VETERANS' LABOR FORCE PARTICIPATION:
WHAT ROLE DOES THE VA'S DISABILITY COMPENSATION PROGRAM PLAY?

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ABSTRACT

We explore trends over time in the labor force participation of veterans and non-veterans and investigate whether these patterns are consistent with a rising role for the Veterans' Affairs Disability Compensation (DC) program, which pays benefits to veterans with service-connected disabilities and has grown rapidly since 2000. Using 35 years of March CPS data, we find that veterans' labor force participation declined over time in a way that coincides closely with DC growth and that veterans have become more sensitive to economic shocks. Our findings suggest that DC program growth has contributed to recent declines in veterans' labor force participation.

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Military engagements since the early 2000s have brought renewed public interest to issues involving the U.S. military and its veterans. Yet the stark differences in the labor market experiences of veterans and non-veterans have received fairly little attention. In 2013, the labor force participation rate for male veterans ages 18 to 64 was 76.1 percent, significantly lower than the 82.0 percent rate for non-veteran males in this same age range (Bureau of Labor Statistics, 2014). The difference in their employment rates was similarly large.

Many factors may contribute to low rates of employment among veterans. The veteran population may be older or less educated than the non-veteran population. Veterans may have been more affected by the recent recession if they are concentrated in cyclical industries or have shorter job tenure. Military service also carries a risk of incurring physical or mental health problems that may make employment more difficult.

Another factor worthy of consideration is the U.S Department of Veterans' Affairs Disability Compensation (DC) program, which pays benefits to veterans with medical conditions caused by or aggravated during military service. Since 2001, the DC program has experienced rapid growth, due in part to liberalization of the medical eligibility criteria (Duggan et al., 2010). The number of DC beneficiaries rose from 2.3 million in 2000 to 3.7 million in 2013, while DC expenditures (in 2013 dollars) grew even faster, from $20 Billion to $54 Billion (CBO, 2014; Veterans Benefits Administration, 2013).

While a large body of literature has investigated the effect of the Social Security Disability Insurance (SSDI) program on labor supply, there are few studies of the DC program. One such study is Autor et al. (2014), who use an expansion in DC eligibility that affected only Vietnam-era veterans who had "boots-on-the-ground" (BOG); they find that DC enrollment surged and labor force participation fell among BOG veterans relative to Vietnam era veterans

without boots on the ground.[1] Further research on the DC program is clearly warranted given the program's size – about 40 percent as large as the SSDI program in terms of number of beneficiaries and total program expenditures.

In this paper, we explore trends over time in the labor force participation of veterans as compared to non-veterans, investigating whether there are patterns consistent with an increasingly important role for the DC program. We also examine whether veterans are more responsive to economic shocks than non-veterans, and whether this relationship has strengthened as the DC program has grown. We estimate labor force participation regressions using 35 years of data from the March Current Population Survey.

We have two primary findings. First, we find that the labor force participation rate of veterans has been declining over time in a way that coincides closely with the growth of the DC program. Second, we find that veterans have become more sensitive to economic shocks than non-veterans in recent years, as the DC program has grown.

I. The DC Program

Upon application by a discharged veteran, a Department of Veterans' Affairs (VA) rating board evaluates whether each claimed disability is service-connected, and if so, rates its severity in 10 percentage point increments (10 percent to 100 percent). Ratings for individual conditions are aggregated into a combined disability rating (CDR) and the benefit amount is an increasing function of the CDR. In 2014, monthly benefits ranged from $131 (10% CDR) to $2,858 (100% CDR), and these amounts are indexed to the Consumer Price Index. Benefits are tax-free and

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[1] In a related study, Siminski (2013) investigates the effect of Australia's disability pension system on labor market outcomes.

typically continue until death. Recipients may work or collect other disability benefits, such as SSDI, simultaneously.[2]

FIGURE 1. SHARE OF VETERANS RECEIVING DISABILITY COMPENSATION BENEFITS, 1950-2014
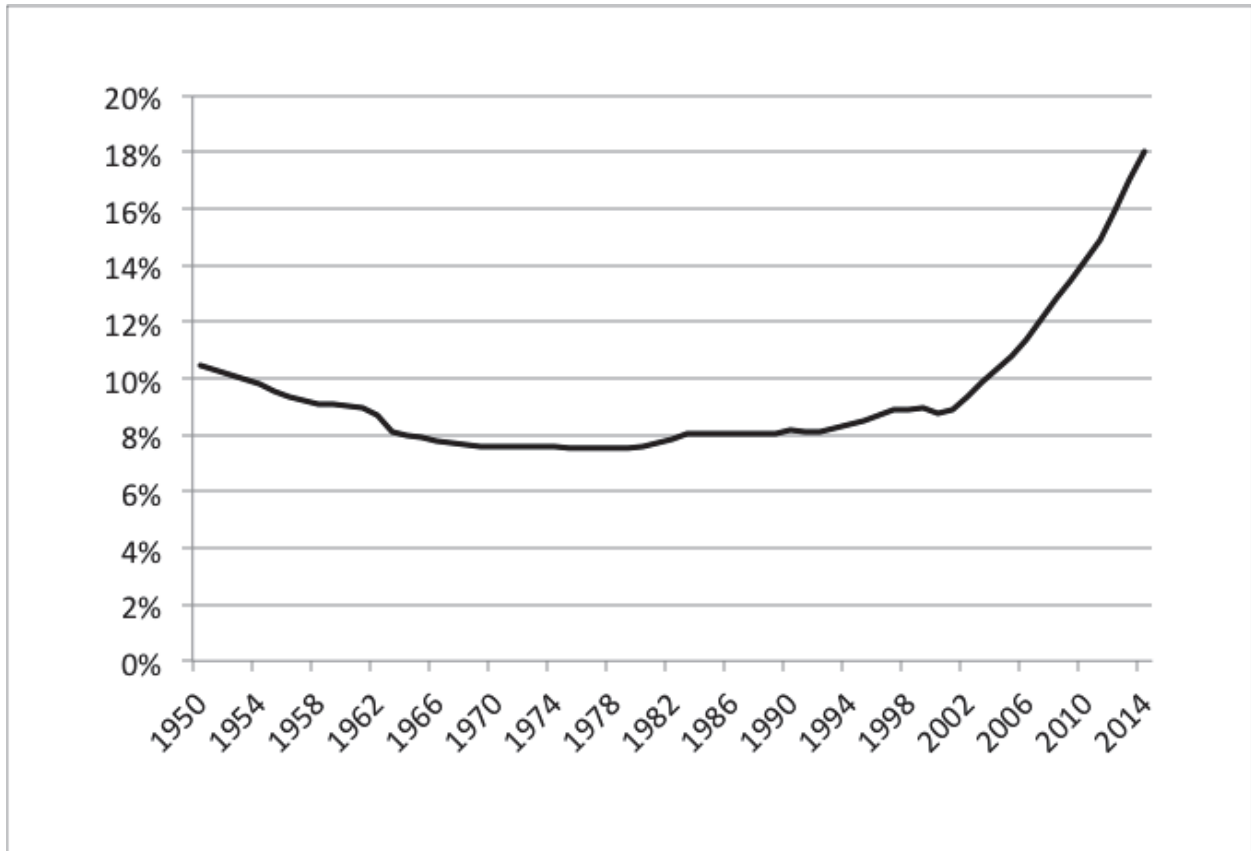
Source: Authors' calculation from the *Statistical Abstract of the United States* and Vet Pop Models.

The DC program is a compelling candidate to explain declining veterans' labor force participation because it has grown rapidly in recent years, as shown in Figure 1. After fluctuating in a fairly narrow range in the half century following World War II, enrollment has risen sharply since 2001, rising from 8.9 percent of veterans to 18.0 percent in 2014.

Liberalization of medical eligibility requirements has contributed to the program's

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[2] About 8 percent of DC recipients receive enhanced benefits through "individual unemployability." For this group, significant earnings would likely cause them to lose their IU designation.

growth. After an Institute of Medicine report found suggestive evidence of a link between exposure to Agent Orange and diabetes, the VA made Type II diabetes a presumptively service-connected medical condition (and thus eligible for DC benefits) for BOG Vietnam veterans starting in 2001. As Duggan et al. (2010) show, DC enrollment then increased much more rapidly for Vietnam-era veterans than for other veterans. In 2010, the VA added ischemic heart disease, Parkinson's disease, and B-cell leukemia as service-connected conditions for BOG Vietnam veterans.

Other policy changes have affected more recent veterans. Starting in 2010, for veterans who served in the Gulf region since 1990, presumptive conditions include chronic fatigue, fibromyalgia, and unexplained illnesses linked to environmental exposure. Also starting in 2010, veterans with a diagnosis of post-traumatic stress disorder (PTSD) no longer needed to document specific events that caused the condition.

The rapid rise in DC enrollment coincided with a substantial increase in the average, inflation-adjusted monthly DC benefit. As Appendix Figure 1 illustrates, the most rapid growth in the DC program over time has been in beneficiaries with a CDR of 70 to 100 percent, while the number with a CDR of 0 to 20 percent has been nearly flat. This shift has occurred both because new beneficiaries are entering the program with higher CDRs and because current beneficiaries can apply for an increase in their CDR, a common phenomenon (Autor et al., 2014). The average real monthly DC benefit grew by 46 percent from 2001 to 2013, from $747 to $1,094.

II. Analysis Using the CPS

We begin by investigating how the labor supply of veterans has compared to that of non-veterans over time. As most veterans are male, we restrict our analysis to men. We use data from the March Current Population Survey (CPS) for 1980 through 2014. The March CPS has a large enough sample to include many veterans, is available before and during the period of DC program growth, and includes geographic identifiers we later use to link to unemployment rates from the Bureau of Labor Statistics.

For our first analysis, we estimate linear probability models of the form:

$$(1)\ INLF_{it} = \beta_0 + \beta_1 Vet_i + R_i + A_{it} + \lambda_t + \varepsilon_{it}$$

where $INLF_{it}$ is an indicator equal to 1 if person i in year t is in the labor force and Vet_i is the veteran indicator. We begin with a sample of men age 25-64. Our specifications include single year-of-age indicators (A), race and Hispanic ethnicity (R), and year indicators (λ). As we are interested in whether the effect of being a veteran is changing over time, we estimate separate regressions for seven five-year periods, 1980-1984 through 2010-2014.

The *Vet* coefficients are shown in Figure 2, with 95% confidence intervals.[3] In 1980-1984, the labor force participation rate of veterans is 1.0 percent higher than that of non-veterans, a highly significant difference. In the next three periods, the coefficients range from 0.6 to 1.2.

In 2000-04 the coefficient turns negative, with veterans 0.9 percent less likely to be in the labor force. This effect strengthens to -1.7 percent in 2005-09 and -4.3 percent in 2010-2014. Over the entire period, there is a statistically significant swing of 5 percentage points in the labor force participation of male veterans relative to non-veteran men.

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[3] The coefficients in Figures 2-4 are reported in Tables 1-3.

FIGURE 2. VETERAN COEFFICIENTS, CPS REGRESSIONS, MEN 25-64, BY TIME PERIOD
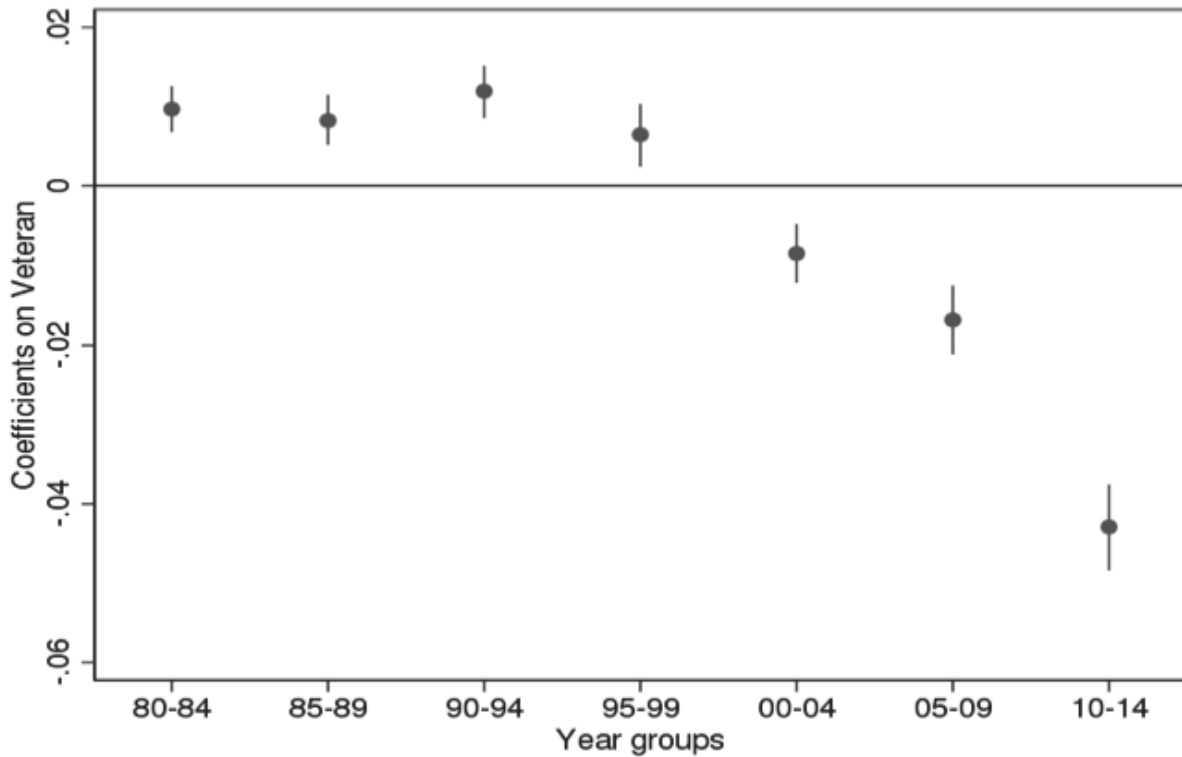
Can we attribute this trend to the growth in the DC program? To probe this, we estimate

our model separately for men ages 25-34, 35-54, 55-64, and 65-74. We explore whether declines

in participation occur for those age/year groups most affected by changes in presumptive

conditions. Most Vietnam veterans were in their 50s in 2000-2004 (Appendix Figure 2). We

thus expect the Agent Orange decision to affect the 35-54 and 55-64 age groups in 2000-2004,

the 55-64 age group in 2005-2009, and the 55-64 and 65-74 age groups in 2010-14, as Vietnam

veterans age. The effect should intensify after new presumptive conditions are added in 2010.

Since veterans serving in the Gulf region were affected by a separate 2010 eligibility change, we

also expect to see participation drop for veterans age 25-34 starting in 2010-14.

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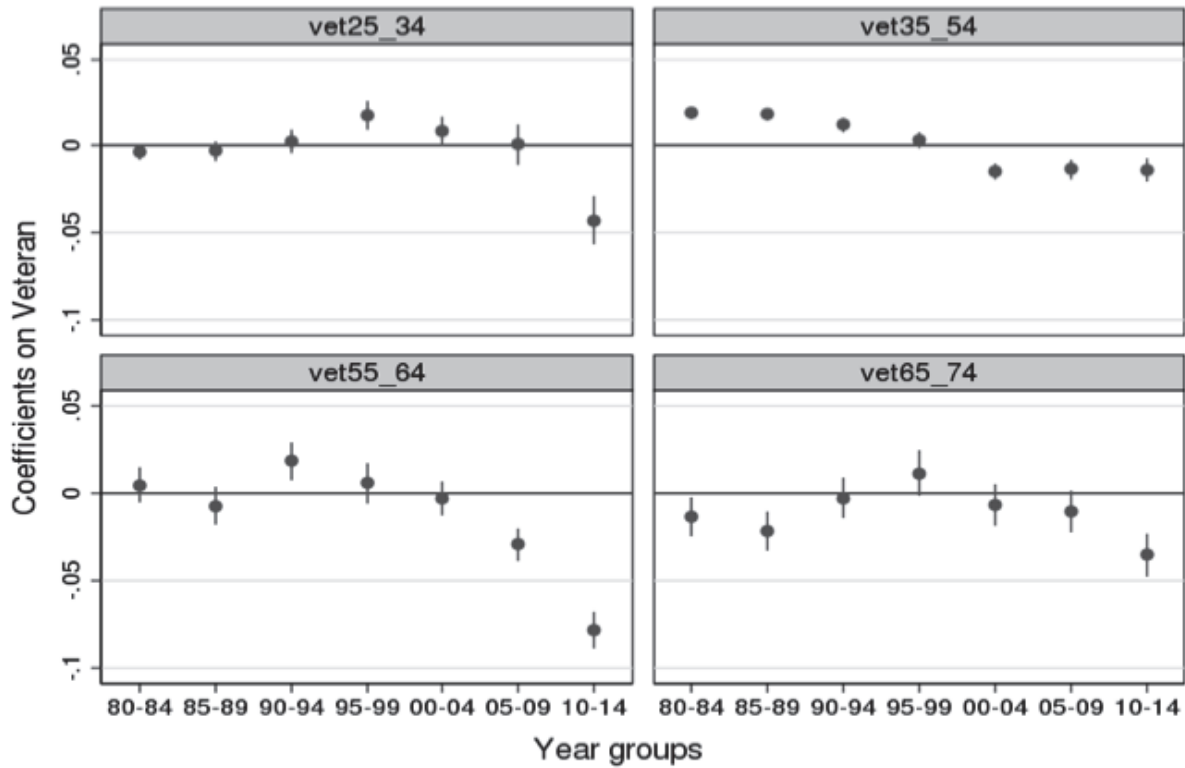
The coefficients in Figure 3 are broadly consistent with these hypotheses. From 1980 to 1995, the participation rate of male veterans age 35-54 is 1.2 to 1.9 percent higher than that of similarly aged non-veteran men. Starting in 2000-2004, however, participation is 1.4 percent lower for veterans in this age group.

For the other age groups, there is no clear pattern of differential participation by veterans until the cohorts affected by presumptive condition changes reach these ages. Veterans aged 55-64 are 2.9 percent less likely to participate in 2005-09 and 7.8 percent less likely in 2010-14. Similarly, veterans aged 65-74 are 3.6 percent less likely to participate in 2010-14. Veterans 25-

34 are 4.3 percent less likely to participate in 2010-14.[4] In sum, the recent age-specific drops in veterans' labor force participation line up fairly well with the policy-induced medical liberalizations.

Easier access to the DC program may have more subtle effects as well. Autor and Duggan (2003) find that easier access to SSDI following a 1984 policy change made low-skilled job losers more likely to exit the labor force and apply for DI. The liberalization of DC eligibility may have had a similar effect.

We explore this hypothesis by estimating regression models of the following form:

$$(2) \quad \begin{aligned} INLF_{ist} &= \beta_0 + \beta_1 Vet_i + \beta_2 Vet_i * UErate_{st-1} \\ &+ R_i + A_{it} + \lambda_s * \lambda_t + \varepsilon_{ist} \end{aligned}.$$

The subscript s refers to state and we add state by year indicators and an interaction term between the lagged, de-meaned state-level unemployment rate and the veteran indicator; the main effect of unemployment is absorbed in the state by year indicators. We now have just two time periods, 1989-2001 and 2002-2014, corresponding to periods of stability and growth for the DC program. For 2002-2014, we are able to estimate a version of the model using the country-level unemployment rate.[5]

The coefficients on the veteran-unemployment rate interactions are shown in Figure 4. In 1989-2001, veterans are, if anything, less responsive to economic shocks than non-veterans. By contrast, in 2002-2014, a one percent increase in the unemployment rate reduces participation by an additional 0.4 percent for those 25-64 and by around 0.8 percent for veterans 25-34 and 55-64. While this is an indirect test, the fact that veterans' greater cyclical sensitivity emerges after

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[4] The labor supply of young veterans could also be affected by the Post-9/11 Veterans Educational Assistance Act of 2008.

[5] We use longer time periods than previously to have more within-state (or within-county) variation in the unemployment rate to estimate the models. Also, we cannot estimate the models with the county-level data in the earlier period because the March CPS did not include county of residence before 1996.

the DC program's eligibility is liberalized and is particularly strong for the age groups most affected by liberalization suggests that providing easier access to DC benefits may have allowed veterans to respond to economic shocks by withdrawing from the labor market.

FIGURE 4. VETERAN*UNEMPLOYMENT RATE COEFFICIENTS, CPS REGRESSIONS, MEN 25-64,
BY AGE AND YEAR GROUP
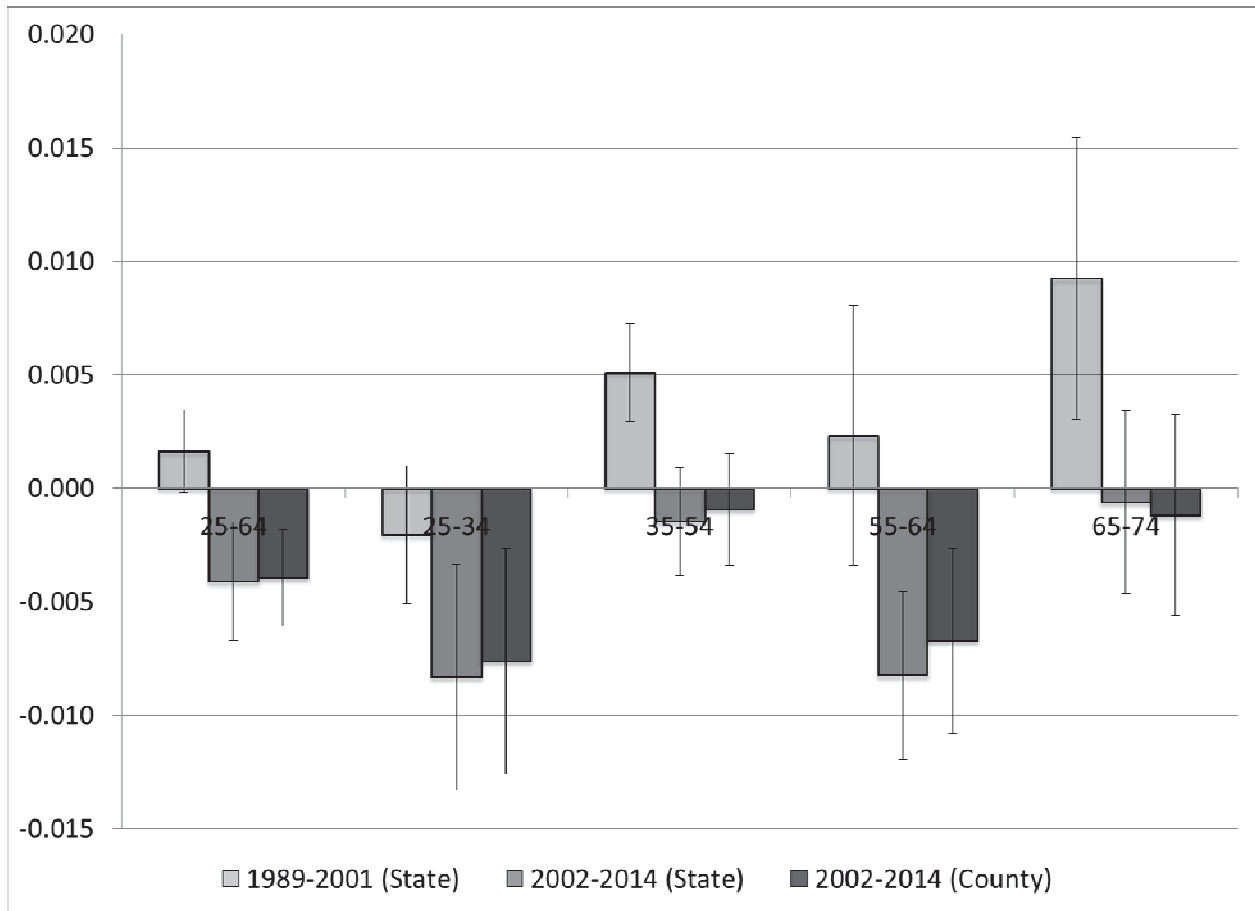
III. Discussion

We find that labor force participation among male veterans has fallen by about 5 percentage points since the late 1990s relative to that of their non-veteran counterparts. We

provide suggestive evidence that the striking growth in the DC program since 2001 may help to explain this trend, as the timing of the decline lines up with the growth of the program, especially when looking by age group. Our finding that the labor force participation of veterans has become more cyclically sensitive in recent years is further suggestive of a labor supply effect of the DC program.

To explore what our results might imply about the employment potential of the marginal DC recipient, we conduct a back-of-the-envelope calculation. We estimate that the (relative) labor force participation rate of veterans has fallen by 5 percentage points over the past 15 years, while the share of veterans receiving DC benefits has risen by 9 percentage points. Under the strong, and perhaps unlikely, assumption that liberalized DC enrollment is the only factor driving differential changes in veterans' labor force participation, this would imply that 55 percent of new DC recipients (those that would not have enrolled without the liberalization of the program) would be working in the absence of the program. This figure is higher than estimates for SSDI by Maestas et al. (2013) and French and Song (2014), who suggest 28 percent of marginal SSDI recipients could have worked, or Autor et al. (2014) for the DC program, whose estimate based on the liberalization of benefits for BOG Vietnam veterans is 18 percent. But the effect may be higher in our case because the average benefits have also grown during this period due to the increase in the average CDR. Additionally, labor supply elasticities for the age groups most affected by the increase in DC enrollment are relatively high.

As noted above, other factors may have contributed to the decline in veterans' labor force participation over time, and these merit further research.[6] Our discussion has focused on the

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[6] In work not shown here due to space constraints, we find that controlling for education has little effect on the results, suggesting that changes in the composition of veterans – at least in this one regard – are not driving the decline in veterans' labor force participation. We further find that veterans report themselves to be in worse health over time and that controlling for self-reported health weakens but does not eliminate the estimates discussed here.

liberalization of medical eligibility criteria as an explanation for the growth in the DC program. But it is important to acknowledge that the program may be growing for the right reasons if veterans are increasingly disabled over time, due to injuries sustained in recent conflicts in Afghanistan and Iraq or to the effects of Vietnam service that are now recognized as being connected to Agent Orange. To the extent that this is the case and reflects a high disutility of work among veterans, the decline in labor force participation that has accompanied the growth of the DC program may indeed be efficient. While the evidence presented here and in Autor et al. (2014) may cast some doubt on this more optimistic view of the program's growth, ultimately much more research is needed on this program that is important to the well-being of many veterans and that accounts for an increasing share of federal spending.

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Table 1: Labor Force Participation Regressions, CPS Men Ages 25-64

	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014
Veteran	0.00967***	0.00830***	0.01190***	0.00643***	-0.00851***	-0.01680***	-0.04300***
	(0.00148)	(0.00162)	(0.00172)	(0.00199)	(0.00189)	(0.00221)	(0.00275)
% Vets	45.2%	36.0%	28.4%	23.0%	18.1%	15.0%	12.4%
% of Vets on DC	N/A	N/A	5.4%	6.3%	7.0%	9.4%	12.9%
R-squared	0.138	0.147	0.134	0.114	0.097	0.088	0.076
# of Observations	183,698	174,780	175,772	152,584	206,326	189,421	157,674

Notes: Regressions include single year of age dummies, race (black and other) and Hispanic ethnicity dummies, and year dummies. Standard errors in parenthesis. *** indicates statistical significance at the 1 percent level.

Table 2: Labor Force Participation Regressions by Age, CPS Men

	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014
Veteran: 25-34	-0.00373*	-0.00289	0.00253	0.01770***	0.00838*	0.000755	-0.04280***
	(0.00219)	(0.00289)	(0.00345)	(0.00420)	(0.00448)	(0.00579)	(0.00713)
Veteran: 35-54	0.01900***	0.01790***	0.01200***	0.00354	-0.01470***	-0.01330***	-0.01380***
	(0.00175)	(0.00182)	(0.00197)	(0.00237)	(0.00227)	(0.00280)	(0.00360)
Veteran: 55-64	0.00468	-0.00719	0.01850***	0.00574	-0.00303	-0.02920***	-0.07840***
	(0.00524)	(0.00560)	(0.00556)	(0.00581)	(0.00499)	(0.00478)	(0.00544)
Veteran: 65-74	-0.01320**	-0.02190***	-0.00271	0.01160*	-0.00668	-0.01040*	-0.03550***
	(0.00572)	(0.00566)	(0.00596)	(0.00658)	(0.00607)	(0.00619)	(0.00621)
Veteran: 25-64	0.00967***	0.00830***	0.01190***	0.00643***	-0.00851***	-0.01680***	-0.04300***
	(0.00148)	(0.00162)	(0.00172)	(0.00199)	(0.00189)	(0.00221)	(0.00275)

Notes: Regressions include single year of age indicators, race (black and other) and Hispanic ethnicity indicators and year indicators. Standard errors in parenthesis. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels.

**Table 3: Labor Force Participation Regressions
with Unemployment by Age, CPS Men**

	1989-2001	2002-2014	
Veteran: 25-64	0.00746***	-0.0240***	-0.0224***
	(0.00222)	(0.00275)	(0.00291)
Veteran * UE Rate: 25-64	0.00163*	-0.00411***	-0.00394***
	(0.000926)	(0.00134)	(0.00109)
Veteran: 25-34	0.00628**	-0.0135**	-0.0122**
	(0.00243)	(0.00572)	(0.00553)
Veteran * UE Rate: 25-34	-0.00206	-0.00833***	-0.00762***
	(0.00155)	(0.00253)	(0.00253)
Veteran: 35-54	0.00856***	-0.0132***	-0.0114***
	(0.00219)	(0.00311)	(0.00322)
Veteran * UE Rate: 35-54	0.00510***	-0.00147	-0.000907
	(0.00110)	(0.00121)	(0.00126)
Veteran: 55-64	0.0102*	-0.0386***	-0.0351***
	(0.00580)	(0.00595)	(0.00551)
Veteran * UE Rate: 55-64	0.00232	-0.00825***	-0.00671***
	(0.00294)	(0.00189)	(0.00207)
Veteran: 65-74	0.00994*	-0.0210***	-0.0179***
	(0.00517)	(0.00532)	(0.00577)
Veteran * UE Rate: 65-74	0.00925***	-0.000605	-0.00118
	(0.00317)	(0.00206)	(0.00225)
Unemployment Rate	State	State	County

Notes: Regressions also include single year of age dummies, race (black and other) and Hispanic ethnicity dummies, year dummies, and state(county) by year dummies. Standard errors in parenthesis, clustered by state(county). Unemployment Rates demeaned by national average of 6.42 (1979-2013). ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels.

Appendix Figure 1: Number of Disability Compensation Recipients by Disability Rating Group, 1986-2013
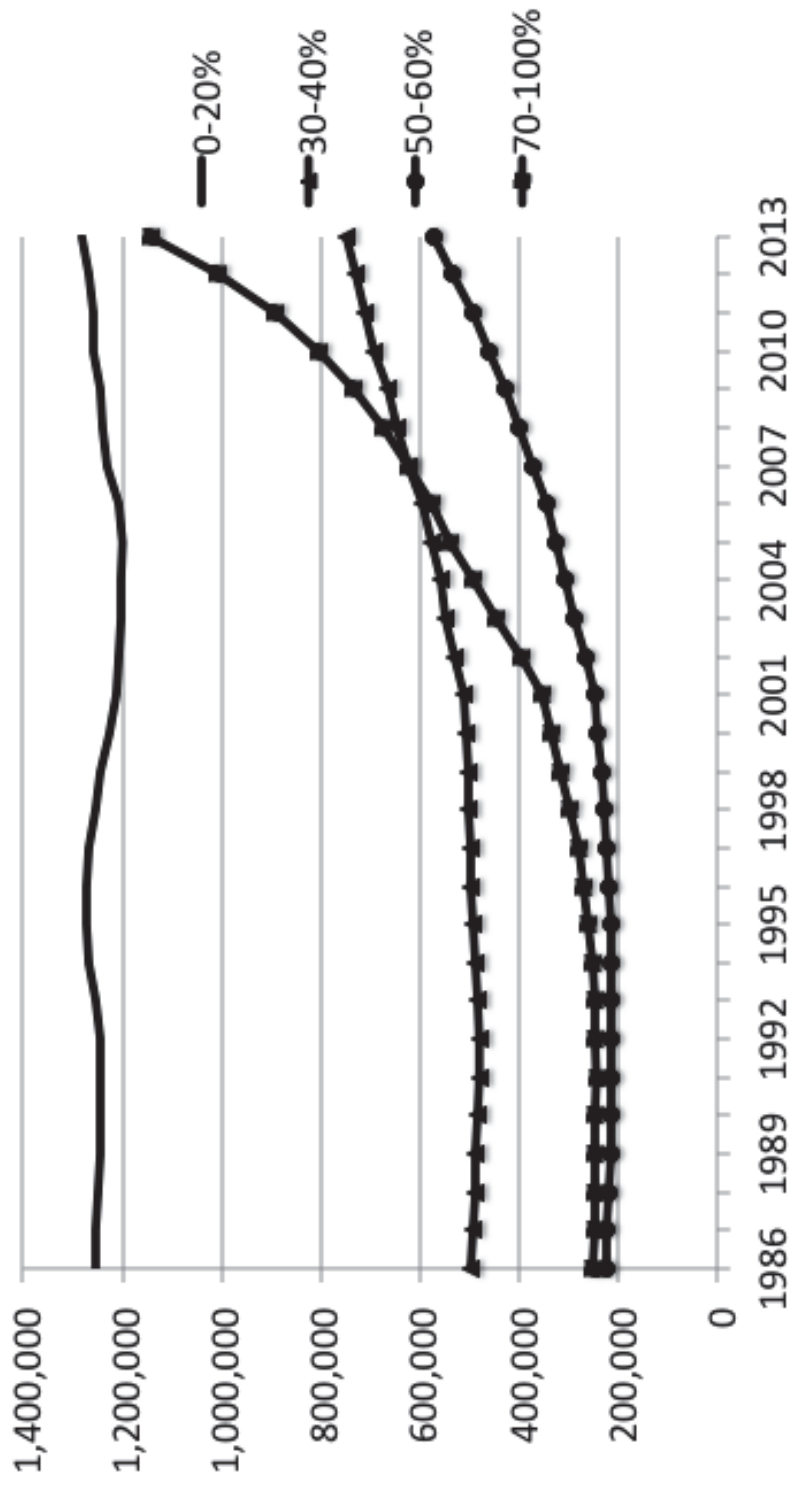
Source: Department of Veterans Affairs, Veterans Benefits Administration; 1985-1998: *COIN CP-127 Reports*; *1999-2013: Annual Benefits Reports*. Prepared by the National Center for Veterans Analysis and Statistics.

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Appendix Figure 2: Veteran Service Era by Age and Year

Source: Authors' calculation based on March CPS, 2006-2014. Veteran service era is assigned based on where majority of veterans from each birth cohort have most recently served (e.g., 59% of veterans from 1943 birth cohort last served in Vietnam and 37% last served in peace time era between Korean and Vietnam wars, so veterans born in 1943 are treated as Vietnam veterans). This service era designation is not used directly in the analysis, but does guide our expectations in terms of the pattern of veteran coefficients by age/year group.

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