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**Research Question**

This project explores the nuanced and complex topic of disability payments to veterans in the United States, focusing particularly on the motivations behind these payments, their impact on veterans' income and labor force participation, and the broader implications for government spending and societal attitudes towards veterans. The research is driven by the observation that in FY22, $125 billion was allocated to disability payments for 5.3 million veterans, which represents a significant portion of the federal budget dedicated to veterans, surpassing even healthcare spending for this group. This investigation aims to unpack the relationship between disability ratings and economic outcomes for veterans, scrutinizing the justification of these payments against the backdrop of a culture that often encourages maximizing benefits, potentially to the detriment of the public purse and societal values.

* Inform of what they are reading before code and motivation behind
* In FY22, $125B spent on disability payments to 5.3M veterans (about a third of all living veterans), more than is spent on healthcare
* Average is $20k/person/year
* The money is supposed to correspond to the severity of service-connected conditions, and average earnings loss expected as a result of these conditions
* Ranges from 0% to 30% for bad knees, to 100% for loss of limb(s)
* Culture of “get what I am owed” – but how much, truly, are you owed?
* CBO 2022 report suggesting means testing these benefits for households earning more than $170k
* Discuss the motivation
* Context: FY22 $125B was spent on disability payments to 5.3 million veterans, which is about a third of all living veterans (average about $20k per person…).
  + \*\*Less than that amount is spent on health care for that whole veteran population
* This is money spent by the Veterans Administration which is supposed to correspond to the severity of veterans’ service-connected conditions and the average earnings they would be expected to lose as a result of those conditions
  + Can range from anything from 10% for hearing loss to 100% for loss of limb, lack of ability to work. Some caveats, but the vast majority of these benefits have no income restrictions
  + I am personally interested in this because oftentimes the conversation when servicemembers exit the military is how to maximize your benefits, and there’s very much a culture of trying to maximize that monthly payment, and that is something for life that is not massively means-tested
  + There are some obviously serious conditions that people deserve compensation for, but the more recent attitude of “The Army owes me for this” as in my service - close to stolen valor
* Attitude was evident when CBO in Dec 2022 had a throwaway paragraph in a overall report about reducing the deficit (released annually); proposed household threshold for losing disability benefits was $170,000
* Response was vitriolic. A contentious topic
* For example, the FAA found there were airline pilots who were receiving veterans disability payments for conditions that should have disqualified them from flying – evaluated that and removed payments
* But when you look at who has actually been hurt in combat in 20 years of actions in Iraq and Afghanistan, that’s 60,000 people, to put it in perspective. Many more suffer from PTSD from combat, but that is an interesting discussion as well.
* So excluding those, most other payments are for lifestyle or aging concerns that just happened while people were in the military
* Congressional Budget Office found in December 2023 that veterans with a rating of 10 percent or 20 percent earned about the same as similar veterans with no rating; veterans with a rating of 30 percent to 60 percent earned slightly less; and veterans with a rating of 70 percent or more earned much less
* Wanted to expand and compare to non-veterans and by state
* I was interested in exploring the effects of receiving disability payments on income and labor force participation compared to non-veteran population at a simple level, but adding in some analysis of where those veterans receiving payments are located, as that may affect the labor force participation in a state; especially when some parts of the U.S. contribute disproportionately more servicemembers than other (think Texas and the South; less so urban areas)
* Caveat that this is often associated with a “cut federal spending” line of thought but I would like to share that I approach this from the mindset of “right-sizing” budgets overall – are we spending taxpayer dollars on the right things (this is not from the defense budget, rather the VA) definitely some fraud at some level
* People are proud of what they get away with
* Rating of 10-20% earn about the same as veterans with no rating
* 30-60% earn slightly less, 70+% earned much less
* Does a high rating mean they can’t work, or have enough benefits to choose not to?
* How much of this is deterministic? Slightly outside my scope ☺
* But, I wanted to explore the effects of receiving disability payments on income and LFP compared to non-veteran population on my own, as well as on a by-state basis, as I find it interesting how many areas of the country contribute or don’t contribute servicemembers, and who returns to their home state post-service to contribute (or not)

**Approach**

The methodology encompassed the analysis of two primary data sources: the Integrated Public Use Microdata Series (IPUMS) American Community Survey (ACS) for the years 2011 and 2016, and the IPUMS Current Population Survey (CPS) Veterans Supplement for 2021 and 2022. These datasets provided comprehensive demographic, income, labor force participation, and disability rating information for veterans, allowing for a multifaceted analysis of the veteran population. Challenges encountered during data cleaning and analysis included transforming state identifiers and categorizing disability ratings, as well as addressing the limitations inherent in self-reported data. Additionally, sentiment around the contentious issue of means-testing veteran disability payments was evaluated through an analysis of the top ten Google search results on the topic, revealing a complex landscape of legal, individual, and organizational perspectives.

* Where the data came from. (approach I took and the coding involved) including any weaknesses or difficulties encountered, methods used
* Explain what methods used and data
* Downloaded two sets of data
* IPUMS ACS was actually plenty of information, included service ratings
  + 2011 and 2016
* IPUMS CPS for more precise ratings, but turns out really just identified veterans of what wars/conflicts
  + Veterans Supplement started in 2021, later than I thought
* Cleaned, and analyzed
* Top ten Google searches after “CBO means test veteran disability” to evaluated the most popular sentiment around this topic.
* 1) IPUMS ACS
* 2011 and 2016 ACS results
* STATE, AGE, LABFORCE, INCTOT, INCWAGE, VETDISAB, VETSTAT
* 2) IPUMS CPS Veterans Supplement
* 2021 and 2022 (regular IPUMS surprisingly more comprehensive than Veterans Supplement)
* STATE, HHINCOME, FAMINC, AGE, VETSTAT, LABFORCE
* 3) Top ten Google searches for “CBO means testing VA disability”
* Law firms, veteran groups and advocates, blogs and nonprofits
* Cleaned both IPUMS data sources
* Transformed STATEFIP into named states
* Produced age groups by age
* Produced a disability rating grouping from VETDISAB
* N/A, no rating, 1-60%, 70+%
* Produced variables to make plots
* lfp\_by\_age\_vet, veterans\_data, etc
* Scraped article text content through CSS selectors (could expand further)
* Visualized basic data trends, decided to focus on LFP by age group and veteran status, then expand to see how disability rating impacts
* Then evaluated income differences by veteran status by state
* Evaluated sentiment analysis around web results surrounding means testing

**Discussion**

The analysis yielded several key findings, illustrated through three main plots. The first plot demonstrated a clear trend of decreasing labor force participation with increasing age among veterans, stratified by disability rating, highlighting the potential impact of disability on employment outcomes. The second plot, a map of the United States, indicated that veterans generally earn less than non-veterans, with notable exceptions in a few states. This raises questions about the role of state policies in shaping veterans' economic realities. The third plot compared labor force participation between veterans and non-veterans across different age groups, revealing higher participation among veterans in most age categories. A regression model further quantified the impact of veteran status on household income, showing a statistically significant but modest decrease associated with being a veteran. These findings underscore the complex interplay between veteran status, disability, and economic outcomes.

* Discuss each static figure and regression model
* Plot 1 slide and description
  + Looking at age group, and within that, LFP within disability ratings
  + Clear pattern emerges, not reported is even still interesting because they belong to a bucket here
  + Would probably fix these categories a bit to be more representative of 10/20, 30-60, and more to match typical evaluations
* Plot 2 slide and description
  + Used IPUM CPS data, so less comprehensive, but still shows a trend of more income in certain states for veterans – further analysis would tease out how much of that is disability compensation versus veteran-friendly state policies like no state income tax
* The three plots you've provided present data on veterans in relation to labor force participation and income:
* 1. \*\*Labor Force Participation Within Veterans by Age Group and Disability Rating\*\*:
* - This bar chart shows the proportion of veterans in the labor force across different age groups (18-29, 30-39, etc.), broken down by their disability rating (0%, 1-60%, 70%+, No rating, Not reported).
* - Each age group has five bars representing the proportion of labor force participation for each category of disability rating.
* - Generally, as the age groups increase, labor force participation decreases. This trend is consistent across all disability ratings.
* - The bar colors represent different disability ratings, but without a legend, I cannot specify which color corresponds to which disability rating.
* 2. \*\*Do Veterans Earn More than Non-Veterans on Average by State?\*\*:
* - The map of the United States is color-coded to show whether veterans or non-veterans earn more on average within each state.
* - States where veterans earn more are marked in one color, and states where non-veterans earn more are marked in another color.
* - The majority of the states are colored to indicate that non-veterans earn more, with only a few states showing that veterans earn more.
* 3. \*\*Labor Force Participation by Age Group and Veteran Status\*\*:
* - This bar chart compares the proportion of labor force participation between veterans and non-veterans within different age groups.
* - Two bars represent each age group: one for the proportion of veterans and one for non-veterans in the labor force.
* - The chart shows that labor force participation is generally higher among veterans than non-veterans for most age groups, except for the '70+' category where participation drops significantly for both, and 'NA' where the context is not provided.
* These visualizations collectively offer insights into the employment and income status of veterans compared to non-veterans and how these factors interact with age and disability status.
* Regression model quickly
  + With IPUSM CPS data, wanted to evaluate recent (2021 and 2022) effect of being a veteran on household income, being a veteran versus and non-veteran results is aprox. 6k less in household income – will break this out by state to see
* Regression: Certainly, this is an output from a linear regression analysis, and here's how you can interpret the various parts of the output:
* 1. \*\*Formula\*\*: The regression model is predicting household income (HHINCOME) as a function of veteran status (VETSTAT), using the data from the `ipums\_cps\_cleaned` dataset.
* 2. \*\*Residuals\*\*:
* - These are the differences between the observed values and the values predicted by the model.
* - The minimum and maximum provide a range of residuals.
* - The 1st quartile (1Q), median, and 3rd quartile (3Q) give you a sense of the distribution of these residuals.
* 3. \*\*Coefficients\*\*:
* - `(Intercept)`: The intercept coefficient (120518.2) is the expected value of HHINCOME when VETSTAT is 0. It’s statistically significant (p < 2e-16, which is virtually 0), indicating a high level of confidence in this prediction.
* - `VETSTAT`: The coefficient for VETSTAT (-6423.9) suggests that being a veteran (or the associated increase in the VETSTAT variable) is associated with a decrease in household income of approximately $6,424, holding all else constant. The negative sign indicates the direction of the relationship. It's also statistically significant (p < 2e-16).
* 4. \*\*Standard Error (Std. Error)\*\*: This measures the average distance that the observed values fall from the regression line. A smaller standard error is generally better.
* 5. \*\*t value\*\*: The t-value tests the null hypothesis that the coefficient is equal to zero (no effect). A large t-value (in absolute terms) indicates that the null hypothesis can be rejected.
* 6. \*\*Pr(>|t|)\*\*: This is the p-value associated with the t-test of the hypothesis that the coefficient is 0. A p-value below a certain threshold (commonly 0.05) indicates statistical significance.
* 7. \*\*Signif. Codes\*\*: The asterisks indicate the level of statistical significance, with more asterisks denoting a higher level of significance.
* 8. \*\*Residual Standard Error\*\*: This is the estimate of the standard deviation of the error term, which is 128100 in your model. It's a measure of the quality of the regression fit.
* 9. \*\*R-squared\*\*: This is the proportion of variance in the dependent variable (HHINCOME) that can be explained by the independent variable (VETSTAT). Here, it's very low (0.0006445), indicating that VETSTAT does not explain much of the variation in HHINCOME.
* 10. \*\*Adjusted R-squared\*\*: This is a modified version of R-squared that has been adjusted for the number of predictors in the model. It's also very low (0.0006413).
* 11. \*\*F-statistic\*\*: This tests whether there is a relationship between the response and the predictor. A higher value indicates a stronger relationship. Here, the F-statistic is 204 with a p-value < 2.2e-16, suggesting that the model is statistically significant.
* In summary, while the model is statistically significant, the explanatory power is very low (as seen by the R-squared values), meaning that VETSTAT alone does not explain much of the variation in HHINCOME. Other variables might need to be included to improve the model's explanatory power.
* Demo at least one of the Shiny apps
* Demonstrating a by state comparative analysis of veteran outcomes
  + Earnings and LFP
  + Veterans make up 6% of overall population, so which states in attempting to be veteran-friendly or cater to their veteran population; might actually see less LFP or more support on other local social services
* Alaska, veterans have higher earnings but lower LFP
* New York, nonveterans have higher earnings and higher LFP, see same trend in NJ
* Other app looked at instead of by state, by age group and incorporated disability levels

**Conclusions and Future Work**

This research highlights the critical need to examine the assumptions and motivations underlying veteran disability payments, particularly in light of the substantial financial commitment they represent for the federal government. The findings suggest that while disability payments fulfill an important role in supporting veterans with service-connected conditions, the current system may benefit from a more nuanced approach that considers the varying economic impacts of different disability ratings and the broader context of veterans' reintegration into civilian life. Moreover, the cultural emphasis on maximizing benefits warrants further exploration, particularly in terms of its implications for veterans' identities and societal perceptions of entitlement.

Future research should delve deeper into the distinctions between veterans with and without disabilities, as well as between those with different levels of disability, to better understand the specific factors influencing their economic outcomes. Additionally, a more granular analysis at the state level could shed light on the influence of local policies and attitudes on veterans' experiences. Ultimately, continuing this conversation is essential for ensuring that the support provided to veterans is both fair and effective, balancing the recognition of their service with responsible stewardship of public resources.

* I am not saying veterans don’t deserve payments for injuries sustained during service, for example, my dad served and has a rating, but he also did not seek to max out a rating, and still has a job and he’s pushing 65
* Would break out more discretely into veteran versus non-veteran outcomes, and veteran disability versus veteran non-disability
* Then further by states to see if there are trends (potentially as a proxy for attitudes about what the service “owes” someone)
* Continue the conversation!
* Important to discuss these topics instead of just letting the status quo remain
* But means-testing should not be out of the question, worth exploring
* Veterans are not untouchable
* Fine line between a culture of sickness and reliance versus independence especially when you’ve been in a profession that fundamentally has a lot of “meaning” in service