantageous for civilian economic reintegration. The goal of this research project is to determine if there is a relationship between unemployment and veteran status, and if there is a disparity among certain veteran demographics.

Hypothesis A: Veterans are expected to have a higher probability of unemployment than their non-veteran peers.

Hypothesis B: Women veterans are expected to have a higher probability of unemployment than their non-veteran peers.

Hypothesis C: Racial minority veterans are expected to have a higher probability of unemployment than their non-veteran peers.

Literature Review

Researchers have examined numerous and diverse variables that may have a relationship with unemployment for decades. This research and analysis, though varying, helps to better understand what factors or circumstances are related to higher unemployment rates and potential policies to help ease this challenge. Many studies have looked at unemployment rates and the demographics of the population to try to explain why certain groups of people experience higher rates of unemployment than others. Most studies include general variables like gender, race, age, and educational attainment, but a study released in 2012 aimed to focus

on the impact of being a veteran on unemployment rates. Meredith Kleykamp emphasized

how Gulf War Era-II veterans (anyone who served between September 2001 to the present) are

economically reintegrated into civilian life and how they compare to their civilian counterparts

(Williams, 2020).

Literature from the past decade explains that reported unemployment in the media is

understated because the other effects of veteran characteristics are not accounted for.

Depending on the measure and comparison, some veterans are faring better with economic

reintegration than others. "Treating veterans as a monolithic block obscures differences in the

consequences of military service across diverse groups" (Kleykamp, 2013). It isn't accurate to

simply compare veteran versus non-veteran unemployment rates when variables like

educational attainment and gender percentages are not uniform between the two groups.

Females make up over half of the United States population at 50.2 percent (United States

Census Bureau, 2011), but only account for 19 percent of Gulf War Era-II veterans (Patten &

Parker, 2011). Accounting for the differences in population demographics between veterans

and non-veterans more accurately describes unemployment rate comparisons.

Data in this analysis was collected from the Current Population Survey (CPS) for 2005

through 2011 and was limited to responses of people aged 18-40. This age range encompasses

the age distribution of Gulf War Era-II veterans who are much younger than the civilian

population. Data from the United States Census Bureau in 2010 showed an unemployment rate

of 9.9 percent for veterans and 10.7 percent for non-veterans (American Community Survey,

2010). This data varies from the Bureau of Labors Statistics in 2011, which stated

unemployment for veterans was 8.3 percent and 12.1 percent for Gulf War Era-II veterans

specifically. The unemployment rate for non-veterans in 2011 was 8.7 percent, according to

the Current Population Survey for people aged 18 and over (Bureau of Labor Statistics, 2012).

The differences in these data show that unemployment rates of a whole population vary greatly

from the rates of specific populations. As a whole, it seems like veterans were doing better in

employment than non-veterans in 2011, but unemployment was drastically higher for Gulf War

Era-II veterans.

To analyze veteran unemployment probabilities among different demographics,

Kleykamp used a logistic regression model to estimate the probability of experiencing

unemployment for veterans and non-veterans and controlled for sex, race, education, marital

status, age, age-squared, urban or rural residence, and the presence of young children at home.

She ran four models, an additive model and three interaction models, to test whether the

effect of military service differs based on sex, race, and educational attainment. "Across all

interaction models, the main effect of veteran status reflects a fairly consistent estimate of

veterans' odds of unemployment exceeding civilians by 50–65 percent. However, the effect of

veteran status on unemployment appears to differ by sex and race/ethnicity but does not

statistically vary by educational attainment" (Kleykamp, 2013). The odds of unemployment

increase by 38 percent for female veterans; their unemployment rate of 13.7 percent is almost

double the female non-veteran unemployment rate (7.3). The odds of unemployment decrease

by 38 percent for black veterans and have a similar unemployment rate as their non-veteran

peers. "Veterans with a college degree do not experience statistically different unemployment

rates than their civilian peers" (Kleykamp, 2013). Kleykamp's study and analysis is noteworthy

because it looks deeper into unemployment rates for veterans and compares the rates for

different demographics and variables of people. This can help to not just see the differences in unemployment rates of veterans versus non-veterans but may help to understand why those differences exist.

A study by Joshua Angrist looked at long-term labor market consequences of military service during the Vietnam Era. Specifically, Angrist analyzed the annual earnings of Vietnam Era veterans compared to the earning of their non-veteran peers more than five years after their service had ended. His study was developed around the military manpower policies regarding adequate compensation for service. At the time, some studies showed that veterans were worse off economically than non-veterans but some found military service to have a positive effect on income, unemployment, and education due to the "benefits for medical care, education and training, housing, insurance, and job placement" (Angrist, 1990). Angrist recognized that previous research comparing earnings of veterans and non-veterans may have had a bias since different types of people may choose to serve in the military. The Vietnam War draft lotteries created an opportunity to observe a "natural experiment that randomly influenced who served in the military" (1990). Using a simple linear model and two stage instrumental variable estimator, Angrist found that white veterans who served in the Vietnam War earned significantly less than non-veterans[1]. Furthermore, Angrist proposed that the loss in annual earnings is explained by a loss in civilian labor market experience (1990). While this analysis is noteworthy, especially for the use of unbiased veteran status, the lack of covariates results in incomplete analysis. The data used in the analyses did not account for any variable

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[1] "The annual earning loss to white veterans is on the order of $3,500 current (1990) dollars, or roughly 15 percent of yearly wage and salary earnings in the early 1980s. In contrast, the estimated veteran effects for nonwhites are not statistically significant"

other than race, draft eligibility, and age and only studied impact of veteran status on men. The

military is now more diverse, and those data are available to analyze.

A 2014 study conducted by the Forces and Resources Policy Center of the RAND

National Defense Institute similarly found that veteran unemployment is higher than that of

non-veterans. David Loughran compared unemployment rates for different age groups and

demographics and also analyzed the differences in unemployment as the time after separation

from service changed. Like the two previous studies mentioned, the RAND analysis found that

veteran unemployment was higher than non-veteran unemployment. Also, younger veterans

(ages 18 to 24) were 3.4 percent more likely to be unemployed than their non-veteran peers

but the differences in unemployment rates decreased with age. David Loughran addresses

commonly cited reasons for higher veteran unemployment, to include poorer health, employer

discrimination, and skills mismatch, but argues that these have little support in available data.

Instead, Loughran associates higher veteran unemployment in the lower age groups with the

probability that they are recently separated from military service and are engaged in the job

search process. Loughran found that the difference between veteran and non-veteran

unemployment decreased with time since separation from active-duty service, leading him to

say there is little evidence to support his hypothesis that "veterans are inherently

disadvantaged in the civilian labor market" (Loughran, 2014).

My analysis will be more inclusive than Angrist's study. The military is more diverse, and

the characteristics of veterans are essential to analyze. This will also serve as a continuation of

Kleykamp's research with additional independent variables and an extension of the data

timeline. I aim to analyze data to be more comprehensive of actual veteran demographics in a

more current period.

Data

For my analysis, I used public microdata from the Current Population Survey (CPS)

published by IPUMS from 2009 through 2020 (Ruggles, et al., 2020). The CPS surveys

households and people on a monthly basis and is conducted with the U.S. Census Bureau and

the Bureau of Labor Statistics and asks both labor force and demographic questions. CPS uses a

rotating panel design, where households and individuals are interviewed for four consecutive

months, rotated out of the survey for eight months, and the interviewed again for four

consecutive months. I dropped data after February 2020 due to the sharp increase of

unemployment as a result of Covid-19. I also restricted my sample to exclude active-duty

service members, since employment for this group is, by definition, 100 percent[2]. Observations

that reported they were not in the labor force (NILF) were also excluded, as the analysis aims to

look at people that are in the labor force and are either employed or unemployed[3]. I also

restricted the observations to individuals aged 22 through 48. Traditionally, when analyzing

data for unemployment, the minimum age for observations is 25, but the average youngest

veterans would be 22.[4] Using observations for ages 22 though 48 restricts the data to the ages

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[2] Observations in my data for "Veteran Status" were coded as 'veteran', 'non-veteran', or 'active duty'. All active-duty observations are listed as "Employed" and do not fit into either veteran or non-veteran category.

[3] Unemployment measures people in the labor force who do not currently have a job and are actively seeking work (Economic Policy Institute, 2021).

[4] Using a minimum age of 25 would allow for an individual enough time to complete postsecondary education, but individuals in the 22 to 25 range that are in school are not analyzed in my research because they are not in the labor force and are therefore omitted. An individual who enlists at 18 years old and completes the standard minimum service contract (four years), would be 22 when leaving the service and assuming veteran status.

applicable for Gulf War-era II veterans[5]. Figure 2 presents descriptive statistics for the

remaining 757,497 observations. For comparison, data from the 2020 Census are also

provided, to show similarities of the U.S. population and the population of observations used in

this analysis.

The dependent variable used in this analysis is unemployment, measured as a percent

change in probability. Independent variables include veteran status, age, sex, race, marital

status, disability, and educational attainment. Race, marital status, and educational attainment

are each broken down into subcategories to include White, Black, Asian, Hawaiian/Pacific

Islander, two or more races, single/never married, married, divorced or separated, widowed,

less than high school diploma, high school diploma or GED, some college, Associate's degree,

Bachelor's degree, Master's degree, and Professional or Doctorate degree. Every variable

except for age is analyzed as a dummy variable.

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[5] Ages 48 and under reflect the 73rd percentile for individuals who served after September 2001 (National Center for Veterans Analysis and Statistics, 2018). "A veteran who served since 9/11 that is older than [48] may be especially unique relative to both other veterans and civilian peers" (Kleykamp, 2013).

Figure 2: Summary Statistics of Observations Compared to Census Percentages of Population

	Total	Percentage of Observations (%)	2020 Census Percentage of Population (%)
Unemployed	44,588	5.89	4.5
Employed	712,909	94.11	95.5
White	596,544	78.75	72.3
Black	83,620	11.04	12.7
American Indian/Aleut/Eskimo	9,759	1.29	0.8
Asian	47,958	6.33	5.6
Hawaiian/Pacific Islander	4,391	0.58	0.2
two or more races	15,225	2.01	3.3
Single/Never married[6]	243,898	32.2	33.8
Married	428,396	56.5	47.8
Divorced/Separated	81,015	10.7	12.7
Widowed	4,188	0.55	5.7
Veteran	31,612	4.17	2.1
Non-veteran	725,885	95.83	97.9
Less than HS diploma	61,245	8.09	11.4
HS diploma/GED	197,106	26.02	26.9
Some college, no degree	132,890	17.54	20
Associate's degree	84,385	11.14	8.6
Bachelor's degree	187,077	24.7	20.3
Master's degree	70,260	9.28	9.7
Professional/Doctorate degree	24,534	3.24	3.1
Male	392,745	51.85	49.2
Female	364,752	48.15	50.8
Disability	19,395	2.56	10.3
No Disability	738,102	97.44	89.7

Source: IPUMS data(Ruggles, et al., 2020) and (United States Census Bureau, 2019)

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[6] Marital status for the US population is for ages 15 and above. Observations in the IPUMS data is for ages 22-48.

Methodology and Analysis

Two linear regressions are used in my analysis. The models I use include main effects (I) as well as the interaction effects (II) of each independent variable with veteran status. The main effects regression is used to see the relationship of independent variables with unemployment, specifically looking to see if veteran status has any effect on the percent change in probability of unemployment as compared to non-veterans. Because all independent variables except age are dummy variables, one variable in each group of gender, race, veteran status, educational attainment, marital status, and disability have been omitted and used as the baselines of their respective categories. The omitted variables I used are Male, Non-veteran, White, High School Diploma/GED, Married, and no disability. The full variable names are listed in Appendix A.

(I) $U_i = \alpha_i + \beta_1 AGE_i + \beta_2 FEMALE_i + \beta_3 VET_i + \beta_4 BLACK_i + \beta_5 AISAN_iN +$
$\beta_6 AM\_IND_i + \beta_7 HAWI_i + \beta_8 TWO\_MORE\_RACES_i + \beta_9 LESS\_HS_i +$
$\beta_{10} SOME\_COLL_i + \beta_{11} ASSOC_i + \beta_{12} BACH_i + \beta_{13} MAST_i + \beta_{14} PROF_i +$
$\beta_{15} SINGL_i + \beta_{16} DIV_i + \beta_{17} WID_i + \beta_{18} DISAB_i + \varepsilon_i$

(II) $U_i = \alpha_i + \beta_1 AGE_i + \beta_2 FEMALE_i + \beta_3 VET_i + \beta_4 BLACK_i + \beta_5 AISAN_iN +$
$\beta_6 AM\_IND_i + \beta_7 HAWI_i + \beta_8 TWO\_MORE\_RACES_i + \beta_9 LESS\_HS_i +$
$\beta_{10} SOME\_COLL_i + \beta_{11} ASSOC_i + \beta_{12} BACH_i + \beta_{13} MAST_i + \beta_{14} PROF_i +$
$\beta_{15} SINGL_i + \beta_{16} DIV_i + \beta_{17} WID_i + \beta_{18} DISAB_i + \beta_{19}(AGE_i * VET_i) +$
$\beta_{20}(FEMALE_i * VET_i) + \beta_{21}(BLACK_i * VET_i) + \beta_{22}(AISAN_i * VET_i) +$

$$\beta_{23}(AM\_IND_i * VET_i) + \beta_{24}(HAWI_i * VET_i) + \beta_{25}(TWO\_MORE\_RACES_i *$$

$$VET_i) + \beta_{26}(LESS\_HS_i * VET_i) + \beta_{27}(SOME\_COLL_i * VET_i) + \beta_{28}(ASSOC_i *$$

$$VET_i) + \beta_{29}(BACH_i * VET_i) + \beta_{30}(MAST_i * VET_i) + \beta_{31}(PROF_i * VET_i) +$$

$$\beta_{32}(SINGL_i * VET_i) + \beta_{34}(DIV_i * VET_i) + \beta_{35}(WID_i * VET_i) + \beta_{36}(DISAB_i *$$

$$VET_i) + \varepsilon_i$$

U is the probability of unemployment, α is a constant value, AGE is a continuous variable, the remaining independent variables are dummy variables for sex, veteran status, race, educational attainment, marital status, and disability, and ε is the error term. The β is interpreted as the change in probability of being unemployed from the baseline. This regression will allow analysis of the generic question of "Do veterans (and other demographics) have similar to or different from unemployment levels of non-veterans?" Also included in this regression are the multiplicative variables that analyze the interaction of veteran status with the other independent variables. That is to say, the probability of veteran unemployment, relative to non-veteran unemployment, varies with each independent variable. The probability of unemployment (U) includes a measure of each independent variable and also the multiplicative variables that measure interactions with veteran status. For example, $\beta_{20} = \bar{x}_{female\ veteran} -$ $[\bar{x}_{male\ non-veteran} + (\bar{x}_{female\ non-veteran} - \bar{x}_{male\ non-veteran}) + (\bar{x}_{male\ veteran} -$ $\bar{x}_{male\ non-veteran})]$. The example shows how the interaction of being female *and* being a veteran is different than the sum of being male and a non-veteran. These interactions allow us to make more substantive interpretations of the effects of each independent variable.

Results

While my analysis using a linear regression shows the changes in probability of unemployment, I thought it was important to also note the unemployment rates of the observations from my data. Figure 3 shows the comparisons of unemployment rates for each demographic by veteran status. These are not adjusted for other variables. Many demographics have similar unemployment rates for veterans and non-veterans, with 13 being within one percent. Overall, veterans have a higher unemployment rate than non-veterans, as well as in 62 percent of the demographic categories. However, the largest disparity of unemployment rates is in favor of veterans; American Indian/Aleut/Eskimo veterans have an unemployment rate that is 3.2% lower than their non-veteran peers.

Figure 3: Unemployment Rates by Veteran Status

	Veteran	Non-veteran
Total	6.11%	5.88%
Male	6.17%	6.32%
Female	5.76%	5.43%
Single/Never Married	10.05%	8.51%
Married	4.39%	3.97%
Divorced/Separated	8.78%	7.74%
Widowed	6.15%	7.59%
White	5.65%	5.21%
Black	8.40%	10.53%
American Indian/Aleut/Eskimo	8.58%	11.78%
Asian	4.99%	4.09%
Hawaiian/Pacific Islander	5.58%	7.30%
Two or more races	9.21%	8.03%
Less than HS diploma	9.83%	12.56%
HS diploma or GED	8.23%	8.44%
Some college	7.27%	6.63%
Associate's degree	5.03%	4.32%
Bachelor's degree	3.94%	3.12%
Master's degree	2.93%	2.08%
Professional/Doctorate degree	1.57%	1.55%
Disability	12.07%	14.10%
No disability	5.78%	5.67%

Source: IPUMS data(Ruggles, et al., 2020)

The regression was run with robust estimations to correct for heteroskedasticity. Figures 4 and 5 shows the results of the regressions. Every variable's main effect is statistically significant to the 0.05 level. Specifically, veteran status is significant with a p-value less than 0.001 and shows that on average, veterans have a higher probability of being unemployed than their non-veteran peers by 0.658 percent. This correlates to the information shown in Figures 1 and 3, as the unemployment rate disparity of veterans and non-veterans has been getting smaller but still exists.

Figure 4: Regression (I) Results

Variables	Change in Probability of Unemployment	Robust Standard Error
Age	-0.000993***	(4.18e-05)
Female	-0.00439***	(0.000544)
Veteran	0.00658***	(0.00139)
Black	0.0422***	(0.00109)
American Indian/Aleut/Eskimo	0.0462***	(0.00321)
Asian	0.00185*	(0.000954)
Hawaiian/Pacific Islander	0.0101***	(0.00388)
Two or more races	0.0197***	(0.00220)
Less than HS diploma	0.0437***	(0.00147)
Some college, no degree	-0.0200***	(0.000924)
Associate's degree	-0.0362***	(0.000935)
Bachelor's degree	-0.0461***	(0.000738)
Master's degree	-0.0515***	(0.000822)
Professional or Doctorate degree	-0.0546***	(0.00101)
Single/Never Married	0.0281***	(0.000703)
Divorced/Separated	0.0278***	(0.000991)
Widowed	0.0261***	(0.00405)
Disability	0.0702***	(0.00248)
Constant	0.0982***	(0.00175)
Observations	757,497	
R-squared	0.030	

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

These results cause us to reject the null hypothesis of A, as there is a significant effect of

veteran status on probability of being unemployed. The main effect of veteran status on

unemployment probability shows interesting effects, but the more detailed effects of the

interaction of veteran status with each demographic show more specifics. Ten multiplicative

variables are statistically significant to the 0.1 level or lower. Age, significant educational

attainment variables, and significant marital status variables add to supporting hypothesis A,

that veterans have a higher unemployment probability when compared to their non-veteran

peers, but are not discussed further as those variables are not specifically called out in

hypothesis B or C.

Figure 5: Regression (II) Results

Variables	Change in Probability of Unemployment	Robust Standard Error
Age*Veteran	-0.000811***	(0.000232)
Female*Veteran	-0.000982	(0.00382)
Black*Veteran	-0.0186***	(0.00483)
American Indian/Aleut/Eskimo*Veteran	-0.0303**	(0.0137)
Asian*Veteran	-0.00616	(0.00840)
Hawaiian/Pacific Islander*Veteran	-0.0181	(0.0162)
Two or more races*Veteran	0.00826	(0.0102)
Less than HS diploma*Veteran	-0.0299*	(0.0163)
Some college, no degree*Veteran	0.00788*	(0.00417)
Associate's degree*Veteran	0.00685	(0.00438)
Bachelor's degree*Veteran	0.00939**	(0.00389)
Master's degree*Veteran	0.00996**	(0.00449)
Professional/Doctorate degree*Veteran	0.00153	(0.00591)
Single/Never married*Veteran	0.0124***	(0.00451)
Divorced/Separated*Veteran	0.0102**	(0.00429)
Widowed*Veteran	-0.0110	(0.0178)
Disability*Veteran	-0.0142*	(0.00855)
Constant	0.0974***	(0.00178)
Observations	757,497	
R-squared	0.030	

*** p<0.01, ** p<0.05, * p<0.1

The interaction variable Female*Veteran has a p-value of 0.797, which is not statistically

significant. There is no evidence of a difference in unemployment probability for female

veterans when compared to their non-veteran peers. For hypothesis C, the interaction

variables for Asian veterans, Hawaiian/Pacific Islander veterans, and veterans that are two or

more races are not statistically significant. However, Black veterans and Native

American/Aleut/Eskimo veterans have statistically significant differences in their probability of

unemployment when compared to their non-veteran peers. Black veterans (p-value < 0.001)

have a 1.86 percent lower probability of unemployment than their non-veteran peers and

American Indian/Aleut/Eskimo veterans (p-value = 0.027) have a 3.03 percent lower probability

of unemployment than their non-veteran peers. For Black and American Indian/Aleut/Eskimo

veterans, hypothesis C's assumption was opposite than what the data actually show.

Limitations to Methodology

The data used in my analysis ranges from 2009 through early 2020. While this produces

a large number of observations, it does not account for how unemployment is changing from

year to year. As seen in Figure 1, the disparity of unemployment rates for veterans and non-

veterans is getting smaller. Ideally, a regression using panel data would control for time effect

when estimating regression coefficients. To do this, the observations each year would need to

have the same individual identifier. While IPUMS CPS sample design is successful at presenting

representative statistics, their rotating panel design does not allow for long term panel

regression analysis. Also, due to the rotation of individuals in and out of the survey groups and

my use of 11 years of observations, there are repeated observations of the same individual.

Conclusion and Discussion

In general, veteran status leads to a higher unemployment rate, other things equal, but

Black and American Indian/Aleut/Eskimo veterans have a lower probability of unemployment

than their non-veteran peers. These results lead to two areas of focus. First, can policies that

are already in place to assist veterans be more effective in helping economic reintegration to

the civilian work force? Second, what speculative hypotheses could be considered for future

research as to why Black and Native American/Aleut/Eskimo veterans have lower

unemployment probabilities than non-veterans.

As seen in Figure 1, the veteran unemployment rate seems to be closing in on the non-veteran rate. The decreasing unemployment rate could have a relationship with the increased benefits received through the PGIB or the federal tax incentives for employers to hire veterans, but further research is required to show if there is actually a relationship. The PGIB, which went into effect in 2009, is an education benefit. The PGIB, when compared to its precursor, the Montgomery GI Bill (MGIB), gives greater flexibility of education funding for higher education and training programs. As seen in my regression results and in numerous unemployment studies, higher educational attainment has a relationship with lower unemployment rates. To better measure the effects of the GI bill, an analysis using a difference-in-difference model could be used to see if there are significant differences in veteran usage of the improved education benefits. Depending on how the currently available benefits affect veteran unemployment, these assistances can be continued or adjusted as necessary. Joshua Angrist's study discussed how the loss of time in the civilian labor market affected the earnings of veterans. Similar to this argument, Loughran's RAND study found that younger veterans are more likely to be unemployed than their non-veteran peers, but that gap closes quickly as age and time since separation from the military increase (Loughran, 2014). If younger veterans suffer a higher penalty of unemployment, policies could be examined to focus on assistance to military members who are in the process of exiting the service or recently transitioned veterans. The Department of Veterans Affairs (VA) offers career and employment assistance through a mandatory one-day employment preparation workshop that provides tools and resources to evaluate career options and learn about the civilian employment process. Two-day optional workshops are also offered that include more in-depth training

about interviews, resume writing, and networking (U.S. Departmet of Labor, 2021). The

optional, two-day in-depth training elements could be incorporated into the TAP class that is

mandatory for all separating service members or more emphasis placed on the usefulness of

the topics could encourage more individuals to participate.

In regard to Black and American Indian/Aleut/Eskimo veterans having lower

unemployment probabilities, effects could be from these minority groups recognizing military

service as a route to success and self-select positively into the military more than whites do,

and/or veteran status removing some of the structural racism and discrimination faced by

minorities in the job application and hiring process. American Indians make up approximately

two percent of Gulf War-era II veterans, but only 0.8 percent of the current population

(Holiday, Bell, Klein, & Wells, 2006). Similarly, Black veterans account for 15.3 percent of the

Gulf War-era II veteran population, but only 12.7 percent of the U.S. population is Black

(Holder, 2018). These basic numbers may suggest that a disproportional number of minorities

choose to enter military service. This could be to enter a work force that does not have the

structural racism gaps that are too commonly seen in the civilian labor market. A labor

economist at the Urban institute, Robert Lerman, assumes that the typical Black veteran is "a

lot more work ready than the typical Black non-veteran," simply due to requirements necessary

to join the armed forces. This would give veteran minorities a reduced disadvantage when

compared to their civilian peers (Gross, 2019).

While the benefits available for veterans after service separation are helpful to some

veterans in their transition to civilian life, more research should be conducted to determine if

their effectiveness differs for distinctive demographics. Along with the education benefits and

separation training programs, policies for veteran employment incentives should be analyzed as

a way to improve efficacy of veteran unemployment among gender and race.

Appendix A

List of Regression Variables

Regression Variable	Full Variable Name
AGE	Age
FEMALE	Female
VET	Veteran
BLACK	Black
ASIAN	Asian
AM_IND	American Indian/Aleut/Eskimo
HAWI	Hawaiian
TWO_MORE_RACE	Two or more race
LESS_HS	Less than High School diploma
SOME_COLL	Some College, no degree
ASSOC	Associate's degree
BACH	Bachelor's degree
MAST	Master's degree
PROF	Professional or Doctorate degree
SINGL	Single/Never Married
DIV	Divorced/Separated
WID	Widowed
DISAB	Disabled

References

American Community Survey. (2010). *Veteran Status S2101.* U.S. Census Bureau.

Angrist, J. (1990). Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records. *The American Economic Review*, Vol. 80, No. 3, pp. 313-336.

Bureau of Labor Statistics. (2012). *Employment Situation of Veterans.* U.S. Department of Labor.

Economic Policy Institute. (2021). *Useful Definitions*. Retrieved from Economic Policy Institute: https://www.epi.org/newsroom/useful_definitions/

Gross, N. (2019, January 11). *Women and minority veterans are thriving in the civilian workforce*. Retrieved from Military Times: https://rebootcamp.militarytimes.com/news/employment/2019/01/11/women-and-minority-veterans-are-thriving-in-the-civilian-workforce/

Holder, K. A. (2018, April 11). *Veterans Who Have Served Since /11 Are More Diverse*. Retrieved from U.S. Census Bureau: https://www.census.gov/library/stories/2018/04/post-9-11-veterans.html#:~:text=As%20this%20year%20marks%20the,and%2012.1%20percent%20are%20Hispanic.

Holiday, L., Bell, G., Klein, R., & Wells, M. (2006). *American Indian and Alaska Native Veterans: Lasting Contributions.* U.S. Department of Veteran Affairs.

Internal Revenue Service. (2021, March). *Work Opportunity Tax Credit*. Retrieved from IRS.gov: https://www.irs.gov/businesses/small-businesses-self-employed/work-opportunity-tax-credit#targeted

Kleykamp, M. (2013, May). Unemployment, earnings and enrollment among post 9/11 veterans. *Social Science Research*, pp. 836-851.

Loughran, D. (2014). *Why Is Veteran Unemployment So High?* Santa Monica: RAND Corporation.

National Center for Veterans Analysis and Statistics. (2018, March). *Profile of Post 9/11 Veterans: 2016.* Retrieved from U.S. Department of Veterans Affairs: https://www.va.gov/vetdata/docs/SpecialReports/Post_911_Veterans_Profile_2016.pdf

Patten, E., & Parker, K. (2011). *Women in the U.S. Military: Growing Share, Distinctive Profile.* PEW SOCIAL & DEMOGRAPHIC TRENDS.

Ruggles, S., Flood, S., Goeken, R., Grover, J., Meyer, E., Pacas, J., & Sobek, M. (2020). IPUMS USA: Version 10.0 [dataset]. Minneapolis, MN, USA.

U.S. Bureau of Labor Statistics. (2020, April). *Job market remains tight in 2019, as the unemployment rate falls to its lowest level since 1969.* Retrieved from U.S. Bureau of Labor Statistics: https://www.bls.gov/opub/mlr/2020/article/job-market-remains-tight-in-2019-as-the-unemployment-rate-falls-to-its-lowest-level-since-1969.htm#:~:text=The%20U.S.%20labor%20market%20remained,rate%20increased%20over%20the%20year.

U.S. Bureau of Labor Statistics. (2021, February 5). *Unemployment rates for people 18 years and older by veteran status, period of service, and sex, not seasonally adjusted.* Retrieved from U.S. Bureau of Labor Statistics: https://www.bls.gov/charts/employment-situation/unemployment-rates-for-persons-18-years-and-older-by-veteran-status.htm

U.S. Department of Veteran Affairs. (2018). *The Military to Civilian Transition 2018.* U.S. Department of Veteran Affairs.

U.S. Departmet of Labor. (2021, February 22). *Veterans' Employment and Training Service: Transition Assistance Program* . Retrieved from U.S. Department of Labor: https://www.dol.gov/agencies/vets/programs/tap

United States Census Bureau. (2011). *Age and Sex Composition in the United States: 2011.* Retrieved from US Census Bureau: https://www.census.gov/data/tables/2011/demo/age-and-sex/2011-age-sex-composition.html

Williams, J. (2020, October). *Gulf War Era Veterans in the Labor Force*. Retrieved from U.S. Bureau of Labor Statistics: https://www.bls.gov/spotlight/2020/gulf-war-era-veterans-in-the-labor-force/home.htm