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IMPACTS OF BASIC INCOME ON HEALTH AND ECONOMIC WELL-BEING: EVIDENCE FROM THE VA'S DISABILITY COMPENSATION PROGRAM

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ABSTRACT

We study impacts of a cash transfer program with no means-test and no work restrictions: the US Department of Veteran Affairs (VA) Disability Compensation program. Our empirical strategy leverages quasi-random assignment of veterans claiming mental disorder disability to examiners who vary in their assessing tendencies. We find that an additional $1,000 per year in transfers decreases food insecurity and homelessness by 4.1% and 1.3% over five years, while the number of collections on VA debts declines by 6.4%. Despite facing virtually no direct monetary costs, healthcare utilization increases by 2.5% over the first five years, with greater engagement in preventive care and improved medication adherence. This demand response is in part explained by the ability to overcome indirect costs of accessing care ("ordeals"). Additionally, VA-conducted surveys suggest that transfers improve communication and trust between veterans and VA clinicians, leading to greater overall satisfaction. Apart from a reduction in self-reported pain, we estimate precise null effects on mental and physical health, including depression, alcohol and substance use disorders, body mass index, blood pressure, and glucose levels. Effects on mortality are small: we can rule out reductions greater than 0.011 percentage points (0.14%) over five years.

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1. Introduction

How and to what extent social programs shape the well-being of their recipients are central questions in public economics. Recently, as the United States and other high-income countries have been grappling with rising inequality and major changes to the nature of work, proposals for providing sustained cash benefits, such as Universal Basic Income (UBI), have garnered significant attention among scholars and policymakers (Murray, 2016; Stern, 2016; Parijs and Vanderborght, 2017; Yang, 2018).

The impacts of these types of programs could be wide-ranging, with poverty alleviation and impacts on physical and mental health featuring prominently alongside potential effects on labor supply, human capital accumulation, and entrepreneurship. However, despite the intense public interest in these ideas, there is limited evidence on their potential effects. This stems in part from the high cost of implementing such a program even in a small pilot study or randomized trial. The temporary nature of such studies further limits their ability to speak to the impacts of income security at the heart of any basic income proposal (Hoynes and Rothstein, 2019).

Moreover, little is known about the broad benefits of basic income to disadvantaged individuals, such as those who have difficulty obtaining and sustaining reliable work. For these groups, for example those with work-limiting disabilities, government transfers are often their only form of financial assistance. This is especially the case in the US, which has a weaker safety net system than many other high-income countries.

In this paper, we attempt to fill these gaps. We analyze an existing, large-scale US cash transfer program—the Veterans Affairs (VA) Disability Compensation (DC) program. The VA DC program provides (mostly) unconditional monthly benefits to approximately 5 million US military veterans, averaging $1500/month and totaling $88.5 billion in transfers in 2020 (VA, 2021). A veteran's monthly benefit amount is determined by the degree of the veteran's disabilities as assessed by case examiners, and represents a virtually permanent and substantial source of income. Unlike other cash transfer programs, VA DC benefits are not contingent on beneficiaries' other income streams or wealth, making the VA DC program

the largest basic-income-like program in the US.[1]

We combine a number of detailed administrative datasets to construct an analytical sample that covers the VA's assessments of each veteran's disabilities, linked to a wealth of longitudinal data on veterans' health, health care utilization, and financial and mental wellbeing. We construct these data from a variety of internal VA sources, drawing on the VA's comprehensive electronic health records, clinical questionnaires, and surveys on food security, and satisfaction with VA services.

The VA DC setting, paired with the extensive data we have assembled, provides a unique opportunity to study some of the key yet elusive health and well-being impacts of a long-lasting basic income with large samples. Beyond the topic of basic income, the program's size, growth and population make it a highly policy-relevant program to understand in its own right (Duggan and Guo, 2021; Chan et al., 2021a). For instance, recent legislative efforts seek to expand the program by as much as $280 billion over the next decade, a nearly 32% increase over this period (CBO, 2021). What economic research does exist has centered on the VA DC program's impacts on veterans' labor supply (Autor et al., 2016; Angrist et al., 2010; Coile et al., 2015). Our detailed analysis of health and well-being effects complements these studies, substantially expanding our understanding of the costs and benefits of VA DC.

Our analysis focuses on veterans who submit disability claims for mental health disorders, such as post-traumatic stress disorder or major depressive disorder. We focus on these veterans for two key reasons.

First, mental disorders make up one of the largest and fastest growing categories of disability both among veterans and the general population, making it increasingly important to understand how best to support these burdened populations. Veterans with confirmed mental disorders make up 37% of the VA DC beneficiary base and 62% of total expenditures, shares that are even more pronounced among younger cohorts from the Gulf War era. In fact, half of applicants in our sample are under 50 years old—in their prime working ages—at the time of the claim. As many of these veterans have work-inhibiting disorders, VA DC

[1] Another such program is the Alaska Permanent Fund, which pays $\approx \$1,600$ per year to each resident.

benefits are often a major source of stable income.[2]

Second, from a research perspective, the VA's evaluation of mental health disorder claims provides useful variation for understanding the impacts of basic income. Veterans are forensically evaluated by quasi-randomly assigned examiners—licensed psychologists and psychiatrists—with whom the veteran has virtually no previous or future contact. Examiners' assessments, for which we have digitized records, inform a ratings determination which translates into benefit levels ranging from $0 to over $3000 per month, tax-free.

Motivated by this, our empirical strategy follows an "examiners design." We leverage the quasi-random assignment of veterans' disability claims to case examiners—within the same examination center in the same year—who vary in their tendencies in assessing mental disabilities, to generate exogenous variation in veterans' monthly benefits.[3] This 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 (Dahl et al., 2014; Autor et al., 2019).[4]

We begin by investigating the relationship between examiner assignment and veterans' cumulative benefits. Here, we find large and permanent impacts of examiner tendencies on disability income. Being assigned to an examiner that is one standard deviation higher in our tendency measure is associated with an increase of $1,445 in annual benefits in the first year (a 10% increase over the mean), with impacts lasting at least five years, thus providing a durable and reliable extra income stream for these veterans.

We then turn to estimating impacts on economic stability and financial well-being. An

[2]The situation is very similar in the general public, where individuals with mental disorders have lower rates of labor force participation and higher reliance on government transfers. Frank et al. (2019) find that, between 2015 and 2017, individuals with severe mental illness had both labor force participation rates and SSDI enrollment rates of 38%.

[3]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). There is also evidence of low inter-rater reliability in this context (Barth et al., 2017). Our results on the magnitude of examiner differences in assessments are in line with these recent findings.

[4]Similar designs have been used in a variety of empirical settings, including studies of the criminal justice system (e.g, Kling, 2006; Mueller-Smith, 2015; Aizer and Doyle Jr, 2015; Dobbie et al., 2018), bankruptcy protection (e.g., Dobbie and Song, 2015), foster care (e.g., Doyle Jr, 2007, 2008), hospital care (e.g., Doyle Jr et al., 2015), and physicians (e.g., Eichmeyer and Zhang, 2021).

additional $1,000 per year reduces rates of ever being food insecure (measured by annual primary care screens) and ever being homeless (proxied by diagnosis codes, use of short- and long-term homeless beds, and VA and community homeless services such as rental assistance/vouchers) over a five year period by 4.1% and 1.3%. Financial well-being, measured by the number and balance amount of debt owed to the VA and referred to the US Department of Treasury, also improves significantly. Veterans use the additional income to attain basic needs such as food and housing; in contrast, we do not find any increases in use of "sin goods" such as alcohol consumption or binge drinking. Measures of self-reported pain improve by half a percent, suggesting that in addition to helping secure basic needs and improve financial well-being, disability income may alleviate psychosocial stress.[5]

Next, we investigate health impacts, beginning with healthcare utilization. An additional $1,000 per year increases VA healthcare utilization by 2.5%—concentrated in outpatient care—which translates to an income elasticity of demand for healthcare of 0.85. This utilization increase is not driven by changes to direct monetary costs as veterans in our sample were already enrolled in VHA healthcare and face little to no cost-sharing. We find stronger effects among those living further from VHA healthcare facilities, consistent with non-monetary indirect costs ("ordeals") playing a role in healthcare utilization and being a barrier to accessing healthcare (e.g., Acton, 1975; Zeckhauser, 2020).

Veterans become more engaged with VA healthcare. Higher disability income leads to more scheduled appointments, more outpatient encounters, and higher take-up of preventive care such as annual flu vaccinations and Hepatitis C screens. Veterans are also more likely to start new medications, fill their prescriptions, and conditional on starting new medications, their drug adherence and duration of use increase. These improvements in healthcare engagement suggest that benefits raise veterans' demand for and access (perceived or otherwise) to valuable care. Viewed in light of our results on improved housing and food security, these likely beneficial health investments are also consistent with theories of poverty traps

[5]The medical and psychology literature have established a link between psychological and social processes and pain (Linton and Shaw, 2011). The reduction in pain may also be driven by lowering occupation-related physical demands due to labor market effects of disability income (Cutler et al., 2020).

in which scarcity impedes decision-making (e.g., Mullainathan and Shafir, 2013).

Supporting evidence suggests this increased engagement partly reflects improved veteran-clinician relationships. Higher VA engagement is in contrast to non-VA care; we do not find any changes to Medicare utilization among the dual-eligible. We study VA-conducted care satisfaction surveys to investigate mechanisms, and find evidence of improved patient-clinician communication and rapport, trust, and greater veteran satisfaction in VA mental health care. Taken together, our findings suggest there are spillovers of program benefits; VA transfers can increase meaningful VA healthcare engagement by relieving constraints veterans may face in accessing care, and improving patient satisfaction and patient-clinician relationships.

Despite these improvements, we estimate precise null effects of disability income on downstream physical and mental health, and mortality. Our 95% confidence intervals can rule out effect sizes larger than 0.1% for $1,000 a year in perpetuity—in either direction—on incidence of major depressive disorder, alcohol and substance use disorders, and changes to body mass index, blood pressure, and HbA1c glucose levels. Rare events such as overdose poisoning and suicide events are estimated with slightly less precision; however, we are able to reject clinically and statistically significant changes. Shifting to mortality, a 95% confidence interval implies 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) reduces 5-year all-cause mortality by no more than 0.011pp or 0.14%. Overall, our results suggest that the value of disability income for veterans with mental health disabilities is unlikely to hinge on mortality reductions; rather, other measures of well-being, satisfaction, and quality of life are likely to be key in evaluating unconditional cash transfers.

Our paper contributes to the literature on the impacts of unconditional cash transfers in developed countries.[6] Most of the quasi-experimental evidence in this area study wealth shocks such as lotteries and stock market fluctuations (Imbens et al., 2001; Cesarini et al.,

[6]There is a related, larger literature on the impacts of unconditional cash transfers in developing countries; see Bastagli et al. (2016); Banerjee et al. (2019); Ridley et al. (2020) for reviews.

2016; Lindqvist et al., 2020; Golosov et al., 2021; Schwandt, 2018). Relatedly, Jones and Marinescu (2020) study the labor market impacts of the Alaska Permanent Fund, an UBI-like program, and in the historic context, Eli (2015) investigates mortality effects of Union Army pensions. With the exception of Cesarini et al. (2016); Lindqvist et al. (2020); Schwandt (2018), these papers do not study health outcomes. This is in contrast to the growing number of recent RCTs evaluating the impacts of UBI, often with health and well-being as a primary focus.[7] As is often the case with RCTs in developed countries, UBI RCTs face challenges with small sample sizes, short follow-up periods, and reliance of questionnaire instruments rather than administrative health records (West et al., 2021). Our quasi-experimental setting serves as a complement to RCTs in studying the impacts of a large existing US safety net program.

There is a broader literature looking at the health impacts of cash transfers. These programs differ from pure unconditional cash transfers in that the transfers scale back with earned income. Many of these programs, however, closely resemble UBI at certain parts of the income distribution (see Hoynes and Rothstein, 2019; Lleras-Muney, 2022, for reviews). For example, the Negative Income Tax experiments in the 1970s in the US and Canada for low income individuals (Hum and Simpson, 1993; Levine et al., 2005; Forget, 2011; Price and Song, 2018). More recently, researchers have exploited EITC rules and reforms 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), utilization (Berman, 2021; Moran and Simon, 2006), and mortality (Berman, 2021; Salm, 2011; Snyder and Evans, 2006).[8]

Finally, we contribute to the growing literature on the potential benefits of disability programs.[9] Most papers in this space focus on its financial benefits: e.g., consumption

[7] Multiple North American cities (Oakland, CA; Stockton, CA; Jackson, MS; New York, NY; Vancouver, BC) are conducting or have recently conducted RCTs evaluating UBI programs.

[8] There is also a larger literature on the impacts of parental wealth and income on their children's health and well-being (Aizer et al., 2016; Hoynes et al., 2015; Milligan and Stabile, 2011; Currie, 2009; Dahl et al., 2014; Cesarini et al., 2016; Barr et al., 2021).

[9] This is in contrast to a large literature on its costs, largely in the form of disincentivizing labor (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).

smoothing and insurance value (Autor et al., 2019; Low and Pistaferri, 2015) and financial distress (Deshpande et al., 2021). Two papers study the health impacts of disability insurance and reach different conclusions. Heiss et al. (2015) find that self-reported health status declines among approved SSDI applicants, relative to their denied counterparts. Gelber et al. (2018) exploit kinks in the SSDI benefit formula and find large reductions in mortality stemming from higher disability compensation, but only for cardiovascular disabilities, and imprecise and statistically insignificant estimates for mental disabilities. We build on this work by providing estimates of the impacts of disability income on a wider range of health and well-being outcomes, including mental health and mortality. Our research design and data allow us to measure these impacts with standard errors that are up to an order of magnitude smaller than existing estimates, considerably refining our knowledge of such impacts.

It is important to note that this paper studies the impact of cash transfers influenced by a medical examiner's evaluating tendencies rather than VA policies or differences in adherence to evaluating rules and guidelines. It is the variation in evaluations within VA DC guidelines among complex and subjective cases that forms the basis for the research design and the findings in this paper. Our study cannot speak to the VA's evaluating or rating system.

The rest of this paper is structured as follows. The next section provides details on the VA DC program. Sections 3 and 4 describes our data sources and outlines our instrumental variable empirical strategy. The results are presented in section 5 and finally, the last section concludes.

2. Veterans Affairs Disability Compensation Program

2.1 Primer

The VA DC program provides benefits to veterans for disabilities incurred during active military service. The program paid $88.5 billion in benefits to 5 million veterans in 2020, making it roughly two-thirds the size (in expenditures) of the Social Security Disability Insurance (SSDI) program—the primary disability program for non-veterans in the United

States.

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[10] 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 2020 ranged from $142.29 for a CDR of 10% to $3,106.04 for a CDR of 100% (see Table C.1 for the schedule).[11] 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 income or wealth test for these benefits—veterans can receive additional (earned and unearned) income such as labor earnings, SSDI, and SSI.[12,13]

2.2 Disability Claim and Rating Process

A veteran's disability rating 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 their time and activities in service.

[10] Service-connected disabilities are broadly construed as those incurred during the veteran's time in the military (including training), 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).

[11] We have experimented with leveraging CDR rounding rules for a potential regression discontinuity design. However, because the majority of veterans only have 1-3 disabilities, the distribution of unrounded CDRs are highly discretized—taking 4-5 values on each side of the threshold—and lumpy, making an RDD infeasible.

[12] VA disability income counts as unearned income against SSI's cap and would scale SSI payments dollar-for-dollar. It has no impact on SSDI's income thresholds, which are based on *earned* income.

[13] Veterans can receive "Individual Unemployability", a dimension of disability that is separate from the CDR ratings, which generally prohibits them from "substantial gainful employment".

After the filing stage, a veteran's claim is distributed to their local VBA office, at which point an examination is scheduled to independently assess the severity of the claimed disability.[14] This examination is forensic[15] 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.

During the examination, the examiner reviews the veterans' medical history, assesses symptoms, and makes judgments on the severity of the veteran's disability. 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-V; DSM-IV prior to 2014) and forces examiners to make discrete choices in evaluating similarly impaired veterans, providing us with much of the underlying variation in our examiner tendency instrumental variable described in the next section (see Appendix C). The DBQ is then passed along to a ratings officer who ultimately assigns ratings percentages based on comparing submitted information with a rating rubric. The first page of the DBQ, the OSI section, and the rating officer's rubric can be found in Figure C.1 and Figure C.2.

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.[16] Reexamina-

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

[15]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).

[16]Claims averaged 154 days to decision in FY 2019. See https://www.va.gov/disability/after-you-file-claim/, accessed March 9, 2021.

tions are rare and ad hoc.[17]

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 and rapidly growing, 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.[18,19] The share of VA DC beneficiaries with a mental disability has nearly tripled in under two decades (Figure B.1). This is partly due to a policy change in 2010 which did not require veterans to recall the exact triggering event for PTSD disabilities (Autor et al., 2016) and the change to DSM-V in 2014 which removed certain criteria for PTSD. Moreover, across all body systems, mental disorders exhibit the greatest variation in their ratings with half the conditions rated above 50%. For comparison, only 6.3% of auditory disabilities (the most largest disability category) are rated above 10% (VBA, 2019).

Second, as mentioned above, the VA requires VA-administered mental disorder examinations and does not accept external evaluations by private providers. This greatly reduces a veteran's ability to shop for favorable 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.

[17] VA can request a reexamination if the disability has improved; however, this is rare and not permitted if the disability has persisted for more than 5 years, the disability is permanent in nature (e.g., 100% disability), or if the veteran is over 55 years of age. Moreover, when "reasonable doubt arises regarding the degree of disability such doubt will be resolved in favor of the claimant" (Code of Federal Regulations §4.3). For more on the adjudication process, see VBA Manual M21-1: https://www.benefits.va.gov/WARMS/M21_1.asp.

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

[19] Mental disorder disabilities are also common among non-veterans, accounting for 34.5% (3.4 million) of all SSDI beneficiaries in 2019 (Social Security Administration, 2020).

Finally, conclusions of mental health examinations, including OSI scores and other documentation, are almost surely more subjective relative to physical examinations, which are 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 total dollar value of benefits received by a veteran over their 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 tendency 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.

3. Data Sources and Sample

Our analysis utilizes linked administrative microdata from the Veterans Health Administration (VHA) and Veterans Benefits Administration (VBA). Below we outline the key features of each data source; Appendix A and Table B.1 provide a detailed description on each variable definition and data coverage. Wherever possible, we follow official VA Office of Mental Health and Suicide Prevention definitions and use source data that create internal VA metrics, predictive algorithms, and clinical decision support dashboards.[20]

Disability claims From the VHA, we observe information on all mental health disability examinations conducted by the VHA between 2004 and 2021.[21] This includes the date of the examination, the facility at which it was conducted, and the identities of the examiner and the veteran. We also have completed and digitized DBQ forms (which the VA implemented starting October 2010) for roughly half the examinations. We link veterans' mental health

[20]For example, Figure B.2 displays a clinical suicide prevention dashboard. Its back-end source data on homelessness, debt, appointment, and medication adherence outcomes are precisely what we use to construct our outcomes.

[21]Examinations can also be conducted by private non-VHA contractors. We do not study these exams.

disability claims to the universe of individual disability ratings history (resulting disability of initial claims, denials, appeals, re-ratings, etc.) from the VBA.

Economic and financial well-being The VHA's annual food insecurity screens track whether the veteran has recently "run out of food and unable to access or have money to buy more food". These screens 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., acute and residential homeless beds, homeless clinics and assistance centers, and housing/rental assistance vouchers) which it tracks via health records. Using these records, we construct proxies of ever being homeless over a time period following validated definitions.[22]

Information on VA debt—most frequently from educational/employment benefits or home loans—from 2016 to 2021 come from the VBA's debt management center. Like private non-VA debt which gets referred to private debt collectors, delinquent VA debt get referred to the U.S. Department of Treasury. However, unlike private debt collection where the decision to collect debt is discretionary and successful collection is variable, the VA is mandated to refer the debt after 120 days of debt notice, and the Treasury can retrieve the debt by withholding the veteran's federal funds such as federal pay, tax refunds, social security payments, or VA benefits (a process known as "offsetting"). Using debt referrals to the Treasury, we construct measures of (VA) debt collection analogous to Dobbie et al. (2017) and Dobkin et al. (2018) for private debt.

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. In addition to standard encounter, diagnosis, and procedure records used to construct measures of utilization, we also have rich information on patients' scheduled appointments, clinicians' orders (e.g., flu vaccinations, screening devices), issued

[22]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).

but potentially unfilled prescriptions, patient questionnaires (e.g., food insecurity screens, PHQ-9 major depressive disorder screens, Alcohol Use Disorders Identification Test), and vital signs, biomarkers, and lab test results (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 clinical suicide evaluations, suicide behavior and overdose reports, clinical text, current and historic reports from suicide prevention coordinators, in addition to medical records. We also observe veteran-linked Medicare claims (Parts A, B, and D) from 2011-2019, which give us a view into veterans' non-VHA care. Finally, veteran-level data on date and cause of death come from the CDC National Death Index Plus. Date of death is available through 2021, with continual updates; cause of death is available through the end of 2018.

Sample Our analytic sample construction begins with 1.27M veterans filing their first disability claim for a mental health condition between 2004 and 2019.[23] 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 tendency discussed in the next section. Following tendency construction, we make a few additional restrictions: We drop veterans who are evaluated 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. Finally, we construct outcomes at the 1-year and 5-year level relative to their examination date for veterans who remain alive during the outcome period (Table B.4 presents our main results without any restrictions on attrition).

Table 1 summarizes our sample of veterans at the time of their first mental health exam. Roughly 89% of our sample are men, 61% are non-Hispanic White, 22% Black, and 8% Hispanic. Almost half the sample are under the age of 50; this is in contrast to SSDI where

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

30% (41%) of SSDI (mental health) beneficiaries are under the age of 50 (Social Security Administration, 2020). Half of our sample served during the Gulf War and after. Anxiety disorders, in particular PTSD, and mood disorders make up virtually all mental health disability claims. The average claimant receives $15,090 in disability compensation benefit in their first year, which is just over half their annual income at the time of application. Average compensation amount over the first five years is $83,233. This gradual upward drift (in real dollars) over time reflects the fact that VA disability compensation is nearly permanent, as well as the fact that veterans are more likely to have ratings increased (via appeals, re-ratings, or worsening of conditions) than decreased.

4. Empirical Strategy

Consider a model relating veteran i's outcomes to their annualized VA 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 (e.g., any homeless episode within five years), $\mathbf{X}_i$ 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 determinants of veterans' 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.[24]

To circumvent this issue, we use a measure of the tendency of the veteran's examiner in evaluating mental health disabilities in ways that lead to higher compensation amounts as an instrument for the the veteran's annual disability compensation amount. These estimates identify an average causal response of veteran outcomes to additional benefits, among

[24]See Table B.2 for the ordinary least squares regressions. As expected, estimated coefficients are biased towards benefits appearing to be detrimental to veteran health.

veterans whose exact degree of disability and impairment is ambiguous to examiners.

4.1 Instrument Construction

We construct our benefits instrument as the average first-year compensation amounts of other veterans examined by the focal veteran's examiner, following Dahl et al. (2014). In constructing this measure, we leave out the veteran him/herself (i.e., we use the "jack-knife" mean); we also focus attention on examinations occurring in the same facility-year (our data cover 128 facilities across 16 years). Constructing the measure this way circumvents potential concerns around non-random examiner assignment across space or time: for example, sicker veterans may live near VA facilities with higher-tendency examiners, or the composition of claimants and examiners may be evolving together over time. This choice focuses our comparisons on veterans at risk of being assigned to the same set of mental health examiners within the *same VA facility in the same year*.

Specifically, to summarize mental health examiners' tendencies, we link details on the disability examination (location, time, examiner) with the veteran's first-year disability benefit compensation, $Benefits_i$.[25] Next, we construct residualized benefit amounts of veteran i, denoted as b_i^*:

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

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 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

[25] 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.

b_i^* contains our measure of examiner tendency Z_{ij} as well as an idiosyncratic veteran-level error term ε_i.

Finally, for each veteran, we construct the leave-out average tendency 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 measure of tendency because regressing outcomes on examiner tendency 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 tendency measure Z_{ij} as an instrument for $Benefits_i$.

4.2 Variation in Examiner Tendency and First-Stage Estimates

Figure 1 presents a histogram of examiner tendencies. The average number of cases per examiner is 648, with the top 10% of examiners evaluating over 1,600 examinations. The 5th to 95th percentile of our measure of examiner tendency 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 tendency measure and realized one-year benefits is also presented in Figure 1, where we find strong predictive power of our instrument for realized benefits. To compactly summarize this relationship, we estimate a linear first-stage regression of benefits on examiner tendency. Estimates of this model (displayed in Table 2) imply that being assigned to an examiner with a one standard deviation (SD) higher tendency measure 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 5,386, well above

conventional rule-of-thumb levels for valid inference (e.g. Lee et al., 2021). The examiner also has sticky, permanent impacts on cumulative benefits (and thus veteran wealth). A one SD increase in tendency increases five-year cumulative benefits by $6,151; the first-stage impacts dissipate over time because veterans can appeal, re-rate, and file claims for new disabilities.[26]

4.3 Instrument Validity

So far, we have established that examiner variation in tendency is both substantial and predictive of realized benefits of veterans. For examiner tendency to serve as a valid instrumental variable (IV) for identifying average causal responses of health and well-being requires two further assumptions. First, examiner tendency must satisfy an *exclusion restriction*, such that examiner assignment is only related to veteran outcomes through its causal effect on veteran's benefits. Second, examiner tendency must satisfy a *monotonicity condition*, such that the effects on compensation amounts of being assigned to a higher tendency examiner are weakly positive for all veterans. We discuss these in turn below.

Quasi-Random Assignment & the Exclusion Restriction For the exclusion restriction to hold, we require (a) that examiner assignment is uncorrelated with veterans' potential outcomes, and (b) that an examiner's influence on a veteran's outcomes operates solely through the channel of increased benefits.

To begin, we consider whether examiner assignment is correlated with veterans' potential outcomes. This could be the case if the VA internally assigned examiners based on the details of veterans' claims. In reality, the assignment process is based largely on which providers are available to administer a mental disorder examination within a reasonable time frame. This lends support to the idea that veterans and examiners are quasi-randomly paired, and thus

[26]In Table B.5, we investigate how being quasi-randomly assigned a higher-tendency examiner impacts subsequent appeals and increase requests on the same claim, as well as filing for new disability claims. We find that veterans assigned to higher-tendency examiners are less likely to appeal and file for increases in the long-term but no more likely to file new disability claims (mental health and non-mental health) in the long-term.

that a veteran's potential outcomes should be unrelated to the type of examiner assigned to the case.

To put this idea to the test, Figure 2a examines the relationship between a detailed set of veterans' observable characteristics, their determined benefit amounts (left panel) and the tendency of their assigned examiner (right panel). Not surprisingly, these characteristics—including demographics, period of service, exposure to Agent Orange and radiation, and prior-year diagnoses and health events—are highly correlated with realized benefit amounts. The right panel of Figure 2a assesses whether these veteran characteristics are predictive of examiner assignment along a "bare" leave-out tendency 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 correlations between observable veteran characteristics and the measured tendency of the assigned examiner. Figure 2b summarizes this balance table by showing that *predicted* benefit compensation is not meaningfully correlated with examiner tendency.[27] Examiners whom we measure to have higher and lower tendencies examine observably similar veterans within a facility-year, consistent with quasi-random assignment.

What remains to discuss regarding the exclusion restriction is whether examiners with a higher tendency measure interact with their assigned veterans in ways that could impact veteran outcomes through channels other than their impact on realized disability compensation. For instance, if higher tendency examiners also recommend follow-up treatment for veterans during their examinations, or have better "bedside manner," our estimates would capture not only the effects of higher benefits, but also correlated examiner behaviors on veterans' outcomes. In our setting, the scope for these forms of interactions is relatively limited: examinations are strictly forensic, and there is usually no pre- or post-exam contact between veterans and examiners (Sripada et al., 2018).

Nevertheless, it is worth considering how such correlated behaviors might impact our

[27] 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 tendency. We then plot the mean actual and predict benefit compensation amounts against the examiner ventiles. Consistent with the first stage and balance figures, examiner tendency linearly predicts actual benefit amount almost one-for-one; however, does not predict predicted benefit amount (roughly 0.3% of the first stage explanatory power and not statistically significant).

IV estimates. If higher tendency examiners tend to provide more welcoming experiences, veterans may think more highly of VA personnel in general, with potential positive downstream effects on health outcomes. Viewed in this light, our IV estimates would place an upper bound on the health improvements resulting from additional benefits in isolation. To the extent such exclusion-restriction violations influence our results, reduced-form estimates demonstrating the net impacts of being assigned to a higher tendency examiner are still valid and could be useful for evaluating examiners' impacts more generally. We present these reduced-form impacts in Table B.3. Additionally, in robustness checks and in Appendix C, we attempt to further explore our exclusion restriction using examiner-completed DBQs; none of this evidence suggests any obvious violations.

Monotonicity In our setting, the monotonicity condition rests on the assumption that any veteran seen by a higher-tendency examiner would end up with a weakly higher benefit amount than had they been seen by an examiner with a lower tendency.

We probe whether such violations are likely or common using two approaches. The first is standard in examiner-design settings: we estimate first-stage models of benefits on examiner tendency for a series of subgroups (sex, race, age, mental disorder type, and predicted first-year benefits), as shown in Table B.6. Perhaps most germane to this discussion, the final three rows of Table B.6 demonstrate that, across the distribution of veteran severity, as measured by the benefits the veteran is predicted to receive based on observables, examiner tendencies have strong positive impacts on realized benefits. For instance, we estimate that veterans in the lowest tercile of predicted benefits based on their pre-examination observables receive \$1,326 ($s.e.$ = 43.9) more in their first year of benefits if they are assigned a 1SD higher tendency examiner. The comparable figure for veterans in the highest tercile is \$1,525 ($s.e.$ = 24.9). All of the estimates in this table are positive and highly statistically significant, suggesting that examiners with high tendencies on average have high tendencies in their examinations across the distribution of veteran types.

Second, given the salience of the OSI section of the DBQ in determining benefit amounts

and its multi-valued structure, one could be concerned that examiners have non-monotonic tendencies across the OSI—or disability impairment—spectrum. Monotonicity implies that examiners who have a greater overall tendency have a greater tendency in every part of the impairment spectrum. We test this by constructing six complementary measures of examiner tendency, one at each threshold value of OSI, 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 tendency is highly correlated with each of these six threshold-tendency 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, where there is less data and thus noisier estimates, our continuous tendency measure is still correlated at 0.39 (0.53). Examiners with higher overall tendencies have consistently greater tendencies across the disability severity spectrum. This evidence, while not exhaustive, aligns with the idea that higher tendency examiners provide uniformly higher degrees of OSI assessments, providing some support for our monotonicity assumption.[28]

5. Results

The previous section established the strong and virtually permanent influence of our examiner instrument on veteran benefits. In this section, we use our examiner tendency instrument to investigate the one- and five-year effects of higher VA DC benefits, framed in terms of an additional $1,000 per year. We begin by studying measures of economic stability and financial well-being, before turning to healthcare utilization and engagement, and downstream health outcomes and mortality.

[28] A developing literature explores the empirical content of monotonicity assumptions for LATE estimation in settings with quasi-random assignment to judges, physicians, and other "examiners" (e.g. De Chaisemartin, 2017; Chan et al., 2021b; Arnold et al., 2020; Frandsen et al., 2019). Relative to this literature, which focuses on settings with binary treatment choices being made directly by a given examiner, our setting features examiners making more complex choices that indirectly inform a downstream treatment, as the level of benefits is determined not only by the examiner's input, but by a VA rater's input, as well as other disabilities for which the veteran receives a rating. In this article, we do not attempt to adapt the approaches in this literature to our setting, but we view that exercise as potentially valuable for future work.

5.1 Economic stability and financial well-being

A primary goal of cash transfers is to improve economic stability. While prior studies have found that cash transfers can reduce rates of poverty (Hoynes and Patel, 2018; Miller et al., 2018), it is unclear whether they impact more tangible non-income-based measures such as fulfilling basic needs. We track measures of economic well-being by taking advantage of the richness of the VHA's administrative health records and its broad range of health and social services provided due to its highly integrated nature.

Table 3 presents 2SLS estimates of an extra $1,000 per year in benefits on measures of one-year (panel A) and five-year (panel B) economic stability and financial well-being. Food insecurity—tracked by the VA via annual primary care screens mandated since 2017—improves by 0.06 percentage points (pp) in the first year on a base of 2.17% and 0.10pp in five years.[29] Column 2 reports the impact of VA DC benefits on ever being homeless over one and five years. Homelessness is proxied in the VA using a variety of administratively monitored sources including diagnoses, use of homeless beds, and other homeless services such as rental assistance and vouchers.[30] Ever being homeless in the first year decreases by 0.072 percentage points (1.0%) over a mean of 7.75%. The five-year effect size is 0.184pp, or 1.3% over the baseline mean of 14.33%. The high homelessness rate reflects the fact that this proxy is a measure of ever being homeless ("interval prevalence") as opposed to point-in-time; prior studies of veterans receiving mental healthcare have found similar rates (Tsai et al., 2014). It is important to note that while this proxy of homelessness is imperfect, to the extent that we see increases in utilization for veterans receiving higher benefits—and we do in the next section—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 veterans with mental disabilities, many of whom live near the federal poverty level (Murdoch

[29] This is calculated conditional on receiving a food insecurity screen. Table B.1 reports the response rate for all outcomes with missing observations and the effect of the IV on the response rate. For example, the five-year response rate for food insecurity screens is 66.3%. The response rate increases by 0.2pp for every SD increase in the IV.

[30] See Appendix A for more details.

et al., 2011), are first securing basic needs like food and shelter with higher cash transfers.

Next, we examine measures of financial well-being via debt veterans owe to the VA. A non-trivial fraction of veterans have significant VA debt. Approximately 1.7% of our sample have any collections over five years and the median balance among these collections is $8,229, with a quarter owing over $17,800; see Table B.15 for breakdowns by source of debt. As previously mentioned, we construct two measures of Treasury debt referrals (or "collections") analogous to the prior literature (Dobbie et al., 2017; Dobkin et al., 2018): the number of debt collections (column 3) and log collection balance amounts (column 4). We find that the number of collections decline by 0.11 (6.4%) over five-years and the collection balances decline by 0.6%. These findings imply that basic-income-like transfers significantly improve economic stability and financial well-being among individuals with mental disabilities.[31]

5.2 Healthcare utilization and engagement

Utilization Table 4 reports 2SLS estimates of an additional $1,000 in VA DC benefits on one-year and five-year healthcare utilization and engagement in panels A and B, respectively. Total utilization—measured by "average cost" computed by the VA to reflect healthcare utilization using Medicare reimbursement rates (Wagner et al., 2003)—increases by roughly a constant 2.5% over $10,169 in the first year and $40,234 over the first five years. This increase is entirely driven by outpatient utilization (column 2) and we do not find any statistically significant effect on inpatient utilization or emergency department and hospital encounters (columns 3 and 7), suggesting an increase in engagement as opposed to a worsening of health. These estimates allow us to calculate the income elasticity of demand for healthcare, a rather elusive elasticity in the literature, perhaps due to the lack of data linking exogenous changes to income with healthcare spending. Our preferred elasticity estimate is 0.85 (Table B.10),

[31] These results are similar to those from a recent randomized trial in Vancouver, Canada, which gave a one-time lump-sum payment to homeless individuals (Dwyer and Zhao, 2021). One key difference is that the Vancouver experiment screened out individuals on the basis of poor mental health, as well as alcohol and substance use disorders, due to general concerns over whether cash transfers could harm these individuals, whereas our sample is composed entirely of individuals with claimed mental disorders.

which accounts for labor market effects of VA DC.[32] To the best of our knowledge, we are among the first 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 and Moran and Simon (2006), which estimates an income elasticity of prescription drug use of 1.3 using Social Security notches.

Greater healthcare utilization is somewhat surprising because our sample faces virtually zero cost-sharing.[33] However, non-monetary costs (i.e., "ordeals") may play a large role, especially since a quarter of our sample live in rural areas and many live below the poverty level. Cash transfers may free up time by allowing veterans to take up self- or part-time employment or even drop out of the labor force (Coile et al., 2015), or by making transportation (e.g., gas, bus ticket, etc.) more affordable.[34] In Table B.12, we test this hypothesis and find that the utilization effects are 1.2-1.5pp (60-90%) larger for veterans who live more than 10 miles from the nearest VHA primary care clinic. This suggests that there are barriers to healthcare access beyond direct monetary costs, and these barriers can be reduced by cash transfers.

Investigating specific categories of care, we find that the number of encounter days for all outpatient visits and specialty mental health outpatient visits increase by around the same amount: 0.61 visits (0.7%) over a base of 77 outpatient visits and 0.20 (0.6%) over a base of 34 mental health visits over five years (columns 4 and 5 of Table 4). The increase in mental health specialty care rejects longstanding concerns that compensation for mental health conditions may "create obstacles and disincentives for therapy or treatment" (National

[32] 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.

[33] All mental health services are free for VHA-enrolled veterans and all medical care are free if the veteran has any service-connected disability. In Table B.7, we show that our utilization findings persist even among veterans with no copayments (ex post) or no expected copayments (ex ante).

[34] Our findings are also broadly consistent with Smith et al. (2021), who find that improving access to transportation increases outpatient utilization.

Research Council, 2007).[35] In fact, we find greater degrees of meaningful and beneficial healthcare engagement.

Engagement In column 6 of Table 4, veterans schedule 0.12 and 0.86 additional VHA appointments over one and five years for every additional $1,000 per year. Table 5 reports 2SLS estimates for a set of preventive care utilization measures. In column 1, the number of day encounters with a preventive care CPT code increase by roughly 1%, albeit the coefficient is not statistically significant at conventional levels.[36] Next, we examine adherence to VHA preventive care recommendations that apply to most of the sample: flu vaccinations, Hepatitis C screens, and colorectal cancer screens. We find that annual flu vaccination rates increase by 0.15pp and the likelihood of having any Hepatitis C screen increases by 0.31pp over five years. We find positive, but small and statistically insignificant effects on annual colon screens. Our findings on scheduled appointments and preventive care suggest that veterans are not simply responding to ad hoc health issues but are proactively engaging in more healthcare, including preventive services.

Next, we investigate medication-related outcomes in Table 6. The impact of higher disability income on medication adherence is all-around positive. For every $1,000 per year, veterans start 0.03 new drugs in the first year (over a base of 3.3 drugs) and 0.09 new drugs in the first five years (over a base of 12 drugs). These new prescriptions are also 0.15-0.17pp more likely to be filled and picked up (as opposed to provider-written scripts that go unfilled). Veterans are not simply starting more drugs, but their medication adherence improves and they stay on their medication longer. Column 3 reports the estimate on veterans average medication possession ratio, a measure of the fraction of days where the

[35]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 low.

[36]Because VHA providers are salaried, procedure codes are underreported. Thus, we rely on clinical orders and lab tests via electronic records whenever possible.

veteran has the medication on hand (see Appendix A for more details), which increases by 0.05-0.07pp. The average drug episode length also increases by 0.06–0.08 days (0.4%-0.5%). We explore medication adherence separately for cardiovascular (statins, hypertensive drugs) and psychotropic drugs (antidepresssants, antipsychotics, sedatives/hypnotics) in Table B.8, and interestingly, adherence effects are largest for the former. To summarize, we find that veterans are more likely to start new drugs, pick up new prescriptions, better adhere to their medications, and stay on them longer.

Satisfaction, Trust, and Communication Increased engagement and take-up of preventive care and may be indicative of improved patient-clinician communication and trust (Alsan et al., 2019; Koulayev et al., 2017; Simeonova et al., 2020). We have multiple pieces of evidence to support this interpretation. First, VA DC benefits specifically increases VHA (outpatient) utilization. We do not find any economically or statistically significant change in Medicare utilization among the 65+ population (Table B.11). Second, our utilization results in Table 4 imply increases in the intensity of care *per encounter*: the impact of benefits on utilization measured in dollar terms is roughly four times larger in percentage terms than the corresponding impact on the number of encounters (2.5% vs 0.7% in columns 1 and 4). This evidence suggests that providers are able to achieve more and/or patients are willing to receive more care per encounter. This is consistent with our findings on new medication initiation and episode length, which requires mutual patient-provider communication.

Finally, we directly test this hypothesis using the Veteran Satisfaction Survey, a VA-conducted survey on randomly selected veterans receiving mental healthcare in the VHA (see Appendix A for details). Despite a small sample size—only 1,401 of our sample were surveyed and responded within 5 years of first claiming disability[37]—some clear patterns emerge in Table 7. An additional $1000 in disability compensation per year increases i) overall satisfaction with VA healthcare; ii) perceived collaborative medication management; and iii) communication, trust, and rapport each by 0.03 standard deviations (the measures

[37]Our precision despite the small sample size speaks to the power of our research design: we are able to precisely measure the annuity-like impact of medical examiners on compensation.

are composite averaged z-scores; Figure B.4 displays both the composite groupings and individual response outcomes). The latter two include questions on education and communication about medications and treatment options (e.g, "*My mental health provider(s) are more likely to talk with me about my concerns than to suggest or prescribe medication*") and overall communication (e.g., "*My mental health provider(s) and I developed my treatment plan together*") and trust (e.g., "*My mental health provider(s) have taken my personal preferences and goals into consideration during my treatment*").[38] It is also reassuring—for our exclusion restriction—that veterans do not report better access and availability (the coefficients are smaller and statistically insignificant), but of course, cash transfers may change veterans' *perception* of access.

In summary, our utilization, engagement, and patient survey findings suggest that increases in basic-income-like transfers can improve trust and communication in healthcare and lead to increased utilization and improved intermediate health measures.

5.3 Physical and Mental Health Outcomes and Mortality

So far we have documented substantial improvements in intermediate health measures, alongside signs of improved communication and trust in healthcare providers. The natural next question, especially in light of the perennial debate over the relationship between income and health, is whether these improvements translate into downstream physical and mental health outcomes.

Table 8 reports 2SLS estimates of the effect of disability income on prevalence of major depressive disorder (MDD), alcohol and substance use disorders (AUD/SUD), overdose poisoning, and suicide events, body mass index (BMI), pain score, HbA1c glucose levels, and blood pressure. Outside of overdose and suicide events which are standard indicator variables, the other measures are constructed conditional on having at least one observation over the study period. Table B.1 summarizes for each outcome, the share with at least one

[38] Investigating treatment practices, we find suggestive evidence consistent with the trust angle in Table B.16: veterans are more likely to complete prolonged exposure therapy, an evidence-based form of PTSD treatment that requires a higher degree of vulnerability and trust (Powers et al., 2010).

observation and how it moves with the instrument. Across virtually all health outcomes, we estimate precise null effects: 95% confidence intervals can rule out effect sizes of more than 0.1%—in either direction—over the baseline mean. Overdose and suicide events are less precise since they are rare events.[39] Figure B.3 leverages our rich panel data and investigates the impact of an extra $1,000 per year on annual measures of alcohol consumption, binge drinking (proxied by responding weekly or more frequent to the following question: "*How often did you have six or more drinks on one occasion in the past year?*"), and depression—measured via clinical questionnaire screens—and find similarly precise null effects.

The one exception is self-reported (physical) pain scores taken in primary care settings in column 6, which decreases by 0.3–0.5%. This effect may be driven by a combination of psychosocial factors such as a reduction in stress (e.g., improvement in basic needs and reduction in financial debt) or changes to physical occupational demands due to labor market outcomes (Cutler et al., 2020). We note that we do not detect changes in other potential non-self-reported proxies for stress including BMI, blood glucose levels, or blood pressure; we also detect similar reductions in pain among the elderly who are unlikely to experience changes to physical demands at work.

Finally, column 10 of Table 8 displays the impact of disability income on mortality. Consistent with our findings on other downstream health outcomes, we fail to detect statistically significant effects on mortality. In fact, we are able to rule out reductions in five-year mortality greater than 0.011pp, or 0.14%. We investigate into specific causes of death (top three disease-related causes along with external causes) in Table B.13 and do not find strong patterns. This is broadly consistent with Gelber et al. (2018), who despite finding large mortality reductions from disability income concentrated in people with cardiovascular disabilities, do not find statistically significant reductions in mortality among mental disabilities.[40] To the

[39] Across all our outcomes, we can benchmark how the utilization effect impacts our ability to observe the variable, except for overdose and suicide events because they are constructed unconditionally. This means that the utilization effects create an upward bias on these two outcomes.

[40] Gelber et al. (2018) estimate two point estimates, one at each SSDI bend point. The 95% confidence interval on our one-year mortality estimates are able to rule out their point estimate for individuals applying for SSDI with mental disabilities at the lower bend point, but not their point estimate at the family maximum bend point.

best of our knowledge, our estimates of the mortality effects of cash transfers are some of the most precise in the literature, with standard errors around an order of magnitude smaller than comparable recent estimates (Gelber et al., 2018; Cesarini et al., 2016; Schwandt, 2018).

5.4 Heterogeneity

Finally, to investigate heterogeneity, we estimate 2SLS regressions for our main outcomes on separate, mutually exclusive subsample: by sex, race, age, initial income, and type of mental health disability. The coefficient estimates are reported in Table B.14.

We find strong utilization effects across the board, with utilization increasing by 2.18 to 3.47% over five years. The effects of $1,000 in benefits on preventive care (annual flu vaccinations and any Hepatitis C screen) are largest among Black and other non-White veterans. For instance, flu vaccinations increase by 0.25 for Black veterans compared to 0.13 for White non-Hispanic veterans. This finding is consistent with experimental evidence from Alsan et al. (2019) that enhancing trust and communication among historically marginalized communities can increase take-up of preventive care.

The effects on economic security and financial well-being (food insecurity, homelessness, and VA debt collection) are largest among young, lower income, and Black veteran subgroups. These subgroups are generally the most financially vulnerable. Interestingly, female veterans are the only group that do not experience reductions in self-reported pain. Finally, speaking to the external validity of our findings, all our results are robust—and in some cases stronger—among younger, working age veterans.

6. Conclusion

In this paper we provide evidence on the broad economic and health impacts of cash transfers by investigating a large US government program (Veterans Affairs Disability Compensation) that closely resembles basic income. By focusing on individuals applying for mental health disabilities—a rapidly growing group responsible for 62% of the program's total expenditure—

we are able to study the impacts on a disadvantaged population with generally low labor force participation and high reliance on government programs (Frank et al., 2019). We make novel data linkages between benefits administration and 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 of disability claim cases to mental health disability examiners, we find that being assigned a higher-tendency examiner is effectively like winning an annuities lottery: permanently higher tax-free benefits.

Permanent cash transfers significantly improve economic stability among individuals with mental disabilities by reducing food insecurity, homelessness, and the likelihood of having financial (VA) debt. These are among our strongest effect sizes, which implies that veterans are first attending to their basic needs. In contrast, we find no changes to alcohol consumption or likelihood of developing alcohol or substance use disorders.

Higher disability compensation increases healthcare utilization and engagement. The increase in utilization is concentrated in outpatient utilization and among veterans living further from VA facilities; this is consistent with there being indirect non-monetary costs and barriers to accessing healthcare even in settings with zero to no cost-sharing. We also find higher rates of take-up in preventive care, scheduled appointments, and greater medication adherence. These engagement measures, along with findings from VA-conducted satisfaction surveys on trust and communication imply that cash transfers increase care satisfaction and improve patient-clinician relationships. An implication of the impact of *VBA* benefits on *VHA* utilization and engagement, is the potential existence of spillovers and externalities across programs, more generally. The impacts of changes to spending in one government program on other programs' fiscal expenditures (Chandra et al., 2010), beneficiary sentiment (Caprettini and Voth, 2020), and their interactions with the welfare system (Borghans et al., 2014) are important avenues to consider for policymakers and public economists.

Despite its impacts on preventive care, improved engagement, and clinician trust, we estimate precise null effects of basic income on a wide array of downstream physical and mental health outcomes, including mortality. To the extent that enhanced trust leads veterans to

seek and take advantage of valuable resources within the VA, this could color the interpretation of any downstream effects on health outcomes. In particular, one might expect the direct effects of just income as having less positive impacts on health outcomes. In this line of reasoning, our estimates of the impacts of examiner-induced transfers on health outcomes may serve as an upper bound on the general effects of proposed basic income programs.

Our findings suggest that the calculus of basic income and its benefits to people with mental disabilities are unlikely to hinge on quantifiable immediate improvements to health, but rather on increases to economic and financial stability, improvements in satisfaction and well-being, and take-up of preventive health measures.

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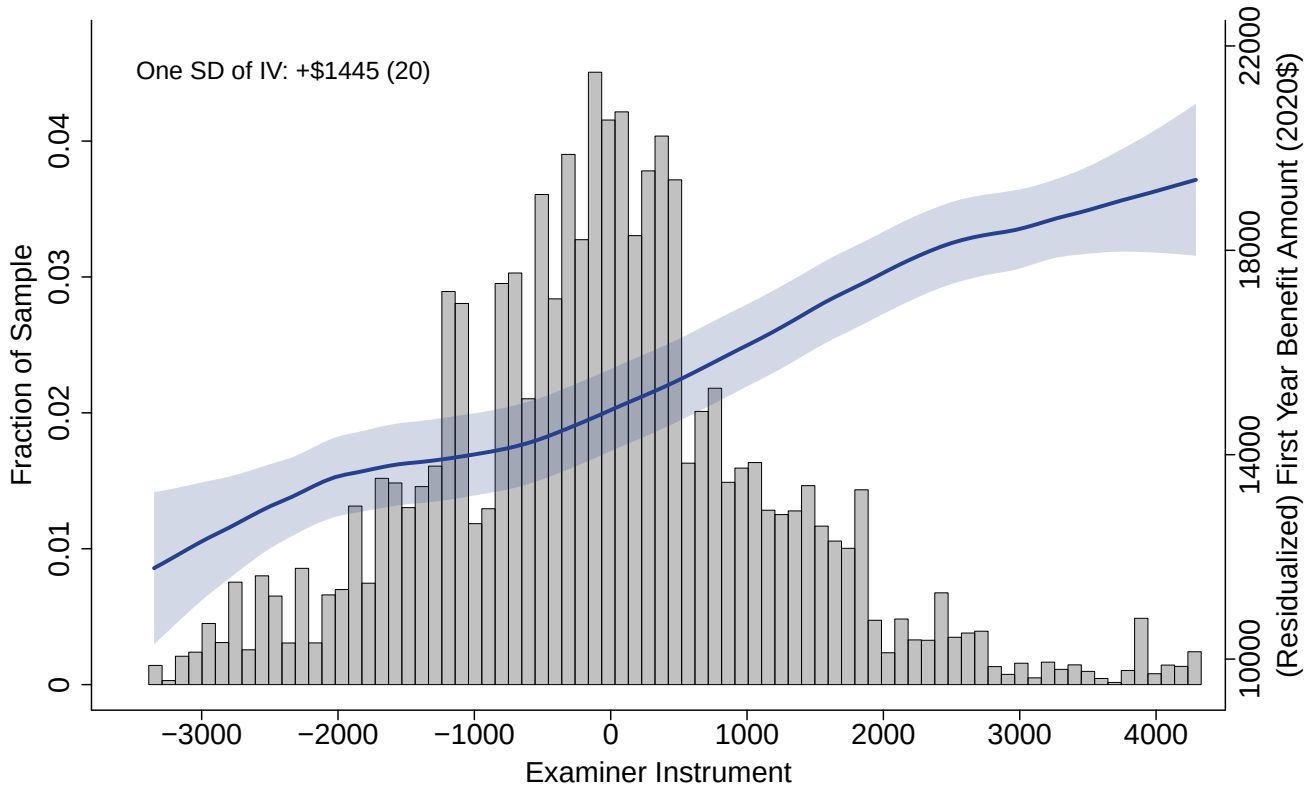
Figures and Tables

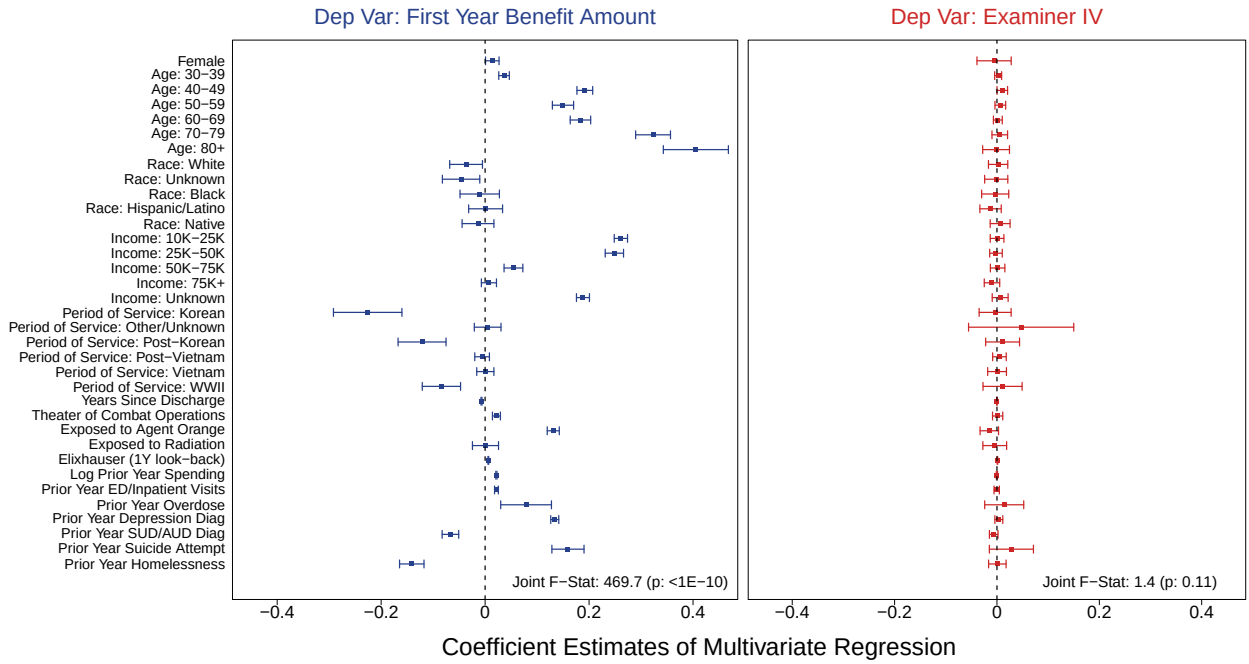
Figure 1: Distribution of Examiner Tendency IV and Annual Compensation (First Stage)



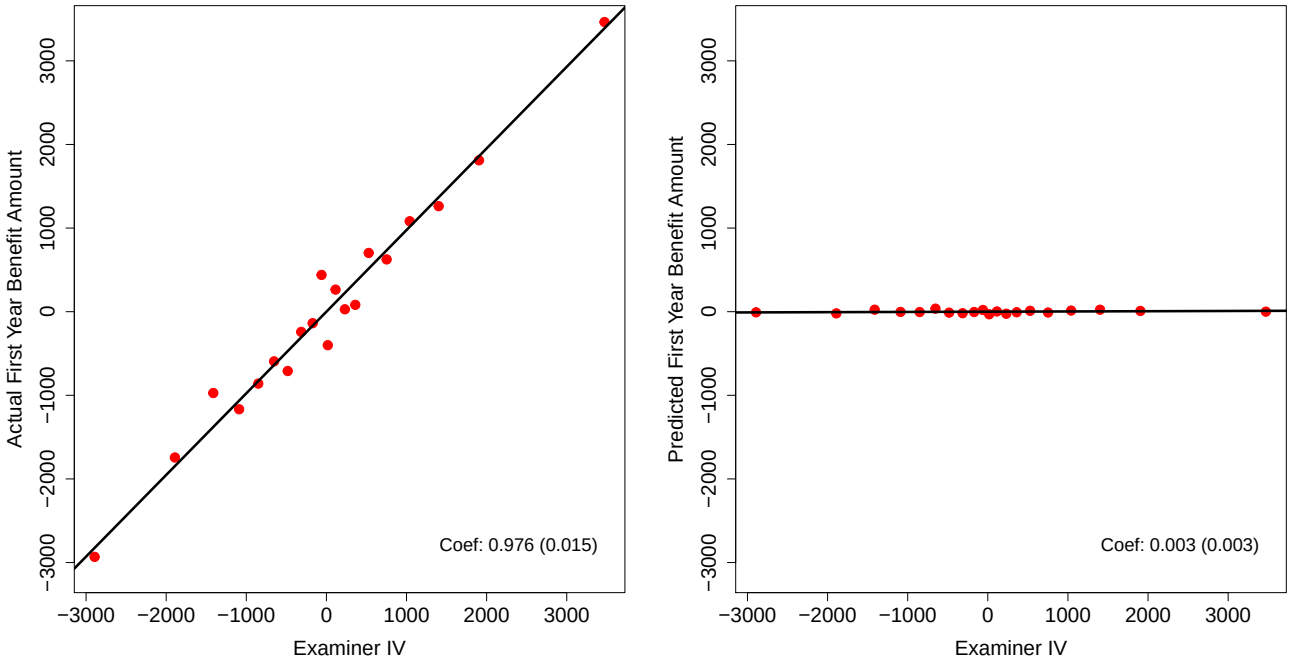
Notes: This figure displays the distribution of examiner tendency instrument as defined in Equation 2 and Equation 3, and its impact on first year disability compensation benefit, residualized for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent 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 tendency (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 a standardized IV on first year disability compensation benefit are displayed at the top of the figure. The joint F-stat of this regression is 1,116.

Figure 2: Balance and First Stage

(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 tendency the same set of covariates. The examiner tendency 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 displayed; the F-test degrees of freedom are 38 and 864,193. Figure 2b plots actual and predicted benefit compensation against examiner tendency 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 tendency 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	$34,416
Combined Disability Rating	56.0	32.3	30	60	80
Benefit Amount: 1 Year (2020$)	$15,090	$11,761	$5,228	$13,580	$19,894
Benefit Amount: 5 Years (2020$)	$83,233	$58,073	$37,657	$78,344	$111,778
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	5 Year
	(1)	(2)
Standardized IV	1,445.0***	6,150.9***
	(19.7)	(128.6)
Mean Dep Var	15,090	83,182
F-Stat (IV)	5,386	2,288
N=	867,016	576,706

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. Sample size drops as we move to longer time horizons as it requires observing the veterans being on VA DC over longer periods of time. Robust standard errors are clustered at the facility-level. *p<0.1; **p<0.05; ***p<0.01.

Table 3: 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. See Table B.1 for response rates and selection into response associated with examiner tendency. 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 4: Healthcare Utilization and Engagement

Panel A. 1-Year Outcomes

	Dependent variable: (×100)						
	Log Total Util $	Log Outpat Util $	Log Inpat Util $	Outpat Days	MH Outpat Days	Scheduled Appts	ED/Hospital Days
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1,000 per year	2.49***	2.48***	0.33	8.70***	3.94***	11.75***	0.05
	(0.38)	(0.36)	(0.43)	(1.99)	(1.51)	(2.99)	(0.26)
Mean Dep Var	$10,169	$6,813	$3,355	14.97	7.56	22.32	0.42
N=	855,264	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 $	Outpat Days	MH Outpat Days	Scheduled Appts	ED/Hospital Days
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1,000 per year	2.56***	2.57***	1.45	50.97***	19.71***	85.63***	1.60
	(0.44)	(0.39)	(1.16)	(14.06)	(7.65)	(19.96)	(1.65)
Mean Dep Var	$40,234	$28,468	$11,766	76.92	34.18	107.85	2.23
N=	576,677	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 4-7 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 5: 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 6: 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. See Table B.1 for statistics on the fraction of veterans for which we observe any medications and how it is associated with examiner tendency. 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 7: Satisfaction, Access, Trust, and Communication (Veteran Satisfaction Survey)

	Dependent variable: (Standardized)			
	Satisfaction with VA care	Access and Availability	Collaborative Medication Management	Communication, Trust, & Rapport
	(1)	(2)	(3)	(4)
$1,000 per year	0.032**	0.013	0.028**	0.027**
	(0.013)	(0.013)	(0.012)	(0.013)
N=	1,401	1,401	1,390	1,401

Notes: This table reports estimated 2SLS coefficients from Equation 1 for composite measures of satisfaction, access, trust, and communication from the Veteran Satisfaction Survey (VSS). Composite measures are constructed as average Z-scores of individual questions from the VSS; see Figure B.4 for groupings and Appendix A for details on the VSS. Veterans who are not selected for the survey, do not complete the survey, or skip the question are dropped. The impact of $1,000 on completing the survey (response bias) is 0.00017 (SE=0.00011) and statistically insignificant at the 10% level. The sample size reflects the randomly selected veterans from 2017-2020 who completed the survey within five years of first claiming mental disorder disability. Regression coefficients and 95% confidence intervals (robust standard errors are clustered at the facility-level) are graphed. 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 8: 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	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$1,000 per year	0.002	−0.060	−0.001	−0.004	0.116	−1.036**	0.025	2.495	−0.856	0.0022
	(0.052)	(0.057)	(0.004)	(0.007)	(0.525)	(0.415)	(0.188)	(1.879)	(1.764)	(0.0091)
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	1.42
N=	561,229	553,685	855,264	655,186	665,745	639,000	353,971	646,487	646,487	867,416

Panel B. 5-Year Outcomes

	Dependent variable: (×100)									
	MDD	AUD/ SUD	Overdose Poisoning	Suicide Event	BMI	Pain Score	HbA1c (%)	Systolic BP	Diastolic BP	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$1,000 per year	−0.050	−0.068	−0.013	0.0001	−0.298	−1.456***	0.028	0.065	−2.537	0.0445
	(0.063)	(0.086)	(0.018)	(0.019)	(0.971)	(0.396)	(0.176)	(2.163)	(2.273)	(0.0284)
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	8.07
N=	529,759	529,356	576,994	522,089	441,691	529,111	423,239	530,362	530,362	626,523

Notes: This table reports estimated 2SLS coefficients from Equation 1 for physical and mental health outcomes, and mortality. 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. 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. See Table B.1 for data completeness and how it is associated with examiner tendency. With the exception of all-cause mortality, 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

Appendix (For Online Publication Only)

A. Variable Definitions

In this appendix we describe the source and construction of our variables, grouped by outcome type. Note that wherever possible, we use official VA definitions and measures, sourcing our data from the Office of Mental Health and Suicide Prevention. For example, see Figure B.2 for an example of a clinical dashboard which uses the same definitions on homelessness, VA debt, medication adherence, and appointments.

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,

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

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 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).

[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).

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 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]

[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.

- 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]
- 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

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

[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.

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:

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

$MPR_{episode}$ 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 stu-

dent (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) and Dobkin et al. (2018) and construct variables on the number of debt collections (that get referred 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 (i) **ever** screens positive on the 2-item or 9-item Patient Health Questionnaire (PHQ-2 $\geq$ 3, PHQ-9 $\geq$ 5) over the time frame **or** (ii) is diagnosed with MDD over the time

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

frame. Veterans who score negative on all PHQs and are 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 Alcohol Use Disorders Identification Test-Concise (AUDIT-C $\geq$ 3) and MDD diagnosis with AUD or SUD diagnosis. The AUDIT-C and PHQ questionnaires can be found on the NIDA website. Question 3 of the AUDIT-C ("*How often did you have six or more drinks on one occasion in the past year?*") is used to construct proxy for binge drinking in Figure B.3; the proxy takes a value of one for responses of "weekly" or "daily or almost daily". Overdose poisonings is a binary variable constructed only using poisoning diagnosis codes. 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 responses to (some variant) of the following question: "*On a scale of zero to ten, where zero means no pain and ten equals the worst possible pain, what is your current pain level?*" 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.1 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, 2021c). 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.

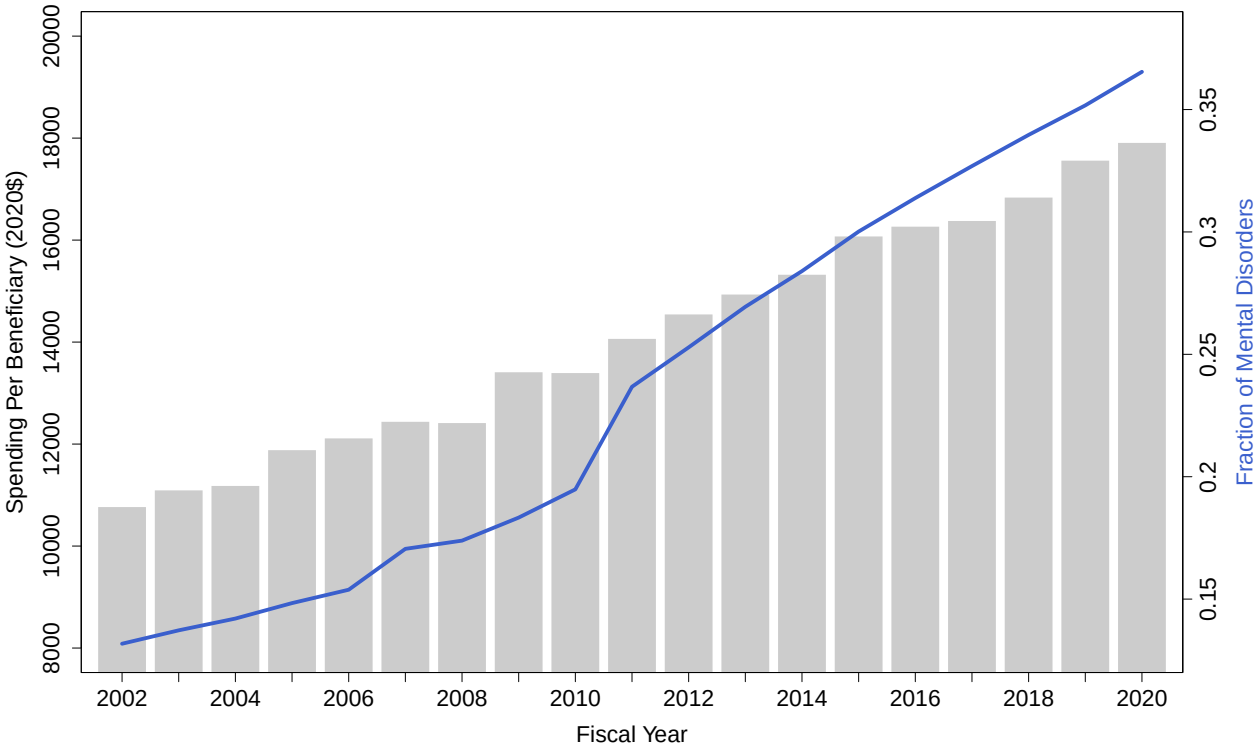
A.9 Veteran Satisfaction Survey (VSS)

Starting in fiscal year 2018, the VA Office of Mental Health started conducting VHA mental health satisfaction surveys (VSS) to veterans currently receiving mental health outpatient treatment. Each year since 2018, veterans receiving mental health outpatient treatment are randomly (phone) called a set of roughly 36 questions relating to their satisfaction in VHA mental health care. Veterans are drawn and contacted until roughly 10,000 veterans respond and complete the survey each year.

We have three waves of the VSS (FY2018, 2019, 2020), covering 26,879 unique veterans receiving VHA mental health care. We merge these survey responses to our analysis sample starting in 2014 (to allow a five-year response period), resulting in a sample size of 1,401. For the few veterans who were surveyed more than once, their responses are averaged. We only focus on the 27 questions that were consistent over the three years. We group the 27 questions into four categories: i) satisfaction with VA care; ii) access and availability; iii) collaborative medication management; and iv) communication, trust, and rapport. See Figure B.4 for the grouping categories. For each category, we calculate equally-weighted averages of Z-scores as our main outcome variable. In Figure B.4, we also study the raw response on a 1-5 scale (1: disagree strongly; 2: disagree; 3: neither disagree or agree; 4: agree; 5: agree strongly); and an indicator for agree or agree strongly. The impact of $1,000 on completing the survey (response bias) is 0.00017 (s.e.=0.00011) and statistically insignificant at the 10% level.

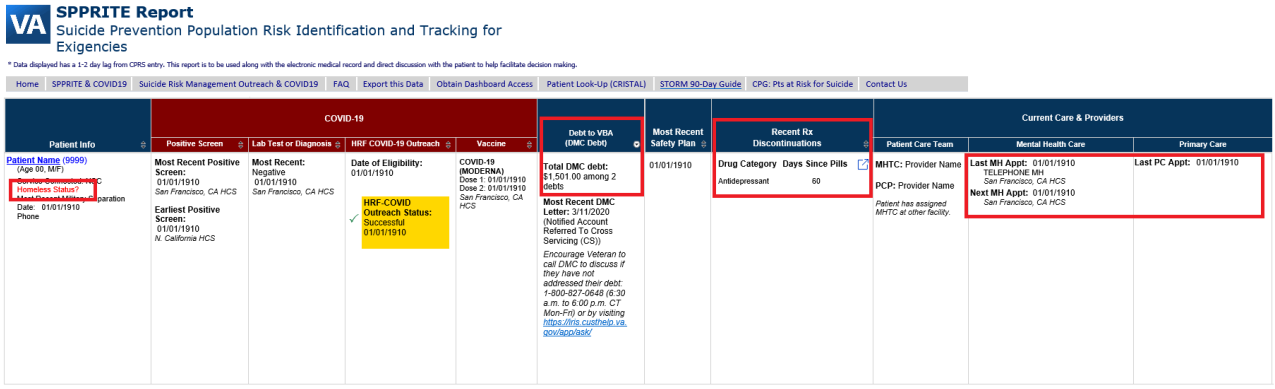
B. Additional Exhibits

Figure B.1: Growth in VA DC Spending Per Beneficiary and Mental Disorder Share, FY2002–2020



Notes: This figure displays the growth in VA DC spending per beneficiary and the share of all beneficiaries with a mental disorder disability between fiscal year 2002 and 2020. The gray histogram (left y-axis) displays the average spending per VA DC beneficiary in 2020 dollars. The blue line graph (right y-axis) displays the fraction of beneficiaries with a mental disorder disability.

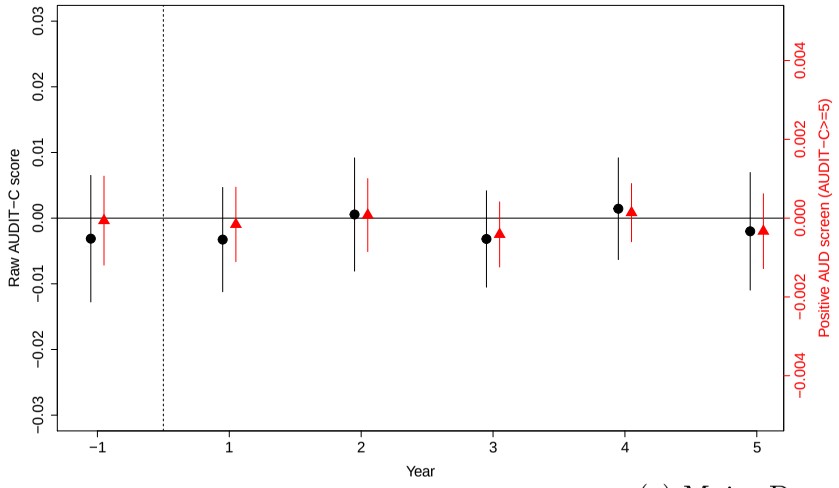
Figure B.2: Example of VA clinical dashboard (with patient with no PHI/PII) utilizing the same data we use



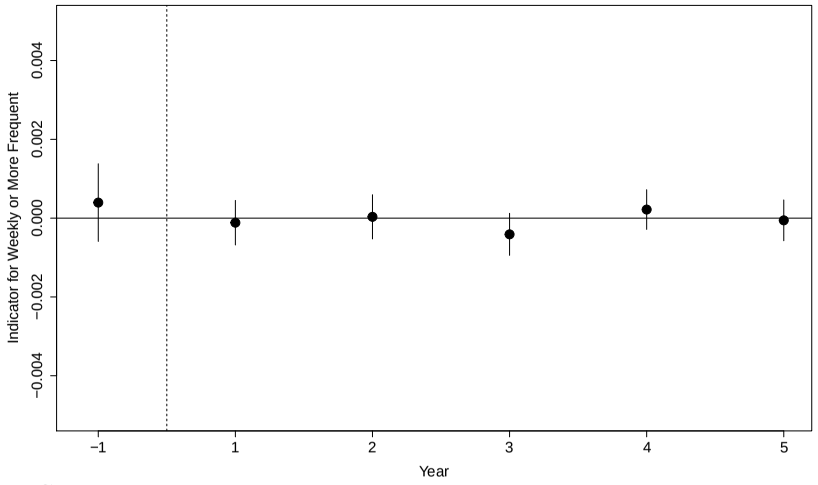
Notes: This figure displays part of the VA SPPRITE dashboard (for a fake patient with PHI/PII removed) used by clinicians and mental health specialists for suicide prevention. The boxed red regions highlight patient information that use the same definition and data as we do in our paper. Moving from left to right: homelessness, VA debt, medication adherence, and appointments. Note that this is not the only dashboard where our outcomes share data with (for example, medication possession ratios are used in 12 different dashboards). Moreover, many of our variables also feed official VA metrics and predictive algorithms (such as a suicide risk prediction algorithm).

Figure B.3: Panel Mental Health Outcomes: Alcohol use disorder, alcohol consumption, and depression

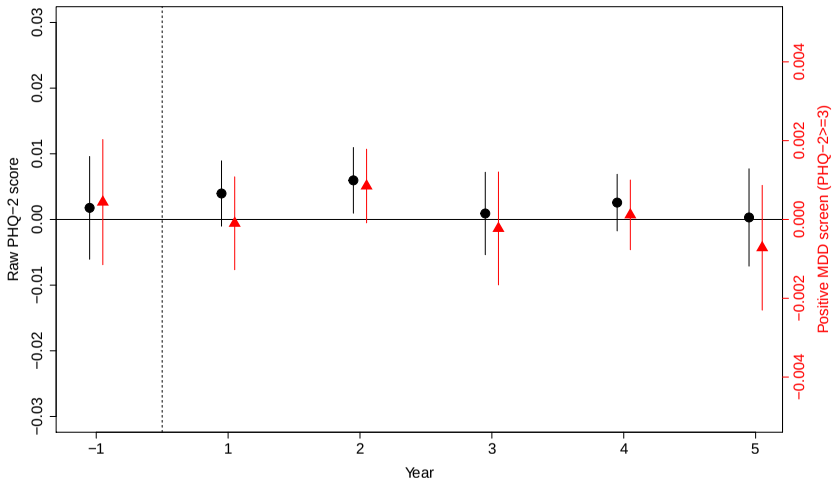
(a) Alcohol Use Disorder Screen



(b) Binge Drinking: How often did you have six or more drinks on one occasion in the past year? (weekly or almost daily)

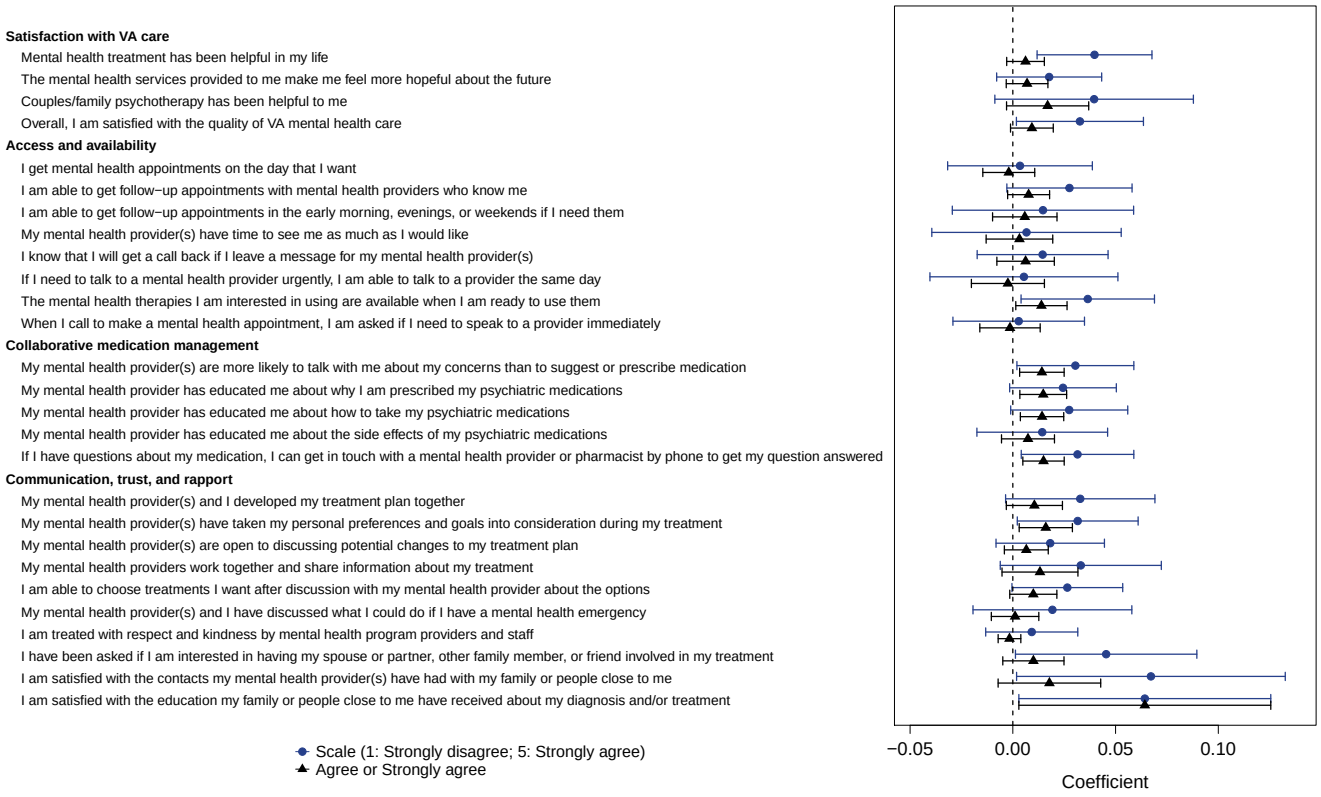


(c) Major Depressive Disorder Screen



Notes: This figure displays estimated 2SLS coefficients from Equation 1 for alcohol use disorder (AUDIT-C questionnaire; panel a), a proxy for weekly binge drinking (AUDIT-C question 3; panel b), and major depressive disorder screens (PHQ-2 questionnaire; panel c), estimated separately for each 365 day period relative to the initial disability claim (one year prior and five years post). Benefit compensation amounts are scaled to units of an additional $1,000 per year for interpretability. The black circles (left y-axis) correspond to the average raw questionnaire response as the outcome variable and the red triangles (right y-axis) correspond to screening "positive" as the outcome variable. All regressions are estimated on samples of veterans that are alive for the entire five years following the claim. 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. Mean AUDIT-C score and positive AUD screen rate (panel a) in the prior year are 2.04 and 14%; mean binge drinking at a weekly or more frequent (panel b) in the prior year is 7.6%, and mean PHQ-2 score and positive MDD screen rate (panel c) in the prior year are 1.54 and 23%. Analysis samples are not balanced; the number of observations range from 235,024 to 501,028 for panels a and b, and 171,028 to 323,036 for panel c.

Figure B.4: Veteran Satisfaction Survey Responses: Discrete Responses and Agree/Strongly Agree



Notes: This figure displays the estimated coefficients of separate 2SLS regressions of individual survey question response (1 to 5 scale of strongly disagree to strongly agree; blue circle) OR survey response of at least agree (black triangle) on disability benefit compensation. The impact of $1,000 on completing the survey (response bias) is 0.00017 (SE=0.00011) and statistically insignificant at the 10% level. The sample size is 1,401 veterans, which reflects the randomly selected veterans from 2017-2020 who completed the survey within five years of first claiming mental disorder disability. Regression coefficients and 95% confidence intervals (robust standard errors are clustered at the facility-level) are graphed. 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. Veterans who are not selected for the survey, do not complete the survey, or skip the question are dropped.

Table B.1: Statistics on Observed Outcomes and its Association with Examiner Tendency IV for Non-Complete Data

	At Least One Obs		Number of Obs | At Least One	
	Mean	1 SD IV	Mean	1 SD IV
	(1)	(2)	(3)	(4)
Food Insecurity Screen	0.663	0.002	1.440	-0.001
Medication Outcomes	0.804	0.005	-	-
MDD Screen or diagnosis	0.918	0.002	3.553	0.013
AUD/SUD Screen or diagnosis	0.917	0.002	4.237	0.029
Body Mass Index	0.931	0.002	17.953	0.088
Pain Scores	0.917	0.003	9.633	0.052
HbA1c	0.735	0.004	4.758	0.013
Blood Pressure	0.920	0.002	10.278	0.051

Notes: This table reports statistics on veteran outcomes that are not completely observed. Certain variables are either always observed (e.g., the number of VHA emergency or inpatient visits or whether the veteran receives a VHA flu shot) and others are always observed within a certain time period (e.g., all debt collections between 2016-2021). Other variables such as vital signs are only observed if the veteran seeks out care and healthcare utilization is higher among those assigned to higher tendency IV examiners. Columns 1 and 3 displays the fraction of veterans for which we have any observation, and the number of observations (conditional on having any; multiple observations on the same day are counted as one) per veteran within 5 years. Columns 2 and 4 displays the impact of the (standardized) examiner tendency IV on the two statistics. Only measurements of pain score and blood pressure in primary care settings are used, all others are dropped.

Table B.2: OLS of Select Outcomes on Disability Compensation Benefit Amount

Panel A. 1-Year Outcomes

	Dependent variable: (×100)						
	Log Total Util $	Homeless-ness	Food Insecurity	# Debt Collection	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1,000 per year	3.80***	−0.01***	−0.03***	−0.02***	0.01***	0.02***	0.01***
	(0.06)	(0.004)	(0.005)	(0.003)	(0.001)	(0.002)	(0.002)
Mean Dep Var (×100)	724.01	7.75	2.17	1.56	0.30	0.91	1.42
N=	854,873	854,873	64,035	276,121	854,873	654,967	867,016

Panel B. 5-Year Outcomes

	Dependent variable: (×100)						
	Log Total Util $	Homeless-ness	Food Insecurity	# Debt Collection	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1,000 per year	4.02***	0.01***	−0.04***	−0.05***	0.03***	0.08***	0.06***
	(0.07)	(0.01)	(0.01)	(0.004)	(0.002)	(0.004)	(0.004)
Mean Dep Var (×100)	961.92	14.33	2.41	1.68	1.23	2.89	8.07
N=	576,677	576,677	124,180	261,448	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.3: Reduced Form Regressions of Select Outcomes on Examiner Tendency

Panel A. 1-Year Outcomes

	Dependent variable: (×100)						
	Log Total Util $	Homeless-ness	Food Insecurity	# Debt Collection	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1 SD of Examiner IV	3.59***	−0.10***	−0.09*	−0.06**	−0.002	−0.01	0.003
	(0.56)	(0.02)	(0.05)	(0.03)	(0.01)	(0.001)	(0.01)
Mean Dep Var (×100)	724.01	7.75	2.17	1.56	0.30	0.91	1.42
N=	854,873	854,873	64,035	276,121	854,873	654,967	867,016

Panel B. 5-Year Outcomes

	Dependent variable: (×100)						
	Log Total Util $	Homeless-ness	Food Insecurity	# Debt Collection	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1 SD of Examiner IV	3.15***	−0.23***	−0.13***	−0.14***	−0.02	0.001	0.06
	(0.57)	(0.04)	(0.04)	(0.03)	(0.02)	(0.02)	(0.04)
Mean Dep Var (×100)	961.92	14.33	2.41	1.68	1.23	2.89	8.07
N=	576,677	576,677	124,180	261,448	576,677	522,847	626,523

Notes: This table reports estimated coefficients from a reduced form regression of select main outcomes on standardized examiner tendency instrumental variable. The impact of a standard deviation increase in examiner tendency 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.4: Select Outcomes Without Non-Attrition Restrictions

Panel A. 1-Year Outcomes

	Dependent variable: (×100)						
	Log Total Util $	Homeless-ness	Food Insecurity	# Debt Collection	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1,000 per year	2.46***	−0.07***	−0.06*	−0.04**	−0.001	−0.01	0.002
	(0.38)	(0.02)	(0.03)	(0.02)	(0.004)	(0.01)	(0.01)
Mean Dep Var (×100)	718.51	7.76	2.17	1.55	0.31	0.94	1.42
N=	867,016	867,016	64,405	279,564	867,016	663,692	867,016

Panel B. 5-Year Outcomes

	Dependent variable: (×100)						
	Log Total Util $	Homeless-ness	Food Insecurity	# Debt Collection	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1,000 per year	2.60***	−0.16***	−0.10***	−0.10∗ ∗ ∗	−0.01	−0.001	0.04
	(0.47)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)
Mean Dep Var (×100)	950.95	14.22	2.41	1.58	1.32	2.90	8.07
N=	626,523	626,523	126,244	282,793	626,523	565,225	626,523

Notes: This table reports estimated 2SLS coefficients of select main outcomes without restrictions on non-attrition. That is, unlike the main tables which are estimated only on the sample of veterans who are alive for the entire outcome period, these regressions are estimated on the sample of all veterans, including those who die before the end of the outcome period. The coefficients are scaled by 100 for interpretability and readability. 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.5: Impact of Examiner Tendency on Subsequent Appeals, Increases, and New Claims

	Dependent variable: (×100)							
	Appeal		Increase		New MH Claims		New Non-MH Claims	
	1Y	5Y	1Y	5Y	1Y	5Y	1Y	5Y
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1 SD of Examiner IV	-0.03^{***}	-0.09^{***}	0.16^{***}	-0.45^{***}	0.12^{*}	0.04	0.12^{*}	0.04
	(0.01)	(0.01)	(0.06)	(0.10)	(0.07)	(0.05)	(0.07)	(0.05)
Mean Dep Var (×100)	0.16	0.61	6.98	20.88	0.47	0.69	0.47	0.90
N=	854,873	576,677	854,873	576,677	854,873	576,677	854,873	576,677

Notes: This table reports estimated coefficients of a reduced form regression of the impact of examiner tendency on various subsequent disability claim related outcomes: whether the veteran appeals the initial (index) mental health disability claim (columns 1 and 2), whether the veteran files for an increased rating on the mental health disability (columns 3 and 4), the number of new MH disability claims filed (columns 5 and 6), and the number of new non-MH disability claims filed (columns 7 and 8). Odd (even) numbered columns report one-year (five-year) outcomes. The explanatory variable is the standardized examiner tendency instrument. The coefficients are scaled by 100 for interpretability and readability. 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: Subsample First Stages

	Cumulative Benefit (2020$)			
	1 Year	5 Year	Mean Yr1 Benefit	N=
Subsample:	(1)	(2)	(3)	(4)
Full Sample	1,444.9***	6,150.9***	15,090	867,016
	(19.7)	(128.6)		
Sex: Female	1,472.1***	6,125.7***	16,055	93,706
	(39.7)	(259.8)		
Sex: Male	1,439.1***	6,149.7***	14,965	761,167
	(20.7)	(139.6)		
Race: White (Non-Hispanic)	1,411.7***	6,006.9***	15,014	517,099
	(22.2)	(145.4)		
Race: Black	1,535.2***	6,466.2***	15,429	192,099
	(41.4)	(271.6)		
Race: API, Hispanic, Native	1,459.0***	6,373.9***	14,888	93,452
	(33.0)	(215.8)		
Age: < 45	1,399.0***	5,905.5***	14,841	317,213
	(29.1)	(169.0)		
Age: ≥ 45	1,468.4***	6,284.2***	15,228	537,660
	(27.5)	(170.0)		
Type: Anxiety Disorders	1,556.8***	6,594.7***	14,740	528,399
	(28.2)	(161.3)		
Type: Mood Disorders	1,423.7***	6,566.7***	16,092	176,207
	(48.4)	(309.4)		
Type: Other Disorders	1,374.3***	6,137.2***	16,590	80,780
	(61.1)	(366.9)		
Predicted Benefit: Top Tercile	1,525.10***	6,699.4***	17,736	285,315
	(24.9)	(145.9)		
Predicted Benefit: Middle Tercile	1,408.3***	6,016.9***	14,869	285,018
	(24.5)	(154.6)		
Predicted Benefit: Bottom Tercile	1,325.9***	5,722.2***	12,641	284,540
	(43.9)	(236.5)		

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 tendency instrument for various subsamples, displayed in rows. Columns 1 and 2 report the estimated first stage coefficients. Column 3 and 4 display the average first year benefit amount and sample size for each subsample. Predicted benefit amount (in the first year) is fit using pre-examination covariates from Figure 2a. 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.7: Utilization Effects for Sample With Actual and Expected Zero Medical Copayments

	Dependent variable: (×100)					
	Log Total Util		Log Outpat Util		Log Inpat Util	
	Actual	Expected	Actual	Expected	Actual	Expected
	(1)	(2)	(3)	(4)	(5)	(6)
$1,000 per year	1.85	2.72	1.86	2.80***	1.61	1.02
	(0.53)	(0.48)	(0.46)	(0.43)	(1.37)	(1.13)
Mean Dep Var (×100)	$39,368	$35,957	$28,407	$26,727	$10,961	$9,230
N=	511,216	516,329	511,216	516,329	511,216	516,329

Notes: This table reports 2SLS estimates of the effect of disability compensation on healthcare utilization for veterans whom examiner tendency should only impact disability income and not VHA medical copayments. Veterans with a combined disability rating of at least 10% have no copayments for medical care and thus the instrument does not affect the cost of healthcare. The 2SLS regressions are estimated on the sample with realized disability ratings of at least 10% and sample with predicted disability rating of at least 10% using veteran observables (demographics, income, period of service, prior medical comorbidities; see Figure 2a) in the odd and even columns, respectively. Predicted disability rating is estimated via a logistic regression and the response threshold value is selected to match the number of veterans who actually receive at least 10% disability. 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.8: 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.9: Top 30 Most Commonly Prescribed Drug Classes Among 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.10: 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.11: 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.12: 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.13: 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 data 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

Table B.14: Heterogeneity of 5-Year Main Outcomes

	Dependent variable: (×100)											
	Util	Flu	HCV	MPR	Food	Homeless	Debt	Suicide	Pain	SBP	DBP	Mortality
$1,000 per year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Male	2.58***	0.14***	0.30***	0.05**	−0.09***	−0.20***	−0.10***	−0.02	−1.61***	1.16	−2.15	0.04
	(0.45)	(0.05)	(0.07)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.41)	(2.17)	(2.30)	(0.03)
Female	2.52***	0.19	0.42**	−0.03	−0.19	−0.09	−0.20**	0.12*	−0.07	−3.09	−6.30*	0.07
	(0.85)	(0.12)	(0.20)	(0.07)	(0.12)	(0.14)	(0.09)	(0.07)	(0.96)	(3.94)	(3.52)	(0.05)
White (Non-Hispanic)	2.42***	0.13*	0.24***	0.03	−0.09***	−0.20***	−0.08***	0.02	−1.45***	0.78	−2.93	0.04
	(0.58)	(0.07)	(0.07)	(0.02)	(0.03)	(0.04)	(0.02)	(0.02)	(0.41)	(2.58)	(3.06)	(0.04)
Black	2.79***	0.25***	0.37***	0.01	−0.16*	−0.26***	−0.21***	−0.02	−1.66*	1.40	−2.76	0.06
	(0.51)	(0.09)	(0.11)	(0.04)	(0.09)	(0.10)	(0.05)	(0.04)	(0.90)	(3.39)	(1.86)	(0.05)
Other Race	2.81***	0.18***	0.42***	0.06*	−0.11*	−0.16***	−0.15***	−0.02	−1.29*	0.76	−1.70	0.06
	(0.46)	(0.06)	(0.11)	(0.04)	(0.06)	(0.06)	(0.04)	(0.03)	(0.67)	(2.65)	(1.62)	(0.04)
Age<45	3.13***	0.17***	0.45***	0.06	−0.14***	−0.28***	−0.23***	0.01	−1.41**	0.76	−4.71*	0.01
	(0.62)	(0.05)	(0.12)	(0.05)	(0.05)	(0.07)	(0.05)	(0.04)	(0.59)	(2.65)	(2.71)	(0.02)
Age ≥ 45	2.18***	0.15**	0.25**	0.04*	−0.08**	−0.12***	−0.02**	−0.01	−1.51***	0.73	−1.54	0.06
	(0.44)	(0.06)	(0.10)	(0.02)	(0.04)	(0.04)	(0.01)	(0.02)	(0.45)	(2.48)	(2.23)	(0.04)
Income < $30,000	2.28***	0.14***	0.26***	0.05**	−0.12***	−0.21***	−0.13***	−0.01	−1.48***	0.29	−2.90	0.07**
	(0.43)	(0.05)	(0.08)	(0.02)	(0.04)	(0.04)	(0.02)	(0.02)	(0.46)	(2.31)	(2.17)	(0.03)
Income ≥ $30,000	3.47***	0.19**	0.44***	0.03	0.01	−0.12*	−0.05	−0.005	−1.61***	0.64	−1.82	−0.02
	(0.69)	(0.09)	(0.10)	(0.05)	(0.03)	(0.07)	(0.04)	(0.03)	(0.55)	(3.34)	(3.40)	(0.05)
PTSD Claims	2.36***	0.19***	0.28***	0.05**	−0.07**	−0.20***	−0.09***	−0.02	−1.68***	−0.48	−1.87	0.02
	(0.43)	(0.05)	(0.08)	(0.02)	(0.03)	(0.04)	(0.02)	(0.02)	(0.38)	(2.43)	(2.26)	(0.03)
Non-PTSD Claims	2.78***	0.08	0.40***	0.08**	−0.16***	−0.12	−0.15***	0.04	−1.21*	2.19	−4.15	0.13**
	(0.74)	(0.08)	(0.10)	(0.04)	(0.06)	(0.08)	(0.04)	(0.04)	(0.67)	(3.31)	(2.96)	(0.06)

Notes: This table reports estimated 2SLS coefficients from Equation 1 for our main 5-year outcomes (columns) for separate subsamples (rows). Moving from left (column 1) to right (column 12) the outcomes are: log of 1+ total utilization, annual flu vaccinations, any hepatitis C screen, average medication possession ratio, homelessness, number of VA Debt collections (referrals to Treasury), suicide, self-reported pain score, systolic blood pressure, diastolic blood pressure, and all-cause mortality. 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.15: VA Debt: Number of Collections and Balances by Type

		Collection Balance ($)			
	Number of Collections	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.16: Starting and Completing Prolonged Exposure (PE) Therapy

Panel A. 1-Year Outcomes

	Dependent variable: Encounters (×100)			
	1-Year		5-Year	
	Start PE	Complete PE | Start	Start PE	Complete PE | Start
	(1)	(2)	(3)	(4)
$1,000 per year	−0.003	3.31*	−0.01	0.98
	(0.01)	(1.96)	(0.01)	(0.68)
Mean Dep Var (×100)	0.52	83.77	0.79	86.55
N=	207,077	1,374	193,657	2,037

Notes: This table reports estimated 2SLS coefficients from Equation 1 for starting and completing prolonged exposure therapy for PTSD. One-year and five-year outcomes are displayed. 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. Prolonged exposure therapy is a form of behavioral psychotherapy for PTSD strongly encouraged by the VHA in recent years. It includes repeated retelling of the underlying trauma and gradual exposure to objects and situations that remind the patient of the trauma or feel dangerous. 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.

C. Disability Benefit Questionnaires

In this appendix we present details of the mental health disability benefit questionnaire (DBQ), explore the underlying source of examiner variation (e.g., what drives differences in our tendency IV?), and probe exclusion restriction concerns. 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 starting in 2010. 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 Figure C.2a). 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 Figure C.2b. 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.2 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 tendency 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.2 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

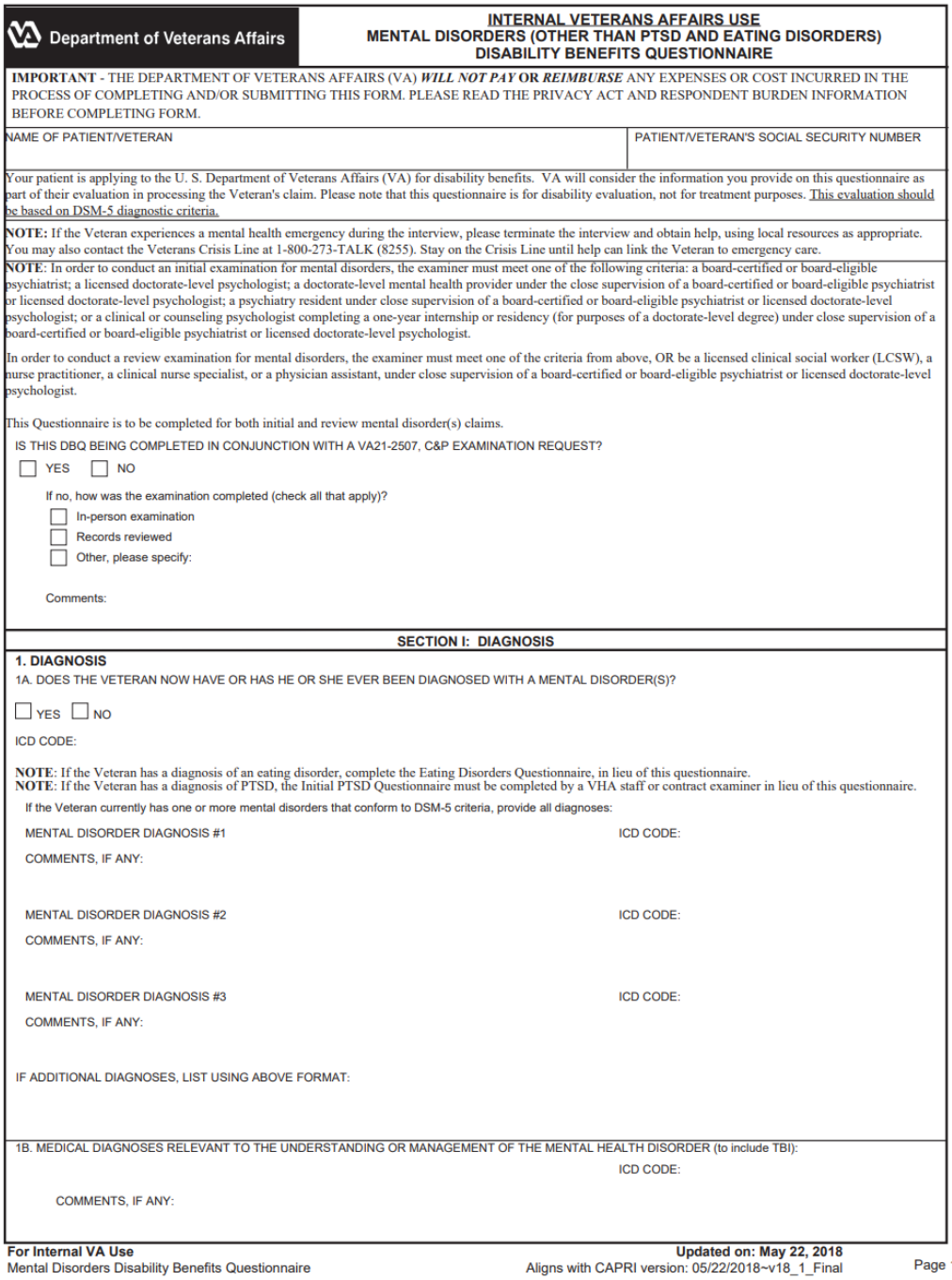
[9]Specifically, we use the Syuzhet lexicon: https://cran.r-project.org/web/packages/syuzhet/index.html.

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 having greater tendency (via veterans realized disability benefit compensation) should also have higher tendencies 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 tendency.

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)*

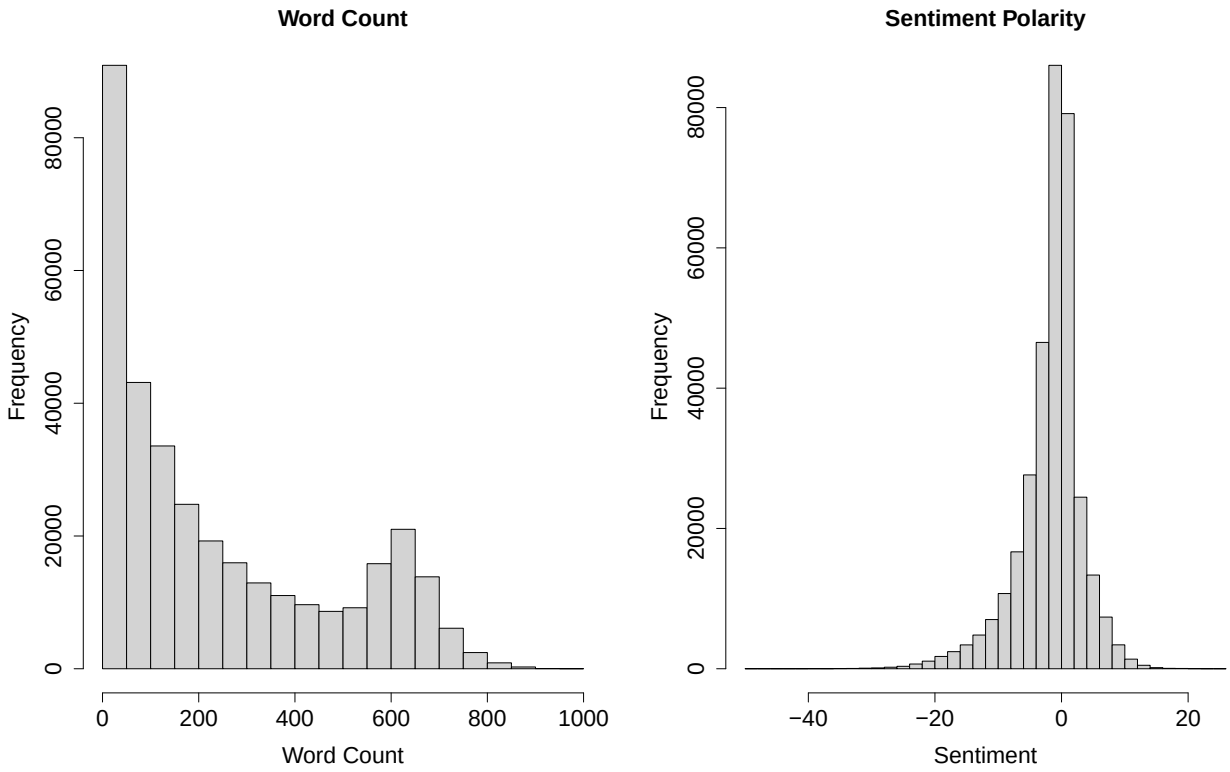
- ☐ NO MENTAL DISORDER DIAGNOSIS
- ☐ A MENTAL CONDITION HAS BEEN FORMALLY DIAGNOSED, BUT SYMPTOMS ARE NOT SEVERE ENOUGH EITHER TO INTERFERE WITH OCCUPATIONAL AND SOCIAL FUNCTIONING OR TO REQUIRE CONTINUOUS MEDICATION
- ☐ OCCUPATIONAL AND SOCIAL IMPAIRMENT DUE TO MILD OR TRANSIENT SYMPTOMS WHICH DECREASE 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

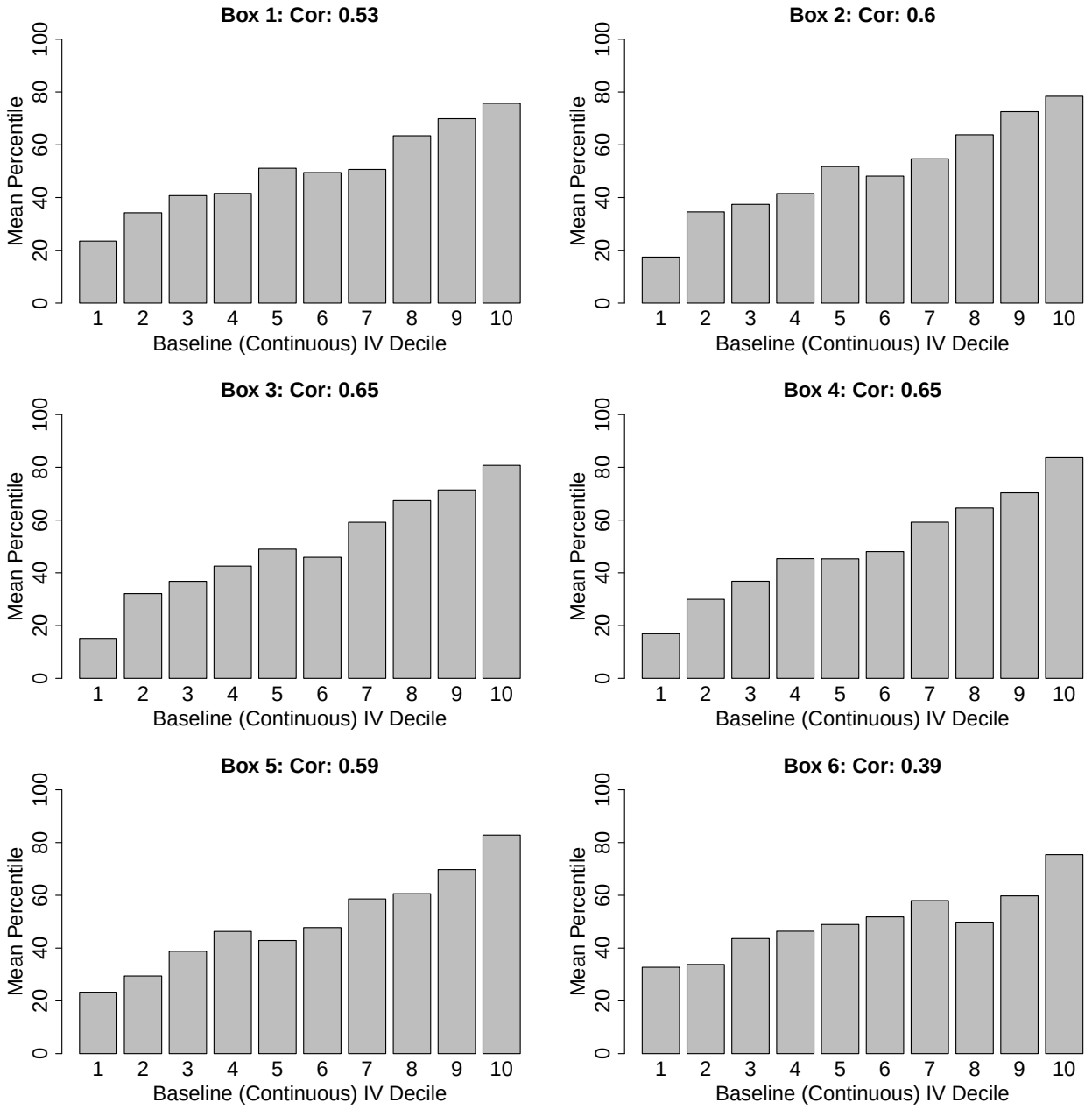
Notes: Figure (a) displays the Section IV–Occupational and Social Impairment Section of the Disability Benefit Questionnaire. Figure (b) displays the administrative rater's rubric for mental health claims from Code of Federal Regulations §4.130: Scheduling of ratings-mental disorders (https://ecfr.io/Title-38/Section-4.130). 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.2—and testing whether more higher tendency examiners have higher tendency across the entire OSI range. We examine the correlation between examiner threshold-tendencies constructed using different binary response dependent variables versus our baseline (continuous) tendency 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 tendency deciles are calculated for each of the six threshold instruments and the baseline instrument and correlations are displayed.

Table C.1: Combined Disability Rating Schedule: Monthly VA DC Payments

CDR	Monthly Payments
10%	142.29
20%	281.27
30%	435.69
40%	627.61
50%	893.43
60%	1,131.68
70%	1,426.17
80%	1,657.80
90%	1,862.96
100%	3,106.04

Notes: This table displays the tax-free monthly VA DC payments for each combined disability rating for a single veteran with no dependents in 2020. See https://www.va.gov/disability/compensation-rates/veteran-rates/past-rates-2020/ for more details.

Table C.2: 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)		(243.19)
OSI Box: 7		16,924.42***		16,929.85***
		(596.36)		(591.53)
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.