The Impact of Disability Income on Health and Economic Well-Being: Evidence from the VA's Disability Compensation Program

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Preliminary and incomplete. Please do not circulate.

Abstract

We study impacts of non-means-tested disability income from the US Department of Veteran Affairs Disability Compensation program. Our empirical strategy leverages quasi-random assignment of veterans seeking mental disorder disability to disability examiners who vary in the generosity of their assessments. We find that an additional $1,000 per year in disability income increases healthcare utilization by 2.5% over the first five years along with greater engagement in preventive care and improved medication adherence. Turning to measures of economic stability, food insecurity and homelessness improve by 4.1% and 1.3% over five years, and number of collections on debts owed to the VA decline by 6.4%. With the exception of a reduction in self-reported pain, we fail to detect any effects on mental and physical health outcomes; we estimate precise zeros on depression, alcohol and substance use disorders, BMI, blood pressure, and HbA1c glucose levels. Effects on mortality are small. We are able to rule out—with 95% confidence—reductions in mortality greater than 0.011 percentage points (0.14%) over the first five years.

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Recent decades have witnessed enormous growth in federal outlays for disability programs in the US and other OECD countries. One of the leading causes of this growth is the rising number of recipients suffering from mental health disabilities (Autor and Duggan, 2006). These recipients tend to remain on the disability rolls for long periods of time – often until retirement or death (Rupp and Scott, 1996).[1]

Policymakers and researchers have long debated the value of these annuity-like disability benefits. On one hand, there is a public perception that certain disabilities, especially mental health disorders, are easy for individuals to "fake" (Chafetz and Underhill, 2013). This view suggests that the social value of benefits for these "malingering" beneficiaries is low. On the other hand, the typical beneficiary *is* in poor health and relies on disability benefits as a primary source of reliable income or for its insurance value (Bound, 1989; Deshpande and Lockwood, 2021) Thus, estimates of the impacts of disability benefits on health and well-being are crucial for understanding how generous disability programs ought to be, or how they ought to be designed more generally. This is especially true among those suffering from mental disorders, who likely experience pronounced distress stemming from limited or unreliable income. To date, however, despite the central importance of the health and well-being of the disabled, there is little systematic evidence on whether disability benefits are effective in improving the lives of recipients (Chetty and Finkelstein, 2013).

Estimating the effects of disability benefits on health and well-being has been challenging for two central reasons. First, there is a lack of data linking beneficiaries to objective measures of health and well-being.[2] Second, disability benefits are likely determined by unobservable characteristics of the applicants that would bias observational comparisons. For example, to the extent that unobservably sicker individuals receive more disability benefits and that individuals apply for disability benefits in the wake of particularly challenging circumstances, both cross-sectional and longitudinal comparisons would be biased towards

[1] In our setting, most recipients remain on the rolls until death.

[2] One exception is a recent paper by Gelber et al. (2018), which analyzes the impact of SSDI benefits on mortality. Interestingly, their estimated effects are statistically indistinguishable from 0 for beneficiaries with mental disorders. The authors speculate that there could be broader health impacts on this population. Our analysis speaks directly to this possibility by studying a variety of intermediate health outcomes. We also examine mortality in this population, finding substantially more precise null effects.

finding that benefits are detrimental to health.

In this paper, we use rich data from the US Department of Veterans Affairs (VA), and in particular the Veterans Health Administration (VHA), to estimate key impacts of disability benefits for veterans. The VA's Disability Compensation (DC) program provides monthly benefits payments to 5 million veterans with service-connected disabilities, making it approximately two-thirds the size of the largest program in the US, the Social Security Disability Insurance (SSDI). Unlike SSDI and the related Supplemental Security Income (SSI) program, benefits are not means-tested and are increasing in the veteran's assessed disability rating. Many of these ratings—and all of the ratings we study—are based on forensic assessments by VA-assigned claim examiners who have virtually no other contact with their assigned veterans.

We focus on veterans who submit disability claims for mental health disorders, which represent the second most common claim type in the veteran population. The majority of claims are for post-traumatic stress disorder (PTSD), a disorder for which there are no clear appropriate treatments. Mental health exams provide a setting in which there is considerable and clear discretion in how claim examiners—largely licensed psychologists and psychiatrists in the case of mental health examinations—rate veterans' disabilities.[3]

Motivated by this, our empirical strategy exploits plausibly exogenous variation in benefits generated by quasi-random assignment of veterans' disability claims to case examiners who vary in the generosity of their disability assessments.[4] This research design recovers causal effects of more generous disability benefits among less clear-cut cases, where examiners may disagree about the veteran's degree of disability and impairment. We measure examiner generosity using a leave-out, residualized measure based on all other cases an ex-

[3]Inter-rater reliability measures in this context tend to be far from perfect Barth et al. (2017). We have examined other types of disability claims, generally finding less evidence of discretion. Even where there is discretion, ratings are much more constrained and thus examiner-induced variation in the dollar amount of benefits is small compared to mental health cases, leading to concerns about weak identification. Thus, if we were to incorporate claims for other disabilities, our estimated effects would be heavily weighted towards mental health.

[4]Recent empirical work has documented enormous local-area variation in the diagnosis and treatment of mental disorders, plausibly reflecting provider discretion (e.g Cuddy and Currie, 2020). Our results on the magnitude of examiner differences in assessments are in line with these recent findings.

aminer has examined in our sample. This instrumental variables (IV) research design is similar to those used in other studies of disability insurance programs in the US (Maestas et al., 2013; Autor et al., 2015; French and Song, 2014) and Scandinavia (e.g. Dahl et al., 2014; Autor et al., 2019).[5]

We begin by estimating the impact of assignment to a more generous examiner on disability ratings and benefits, i.e. the first stage in our instrumental variables framework. We find that being assigned to a one-standard-deviation (1 SD) more generous examiner is associated with an increase of $1,445 in annual benefits in the first year after this initial examination (a 5% increase over total annual income). Five years out from the initial examination, veterans who were assigned a 1 SD more generous examiner have received an additional $6,151 (or $1,230 per month, equal to 85% of the year-one effect), suggesting that the appeals process does not do a good job of equalizing the benefits of otherwise identical beneficiaries. Overall, the evidence suggests that more generous examiners bestow extra annuity-like income on their examinees.

Next, we examine the impacts of these more generous benefits on healthcare engagement, economic well-being, and mortality. We find an additional $1,000 in disability compensation increases VA healthcare utilization by 2.5%, despite almost no cost sharing for veterans in our sample. This effect is concentrated in outpatient settings and likely represents a positive effect in total (VA and non-VA utilization) as we do not see any effect (i.e., decline) in Medicare utilization among the elderly. We find that veterans are more health-engaged. They schedule more appointments, are more likely to take-up preventive care (e.g., flu vaccinations, and hepatitis C and cancer screens) and exhibit higher medication adherence, all suggesting greater degrees of overall satisfaction and trust with the VA. We also find that the effects are larger for those living further away from a VA facility, suggesting that a relaxation of time costs and "ordeals" (e.g., via labor supply adjustments, cf. Coile et al., 2015) likely also play a role.

[5]Similar designs have been used in a variety of empirical settings, including studies of the criminal justice system (e.gn Kling, 2006; Mueller-Smith, 2015; Aizer and Doyle Jr, 2015; Dobbie et al., 2018), bankruptcy protection (e.g.n Dobbie and Song, 2015), foster care (e.g.n Doyle Jr, 2007, 2008), hospital care (e.g.n Doyle Jr et al., 2015), and physicians (e.g., Eichmeyer and Zhang, Forthcoming)

Turning to measures of economic well-being, we find that five-year veteran food insecurity and homelessness (measured by annual computerized primary care screens and homelessness is proxied by diagnosis codes, use of acute and residential homeless hospital beds, and use of VA and community homeless services and employment vocational work programs) improve by 0.1 (4.1%) and 0.18 percentage points (1.3%). Financial well-being, proxied by the number and balance amount of VA debt collections referred to Treasury, also improve significantly.

Finally, we find no evidence of any significant improvement or deterioration of veterans' health and mortality. We estimate precise zeros on major depressive disorder, alcohol and substance use disorders, body mass index, blood pressure, and HbA1c glucose levels (95% confidence intervals can rule out effect sizes larger than 0.1% on both sides). We also find no significant change in suicide attempts and overdose poisonings. Consistent with improved economic stability, we do, however, find meaningful reductions in veterans' self-reported pain. We interpret this as a proxy of lower levels of economic and psychosocial stress. A 95% confidence interval around our estimates on mortality imply that an extra $1,000 in annual benefits (which, for a veteran with a life expectancy from benefits receipt of 20 years and discount rate of 5%, translates to a present value of about $13,200, tax-free) decreases 5-year all-cause mortality by no more than 0.011 percentage points. Overall, our results suggest that the value of more generous benefits for our sample is unlikely to hinge on mortality reductions; rather, other measures of well-being and quality-of-life are likely to be key to understanding how generous disability benefits should be.

Our paper contributes to the literature on the impacts of income and cash transfers on health. Some research in this space have focused on exogenous shocks to wealth such as lotteries (Cesarini et al., 2016; Lindqvist et al., 2020) and stock market fluctuations (Schwandt, 2018). The former papers find no effects on individual health utilization but small effects on child health utilization and the latter finds negative wealth shocks significant reduce physical and mental health, and mortality. There is another strand that focuses on the impacts of income and cash transfers from government programs. For example, some have exploited EITC reform to study maternal health (Evans and Garthwaite, 2014) and

poverty and general well-being (Baker et al., 2021; Hoynes and Patel, 2018; Miller et al., 2018), or the social security "notch" and other pensions to study obesity (Cawley et al., 2010), healthcare utilization (Berman, 2021), and mortality (Berman, 2021; Salm, 2011; Snyder and Evans, 2006).[6] We contribute to this literature by focusing existing variation within a policy program to study the beneficiary's own health and economic well-being.

A unique feature of the VA DC program is that it is not means-tested and hence resembles unconditional cash transfers (UCT) in perpetuity to its beneficiaries. A growing number of recent papers have analyzed the poverty (Banerjee et al., 2020) and mental health impacts of UCTs in developing countries (see Ridley et al., 2020, for a review). There are much fewer studies in developed countries; however, multiple randomized controlled trials (RCTs) evaluating the impacts of universal basic income (UBI) in the US are underway.[7] Our quasi-experimental setting serves as a well-powered complement to RCTs in studying the impacts on a relevant population with some pre-existing mental health comorbidities.

Finally, we contribute to the scant literature on the potential benefits of disability insurance programs.[8] Most papers in this space focus on its financial benefits: e.g., consumption smoothing and insurance value (Autor et al., 2019; Low and Pistaferri, 2015) and financial distress (Deshpande et al., 2021) The most closely related paper, Gelber et al. (2018), studies the mortality effects of higher disability income by exploiting kinks in the SSDI benefit formula. Heiss et al. (2015) compare health trajectories of SSDI applicants and find that self-reported health status declines in approved applicants relative to their denied counterparts. We find a negative but statistical insignificant effect on benefits that are an order of magnitude smaller than Gelber et al. (2018); in addition to mortality, we also investigate a large set of health outcomes—many of which are rarely observed to researchers—and provide the first evidence on its mental health and economic wellbeing impacts.

[6]There is also a larger literature on the impacts of parental wealth on their children's health and wellbeing (Aizer et al., 2016; Hoynes et al., 2015; Milligan and Stabile, 2011; Currie, 2009; Cesarini et al., 2016).

[7]Multiple North American cities (Oakland, CA; Stockton, CA; Jackson, MS; New York, NY; Vancouver, BC) are conducting/recently conducted RCTs evaluating UBI programs. These RCTs generally have small sample sizes and rely on questionnaire instruments rather than medical records (West et al., 2021)

[8]This is in contrast to a large literature on its costs, largely in the form of employment disincentives and decreased earnings (Autor and Duggan, 2003; Autor et al., 2016; Cesarini et al., 2017; Coile et al., 2015; Gelber et al., 2017; Maestas et al., 2013; French and Song, 2014).

1. VA Disability Compensation Program

1.1 Primer

The Veterans Affairs (VA) Disability Compensation (DC) program provides benefits to veterans for disabilities incurred during active military service. The program paid $91.4 billion in benefits to 5 million veterans in FY2020, making it roughly two-thirds the size of the Social Security Disability Insurance (SSDI)–the primary disability program for non-veterans.

Benefits are administered as monthly, tax-free payments and, unlike the all-or-nothing SSDI and Social Security Income (SSI) programs, are an increasing function of veterans' VA-determined degree of service-connected disability, known as their "combined disability rating" (CDR). Intended to reflect the degree to which the combination of a veteran's service-connected disabilities[9] inhibit work capacity, CDRs range from 0% to 100%, are rounded to the nearest 10%, and are an increasing and concave function of the disabilities for which a veteran is rated (where ratings for each disability are themselves in increments of 10%). Monthly benefits for a single veteran in FY2020 ranged from $142.29 for a (rounded) CDR of 10% to $3,221.85 for a CDR of 100%. Benefit amounts differ slightly based on the veteran's dependent situation; for example, each additional child dependent adds $25.00 for a veteran with a CDR of 30% and $86.05 for CDR of 100%. There is no means test for these benefits.

Mental health disabilities constitute a large and growing share of the program, especially among veterans with combat experience. Nearly 2 million compensation recipients are rated for some form of mental health disability, with over 1 million for post-traumatic stress disorder (PTSD) alone (VBA, 2019).[10] Ratings for mental health are the highest and most variable across all body systems: half of conditions are rated at or above 50% (so that a single veteran without any other disabilities would receive a monthly check for $879.36), and

[9]Service-connected disabilities are broadly construed as those incurred during the veteran's time in the military, though evidence of events that caused particular disabilities is often required as well. Service-connectedness is evaluated under the evidentiary standard of equipoise, in which the benefit of the doubt goes to the veteran, as ruled in Gilbert v. Derwinski (1990).

[10]Mental disorders are the most common disability among SSDI beneficiaries, accounting for 34.5% (3.4 million) of all SSDI beneficiaries in 2019 (Social Security Administration, 2020).

over one eighth of conditions are rated at 100% ($3057.13, as above).

1.2 Disability Claim and Rating Process

A veteran's ratings determination process for a particular disability begins with the veteran filing a claim with the Veterans Benefits Administration (VBA). A veteran must provide evidence and documentation (health records, records of their combat experiences, and so on) to substantiate both the severity of the disability and how the disability is related to his or her time and activities in service.

After the filing stage, a veteran's claim is distributed to her local VBA office, at which point an examination is scheduled to independently assess the severity of the claimed disability.[11] This examination is purely forensic[12] and is virtually always a one-off encounter between the veteran and the examiner. Mutual availability plays a large role in the assignment of veterans to examiners; if the VA can only find examiners far from the veteran's residence, the veteran is reimbursed for their travel costs. [13]

During the examination, the examiner reviews the veterans' medical history, assesses symptoms, and makes judgments on the severity of the veteran's disability. Because examiners are meant to provide independent evaluations, they are granted considerable discretion in what information they elicit from veterans and in how they interpret this information.

The reporting of this information takes place on standardized Disability Benefit Questionnaires (DBQs). DBQs provide room for free text but, for mental-health claims in particular, also prominently feature a seven-item Likert-style assessment of the veteran's Occupational and Social Impairment (OSI), This field closely mimics the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) and forces examiners to make discrete choices in rating similarly impaired veterans.

[11] For some conditions, and in some cases, the veterans' evidence and documentation can be treated as sufficient. This is not the case for mental-health claims, for which the VA does not accept prior clinical evidence and requires a VA-administered examination for substantiation.

[12] That examiners are not supposed to administer any treatment in these exams has drawn some criticism especially in the context of mental health examinations (e.g. Rosen, 2010).

[13] For more information, see https://www.benefits.va.gov/COMPENSATION/docs/claimexam-faq.pdf, accessed March 25, 2021.

This DBQ is then passed along to a ratings officer who ultimately assigns ratings (10%, 20%, etc.) based on comparing submitted information with a rating rubric.

Once a ratings determination is made, veterans can appeal, but owing to the complexity of the appeals process, initial ratings are quite persistent. From start to finish, the ratings process takes four months on average, though it can take substantially longer.[14]

Mental Health Disability Claims

Mental health disability claims have a few notable features that distinguish them from other types of disability claims in the VA setting.

First, the burden of mental health disorders in the veteran population is large, with substantial variation across veterans. As of 2019, 1.9 million veterans receive disability compensation for a mental health-related condition, with over 1.1 million for PTSD alone, the fourth most prevalent disability.[15] Moreover, across all body systems, mental disorders exhibit the greatest variation in their ratings—half the conditions are rated above 50%—making it a powerful determinant of total compensation. For comparison, only 6.3% of auditory disabilities (the most common condition) are rated above 10% (VBA, 2019).

Second, as mentioned above, the VA requires VA-administered mental-health examinations and does not accept external evaluations by private providers. This eliminates a veteran's ability to shop for potentially lenient clinicians, as well as any discretion over whether the VA chooses to examine a given veteran. Exams are conducted by board-certified psychiatrists, doctorate-level psychologists, or residents of either under close supervision, which constrains the set of examiners and heightens the role of mutual availability in the examiner assignment process.

Finally, conclusions of mental health examinations, including OSI scores and other documentation, are almost surely more subjective relative to physical examinations, which are

[14]Claims averaged 154 days to decision in FY 2019. See https://www.va.gov/disability/after-you-file-claim/, accessed March 9, 2021. Backlogs have also been a major concern and have built up during the Coronavirus crisis. For more on the adjudication process, see VBA Manual M21-1: https://www.benefits.va.gov/WARMS/M21_1.asp.

[15]Following tinnitus, hearing loss, and limitation of flexion in the knee. Major depressive disorder and general anxiety disorder are also common compensated disabilities.

often based on a single quantitative, equipment-testable metric such as the degree of flexion of an affected joint. In combination with the wide-ranging ratings for mental-health disabilities, any systematic variation across examiners' assessments can have substantial implications for the dollar value of benefits received by a veteran over his lifetime.

It is this underlying variation in choices, in combination with quasi-random assignment of veterans to examiners, that drives our examiner-based research design. While we measure examiner generosity in dollar terms for the remainder of this article, we provide a more detailed analysis of DBQ information, cross-examiner variation in OSI ratings, and their relationships with realized compensation amounts in Appendix C.

2. Data Sources and Sample

Our analysis utilizes linked administrative microdata from the Veterans Health Administration (VHA) and Veterans Benefits Administration (VBA). Below we briefly outline the data sources; Appendix A provides a more detailed description on each variable definition.

Disability claims From the VHA, we observe information on all mental health disability examination conducted by the VHA between 2004 and 2019. This includes the date of the examination, facility it was conducted at, the identifier of the examiner and the veteran. We also have completed and digitized DBQ forms for roughly half the examinations. We link veterans' mental health disability claims to the universe of individual disability ratings history (resulting disability of initial claims, denials, appeals, re-ratings, etc.) from the VBA.

Health and mortality As an early adopter of electronic health records in the 1990s, the VHA maintains rich and detailed records which we use to construct a comprehensive view of health and mortality outcomes. In addition to "standard" encounter, diagnosis, and procedure records used to construct measures of utilization, we also have information on patient scheduled appointments, clinician orders (e.g., flu vaccinations, screening devices), issued but potentially unfilled prescriptions, patient questionnaires (e.g., food insecurity

screens, PHQ-9 major depressive disorder screens, brief addiction monitor), and vital signs and biomarkers (e.g., weight, blood pressure, pain scores, HbA1c, etc.). Data on suicide events are from a congressionally-mandated suicide prevention network from the VA Office of Mental Health and Suicide Prevention, which compromises of clinically mandated suicide evaluations, suicide behavior and overdose reports, clinical text, current and historic reports from clinical and suicide prevention coordinators, in addition to medical records. We also observe Medicare claims (Parts A, B, and D) from 2011-2019 for all veterans utilizing VHA care, which we use to study substitution patterns across VA- and Medicare-provided care. Finally, data on date (updated daily) and cause of death (available until the end of 2018) linked at the veteran-level come from the CDC National Death Index Plus.

Economic and financial well-being Annual food insecurity screens from the VHA allow us to track rates and changes to food insecurity. Due to its integrated nature, the VHA is also a provider of a broad range of homeless services (e.g., short- and long-term homeless beds, homeless clinics and assistance centers) which it tracks in health records. Using these records, we construct proxies of homelessness following official VA Office of Mental Health and Suicide Prevention definitions.[16] Information on VA debt[17] and debt progression (e.g., beginning with debt notification letters to referral to Treasury debt "collection", etc.) from 2016 to 2021 come from the VBA's debt management center. Federal agencies, including the VA, are required to refer delinquent debts to the Treasury Offset Program, which then may collect the debt by withholding money from federal payment (such as tax refunds, social security, federal wages; a method known as "offsetting"). Using referrals to the Treasury, we construct measures of (VA) debt collection comparable to (Dobbie et al., 2017; Dobkin

[16]Similar VA homelessness measures have been used in prior studies to estimate incidence and predictors (Tsai et al., 2014), investigate gender differences (Brignone et al., 2018), and as an outcome following financial assistance (Nelson et al., 2021).

[17]The most common sources of VA debt are changes to school and vocational eligibility that make the veteran ineligible for educational or vocational employment benefits. For example, the veteran may drop classes or leave school and thus have been overpaid by the VA for GI Bill-related education benefits. Similarly, the veteran's dependent situation may have changed and the VA may have overpaid disability or pension benefits. Inability to make mortgage payments on VA home loan guarantees are another source of VA debt. We do not observe information on debt external to the VA.

et al., 2018).

Sample Our analytic sample construction begins with 1.27M veterans filing their first disability claim for a mental health condition.[18] For each veteran, we construct combined disability ratings for each calendar year which maps to yearly benefit compensation amounts This is the sample used to construct examiner leniency discussed in the next section. Following leniency construction, we make a few additional restrictions: We drop veterans who are examined by examiners with fewer than 100 total exams (this step decreases sample size by 10%) and who are not enrolled in VHA benefits prior to their disability exam. With these restrictions, our baseline sample consists of 867,016 veterans examined at 128 VHA facilities by 1,749 licensed mental health specialists between 2004 and 2019. Finally, we construct outcomes at the 1-year and 5-year level relative to their examination date.

Table 1 summarizes demographics for our sample of veterans at their first mental health exam. Roughly 89% of our sample are men, 61% are non-Hispanic White, 22% Black, and 8% Hispanic. There is a wide distribution in veteran age at the time of their first claim, with over a fifth under the age of 34 and the majority under 55. Anxiety disorders, in particular PTSD, and mood disorders make up virtually all mental health disability claims. The average claimant receives $15,089 in disability compensation benefit in their first year, which is just over half their annual income at the time of application. Disability compensation are effectively a perpetuity as the average amount over the first five years is $83,233 and $175,823 over the first ten years. This gradual upward drift (in real dollars) over time reflects the fact that VA disability compensation is effectively a perpetuity and veterans are more likely to have ratings increased (via appeals, re-ratings, or worsening of conditions) than decreased.

[18] Disability examinations can be conducted in-house by the VHA or by licensed contractors. We observe the former.

3. Empirical Strategy

Consider a model relating veteran i's outcomes (measures of health, well-being and healthcare utilization) to his VA-administered annualized disability benefits, $Benefits_i$:

$$Y_i = \beta_0 + \beta_1 Benefits_i + \beta_2 \mathbf{X}_i' + \varepsilon_i \tag{1}$$

where Y_i is a specific outcome of interest, $\mathbf{X}_i$ is a vector of veteran-level control variables, and ε_i is an error term. Ordinary least squares estimates of β_1 in Equation 1 likely reflect both the causal effects of benefits and the correlation between benefits and unobserved veteran characteristics that are correlated with outcomes. As the VA DC program intends to provide more generous benefits to more disabled veterans, we would expect such estimates to be biased towards finding that benefits are detrimental to veteran health.[19]

To address this issue, we use a measure of the generosity of the veteran's quasi-randomly assigned mental health examiner as an instrument for the dollar value of a veteran's annual disability compensation benefits. These estimates identify a local average treatment effect (LATE) of more generous benefits on veteran outcomes, among veterans whose exact degree of disability and impairment is ambiguous to examiners.

3.1 Instrument Construction

We construct our instrument using a residualized, leave-out ("jack-knife") examiner generosity measure that accounts for location-by-time effects, following Dahl et al. (2014). The residualized measure circumvents potential concerns around non-random examiner assignment across time or space (for example, sicker veterans may live near VHA facilities with more lenient mental health care professionals, or the composition of new claimants and types of examiners may be evolving together over time). Specifically, we account for VA facility-by-calendar year effects (128 VA facilities across 16 years). Including these effects essentially

[19] See Table B.1 for the ordinary least squares regressions. As expected, all estimated coefficients are biased towards benefits being detrimental to veteran health.

limits our comparisons to veterans at risk of being assigned to the same set of mental health examiners. Conditional on these controls, our instrument captures variation in the typical assessments of disability and impairment by a veteran's quasi-randomly assigned examiner relative to other veterans examined in the *same VA facility in the same year*.

To summarize mental health examiners' leniency, we use link details on the disability examination (location, time, examiner) with the veteran's first-year disability benefit compensation, $Benefits_i$.[20] Next, we construct residualized benefit amounts of veteran i be denoted as b_i^*:

$$b_i^* = Benefits_i - \gamma \mathbf{X}_i = Z_{ij} + \varepsilon_i \tag{2}$$

where $\mathbf{X}_i$ contains facility-by-year fixed effects, as well as other veteran characteristics predictive of benefit amounts. The veteran characteristics in $\mathbf{X}_i$—which as we show later are *not* essential for quasi-random assignment, but are included for statistical precision—include five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange, and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Note that this residual b_i^* contains our measure of examiner leniency Z_{ij} as well as an idiosyncratic veteran-level error term ε_i.

Finally, for each veteran, we construct the leave-out average leniency of examiner j across all of j's examinations, denoted by $\mathbb{K}(j)$, as:

$$Z_{ij} = \frac{1}{N_j - 1} \sum_{i' \in \{\mathbb{K}(j) \setminus i\}} b_{i'}^* \tag{3}$$

where N_j is the total number of examinations performed by examiner j. We use this leave-out

[20] We use the historical individual disability records to construct annual CDRs that we then map to dollar amounts. Since we do not observe veteran dependent information, we impute veterans' compensation amount as if they were single. Dependent information plays a much smaller role than CDR in determining compensation. For example, a single veteran with a CDR of 50% receives $893.43 a month in 2020. If that veteran had a spouse and two child dependents, s/he would receive $1086.43. By comparison, if instead the single veteran's CDR was 60%, s/he would receive $1,131.68 per month.

measure of leniency because regressing outcomes on examiner leniency constructed *without* leaving out veteran i would introduce bias, as the same estimation error would appear on both sides of the regression. Our instrumental-variables analysis uses this predicted examiner leniency measure Z_{ij} as an instrument for $Benefits_i$.

3.2 Variation in Examiner Leniency and First-Stage Estimates

Figure 1 presents a histogram of our examiner leniency measure. The underlying sample includes 1,749 licensed mental health specialists who serve as examiners on at least 100 cases at one of 128 VHA facilities. The average number of cases per examiner is 648, with the top 10% of examiners performing at over 1,600 examinations.The 5th to 95th percentile of our measure of examiner leniency ranges from -$2,335 to +$2,352, with a standard deviation (SD) of $1,447, suggesting large differences in examiners' perceptions of disability and impairment.

The local-linear relationship between our examiner leniency measure and realized one-year benefits among is also presented in Figure 1, where we find strong predictive power of our leniency measure for realized benefits. To compactly summarize this relationship, we estimate a linear first-stage regression of benefits on examiner leniency of the following form. Ordinary least squares estimates of this model (displayed in Table 2) imply that being assigned to a one SD more lenient examiner is associated with a $1,445 increase in first-year VA DC benefits for these veteran, a 10% increase over average annual disability compensation benefits and 5% increase over total annual income. This coefficient is highly significant, with a facility-level clustered standard error of $20 and a first stage F-statistic of 13,568. The examiner also has sticky, perpetuity-like impacts on cumulative benefits (and thus veteran wealth). Being assigned a one SD more lenient examiner increases five-year cumulative benefits by $6,151 and ten-year cumulative benefits by $7,557 (columns 3 and 4).[21]

[21]The first-stage impacts dissipate over time because veterans can appeal, re-rate, and file claims for new disabilities.

3.3 Instrument Validity

So far, we have established that examiner variation in leniency is both substantial and predictive of realized benefits of veterans. For examiner leniency to serve as a valid instrument for identifying the LATE of benefits on health and well-being requires two further assumptions. First, examiner leniency must satisfy an *exclusion restriction*, such that examiner assignment only affects veteran outcomes through their influence on veteran's benefits. Second, examiner leniency must satisfy a *monotonicity condition*, such that the effects of being assigned to a more lenient examiner on benefits are weakly positive for all veterans.

Figure 2a establishes that examiner assignment is nearly random within facility-year cells. The left panel of this figure shows the results of a linear regression of realized benefit amounts on veteran characteristics. These estimates reflect both differences in examiner generosity as well as differences in veteran qualifications for disability benefits. Not surprisingly, veteran characteristics—including income, period of service, exposure to radiation, prior-year diagnoses, etc.—are highly predictive of realized benefits. The right panel of Figure 2a assesses whether these veteran characteristics are predictive of examiner assignment along a "bare" leave-out leniency measure, which residualizes *only* for facility-by-year fixed effects and *not* the veteran characteristics in Equation 2. In contrast to the left panel, we do not find strong correlations between observable veteran characteristics and the measured leniency of the assigned examiner. Moreover, the joint F-statistic on all the veteran characteristics in determining examiner leniency is orders of magnitude smaller than in determining benefit amount. Finally, we succinctly summarize this balance table by showing that predicted benefit compensation is not meaningfully correlated with the examiner leniency in Figure 2b.[22] Examiners who we measure to be more vs. less lenient examine observably similar veterans within a facility-year.

[22] We predict first-year benefit amount using the full set of veteran characteristics in Figure 2a, controlling for facility-by-year fixed effects and split veterans into twenty equally-sized bins based on their assigned examiner leniency. We then plot the mean actual and predict benefit compensation amounts against the examiner ventiles. Consistent with the first stage and balance figures, examiner leniency linearly predicts actual benefit amount almost one-for-one; however, does not predict predicted benefit amount (roughly 0.6% of the first stage explanatory power).

This as-good-as-random assignment process lends preliminary support to the exclusion restriction. However, examiners could vary along other dimensions that are correlated with leniency. For instance, if more lenient examiners also recommend follow-up treatment for veterans during their examinations, or have better "bedside manner" during the examination, then our estimates would capture not only effects operating through benefits but also effects operating through examiner behaviors on veterans' care-seeking. Two features limit the likelihood that these other examiner behaviors are sources of major concern. First, institutionally, examinations are forensic and no treatment is delivered. Second, we limit attention to veterans who are already in the VHA system prior to their disability examination, which is administered separately by the VBA.

Nevertheless, to probe whether other examiner tendencies are correlated with our measure of leniency and thus might lead to violations of the exclusion restriction, we extract information from the examination DBQs. We find a significant amount of explanatory power in explaining realized compensation benefits is driven by the examiner's OSI response (i.e., their checked box), beyond what is explained by veteran characteristics (R-squared increases from 0.11 with just veteran characteristics to 0.19 after including OSI response; see Table C.1). In addition to the structured OSI section, we analyze the free-text section of the DBQ—which may contain insightful clues about the examiner's beliefs, manners, and actions—and extract examiner sentiment[23] and word count. Neither of these dimensions have any explanatory power in predicting benefit amounts beyond the OSI response. While this analysis, the details of which can be found in Appendix C, does not rule out other channels through which examiners could influence veteran outcomes, it is consistent with the exclusion restriction. To the extent that the exclusion restriction is violated, our reduced-form estimates, shown in Table B.2, can be interpreted as the causal impact of being assigned to a more lenient examiner.

In our setting, the monotonicity condition, the second assumption needed to interpret our estimates as LATEs of disability benefits, rests on the assumption that any veteran seen

[23]We use a lexicon-based sentiment analysis to obtain (positive/negative) polarity.

by a more lenient examiner would end up with a weakly higher benefit amount than had he been seen by a less lenient examiner. Otherwise, our IV estimates would not represent a well-defined LATE. We probe whether such violations are likely or common using two approaches. The first is standard in applications such as this: we estimate first-stage models of benefits on examiner leniency for a series of subgroups (sex, race, age, and mental disorder type), as shown in Table B.3. The fact that in each group we find large and similar effects of examiner leniency on benefits is consistent with monotonicity. Variation in the magnitudes of the first-stage effects speaks to the relative share of "compliers" within each group, with larger subgroup-specific first-stages indicating a higher likelihood that individuals in that subgroup are in the compliant population. Second, given the salience of the OSI section in determining benefit amounts and its multi-valued structure, one could be concerned that examiners are differentially lenient across the OSI—or disability impairment—spectrum. Our monotonicity condition presumes that examiners who are more lenient on average are more lenient in every part of the OSI distribution. We test this by constructing six complementary measures of examiner leniency, one at each threshold value of OSI. We do this by replacing $Benefits_i$ in Equation 2 with an indicator for being above an OSI threshold. Figure C.4 demonstrates that our baseline measure of leniency is highly correlated with each of these six threshold-leniency measures. The highest correlations are for thresholds at the middle of the OSI spectrum, with a correlation of 0.65 for the third and fourth OSI box thresholds, but even at the top (bottom) threshold, our continuous leniency measure is correlated at 0.39 (0.53). This evidence is consistent with the idea that more lenient examiners are more lenient across the disability severity spectrum.

4. Results

4.1 Healthcare utilization, engagement, and income elasticity of demand for healthcare

Table 3 presents 2SLS estimates of an additional $1,000 *per year* in disability benefits on various one-year (Panel A) and five-year (Panel B) healthcare utilization and engagement outcomes. Total utilization increases by roughly 2% in the short-term and long-term (column 1). In both time horizons, the increase is concentrated in outpatient settings which experience a 2.5-2.6% increase in one-year and five-year total utilization—"average cost" computed by the VA to reflect healthcare utilization using Medicare reimbursement rates (Wagner et al., 2003)—on a base of $10,169 and $40,234. The effect is entirely driven by outpatient engagement, as we see no statistically significant increase in inpatient utilization.

Next, we investigate into various categories of care engagement. Given our sample of veterans have underlying mental health comorbidities, we first investigate into mental health related visits. We find that for every additional $1,000 per year in disability benefits, mental health related outpatient visits increase by 0.04 visits on a mean of 7.6 visits in the first year and 0.20 visits on a mean of 34.2 visits in five years. Like the effect on total overall utilization, the relative effect size for mental health related outpatient visits is roughly constant over the short- and long-term at 0.5-0.6%. There have been longstanding concerns within the VA that compensation for mental health conditions may "create obstacles and disincentives for therapy or treatment" (National Research Council, 2007).[24] We are able to reject this hypothesis. Using administrative data on appointments, we find that scheduled appointments increase by 0.12 in the first year (0.53%) and 0.86 (0.79%) over five years per

[24]This belief dates back to a 2005 Office of Inspector General report that found in a small case review of 100% PTSD-rated veterans, 39% of them began decreasing their mental health visits following award date VA Office of Inspector General (2005). This might be due to incorrect beliefs that compensation for their PTSD is tied to VHA mental health treatment or that some veterans have low treatment outlook moral ("feel hopeless") and primarily seek compensation "to validate that they had indeed been harmed by their wartime experience" (Black et al., 2018). Since the OIG report, (Sripada et al., 2018) found that it is not that utilization decreased but rather baseline mental health utilization among PTSD awardees is incredibly low.

every $1,000 in disability income. This finding, coupled with the null effect on emergency department and acute hospital visits (column 6), imply that the increase in utilization is not driven by "pop-up" urgent issues but rather by intentional increased engagement.

Preventive care Given that the vast majority of care provided at the VHA is free for our sample of veterans, one may be concerned about moral hazard and wasteful care. We find that preventive care—potentially of high value—increases as well. We begin by investigating the number or preventive and wellness visits in column 1 of Table 4. There is a positive effect that is marginally significant in the first year and insignificant in the long-term. This might be driven by a lack of procedure coding in the VA as the providers are salaried and not paid fee-for-service. To circumvent this issue, we dive into electronic health records where all item orders need to be entered before the item or test can be delivered and measure three items on the VHA preventive care guideline (VHA, 2021): annual flu vaccinations, at least one hepatitis C screen for all adult veterans under age 79, and annual colorectal cancer screens via fecal occult blood test for all veterans ages 50 to 75. We find that every $1,000 increases the probability of receiving a flu vaccination in a given year by 0.4% and the probability of receiving a hepatitis C increases by 1% in the first year and 0.7% in five years. The effect on colorectal cancer screens is positive but statistically insignificant.

Medication adherence Table 5 displays the results for medication adherence-related outcomes which are described in detail in Appendix A. Additional disability income increases the number of drugs veterans start on, it also increases the likelihood that each individual prescription is picked up. For every $1,000 in disability income, veterans start 0.03 new drugs in the first year and 0.09 new drugs in the first five years. The likelihood they pick up the prescription increases by 0.15-0.17pp (a quarter of a percent over the baseline mean) in both the short- and long-term. Medication adherence also increases. The average medication possession ratio among all drug trials[25] increases by 0.07pp in the first year and 0.05pp in five years; however, there does not appear to be a shift in the fraction of drugs the veteran

[25]See **??** for the most common drugs taken by the baseline sample.

is adherent to (defined as MPR>0.8). The average drug treatment length also increases by roughly 2 days per per, per $1,000. Next, we investigate into medication adherence for five drug classes in psychotropic and cardiovascular drugs where adherence is particularly important: antidepressants, antipsychotics, sedatives/hypnotics, statins, and hypertensive drugs. We find that while five-year MPR appears to be positive for all five drug classes, the effects are largest in magnitude—and statistically significant— for statins and hypertensive drugs. The results are presented in Table B.6.

Income elasticity Equipped with our estimates on the causal effect of disability benefits on healthcare utilization, we calculate income elasticities of demand for healthcare, a rather elusive elasticity in the literature, perhaps due to the lack of dating linking exogenous changes to income with healthcare spending. We calculate this income elasticity in Table B.6. Column 1 begins with a log-log specification of log total spending on log first-year benefit amount (instrumented with examiner leniency) and arrives at a benefits elasticity of demand for healthcare of 0.26. In column 2, we obtain each veteran's total income by adding the observed average income to their realized disability benefits and arrive at an income elasticity of demand for healthcare of 1.08. While this estimate is closer to a true income elasticity, it does not account for labor market adjustments of disability income which is well established (Autor and Duggan, 2003). Using estimates of VA disability compensation on labor force participation from Autor et al. (2016), we arrive at our preferred labor-adjusted income elasticity of demand for healthcare of 0.85.[26] To the best of our knowledge, this is the only study to estimate this elasticity at the individual-level. Our estimate is in-line with Acemoglu et al. (2013), which estimates an elasticity of 0.7 using area-level shocks to oil prices.

Mechanism The positive income elasticity of demand for healthcare is despite the fact that the majority of our sample receive either completely free or low cost healthcare from

[26]We take Autor et al. (2016) 2SLS estimates of the causal impact of every $1,000 (in 2001 dollars) on the probability of having positive income from Table 8, and calculate the change in probability of being employed for every $1,000 (in 2020 dollars). By assuming no intensive margin labor responses we compute a change in total income— net of labor market effects of disability income—which we use along with our utilization effects to calculate our preferred elasticity.

the VHA. It may be that after receiving higher compensation from the VA, they substitute to VHA healthcare and total healthcare utilization is unchanged. We investigate into this hypothesis in Table B.7. Not only is there a huge baseline preference for VHA outpatient care (by more than 10 fold), but additional disability income does not have any meaningful effect on Medicare utilization. We suggests that we are likely capturing the true utilization effect, even among dual-eligible patients. Although the monetary cost of VHA healthcare is low, there may still be high implicit costs. Many veterans are low income and obtaining healthcare can be of high time and transportation cost. Moreover, a quarter of veterans live in rural areas with few nearby VHA facilities (NCVAS, 2016). Higher disability compensation may reduce the shadow cost of receiving healthcare by expanding veterans' budget constraints or freeing up non-work type by shifting from traditional full-time work to self-employment or part-time work (Coile et al., 2015). A prediction of this "ordeals" hypothesis is that the utilization and engagement effects should be greater for those living further from a VA medical facility. Since we observe veteran address data, we test this prediction by interacting each veterans' (prior year) driving distance to their nearest VA primary care clinic with benefit compensation amount. The result of this exercise can be found in Table B.8. Indeed, those who live further away utilization less healthcare on average, and there is a positive gradient with respect to distance: those living more than 25 miles away from the nearest VA primary care clinic increase first-year utilization by more 3.2% compared to just 1.8% for those living within five miles.

4.2 Measures of Economic and Financial Well-Being

One goal of income transfers is to improve economic stability and prior studies have found cash transfers reduce poverty rates (Hoynes and Patel, 2018; Miller et al., 2018). An advantage of our data and setting is the ability to track non-income-based measures of economic well-being due to the integrated nature of the VHA, its broad range of services it provides, and richness of its administrative health records. For example, the VA measures homelessness from a variety of administratively monitored sources including diagnoses, use of homeless

beds, and other homeless services.[27,]

Table 6 presents the results of an extra $1,000 per year in disability income on food insecurity, homelessness, and geographic mobility. Food insecurity—tracked by the VA via annual primary care screens mandated since 2017—improves by 0.06pp in the first year on a base of 2.17% and 0.10pp in five years on a base of 2.41% for every $1,000 in disability income.[28] The relative effect size on long-term food insecurity at 4.1% is the most responsive outcome to higher disability compensation. This implies that among veterans with mental disabilities, many of which live near the federal poverty level (Murdoch et al., 2011), basic needs are some of the first purchases made with additional disability compensation benefits.

Housing is another basic need. Homelessness (at any time) in the first year decreases by 0.072 percentage points (1.0%) over a mean of 7.75%. The high homelessness rate reflects the fact that our proxy is a measure of interval prevalence (ever homeless) as opposed to point-in-time; prior studies of veterans in specialty mental healthcare have found similar rates (Tsai et al., 2014). Long-term homelessness (ever homeless over a five year period) is reduced by 0.184pp, an effect of 1.3% over the baseline mean of 14.33%. This measured causal effect of disability income on homelessness is broadly consistent with the estimates that the share of the adult (sheltered) homeless who are veteran declined from 14.8% to 8.1% between 2006 and 2018 while VA disability rolls have increased over this time period (Meyer et al., 2021). It is important to note that while our proxy of homelessness is imperfect, to the extent that we see increases in utilization for veterans receiving more generous benefits, we would expect to see increases in services and codes that indicate homelessness. Thus, we view our estimates as providing a lower bound on the decrease in homelessness from higher disability income. Taken together, we find strong evidence that increases to unearned (disability) income improves food insecurity and homelessness.

Finally, we move to financial well-being by studying VA debt. Delinquent VA debt—most

[27] See Appendix A for more details.

[28] This is calculated conditional on receiving a food insecurity screen. The five-year response rate for food insecurity screens is 66.3%. The response rate increases by less than 0.15pp for every $1,000 increase in compensation. This selection effect is small relative to the effect size and likely reflects increased utilization and engagement.

commonly from educational/employment benefits or home loans, see Table B.9—get referred to the Treasury Offset Program which the Treasury can collect by withholding federal funds such as tax refunds, social security, or VA disability benefits. We view this form of Treasury debt collection on VA debt as analogous to debt collection in non-VA settings (Dobbie et al., 2017; Dobkin et al., 2018). 2.6% of our baseline sample have any collections within five years and the median balance among these collections is $8,229 with a quarter owing over $17,500. We find in columns 5 and 6 of Table 6 that the number of collections decline by 0.107 (6.4%) over five-years and the collection balances decline by 0.6%.

4.3 Mental and Physical Health

We study the impact of income on a wide set of mental and physical health outcomes in Table 7. Relating to mental health, we find the impact of income on five-year major depressive disorder and alcohol and substance use disorder—measured from annual patient questionnaire screens and diagnosis codes—to be a precise zero: 95% confidence intervals can rule out effect sizes of more than 0.1% and 0.4% over the baseline mean. We also fail to detect effects on overdose poisoning measured from diagnosis codes and suicides measured from VA suicide surveillance data.

Focusing on physical health[29], we find that average pain scores (measured on an increasing scale of pain from 0 to 10) in primary care settings decrease by 0.01 and 0.015 in the short- and long-term on a base of roughly 3, a 0.5% reduction. We estimate the effect of income on body mass index, HbA1c glucose levels, and blood pressure to be zero. Across all three outcomes the effect size is in the order of a tenth or a thousandth of a percent over the baseline mean and the 95% confidence interval can rule out effect sizes of more than a tenth of a percent. The reduction in self-reported pain and the precise zero on BMI suggest that its likely driven by a reduction in stress (e.g., economic stress from reduced food insecurity and homelessness) or changes to physical occupational demands due to labor market outcomes

[29]The effect is only estimated on individuals with health observations, for example, individuals without any blood pressure measurements are dropped.

(Cutler et al., 2020).

4.4 Mortality and Cause of Death

Table 8 displays the impact of disability income on all-cause mortality and specific causes of death (top three medical causes along with external causes). We find statistically insignificant effects on all-cause mortality. In fact, the point estimate is slightly positive, which allows us to rule out reductions in five-year mortality greater than 0.011pp, or 0.14%.

5. Conclusion

In this paper we visit the question of how income causally affects health. We link the universe of veterans applying to VA's disability compensation program with highly granular electronic health records to study a host of economic and health outcomes, many of which are rarely observed by researchers. Leveraging quasi-random assignment to mental health disability examiners, we find that being assigned a more lenient examiner is like winning a perpetuity lottery: a more lenient examiner is associated with higher non-means tested, tax-free payments until death.

Despite disability income having no impact of healthcare prices—which are essentially free for our sample—we find veterans increase healthcare utilization and engagement with the VHA. An additional $1,000 per year in disability compensation increases healthcare utilization by 2.5%. We find evidence that this engagement effect is driven by greater satisfaction and trust with the VA system. Preventive care, including flu vaccinations, hepatitis C, and cancer screening increase, and veterans exhibit greater degrees of medication adherence along both extensive (filling new prescriptions) and intensive (medication possession ratios increase) margins. Our findings imply that institutions can "buy" patient satisfaction and trust, and in the context of healthcare systems, this can lead to improved health metrics. We do not find any effects on emergency department and inpatient utilization.

Higher disability compensation improve economic well-being. Five-year food insecurity

improves by 4.1% and homelessness improves by 1.3% for every $1,000 in disability compensation. We find no effects on alcohol and substance use disorders and overdose poisonings. Together, this suggests that individuals with mental health conditions spend additional income on basic needs like food and housing and not "temptation goods" (Evans and Popova, 2017). We also find that veterans are more likely to move zip codes; however, we find no evidence that they are moving to wealthier neighborhoods.

Finally, turning to health outcomes and mortality, we find virtually precise zeros across the board. For example, we are able to rule out—at the 95% level—reductions in five-year mortality greater than 0.011pp, or 0.14%. The one exception is self-reported pain, where we find significant reduction of roughly half a percent for every $1,000, likely driven by reductions in economic stress or physical demands at work stemming from changes in employment (Coile et al., 2015).

We know that many individuals apply for safety net programs at disadvantaged times (often following economic and health shocks Deshpande and Lockwood, 2021; Wu and Zhang, 2021) and these shocks have downstream health impacts (Sullivan and von Wachter, 2009; Dobkin et al., 2018), future research should study how safety net programs may alleviate these health and wellbeing shocks. What is the optimal design of such programs? What types of programs are better suited to target particular types of shocks?

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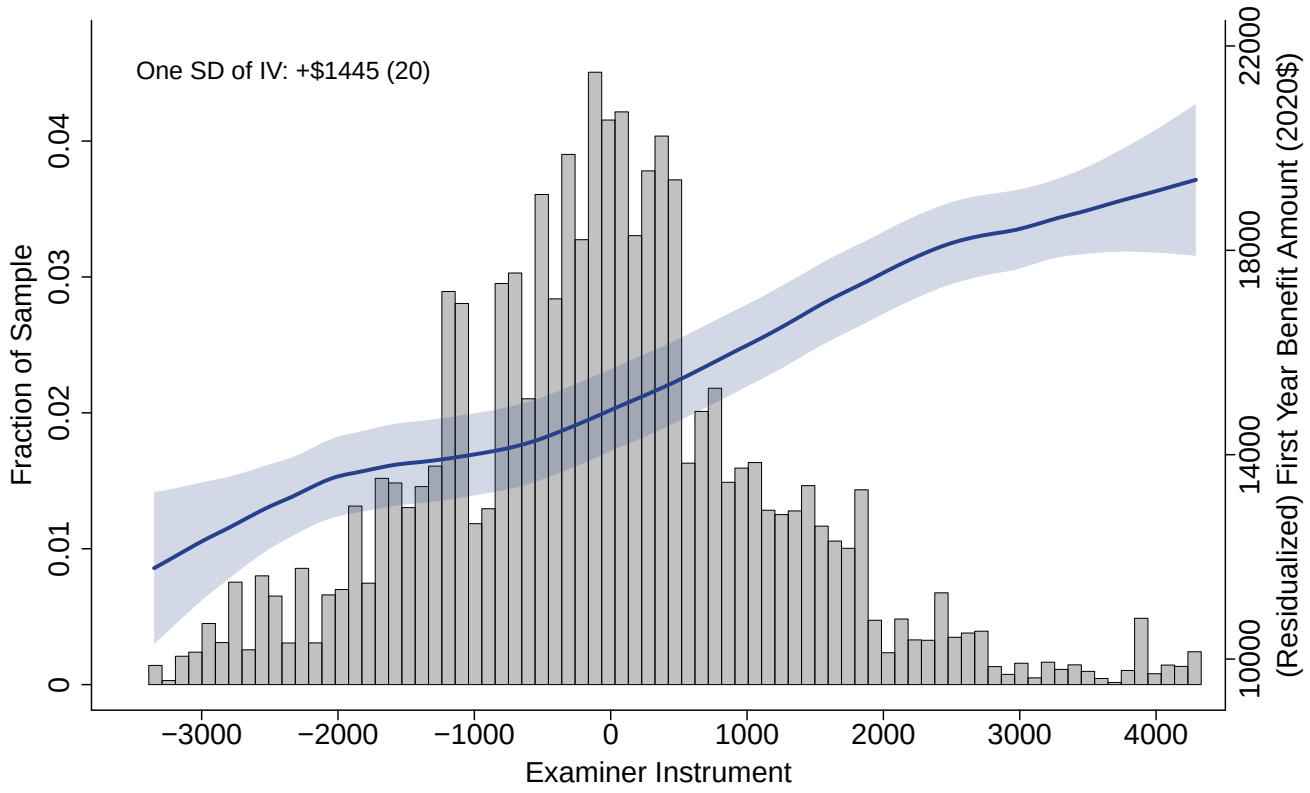
Figures and Tables

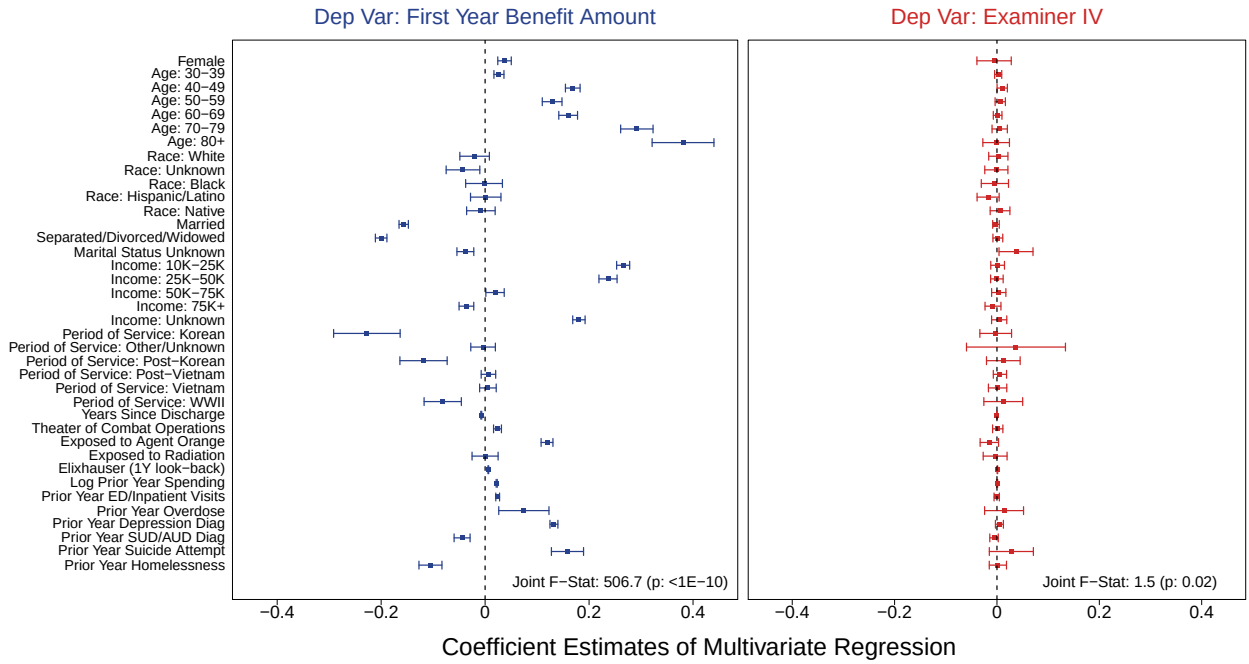
Figure 1: Distribution of Examiner Generosity and Annual Compensation (First Stage)



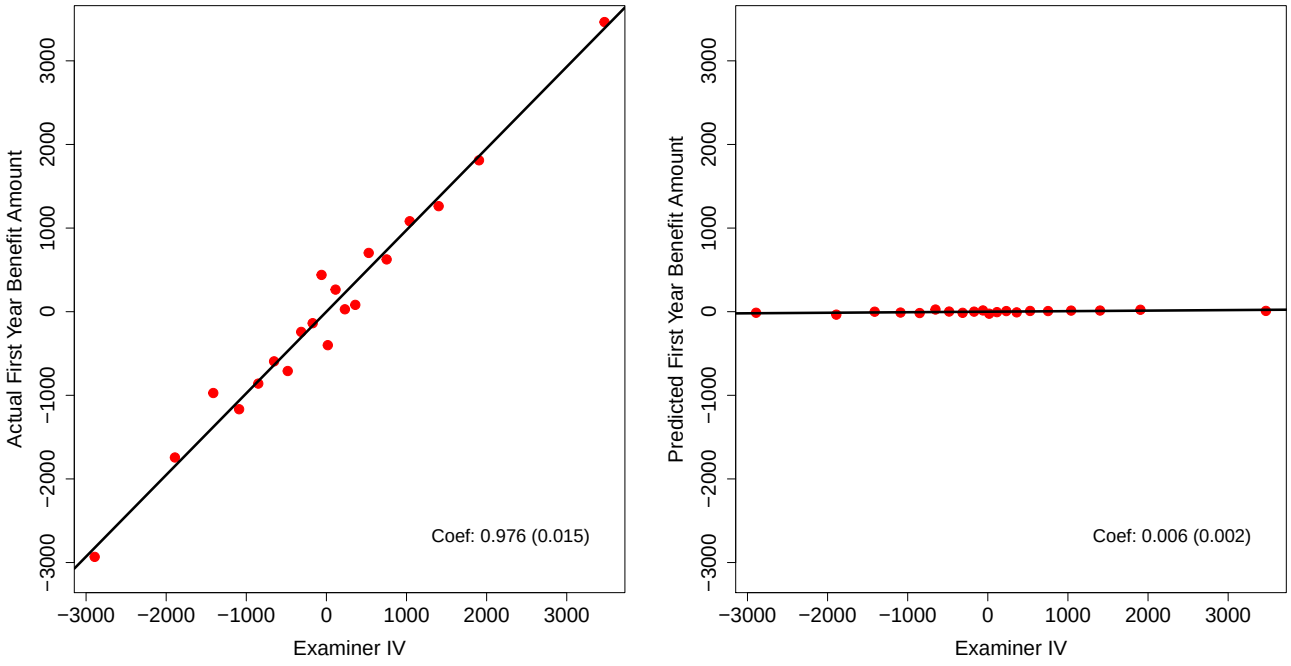
Notes: This figure displays the distribution of examiner leniency instrument as defined in Equation 2 and Equation 3, and its impact on first year disability compensation benefit, residualized for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange, and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Overlaid on top of the histogram of examiner leniency (left y-axis) is a local linear regressions of first year benefit on examiner instrument; 95% confidence bands are also displayed. The estimated linear first stage coefficient (and its standard error) of **??** of a standardized IV are displayed at the top of the figure. The joint F-stat of this regression is 1,116.

Figure 2: Balance

(a) Balance: Veteran Observables Do Not Predict Examiner IV



(b) Effect of Examiner IV on Actual and Predicted Benefit Compensation



Notes: This figure tests our conditional independence assumption of quasi-random assignment conditional on facility-by-year fixed effects. In Figure 2a, the left panel plots the estimated coefficients of a multivariate regression of standardized first-year compensation benefits on pre-disability exam observables: veteran demographics and prior medical history, controlling for facility-by-year fixed effects. The right panel plot the estimated coefficients from a regression of standardized examiner leniency the same set of covariates. The examiner leniency only residualizes for facility-by-year fixed effects in Equation 2 and *does not* include veteran observables as controls. Robust standard errors are clustered at the facility-level. The F-statistic and p-value corresponding to a joint F-test on the displayed set of covariates are displaye; the F-test degrees of freedom are 38 and 864,193. Figure 2b plots actual and predicted benefit compensation against examiner leniency ventiles. The left panel plots actual first-year benefit amounts, residualized for facility-by-year fixed effects against twenty equally-spaced examiner IV bins. The right panel plots predicted first-year benefits amounts using veteran characteristics (from the right-hand side of Figure 2a), residualized for facility-by-year fixed effects against the same bins. The linear relationship between the dependent variable and examiner leniency using the underlying non-binned data are summarized at the bottom right corner of each panel.

Table 1: Summary Statistics For Veterans First Mental Health Disability Claim

	Mean	S.D.	Q1	Median	Q3
Female	0.11				
Asian/Pacific Islander	0.03				
Black	0.22				
Hispanic	0.08				
Native	0.01				
White (Non-Hispanic)	0.61				
Age	50.6	16.3	35.9	52.1	63.2
Period of Service: WWII (1941-46)	0.02				
Period of Service: Korean (1950-55)	0.02				
Period of Service: Vietnam (1961-75)	0.33				
Period of Service: Gulf (1990-)	0.50				
Peacetime Era (Other)	0.12				
Income at Application (2020$)	$28,835	$78,515	$3,012	$14,821	$34,416
Combined Disability Rating	56.0	32.3	30	60	80
Benefit Amount: 1 Year (2020$)	$15,089	$11,761	$5,228	$13,580	$19,894
Benefit Amount: 5 Years (2020$)	$83,233	$58,073	$37,657	$78,344	$111,778
Benefit Amount: 10 Years (2020$)	$175,823	$115,573	$85,570	$170,387	$253,760
Disability Category:					
Anxiety Disorders	0.75				
Post Traumatic Stress Disorder	0.65				
Mood Disorders	0.25				
Major Depressive Disorder	0.18				
Bipolar Disorder	0.02				
Chronic Adjustment Disorder	0.05				
Delirium, Dementia, Amnestic/Cogn. Dis.	0.03				
Schizophrenia and Psychotic Disorders	0.02				
Dissociative Disorders	0.02				
N= 867,016					

Notes: This table displays summary statistics of veteran demographics, military service, disability benefit compensation, and disability claim variables for our sample veterans with first disability compensation claims. All variables are calculated at time of the disability claim and financial amounts are in 2020 dollars. Disability categories are not mutually exclusive as a veteran may claim multiple mental health disabilities at once.

Table 2: First Stage Impacts of Examiner IV on Disability Compensation Benefits

	Dependent variable: Cumulative Benefit (2020$)			
	1 Year	3 Year	5 Year	10 Year
	(1)	(2)	(3)	(4)
Standardized IV	1,445.0***	4,041.9***	6,150.9***	7,556.6***
	(19.7)	(64.5)	(128.6)	(455.1)
Mean Dep Var (×100)	15,090	48,060	83,182	177,730
F-Stat (IV)	13,568	10,493	6,822	729
N=	867,016	732,731	576,706	212,263

Notes: This table reports the first stage of veteran benefit compensation in 2020 dollars on a standardized examiner instrument. First stage relationships are estimated on veterans who are alive over the entire outcome period. In addition to facility-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange, and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. The first-stage F-statistic of the instrumental variable along with facility-by-year fixed effects is reported. Robust standard errors are clustered at the facility-level. *p<0.1; **p<0.05; ***p<0.01.

Table 3: Healthcare Utilization and Engagement

Panel A. 1-Year Outcomes

	Dependent variable: (×100)					
	Log Total Util $	Log Outpat Util $	Log Inpat Util $	MH Outpat Days	Scheduled Appointments	ED/Hospital Days
	(1)	(2)	(3)	(4)	(5)	(6)
$1,000 per year	2.49***	2.48***	0.33	3.94***	11.75***	0.05
	(0.38)	(0.36)	(0.43)	(1.51)	(2.99)	(0.26)
Mean Dep Var	$10,169	$6,813	$3,355	7.56	22.32	0.42
N=	855,264	855,264	855,264	855,264	855,264	855,264

Panel B. 5-Year Outcomes

	Dependent variable: (×100)					
	Log Total Util $	Log Outpat Util $	Log Inpat Util $	MH Outpat Days	Scheduled Appointments	ED/Hospital Days
	(1)	(2)	(3)	(4)	(5)	(6)
$1,000 per year	2.56***	2.57***	1.45	19.71***	85.63***	1.60
	(0.44)	(0.39)	(1.16)	(7.65)	(19.96)	(1.65)
Mean Dep Var	$40,234	$28,468	$11,766	34.18	107.85	2.23
N=	576,677	576,677	576,677	576,677	576,677	576,677

Notes: This table reports estimated 2SLS coefficients from Equation 1 for healthcare engagement and related outcomes. One-year and five-year outcomes are displayed in panels A and B, respectively. Benefit compensation amounts are scaled to units of an additional $1,000 per year and the coefficients are scaled by 100 for interpretability and readability. The dependent variables in columns 1-3 are log of 1 + average costs computed by the VA to reflect healthcare utilization and is available until FY2019 (Wagner et al., 2003). Columns 4-6 are utilization variables reflecting the number of encounter days and number of scheduled appointments. All regressions are estimated on samples of veterans that are alive for the entire outcome period. In addition to facility-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange, and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table 4: Preventive Care

Panel A. 1-Year Outcomes

	Dependent variable: (×100)			
	Preventive Days	Annual Flu Vaccination	Any Hep C Screen	Annual Colon FOBT
	(1)	(2)	(3)	(4)
$1,000 per year	0.313*	0.139***	0.154***	0.064
	(0.162)	(0.045)	(0.033)	(0.111)
Mean Dep Var (×100)	27.76	33.25	16.35	27.03
N=	854,873	854,873	825,740	409,588

Panel B. 5-Year Outcomes

	Dependent variable: (×100)			
	Preventive Days	Annual Flu Vaccination	Any Hep C Screen	Annual Colon FOBT
	(1)	(2)	(3)	(4)
$1,000 per year	1.036	0.148***	0.313***	0.071
	(0.688)	(0.050)	(0.072)	(0.114)
Mean Dep Var (×100)	138.87	36.51	45.81	24.85
N=	576,677	576,677	562,950	285,427

Notes: This table reports estimated 2SLS coefficients from Equation 1 for preventive healthcare utilization outcomes as recommended by the VA. One-year and five-year outcomes are displayed in panels A and B, respectively. Benefit compensation amounts are scaled to units of an additional $1,000 per year and the coefficients and mean dependent variables are scaled by 100 for interpretability and readability. The dependent variable is column 1 is the number of preventive visit days (using CPT procedure codes), column 2 is the fraction of years with an annual flu vaccination (a value of 0.8 for the 5-year horizon would mean the veteran receives a flu vaccination for 4 of the 5 years), column 3 is whether the veteran has received any hepatitis C screen (recommended for all adult veterans under the age of 79 and hence only estimated on this sample), and column 4 is the fraction of years with an annual colon cancer screen via a fecal occult blood test (recommended for all adult veterans ages 50 to 75 and only estimated on this sample). All regressions are estimated on samples of veterans that are alive for the entire outcome period. In addition to facility-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange, and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table 5: Medication Adherence

Panel A. 1-Year Outcomes

	Dependent variable: (×100)				
	Number of New Drugs	Fraction of Rx Picked Up	Average MPR	Fraction MPR>0.8	Avg Episode Duration (mo)
	(1)	(2)	(3)	(4)	(5)
$1,000 per year	2.73***	0.15***	0.07***	0.07	8.23***
	(0.48)	(0.04)	(0.02)	(0.04)	(1.92)
Mean Dep Var (×100)	331.81	58.29	73.44	50.69	1,692.34
N=	656,720	596,069	503,532	503,532	503,532

Panel B. 5-Year Outcomes

	Dependent variable: (×100)				
	Number of New Drugs	Fraction of Rx Picked Up	Average MPR	Fraction MPR>0.8	Avg Episode Duration (mo)
	(1)	(2)	(3)	(4)	(5)
$1,000 per year	8.89***	0.17***	0.05**	−0.01	6.12***
	(1.64)	(0.04)	(0.02)	(0.02)	(1.64)
Mean Dep Var (×100)	1,199.41	61.55	75.35	89.86	1,715.00
N=	463,482	462,356	455,673	455,673	455,673

Notes: This table reports estimated 2SLS coefficients from Equation 1 for medication adherence-related outcomes. One-year and five-year outcomes are displayed in panels A and B, respectively. Benefit compensation amounts are scaled to units of an additional $1,000 per year and the coefficients are scaled by 100 for interpretability and readability. The dependent variables are the number of new drugs started (column 1); fraction of new written prescriptions that are picked up by the veteran (column 2); drug episode duration-weighted average medication possession ratio (MPR; column 3); fraction of drug episodes with MPR>0.8 (column 4); and the average drug episode duration in months (column 5). See Appendix A for more details on outcome variable definitions. All regressions are estimated on samples of veterans that are alive for the entire outcome period. In addition to facility-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange, and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table 6: Economic and Financial Well-Being

Panel A. 1-Year Outcomes

	Dependent variable: (×100)			
	Food Insecurity	Homeless-ness	# Debt Collection	Log Balance Collection
	(1)	(2)	(3)	(4)
$1,000 per year	−0.060*	−0.072***	−0.039**	−0.239**
	(0.034)	(0.016)	(0.017)	(0.116)
Mean Dep Var (× 100)	2.17	7.75	1.56	15.25
N=	64,060	855,264	276,121	276,121

Panel B. 5-Year Outcomes

	Dependent variable: (×100)			
	Food Insecurity	Homeless-ness	# Debt Collection	Log Balance Collection
	(1)	(2)	(3)	(4)
$1,000 per year	−0.099***	−0.184***	−0.107***	−0.608***
	(0.028)	(0.033)	(0.020)	(0.124)
Mean Dep Var (× 100)	2.41	14.33	1.68	12.08
N=	124,224	576,677	261,448	261,448

Notes: This table reports estimated 2SLS coefficients from Equation 1 for measures of economic and financial well-being. One-year and five-year outcomes are displayed in panels A and B, respectively. Benefit compensation amounts are scaled to units of an additional $1,000 per year and the coefficients and mean dependent variables are scaled by 100 for interpretability and readability. Food insecurity is an indicator for ever reporting a survey response of "food shortage and no money to buy food or access to food" given to all non-institutionalized veterans starting in 2017. Five-year response rate for food insecurity surveys is 66.3% and selection into responding to a survey within 5-years is less than 0.15pp for every additional $1,000 per year. Homelessness is proxied with an indicator for any of the following within the outcome period: diagnosis for lack of housing/inadequate housing, outreach by or use of VA homeless and/or shelter programs and services; see Appendix A. Columns 3 and 4 are number of delinquent debts owed to the VA sent to the Department of Treasury and the total collection balances on delinquent debt. In addition to facility-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange, and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table 7: Mental and Physical Health Outcomes

Panel A. 1-Year Outcomes

	Dependent variable: (×100)								
	MDD	AUD/ SUD	Overdose Poisoning	Suicide Event	BMI	Pain Score	HbA1c (%)	Systolic BP	Diastolic BP
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$1,000 per year	0.002	−0.060	−0.001	−0.004	0.116	−1.036**	0.025	2.495	−0.856
	(0.052)	(0.057)	(0.004)	(0.007)	(0.525)	(0.415)	(0.188)	(1.879)	(1.764)
Mean Dep Var (× 100)	68.37	42.25	0.30	0.91	3,017.19	301.07	621.47	12,841.28	7,753.25
N=	561,229	553,685	855,264	655,186	665,745	639,000	353,971	646,487	646,487

Panel B. 5-Year Outcomes

	Dependent variable: (×100)								
	MDD	AUD/ SUD	Overdose Poisoning	Suicide Event	BMI	Pain Score	HbA1c (%)	Systolic BP	Diastolic BP
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$1,000 per year	−0.050	−0.068	−0.013	0.0001	−0.298	−1.456***	0.028	0.065	−2.537
	(0.063)	(0.086)	(0.018)	(0.019)	(0.971)	(0.396)	(0.176)	(2.163)	(2.273)
Mean Dep Var (× 100)	74.98	54.78	1.23	2.89	3,054.29	297.81	604.31	12,849.35	7,768.07
N=	529,759	529,356	576,994	522,089	441,691	529,111	423,239	530,362	530,362

Notes: This table reports estimated 2SLS coefficients from Equation 1 for measures of mental health. One-year and five-year outcomes are displayed in panels A and B, respectively. Benefit compensation amounts are scaled to units of an additional $1,000 per year and the coefficients are scaled by 100 for interpretability and readability. Columns 1 and 2 are measures of major depressive disorder (MDD) and alcohol/substance use disorder constructed from annual mental health screens (mandated since 2008) in primary care. The indicator takes on the value of one if the veteran ever has a diagnosis of MDD or AUD/SUD or screens positive via annual mental health screening tools, and zero if the veteran never screens positive and is never diagnosed. Veterans who do not complete the screens are not included in the regressions. Five-year screening rates for MDD and AUD/SUD are 91.8% and 91.7% respectively, and selection into screening within 5-years is less than 0.18% and 0.16% for every additional $1,000 per year. Overdose poisonings are indicators for whether the veteran has been diagnosed with an overdose. Suicide events are indicators for ever attempting suicide from VA Office of Mental Health and Suicide Prevention's national surveillance dataset starting in 2010; see Appendix A for more details. BMI is calculated as the average in the first year and the average in the fifth year. Pain score and hemoglobin A1c variables are averages across the entire time period. Blood pressure are averaged first at the encounter-day level and then averaged across the entire time period. Only pain scores and blood pressure measurements taken in outpatient primary care clinic settings are used. All regressions are estimated on samples of veterans that are alive for the entire outcome period. All regressions include station-by-year fixed effects and baseline controls in the text; standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01

Table 8: Mortality and Cause of Death

Panel A. 1-Year Outcomes

	Dependent variable: (×100)						
	All-Cause	Cancer	Heart Disease	Chronic Low. Respiratory	External Causes	Suicide	Overdose
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1,000 per year	0.0022	−0.0096**	0.0091*	−0.0030	−0.0066**	−0.0034*	−0.0017
	(0.0091)	(0.0043)	(0.0053)	(0.0020)	(0.0033)	(0.0018)	(0.0023)
Mean Dep Var (×100)	1.421	0.367	0.314	0.072	0.164	0.048	0.054
N=	867,416	767,658	767,658	767,658	767,658	767,658	767,658

Panel B. 5-Year Outcomes

	Dependent variable: (×100)						
	All-Cause	Cancer	Heart Disease	Chronic Low. Respiratory	External Causes	Suicide	Overdose
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1,000 per year	0.0445	0.0065	0.0495**	0.0078	0.0126	−0.0007	−0.0018
	(0.0284)	(0.0190)	(0.0193)	(0.0125)	(0.0104)	(0.0062)	(0.0066)
Mean Dep Var (×100)	8.070	2.106	1.939	0.502	0.807	0.219	0.268
N=	626,523	463,910	463,910	463,910	463,910	463,910	463,910

Notes: This table reports estimated 2SLS coefficients from Equation 1 for mortality outcomes. One-year and five-year outcomes are displayed in panels A and B, respectively. Benefit compensation amounts are scaled to units of an additional $1,000 per year and the coefficients are scaled by 100 for interpretability and readability. Cause of death is constructed from CDC's National Death Index Plus available to us until the end of 2018. Cancer, heart disease, external causes, and chronic lower respiratory disease are the four leading causes of death in the United States. Suicide and overdoses deaths are a (non-exhaustive) subset of external causes of death. the All regressions include station-by-year fixed effects and baseline controls in the text; standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01

Appendix (For Online Publication Only)

A. Variable Definitions

A.1 Utilization and Average Cost

Our "log utilization" outcomes are based on VA's average cost computed by the Health Economics and Resource Center (HERC). It uses CMS relative value weights to assign national-level VA cost to encounter-level VA utilization. It is average cost in the sense that two encounters with the same characteristics (e.g., procedures, diagnoses, length of stay, etc.) will have the same average cost. It does *not* reflect veteran out-of-pocket spending. Outpatient costs do not include prescription costs. Inpatient costs include acute inpatient hospital, nursing home, and inpatient domiciliary and rehabilitation care. See Wagner et al. (2003) for more details.[1] We also compute the number of days the veteran has any encounter of that type of care or care setting: the number of days with any mental health outpatient encounter or the number of days with any emergency department or acute inpatient hospital visit.

A.2 Preventive Care

We calculate the number of days the veteran receives any preventive care, calculated from CPT procedure codes: 4000F-4320F; 90750-90759, 90762-90764, 90778, 99381-99429, G0438, G0439. There is likely to be under-use of procedure codes in the VHA as providers are salaried and do not bill insurers.

We also evaluate whether veterans' preventive care follows the VA's official preventive care guidelines (VHA, 2021). Of all the preventive care guideline recommendations, three apply broadly to the majority of our sample and can be measured at (roughly) annual

[1] For an overview: https://www.herc.research.va.gov/include/page.asp?id=average-cost.

frequencies[2]: annual flu immunization for all adults, annual colorectal cancer screen via fecal occult blood test (FOBT) among all adults ages 45-75, and hepatitis C screen at least once among all adults ages 18-79. Based off of these recommendations, we construct the fraction of years where the veteran has a flu immunization (takes on 0 or 1 for the 1-year outcome and 0, 0.2, 0.4, 0.6, 0.8, or 1 for the 5-year outcome), fraction of years they have a FOBT colon cancer screen, and an indicator for whether the veteran receives any hepatitis C screen in 1 or 5 years. All three measures are constructed from procedure codes, lab results, and clinician ordered items in a computerized system.

A.3 Food Insecurity

The VA started screening for food insecurity in primary care starting in October 2017. This is done in primary care via VA's EHR clinical reminder system. An annual reminder automatically pops up on all primary care provider's computer screen as an alert. The screen asks "In the past three months did you ever run out of food and you were not able to access more food or have money to buy more food?". A binary yes/no response is required on the screen, entered, and automatically recorded. Our indicator is derived from the recorded data and takes a value of one if the veteran answers yes and zero if they answer no. Veterans who are not screened (within the 1-year or 5-year time period) are coded as zero and thus dropped from the regressions with food insecurity as an outcome. By late 2019, nearly 5 million veterans have been screened and approximately 74,000 have screened positive (Cohen et al., 2020).

A.4 Homelessness

Homelessness is measured from three sources: medical diagnosis codes, inpatient hospital bed sections, and utilization of homeless and employment services. Our definition of homelessness is the official VA Office of Mental Health and Suicide Prevention definition which appears on

[2]Other recommendations either do not apply to the majority of our sample (e.g., breast and cervical cancer screens, syphilis screens, etc.), are recommended without guidance on frequency, (e.g., high blood pressure screen), or are not easily measured in the data (e.g., overweight and obesity counseling).

multiple patient dashboards used to assist clinicians in decision making, and used in various predictive algorithms (e.g., for suicide risk). Similar VA measures of homelessness have been used in (Brignone et al., 2018; Tsai et al., 2014; Nelson et al., 2021). Below we describe the three sources.

1. Diagnosis codes
    - Homelessness (ICD-9: Z59.0; ICD-10: V60.0) across all care settings/modalities
    - Inadequate housing (ICD-9: Z59.1; ICD-10: V60.1) across all care settings/modalities
2. Inpatient hospital bed sections
    - Acute inpatient hospital beds for homeless veterans
    - Residential Domiciliary Care for Homeless Veterans (DCHV[3])
3. Outpatient homeless and employment services:
    - Health Care for Homeless Veterans (HCHV) at VA medical outpatient clinics, contracted community centers.[4]
    - U.S. Department of Housing and Urban Development-VA Supportive Housing (HUD-VASH) Program: use of HUD-VASH services (in-person or telephone) such as residential assistance, vouchers, counseling, and others.[5]
    - Homeless Veteran Community Employment Services (HVCES) "provides vocational assistance, job development and placement, and ongoing supports to improve employment outcomes among homeless veterans and veterans at-risk of homelessness. Formerly homeless veterans who have been trained as Vocational Rehabilitation Specialists provide these services."[6]

[3]The VA defines DCHV as a setting that "provides a residential level of care for a homeless Veteran population. DCHVs provide a 24/7 structured and supportive residential environment as a part of the rehabilitative treatment regime." See https://www.va.gov/homeless/dchv.asp.

[4]This also includes non-medical care (e.g., housing services, social work, etc.) at non-medical facilities; see https://www.va.gov/homeless/hchv.asp.

[5]See https://www.va.gov/homeless/hud-vash.asp.

[6]See https://www.va.gov/homeless/employment_programs.asp.

- Compensated Work Therapy (CWT) and vocational assistance for homeless veterans are vocational programs such as paid vocational programs, on-the-job-training, apprenticeships, and non-paid work experiences
- Community outreach to homeless veterans by VA staff via telephone
- Use of community homeless services awarded by the VA's Homeless Veterans Grant and Per Diem (GPD) program to fund contracted community non-profit agencies[7]

A.5 Medication Adherence-Related Variables

We construct five medication-related outcomes. The first, is the number of new drugs the patient starts and refills at least once during the 1 or 5 year period. A drug is formulation without dosage and not the brand name. The second outcome is the ratio of prescriptions that are dispensed and released to the patient divided by the number of new prescriptions written for the patient. The underlying data comes from the universe of prescriptions written by a VA provider that get entered electronically and prescriptions filled and released at VA pharmacies.

Drug episode-level medication possession ratio (MPR) is constructed by the VA for all veterans who are alive and fill a prescription after January 1, 2017. A drug episode is a "trial" of a drug (formulation without dosage). A patient may have multiple episodes for the same drug if i) a new drug is released more than 300 days from the previous release; or ii) if a new release is more than 180 days from the previous and under a different prescription; or iii) if a new release is more than twice the days supply since the previous release and is under a different prescription and the previous prescription was discontinued. The VA computes MPR for a drug episode as:

[7]These agencies may provide supportive housing or services such as case management, education, crisis intervention, counseling, and targeted services for specialized under-served populations; see https://www.va.gov/homeless/gpd.asp.

$$MPR_{episode} = \frac{\text{Days Supply Dispensed}}{\text{Drug Episode Duration}}.$$

$MPR_{episode}$ is mechanically only defined for drug episodes that get refilled at least once; it is top-coded at one. Using drug episode MPR, we construct 1-year and 5-year patient MPR as the episode duration weighted average MPR for all *non-opioid* drug episodes that start in that time period (regardless of when they end). This is our average MPR measure. We also construct the fraction of drug episodes with $MPR_{episode}$ greater than 0.8, a commonly used adherence threshold that has been found to be predictive of reduced mortality (Rodriguez et al., 2019).

We also calculate average MPRs for five drug classes using VA drug class codes: *antidepressants* (tricyclic antidepressants, monamine oxidase inhibitor antidepressants, and other antidepressants), *antipsychotics* (phenothiazine/related antipsychotics and other antipsychotics), *sedatives/hypnotics* (barbituric acid derivatives, benzodiazepine derivatives, and other sedatives/hypnotics), *statins* (antilipemic agents), and *hypertensive drugs* (angiotensin-converting enzyme inhibitors, angiotensin II receptor blockers, direct renin inhibitors, antiadrenergic antihypertensives, betablockers, diuretics, and calciumchannel blockers).

A.6 VA Debt

Data on debt owed to the VA and debt progression (debt notification letters, referral to Treasury Offset Program letters) between 2016 and 2021 are from the VBA Debt Management Center (DMC). VA debt can accrue on VA benefits such as disability and pension benefits, home loans, and GI Bill education, vocational, and employment benefits. This typically happens when veterans no longer meet eligibility requirements such as being a full-time student (and thus have to repay portions of tuition, books and fees, school housing, etc.), or dependent situation changes (child dependent is no longer under 18 and this has resulted in months of disability benefit overpayment), or inability to make mortgage payments on VA home loans. In some cases veterans may also incur medical debt, although the amounts

are generally small and we observe no instances of debt collection on medical debt in our baseline sample (who all receive nearly free healthcare).

When a debt is first established, the DMC sends an initial letter of notification to the veteran. If within 30 days of the initial letter, the veteran has not made debt arrangements, the DMC will send a second letter of notification. If no arrangements have been made within 120 days (including applications for debt waiver and forgiveness), the DMC is required to refer the debt to the U.S. Treasury which may i) add fees and interest; ii) keep part or all of your federal or state payments to pay down your debt (known as offsetting in the Treasury Offset Program); iii) refer your account to a private collection agency. At this stage—which we consider "debt collection"–the VBA can no longer waive or forgive the debt.[8]

With the debt referrals to Treasury, we follow (Dobbie et al., 2017; Dobkin et al., 2018) and construct variables on the number of debt collections (that make it to Treasury) and the collection amount on all such debt within one and five years of the disability claim. Although we do not observe non-VA debt, the amount of VA debt is substantial; 2.6% of our baseline sample have any collections within five years and the median balance among these collections is $8,229 with a quarter owing over $17,500.

A.7 Physical and Mental Health Outcomes

Physical and mental health outcomes are measured from electronic health records. Major depression disorder (MDD) is an indicator variable that takes the value of one when the veteran ever screens positive on the 2-item or 9-item Patient Health Questionnaire (PHQ-2, PHQ-9) or is diagnosed with MDD. Veterans who score negative on all PHQs and is never diagnosed with MDD receive a value of zero. All other veterans (including those who are never screened) are coded as missing. AUD/SUD is constructed analogously replacing PHQs with the Brief Addiction Monitor (BAM) and MDD diagnosis with AUD or SUD diagnosis. Overdose poisonings is a binary variable constructed only using poisoning diagnosis codes.

[8]For more details on the life-cycle of VA debt, see https://www.va.gov/resources/va-debt-management.

See subsection A.8 for description on the data behind the suicide variable.

Average body mass index, pain score, HbA1c glucose levels, and blood pressure are constructed at the one-year and five-year level only for individuals with at least one measurement during the time period. Pain scores are self-reported and measured on an increasing scale from 0, 1, ..., 10. Since BMI and blood pressure are often measured multiple times within a single encounter to improve precision, we first obtain encounter day-level averages before taking averages again at the one-year or five-year level. Only measurements of pain and blood pressure taken in primary care settings are used. Table B.10 reports the number of veterans with at least one observation and the average number of observations per veteran for each physical health outcome.

A.8 Suicide Surveillance Data

Data on suicide attempts come from the VA Office of Mental Health and Suicide Prevention's Suicide Prevention Applications Network (SPAN; US Department of Veteran Affairs, 2021b). SPAN was established following the passage of the Joshua Omvig Veterans Suicide Prevention Act in 2007 as a national surveillance database to better inform suicide prevention. It is comprised of clinically mandated suicide evaluations, suicide behavior and overdose reports, clinical texts, current and historic reports from clinical and suicide prevention coordinators, in addition to medical records. This data is used to inform national suicide prevention efforts (e.g., displayed on clinical dashboards, used as a feature in predictive algorithms of veteran suicide risk, and used to construct reports on veteran suicide to congress). It captures data that would not normally be available in patient health records, for example, if a patient reveals to a clinician of a suicide attempt that occurred last year, this would not appear in diagnosis data, but would in SPAN. Roughly two-thirds of suicide attempts in SPAN had no data in recorded medical records (Hoffmire et al., 2016). From this data we code an indicator for whether the veteran had a suicide attempt in the 1 year or 5 year period.

A.9 Veteran Satisfaction Survey

[Waiting for data]

B. Additional Exhibits

Table B.1: OLS of Main Outcomes on Disability Compensation Benefit Amount

Panel A. 1-Year Outcomes

	Dependent variable: (×100)					
	Log Total Util $	Homeless-ness	Food Insecurity	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)
$1,000 per year	3.80***	−0.01***	−0.03***	0.01***	0.02***	0.01***
	(0.06)	(0.004)	(0.005)	(0.001)	(0.002)	(0.002)
Mean Dep Var (×100)	724.01	7.75	2.17	0.30	0.91	1.42
N=	854,873	854,873	64,035	854,873	654,967	867,016

Panel B. 5-Year Outcomes

	Dependent variable: (×100)					
	Log Total Util $	Homeless-ness	Food Insecurity	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)
$1,000 per year	4.02***	0.01***	−0.04***	0.03***	0.08***	0.06***
	(0.07)	(0.01)	(0.01)	(0.002)	(0.004)	(0.004)
Mean Dep Var (×100)	961.92	14.33	2.41	1.23	2.89	8.07
N=	576,677	576,677	124,180	576,677	522,847	626,523

Notes: This table reports estimated coefficients from Equation 1 from an OLS estimation for select main outcomes. One-year and five-year outcomes are displayed in panels A and B, respectively. Benefit compensation amounts (in 2020 dollars) are scaled to units of an additional $1,000 per year and the coefficients are scaled by 100 for interpretability and readability. All regressions are estimated on samples of veterans that are alive for the entire outcome period. All regressions include facility-by-year fixed effects and five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange, and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period; robust standard errors are clustered at the facility-level. *p<0.1; **p<0.05; ***p<0.01.

Table B.2: Reduced Form Regressions of Main Outcomes on Examiner Leniency

Panel A. 1-Year Outcomes

	Dependent variable: (×100)					
	Log Total Util $	Homeless-ness	Food Insecurity	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)
1 SD of Examiner IV	3.59***	−0.10***	−0.09*	−0.002	−0.01	0.003
	(0.56)	(0.02)	(0.05)	(0.01)	(0.001)	(0.01)
Mean Dep Var (×100)	724.01	7.75	2.17	0.30	0.91	1.42
N=	854,873	854,873	64,035	854,873	654,967	867,016

Panel B. 5-Year Outcomes

	Dependent variable: (×100)					
	Log Total Util $	Homeless-ness	Food Insecurity	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)
1 SD of Examiner IV	3.15***	−0.23***	−0.13***	−0.02	0.001	0.06
	(0.57)	(0.04)	(0.04)	(0.02)	(0.02)	(0.04)
Mean Dep Var (×100)	961.92	14.33	2.41	1.23	2.89	8.07
N=	576,677	576,677	124,180	576,677	522,847	626,523

Notes: This table reports estimated coefficients from a reduced form regression of select main outcomes on standardized examiner leniency instrumental variable. The impact of a standard deviation increase in examiner leniency on benefit compensation amounts are presented in Table 2. The coefficients are scaled by 100 for interpretability and readability. All regressions are estimated on samples of veterans that are alive for the entire outcome period. All regressions include facility-by-year fixed effects and five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange, and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period; robust standard errors are clustered at the facility-level. *p<0.1; **p<0.05; ***p<0.01

Table B.3: Subsample First Stages

	Dependent variable: Cumulative Benefit (2020$)		
	1 Year	5 Year	N=
Subsample:	(1)	(2)	(3)
Full Sample	1,444.9***	6,150.9***	867,016
	(19.7)	(128.6)	
Sex: Female	1,472.1***	6,125.7***	94,016
	(39.7)	(259.8)	
Sex: Male	1,439.1***	6,149.7***	773,000
	(20.7)	(139.6)	
Race: White (Non-Hispanic)	1,411.7***	6,006.9***	524,704
	(22.2)	(145.4)	
Race: Black	1,535.2***	6,466.2***	193,858
	(41.4)	(271.6)	
Race: API, Hispanic, Native	1,459.0***	6,373.9***	94,396
	(33.0)	(215.8)	
Age: < 44	1,399.0***	5,905.5***	318,097
	(29.1)	(169.0)	
Age: ≥ 45	1,468.4***	6,284.2***	548,919
	(27.5)	(170.0)	
Type: Anxiety Disorders	1,556.8***	6,594.7***	534,166
	(28.2)	(161.3)	
Type: Mood Disorders	1,423.7***	6,566.7***	178,016
	(48.4)	(309.4)	
Type: Other Disorders	1,374.3***	6,137.2***	82,086
	(61.1)	(366.9)	

Notes: This table reports estimated coefficients from first stage regressions of one year and cumulative five year disability compensation benefit (in 2020 dollars) on standardized examiner leniency instrument for various subsamples, displayed in rows. The regressions are estimated on veterans who are alive over the entire outcome period. In addition to facility-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange, and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Robust standard errors are clustered at the facility-level. *p<0.1; **p<0.05; ***p<0.01.

Table B.5: 5-Year Medication Possession Ratios by Drug Class

	Dependent variable: (×100)				
	Anti-depressants	Anti-psychotics	Sedatives/ Hypnotics	Statins	Hypertensive Drugs
	(1)	(2)	(3)	(4)	(5)
$1,000 per year	0.027	0.039	0.049	0.074**	0.114***
	(0.032)	(0.057)	(0.066)	(0.033)	(0.038)
Mean Dep Var (×100)	80.12	82.01	72.95	86.15	87.80
N=	308,218	86,656	152,210	184,692	192,361

Notes: This table reports 2SLS estimates of the effect of disability compensation on 5-year medication possession ratios by drug class. MPRs are drug episode duration-weighted averages, which are only defined for individuals who fill at least the same drug (irrespective of dose) twice; see Appendix A for more details on outcome variable definitions. The coefficients are scaled by 100 for interpretability and readability. All regressions are estimated on samples of veterans that are alive for the entire outcome period. All regressions include facility-by-year fixed effects and five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange, and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period; robust standard errors are clustered at the facility-level. *p<0.1; **p<0.05; ***p<0.01.

Table B.6: Top 30 Most Commonly Prescribed Drug Classes to Baseline Sample

Drug Classification	Number of Unique Veterans
Antidepressants, other	435,641
Nonsalicylate NSAIs, antirheumatic	222,815
Anti-inflammatory, topical	191,450
Antilipemic agents	177,910
Anticonvulsants	159,649
Gastric medications, other	146,408
Genitourinary agents, other	137,112
Alpha blockers, related	123,209
Phamaceutical aids, reagents	113,616
CNS medication, other	109,438
Skeletal muscle relaxants	108,007
Benzodiazepine derivative sedative/hypnotics	105,399
Anti-inflammatories, inhalation	102,056
Anti-inflammatories, nasal	102,056
Non-opioid analgesics	101,444
Antipsychotics, other	100,744
Antihistamines, piperazine	95,193
Antihypertensives, other	93,858
Beta blockers, related	92,799
Sedatives/hypnotics, other	88,507
ACE inhibitors	87,239
Non-steroidal anti-inflammatory analgesics	74,211
Oral hypoglycemic agents, oral	73,382
Bronchodilators, sympathomimetic, inhalation	68,917
Calcium channel blockers	67,679
Dermatologicals, topical other	66,470
Vitamin D, other	66,161
Bronchodilators, sympathomimetics, oral	65,582
Platelet aggregation inhibitors	64,641
Diagnostics, other	64,559

Notes: This table reports reports the 30 most commonly prescribed non-opioid drug classes (by number of unique veteran users) within one year of their mental health disability claim examination. Drugs are classified using VA drug classification codes. These are the drugs the form the episode trials used to construct average MPR.

Table B.6: Elasticities of Demand for Healthcare

	Dependent variable: Log (1+Total Utilization)	
	Benefits Elasticity	Income Elasticity†
	(1)	(2)
Log(1+Benefits)	0.14***	
	(0.02)	
Log(1+Benefits+Avg Income)		1.08***
		(0.16)
†: Without accounting for labor market effects of disability income		

Notes: This table reports benefits (column 1) and income (column 2) elasticities of demand for healthcare. Column 1 reports the coefficient of a log utilization-log benefits specification and column 2 reports the coefficient of a log-utilization-log benefits plus average veteran income specification. Note that the income elasticity does not account for labor market effects of disability income which are well-established (Autor and Duggan, 2003). See text for our preferred estimate where we conduct back-of-envelope calculates using causal estimates of the effect of VA disability income on veteran employment from Autor et al. (2016). In addition to facility-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange, and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Robust standard errors are clustered at the facility-level. *p<0.1; **p<0.05; ***p<0.01.

Table B.7: Utilization Among Medicare and VA Dual-Eligible Population

Panel A. 1-Year Outcomes

	Dependent variable: Encounters (×100)	
	VA	Medicare
	(1)	(2)
$1,000 per year	7.69***	0.97
	(2.59)	(0.84)
Mean Dep Var (×100)	1,569.00	145.23
N=	157,648	157,648

Panel B. 5-Year Outcomes

	Dependent variable: Encounters (×100)	
	VA	Medicare
	(1)	(2)
$1,000 per year	60.18***	−2.27
	(18.42)	(3.83)
Mean Dep Var (×100)	7,925.41	621.43
N=	76,752	76,752

Notes: This table reports estimated 2SLS coefficients from Equation 1 for number of VHA (column 1) and Medicare (column 2) outpatient encounter days for veterans over the age of 65. Medicare claims data is available between 2011-2019. All regressions are estimated on samples of veterans that are alive for the entire outcome period. In addition to facility-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange, and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table B.8: Healthcare Utilization and Distance to Nearest VA Primary Care Facility

	Dependent variable: Log Utilization (×100)	
	1-Year	5-Year
	(1)	(2)
Distance to VA: [5,10) mi	−9.11***	−7.73***
	(1.30)	(1.13)
Distance to VA: [10,25) mi	−19.38***	−15.18***
	(1.48)	(1.42)
Distance to VA: 25+ mi	−22.47***	−16.89***
	(1.86)	(1.50)
$1,000 per year	1.76***	1.73**
	(0.58)	(0.71)
$1,000 per year × Distance to VA: [5,10) mi	0.21	0.32
	(0.61)	0.72
$1,000 per year × Distance to VA: [10,25) mi	1.20**	1.48**
	0(0.60)	(0.72)
$1,000 per year × Distance to VA: 25+ mi	1.42*	0.83
	(0.83)	(0.86)
Mean Dep Var (× 100)	720.65	955.14
N=	663,133	401,753

Notes: This table reports 2SLS estimates of the effect of disability compensation benefits on healthcare utilization by driving distance to the nearest VA primary care facility. Distance to the nearest VA primary care facility (in miles) is calculated by the VA Planning Systems Support Group (PSSG) which mains location files for veterans enrolled in VHA care using information from the US Postal Service National Change of Address File; this data is available starting in 2009. We use the distance observed in the year *prior* to the veteran's disability claim in the interaction to avoid endogenous moves driven by benefit compensation. All regressions are estimated on samples of veterans that are alive for the entire outcome period. In addition to facility-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange, and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder,and homelessness, and the veterans Elixhauser comorbidity score based on a one-year look-back period. Robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table B.9: VA Debt: Number of Collections and Balances by Type

	Number of Collections	Collection Balance ($)			
		Q1	Median	Mean	Q3
Education benefits	18,750	125	555	1,452	1,633
Disability compensation & pension	3,597	1,902	5,782	13,283	15,038
Vocational training and employment	378	338	804	1,372	1,680
Home loan guaranty	159	10,310	19,727	21,713	30,423

Notes: This table summarizes the number of debt collections and collection balances by type of debt. Education loans include Chapter 33 Post-9/11 GI Bill education benefits (tuition, housing, books and fees, relocation fees) and debt is usually triggered when the veteran drops out of school or stops attending school full-time. Disability compensation and pension debt is usually triggered when a veteran's dependent situation changes. Vocational training and employment programs pay veterans for employment training and debt can accrue if the veteran disenrolls early. Home loan guaranty programs provide assistance with purchasing homes (e.g., no downpayment, favorable interest rates, loan guaranty, etc.) and debt can accrue if for instance, the veteran falls behind mortgage payments. Incorrect overpayment can also result in debt for all four types.

Table B.10: Physical Health: Number of veterans and observations per veteran

	Fraction with at > 1 obs. in 5Y	Average obs. per veteran
	(1)	(2)
Body weight	0.766	22.2
Pain score	0.918	9.9
HbA1c	0.734	4.8
Blood pressure	0.920	13.4

Notes: This table reports the number of veterans with at least one observation of each vital sign or biomarker within 5 years in column 1 and the average number of observation within 5 years per veteran conditional on having at least one, in column 2. Only measurements of pain score and blood pressure in primary care settings are used, all others are dropped.

C. Disability Benefit Questionnaires

In this appendix we present details of the mental health disability benefit questionnaire (DBQ) and perform a deeper dive into the digitized DBQ itself. THe DBQ is a form which closely mimics the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) and is used by the examiner to perform the examination. The form includes guidance for the examination along with spaces for structured and free-text responses. The completed form is then passed on to an administrative rater who assigns a final rating based on a rubric mandated by the Code of Federal Regulations. The first page of a mental health DBQ can be found in Figure C.1. We observe 384,965 (44.4% of our baseline sample) completed and digitized DBQs.

C.1 Occupational and Social Impairment

A particularly salient section of the DBQ appears near the end: Occupational and Social Impairment (OSI; see panel a of Figure C.2). This section asks the examiner is "best summarize the veteran's level of occupational and social impairment with regards to all mental diagnoses" on a seven-item scale. One can see how clinical judgment and interpretation along these blurred lines may lead to certain examiners making different choices when faced with similarly "occupationally and socially impaired" veterans. We return to this point later.

In addition to serving as a succinct summary, the individual response options (i.e., boxes) almost maps verbatim to the rater rubric in panel b of Figure C.2. For example, the third box of the OSI reads "occupational and social impairment due to mild or transient symptoms which decrease work efficiency and ability to perform occupational tasks only during periods of significant stress, or symptoms controlled by medication" which is exactly the rating description for a 10% disability rating in the rater rubric. Therefore, we should expect the OSI response to have predictive power in the veteran's disability rating and their realized benefit compensation amount.

C.2 Free-Text Response

In addition to structured responses like the OSI, there is a final free-text "Remarks, if any" section where the examiner can leave residual comments that do not fit into the structured sections, similar to a clinical note. We extract the text from this section from all 384,965 DBQs.

C.3 OSI Has Predictive Power

We empirically check that the OSI responses have predictive power in the veteran's realized benefit compensation amount. Table C.1 display the output of a regression of realized benefit amount on veteran characteristics (column 1) and veteran characteristics with OSI responses (column 2). We see that the R-squared jumps from 0.107 to 0.193 just by including the OSI responses. This implies that much of the variation in examiner leniency measured by realized disability compensation benefits (our instrumental variable) is driven by underlying differences in how examiners' OSI responses.

C.4 Testing Exclusion Restriction Using Free-Text

As mentioned in the main text, one way to probe the exclusion restriction is to make use of the examiners' free-text remarks. For example, more careful examiners may leave longer text responses or examiners with inappropriate behavior (e.g., not believing the veteran's experiences, stigmatizing their disability, etc.) may leave more negative sentiment. We measure the sentiment and word count of the "remarks" section response. We use a lexicon-based sentiment analysis to obtain (positive/negative) polarity.[9] A histogram of the word count and sentiment polarity can be found in Figure C.3.

Columns 3 and 4 of Table C.1 show that the two dimensions of the free-text have very little predictive power beyond veteran characteristics and beyond veteran characteristics and OSI response (the R-squared do not change). We conclude from this exercise that examiner

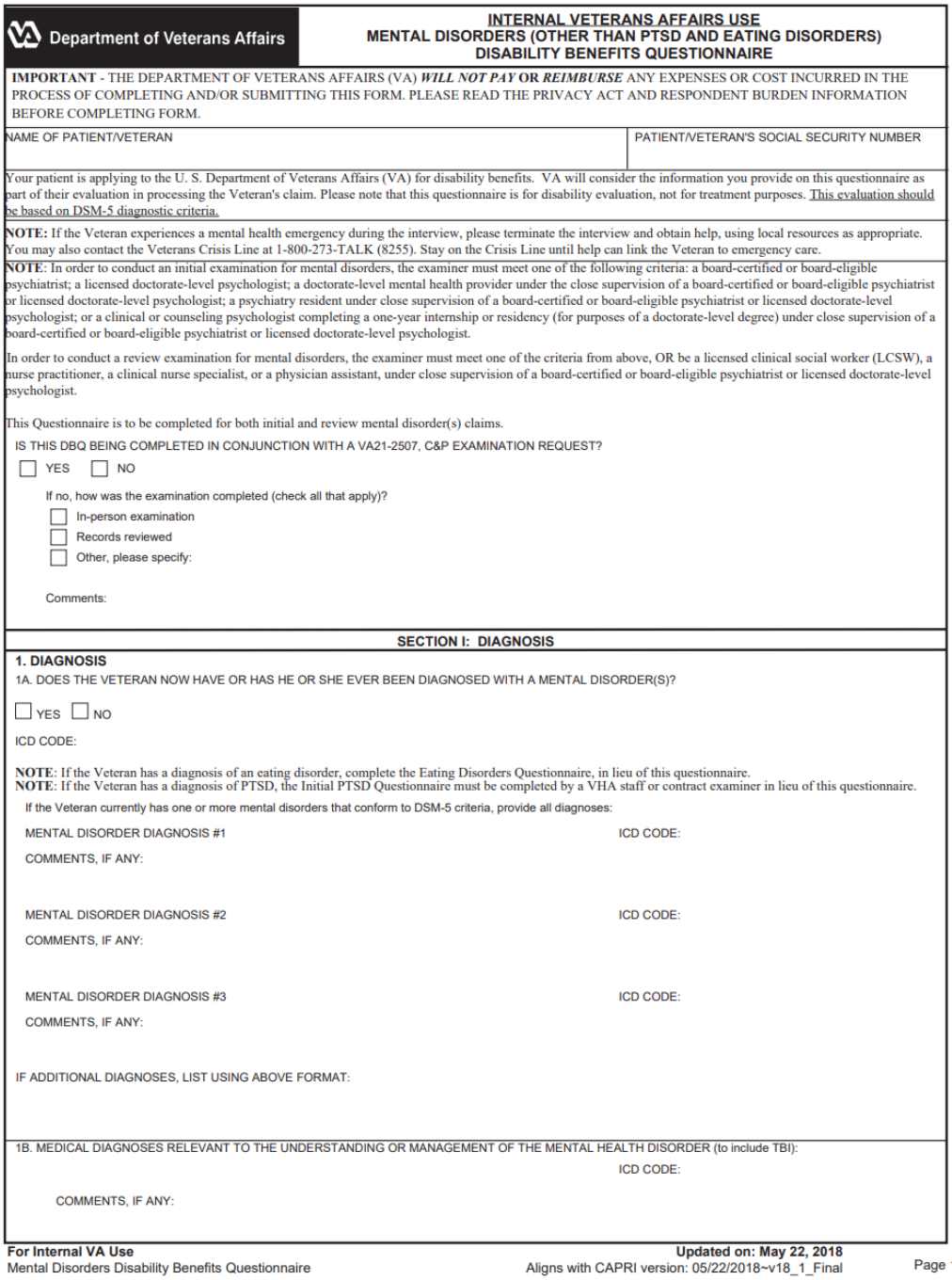
[9]Specifically, we use the Syuzhet lexicon: https://cran.r-project.org/web/packages/syuzhet/index.html.

behavior and actions during the examination—to the extent they are captured by the free-text sentiment and word count—are unlikely to have any meaningful influence on veteran outcomes.

C.5 Testing Monotonicity Assumption Using OSI Thresholds

The multi-valued responses of the OSI section prescribe a simple monotonicity test. Examiners who we measure as more lenient (via veterans realized disability benefit compensation) should also be more lenient along the entire OSI spectrum. In other words, examiners who are more likely to check off boxes 4 or above, should also be more likely to check off boxes 1 or above. We build six OSI threshold instrumental variables using replacing $Benefits_i$ in Equation 2 with indicator variables for checking off at least a certain box, and correlate it with our baseline (continuous) instrument. The result of this exercise can be found in Figure C.4; each of the six OSI threshold instruments are strongly correlated with our baseline measure of examiner leniency.

Figure C.1: First Page of a Mental Health Disability Benefit Questionnaire (DBQ) Form



Department of Veterans Affairs

INTERNAL VETERANS AFFAIRS USE
MENTAL DISORDERS (OTHER THAN PTSD AND EATING DISORDERS)
DISABILITY BENEFITS QUESTIONNAIRE

IMPORTANT - THE DEPARTMENT OF VETERANS AFFAIRS (VA) ***WILL NOT PAY*** **OR** ***REIMBURSE*** ANY EXPENSES OR COST INCURRED IN THE PROCESS OF COMPLETING AND/OR SUBMITTING THIS FORM. PLEASE READ THE PRIVACY ACT AND RESPONDENT BURDEN INFORMATION BEFORE COMPLETING FORM.

NAME OF PATIENT/VETERAN | PATIENT/VETERAN'S SOCIAL SECURITY NUMBER

Your patient is applying to the U. S. Department of Veterans Affairs (VA) for disability benefits. VA will consider the information you provide on this questionnaire as part of their evaluation in processing the Veteran's claim. Please note that this questionnaire is for disability evaluation, not for treatment purposes. This evaluation should be based on DSM-5 diagnostic criteria.

NOTE: If the Veteran experiences a mental health emergency during the interview, please terminate the interview and obtain help, using local resources as appropriate. You may also contact the Veterans Crisis Line at 1-800-273-TALK (8255). Stay on the Crisis Line until help can link the Veteran to emergency care.

NOTE: In order to conduct an initial examination for mental disorders, the examiner must meet one of the following criteria: a board-certified or board-eligible psychiatrist; a licensed doctorate-level psychologist; a doctorate-level mental health provider under the close supervision of a board-certified or board-eligible psychiatrist or licensed doctorate-level psychologist; a psychiatry resident under close supervision of a board-certified or board-eligible psychiatrist or licensed doctorate-level psychologist; or a clinical or counseling psychologist completing a one-year internship or residency (for purposes of a doctorate-level degree) under close supervision of a board-certified or board-eligible psychiatrist or licensed doctorate-level psychologist.

In order to conduct a review examination for mental disorders, the examiner must meet one of the criteria from above, OR be a licensed clinical social worker (LCSW), a nurse practitioner, a clinical nurse specialist, or a physician assistant, under close supervision of a board-certified or board-eligible psychiatrist or licensed doctorate-level psychologist.

This Questionnaire is to be completed for both initial and review mental disorder(s) claims.

IS THIS DBQ BEING COMPLETED IN CONJUNCTION WITH A VA21-2507, C&P EXAMINATION REQUEST?

☐ YES ☐ NO

If no, how was the examination completed (check all that apply)?

☐ In-person examination
☐ Records reviewed
☐ Other, please specify:

Comments:

SECTION I: DIAGNOSIS

1. DIAGNOSIS

1A. DOES THE VETERAN NOW HAVE OR HAS HE OR SHE EVER BEEN DIAGNOSED WITH A MENTAL DISORDER(S)?

☐ YES ☐ NO

ICD CODE:

NOTE: If the Veteran has a diagnosis of an eating disorder, complete the Eating Disorders Questionnaire, in lieu of this questionnaire.
NOTE: If the Veteran has a diagnosis of PTSD, the Initial PTSD Questionnaire must be completed by a VHA staff or contract examiner in lieu of this questionnaire.

If the Veteran currently has one or more mental disorders that conform to DSM-5 criteria, provide all diagnoses:

MENTAL DISORDER DIAGNOSIS #1 ICD CODE:

COMMENTS, IF ANY:

MENTAL DISORDER DIAGNOSIS #2 ICD CODE:

COMMENTS, IF ANY:

MENTAL DISORDER DIAGNOSIS #3 ICD CODE:

COMMENTS, IF ANY:

IF ADDITIONAL DIAGNOSES, LIST USING ABOVE FORMAT:

1B. MEDICAL DIAGNOSES RELEVANT TO THE UNDERSTANDING OR MANAGEMENT OF THE MENTAL HEALTH DISORDER (to include TBI):

ICD CODE:

COMMENTS, IF ANY:

For Internal VA Use **Updated on: May 22, 2018**
Mental Disorders Disability Benefits Questionnaire Aligns with CAPRI version: 05/22/2018~v18_1_Final Page 1

Notes: The first page of a sample mental health disability benefit questionnaire (DBQ) form. Note that the instructions of the form explicitly clarify that the form is for evaluation purposes only and not for treatment purposes. It also states that the evaluation should be based on DSM-5 diagnostic criteria and must be perform by board-certified psychiatrist, licensed doctorate-level psychologist, or a trainee that is closely supervised by a board-certified psychiatrist/licensed doctorate-level psychologist.

Figure C.2: Mental Health Disabilities: DBQ scale and rater rubric

(a) DBQ OSI scale

SECTION IV - OCCUPATIONAL AND SOCIAL IMPAIRMENT

4A. WHICH OF THE FOLLOWING BEST SUMMARIZES THE VETERAN'S LEVEL OF OCCUPATIONAL AND SOCIAL IMPAIRMENT WITH REGARDS TO ALL MENTAL DIAGNOSES? *(Check only one)*

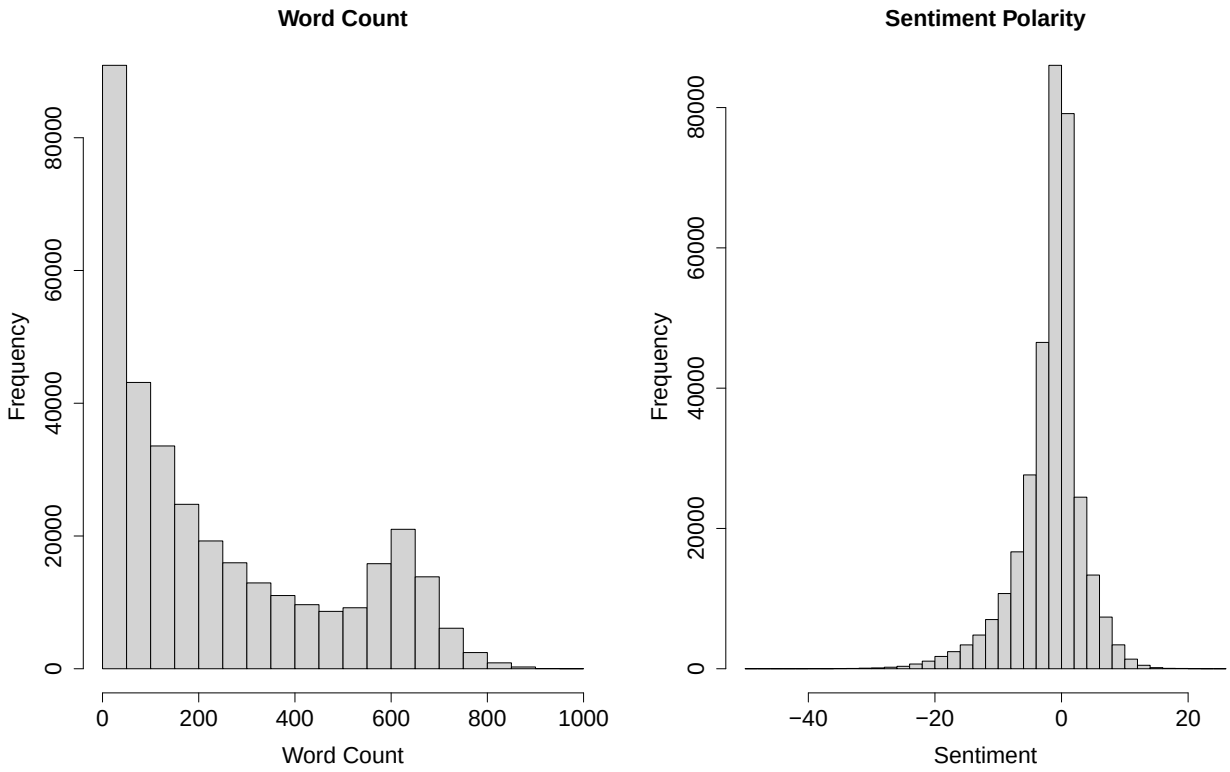
- ☐ NO MENTAL DISORDER DIAGNOSIS
- ☐ A MENTAL CONDITION HAS BEEN FORMALLY DIAGNOSED, BUT SYMPTOMS ARE NOT SEVERE ENOUGH EITHER TO INTERFERE WITH OCCUPATIONAL AND SOCIAL FUNCTIONING OR TO REQUIRE CONTINUOUS MEDICATION
- ☐ OCCUPATIONAL AND SOCIAL IMPAIRMENT DUE TO MILD OR TRANSIENT SYMPTOMS WHICH DECREASE WORK EFFICIENCY AND ABILITY TO PERFORM OCCUPATIONAL TASKS ONLY DURING PERIODS OF SIGNIFICANT STRESS, OR SYMPTOMS CONTROLLED BY MEDICATION
- ☐ OCCUPATIONAL AND SOCIAL IMPAIRMENT WITH OCCASIONAL DECREASE IN WORK EFFICIENCY AND INTERMITTENT PERIODS OF INABILITY TO PERFORM OCCUPATIONAL TASKS, ALTHOUGH GENERALLY FUNCTIONING SATISFACTORILY, WITH NORMAL ROUTINE BEHAVIOR, SELF-CARE AND CONVERSATION
- ☐ OCCUPATIONAL AND SOCIAL IMPAIRMENT WITH REDUCED RELIABILITY AND PRODUCTIVITY
- ☐ OCCUPATIONAL AND SOCIAL IMPAIRMENT WITH DEFICIENCIES IN MOST AREAS, SUCH AS WORK, SCHOOL, FAMILY RELATIONS, JUDGMENT, THINKING AND/OR MOOD
- ☐ TOTAL OCCUPATIONAL AND SOCIAL IMPAIRMENT

(b) Rater rubric

	Rating
Total occupational and social impairment, due to such symptoms as: gross impairment in thought processes or communication; persistent delusions or hallucinations; grossly inappropriate behavior; persistent danger of hurting self or others; intermittent inability to perform activities of daily living (including maintenance of minimal personal hygiene); disorientation to time or place; memory loss for names of close relatives, own occupation, or own name.	100
Occupational and social impairment, with deficiencies in most areas, such as work, school, family relations, judgment, thinking, or mood, due to such symptoms as: suicidal ideation; obsessional rituals which interfere with routine activities; speech intermittently illogical, obscure, or irrelevant; near-continuous panic or depression affecting the ability to function independently, appropriately and effectively; impaired impulse control (such as unprovoked irritability with periods of violence); spatial disorientation; neglect of personal appearance and hygiene; difficulty in adapting to stressful circumstances (including work or a worklike setting); inability to establish and maintain effective relationships.	70
Occupational and social impairment with reduced reliability and productivity due to such symptoms as: flattened affect; circumstantial, circumlocutory, or stereotyped speech; panic attacks more than once a week; difficulty in understanding complex commands; impairment of short- and long-term memory (e.g., retention of only highly learned material, forgetting to complete tasks); impaired judgment; impaired abstract thinking; disturbances of motivation and mood; difficulty in establishing and maintaining effective work and social relationships.	50
Occupational and social impairment with occasional decrease in work efficiency and intermittent periods of inability to perform occupational tasks (although generally functioning satisfactorily, with routine behavior, self-care, and conversation normal), due to such symptoms as: depressed mood, anxiety, suspiciousness, panic attacks (weekly or less often), chronic sleep impairment, mild memory loss (such as forgetting names, directions, recent events).	30
Occupational and social impairment due to mild or transient symptoms which decrease work efficiency and ability to perform occupational tasks only during periods of significant stress, or symptoms controlled by continuous medication.	10
A mental condition has been formally diagnosed, but symptoms are not severe enough either to interfere with occupational and social functioning or to require continuous medication.	0

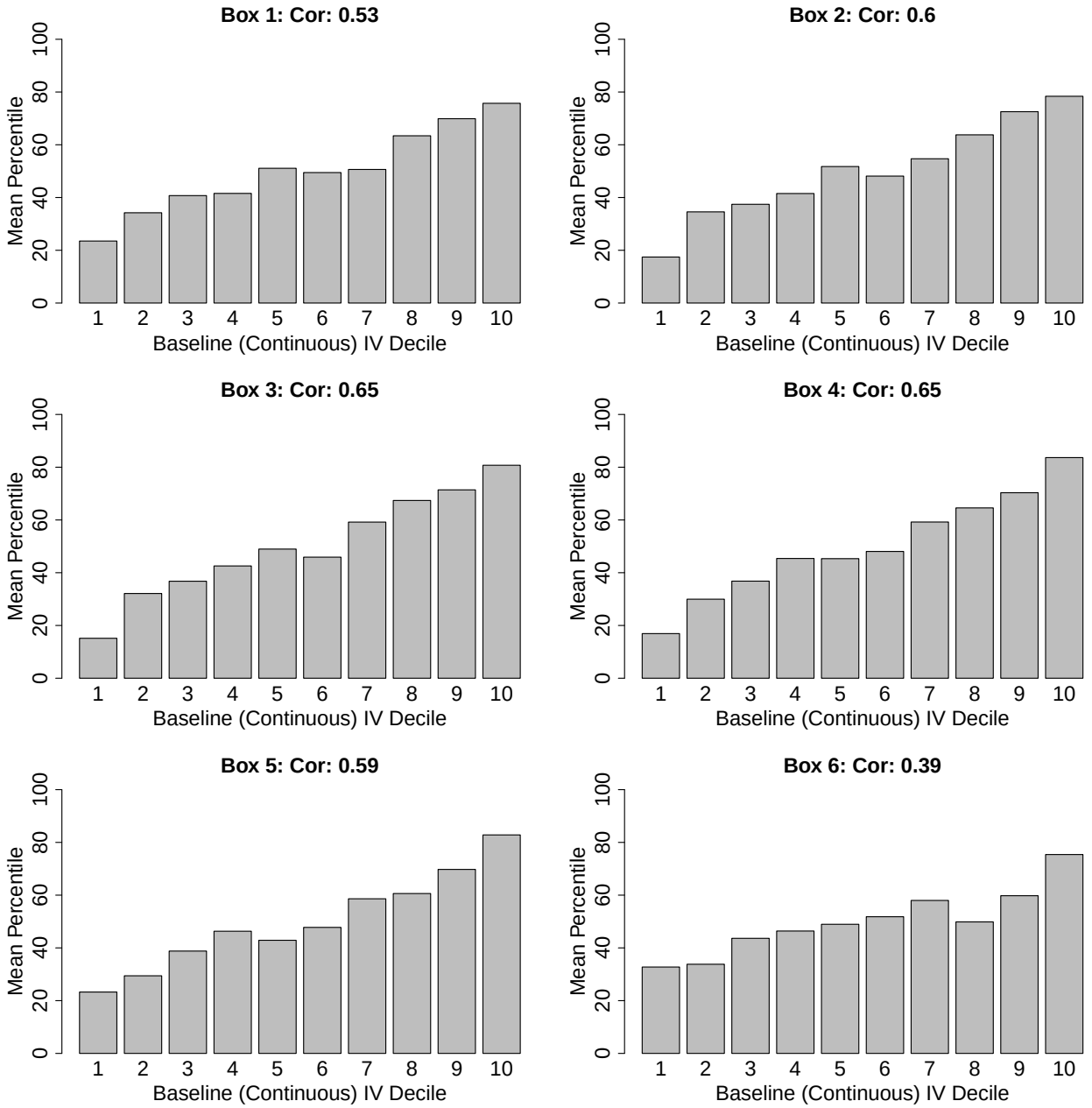
Notes: Figure (a) displays the Section IV–Occupational and Social Impairment Section of the Disability Benefit Questionnaire. Figure (b) displays the administrative rater's rubric for mental health claims from Code of Federal Regulations §4.130: Scheduling of ratings-mental disorders (https://ecfr.io/Title-38/Section-4.130). The OSI section and the rater rubric map very closely.

Figure C.3: Histogram of Sentiment and Word Count of Free-Text Remarks DBQ Section



Notes: This figure plots the histogram of word count (left panel) and sentiment (right panel) of the final free-text "Remarks, if any" section of the DBQs. The Syuzhet lexicon is used.

Figure C.4: Binary Threshold IV Measures versus Baseline IV



Notes: This figure probes the monotonicity assumption by reducing the examiner's decision to their occupational and social impairment (OSI) response—we demonstrate OSI response has strong predictive power in explaining realized compensation benefits in Table C.1—and testing whether more lenient examiners are lenient across the entire OSI range. We examine the correlation between examiner threshold-leniencies constructed using different binary response dependent variables versus our baseline (continuous) leniency measure for each examiner. Six examiner IVs are constructed as in Equation 2 and Equation 3 without the leave-out using an indicator corresponding to ticking strictly above each box (e.g., an indicator variable for coding strictly above box 1 in the DBQ would correspond to the first figure). Examiner leniency deciles are calculated for each of the six threshold instruments and the baseline instrument and correlations are displayed.

Table C.1: Disability Benefit Compensation Amount and Information in DBQs

	Dependent variable: Benefit Amount			
	Veteran Characteristics	+ OSI Boxes	+ Free-Text	+ OSI Boxes + Free-Text
	(1)	(2)	(3)	(4)
OSI Box: 2		1,394.32***		1,396.61***
		(158.71)		(158.45)
OSI Box: 3		3,421.50***		3,420.75***
		(168.11)		(166.52)
OSI Box: 4		5,904.04***		5,898.72***
		(192.98)		(190.79)
OSI Box: 5		8,596.90***		8,592.40***
		(198.44)		(195.28)
OSI Box: 6		12,035.13***		12,032.46***
		(247.53)		
OSI Box: 7		16,924.42***		16,929.85***
		(596.36)		
Sentiment			−268.84***	−38.04
			(71.05)	(44.71)
Word Count			−196.74**	−190.71***
			(100.05)	(60.58)
Baseline controls and FEs	Yes	Yes	Yes	Yes
R-squared	0.107	0.193	0.108	0.193
N=	331,248	331,248	331,248	331,248

Notes: This table reports the estimated coefficients of first-year benefit compensation amount (in 2020 dollars) on information scraped from examination Disability Benefit Questionnaires (DBQ). Column 1 corresponds to a regression of benefit amount on facility-by-year fixed effects and baseline controls (five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange, and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period). Column 2 adds the occupational and social impairment (OSI) response to the set of fixed effects and baseline controls. Column 3 adds the standardized sentiment and standardized word count from the free-text section to the set of fixed effects and baseline controls. Column 4 includes all covariates. Robust standard errors are clustered at the facility-level. *p<0.1; **p<0.05; ***p<0.01.