

# How Disability Benefits Affect Veteran Self-Employment

2021 ASSA Meetings

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# Introduction

## Three main federal disability programs for adults in U.S.

- Social Security Disability Insurance (SSDI) – 8.4 million disabled workers
- Supplemental Security Income (SSI) – 4.6 million blind/disabled non-elderly adults
- VA's Disability Compensation (DC) – 5.0 million (veteran) recipients

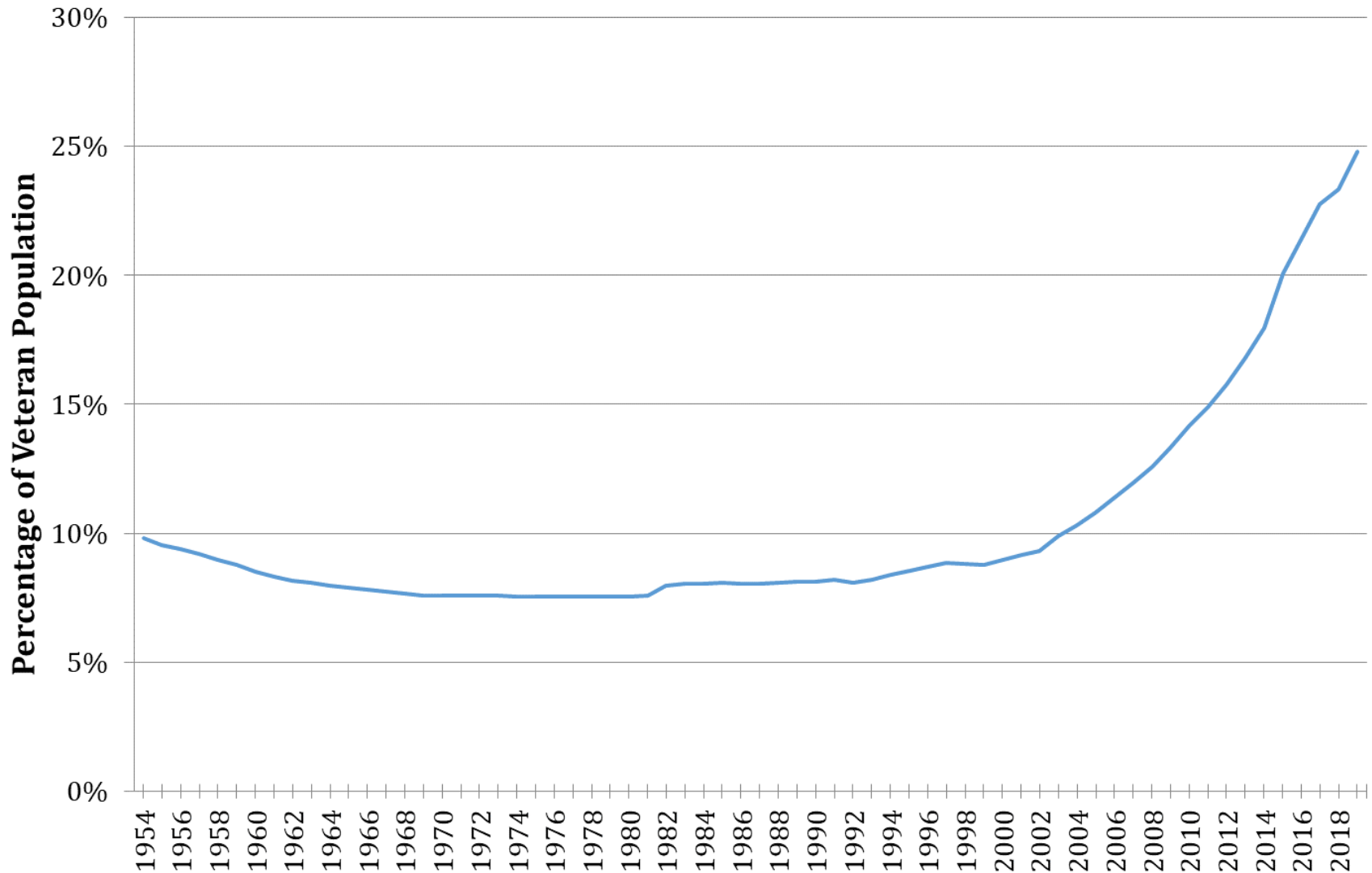
## Fraction of non-elderly adults in all three had been increasing up until 2014

- Key reason: change in programs' medical eligibility criteria
- Now SSDI and SSI beneficiaries are dropping (due to tighter medical eligibility criteria) while VADC continues to grow
  - VA spending per veteran rose from <\$3000 in 2000 to over \$12,000 today, largely driven by DC growth

Large academic literature has examined effect of SSDI, but relatively little work explores effects of VADC program

# VADC Program Experiencing Unprecedented Growth

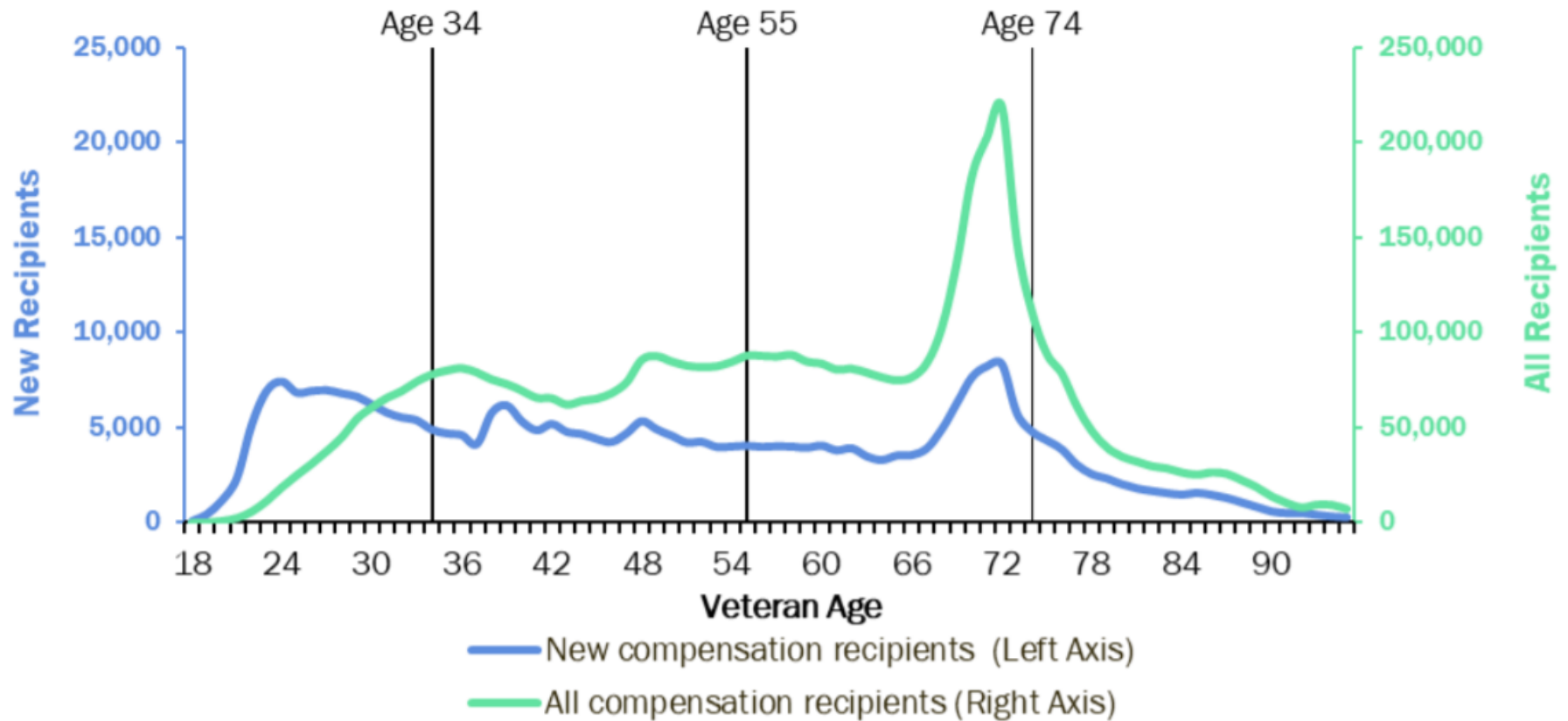
## Share of Veterans Receiving DC Benefits, 1954-2019



Source: Statistical Abstracts of the U.S. (1957-2012), VetPop Models 2014-2018, and VBA Annual Benefits Reports (1999-2019)

# Age Distribution of DC Recipients (FY2019)

New compensation recipients compared to all compensation recipients by age



# Disability Compensation Program Overview

Pays benefits to veterans with **service-connected** disability

Like SSDI, there is a medical screening process

- Apply based on medical conditions (e.g., hearing loss, PTSD)
- Combined Disability Rating (CDR) between 0 and 100% determines benefit amount
  - If two conditions:  $CDR = R_1 + R_2 * (1 - R_1)$
  - For each additional:  $CDR = R' + R_n * (1 - R')$
- Applicant can appeal decision for any condition; CDR rises if successful

**Key differences from SSDI**

- Offers partial disability benefits (10-100%)
- Does not depend on past earnings (as SSDI does)
- Not means-tested; may receive along with earnings\*, SSDI, SS retired worker benefits, military pension\*\*

\*=true for ~90%; \*\*=offset for some

# Some Recent Literature on the DC Program

- **Autor, Duggan, Greenberg, and Lyle (AEJ Applied, 2016):**
  - Use administrative data from U.S. Army and 2001 policy to test for labor supply effects for BOG vs. NOG VEVs
  - Estimates suggest 18% decline in LFP among new VADC recipients
  - Data through just 2007
- **Coile, Duggan, and Guo (AER P&P 2015):**
  - More rapid decline in LFP for veterans vs. non-veterans, and timing of this lines up with VADC eligibility expansions
  - Veterans have become more sensitive to economic conditions since 2001
- **This study revisits the effect of the VADC program on labor supply**
  - Uses variation in VADC eligibility for BOG vs. NOG VEVs after 2001
  - Considers longer-run outcomes through 2016
  - Also studies self-employment and spousal/household outcomes

# The VA's Disability Compensation Program and the 2001 Policy Change

## In July 2001, VA added **diabetes** to list of disabilities presumed to be service-connected

- 2000 National Institute of Medicine report found suggestive evidence of link between Agent Orange exposure and diabetes
- Veteran must have served with “**Boots on the Ground**” (BOG) in **Vietnam theatre** for provision to apply (~45% of Vietnam-era veterans in our sample)

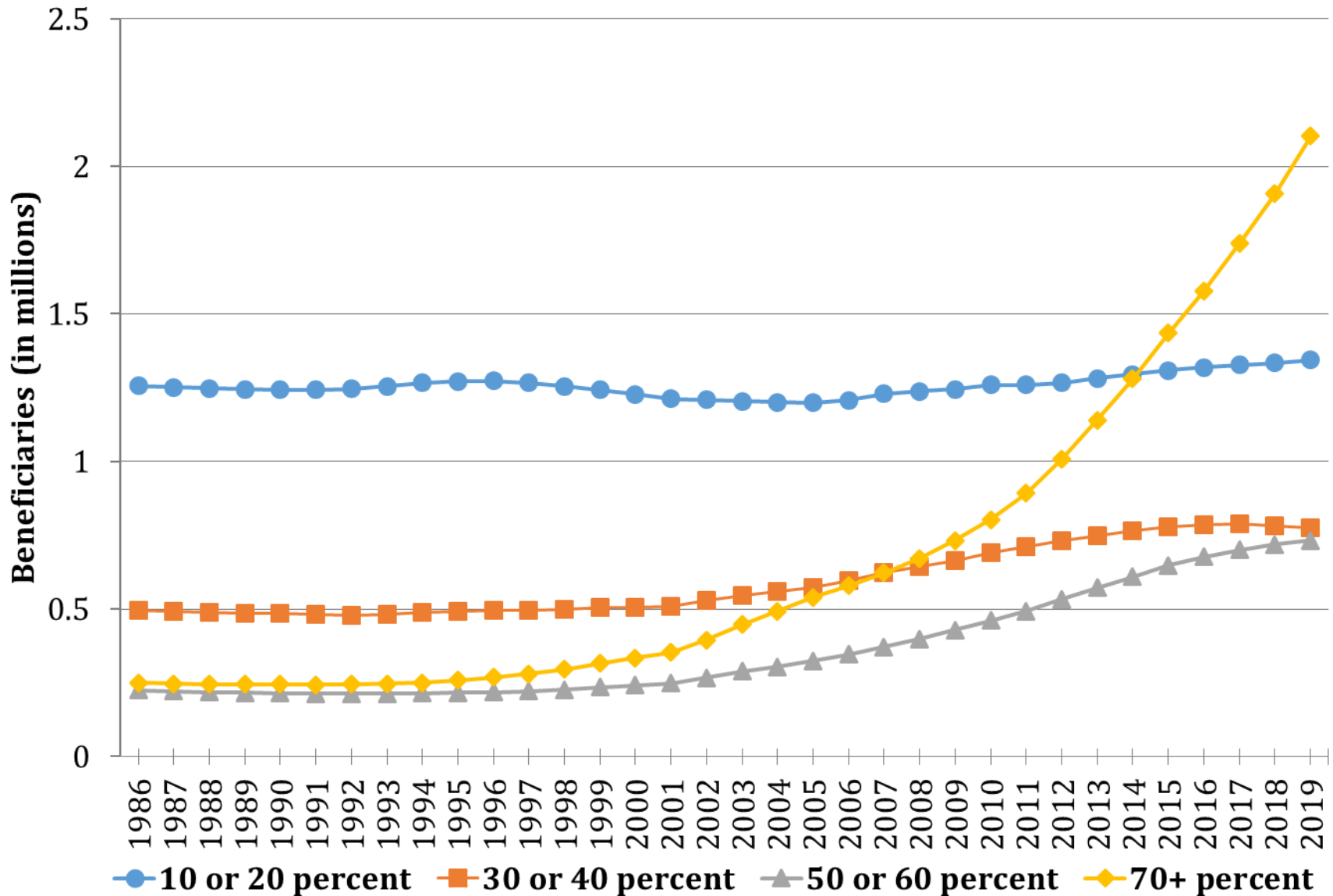
## More recent changes:

- Additional conditions (chronic lymphocytic leukemia, ALS, ischemic heart disease, etc.) added for BOG veterans between 2004 and 2010
- Since 2010, no longer need connection to specific incident to claim PTSD

## Gulf War veterans experienced changes as well

- Chronic fatigue, fibromyalgia, and unexplained illnesses linked to environmental exposure became presumptive for Gulf War veterans
- Streamlined application process (2009 and later) for veterans leaving service

# Growth in DC Beneficiaries by CDR, 1986-2019



Source: COIN CP-127 Reports (1986-1998); VBA Annual Benefits Reports (1999-2019)



# Average # disabilities per recipient: 3.9 for Vietnam Era, 7.2 for Gulf War

Period of service	Disability	Total number	% of POS disabilities
Vietnam Era	Tinnitus	609,823	10.8%
	Hearing loss	563,327	10.0%
	Post-traumatic stress disorder	403,887	7.2%
	Diabetes mellitus	370,805	6.6%
	Paralysis of the sciatic nerve	327,540	5.8%
	Scars, general	233,297	4.1%
	Arteriosclerotic heart disease (Coronary artery disease)	190,171	3.4%
	Penile deformity (loss of erectile power)	160,953	2.9%
	Malignant growths of genitourinary system	121,554	2.2%
	Scars, superficial (tender)	76,307	1.4%
	<b>Total most prevalent Vietnam Era disabilities</b>		<b>3,057,664</b>
<b>All Vietnam Era disabilities</b>		<b>5,625,940</b>	
Gulf War Era	Tinnitus	1,202,932	6.5%
	Limitation of flexion, knee	1,027,513	5.6%
	Lumbosacral or Cervical Strain	894,877	4.9%
	Scars, general	670,710	3.6%
	Post-traumatic stress disorder	651,959	3.5%
	Limitation of motion of the ankle	602,565	3.3%
	Migraine	543,643	3.0%
	Limitation of motion of the arm	506,193	2.7%
	Paralysis of the sciatic nerve	475,345	2.6%
	Degenerative Arthritis of the Spine	435,861	2.4%
	<b>Total most prevalent Gulf War Era disabilities</b>		<b>7,011,598</b>
<b>All Gulf War Era disabilities</b>		<b>18,418,019</b>	

# Empirical Strategy: Our Approach

Idea: Use policy-induced increase in VADC enrollment to identify effect of VADC program on LFP and earnings

We compare LFP of VEVs with boots-on-ground to other VEVs

$$Y_{it} = \alpha_t + \gamma_0 BOG_i + \sum \gamma_t * BOG_i + X_{it}'\beta + \varepsilon_{it}$$

- **BOG<sub>j</sub>** interacted with (1) survey year, or (2) five time periods: 1995-97, 2003-07, 2009-12, and 2013-16 (1999-2001 is omitted period; includes main BOG effect)
- **a<sub>t</sub>** are year and month fixed effects; **X<sub>it</sub>** includes age fixed effects and controls for race and education

**We investigate whether employment outcomes change differentially for BOG versus NOG veterans after the 2001 policy change**

# Data: Veterans Supplement to CPS

## Large sample of veterans of all service eras/branches

- Available biannually 1995-2009 and annually 2009-2016
- Surveys 7,000-9,000 veterans per year

## Provides detailed data on service record and benefit receipt

- Includes questions about active duty service, service length, combat service, service-connected disability receipt, and CDR

## Can be merged with monthly CPS data

- Demographics, spousal LFP and earnings, family income, etc.

We focus on men (few female veterans of this era; our approach will not work with much smaller samples)

# Sample Definition: YOB 1944-1953

YOB	All Males	% Veterans	% (Vietnam Era   Vet)	% (BOG   Vietnam Era)
1939	6655	43.4%	32.9%	17.0%
1940	7273	39.7%	39.6%	19.2%
1941	7410	39.6%	50.1%	25.6%
1942	8011	38.1%	61.1%	33.4%
1943	8944	39.9%	74.9%	34.5%
1944	8595	39.0%	83.4%	42.2%
1945	8737	40.9%	92.3%	48.1%
1946	9370	44.3%	94.9%	53.1%
1947	12446	45.6%	97.1%	53.8%
1948	11581	41.5%	97.5%	56.0%
1949	11646	36.1%	95.6%	50.9%
1950	12178	29.1%	93.1%	47.8%
1951	12461	24.0%	91.0%	41.3%
1952	12995	19.7%	88.3%	33.6%
1953	13169	16.9%	78.6%	25.8%
1954	13721	15.1%	72.2%	22.7%
1955	14136	14.0%	63.1%	18.4%
1956	14222	13.7%	47.0%	13.0%
1957	14804	14.8%	25.5%	6.0%
1958	14505	13.3%	0.4%	0.2%
<b>1944-1953</b>	<b>113178</b>	<b>32.8%</b>	<b>92.4%</b>	<b>51.2%</b>

Sample includes males in Veterans Supplement of CPS (1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, and 2010-2016). Year of Birth defined as age at time of survey minus survey year. Veterans defined as having previously served in the Armed Forces. Columns 3&4 are limited to 2005 and later. Vietnam era defined as veterans who reported a service period of 1964-1975. BOG defined as Vietnam era veterans who reported active duty in Vietnam/Cambodia/Laos (or surrounding waters) any time from 1961 to 1975.

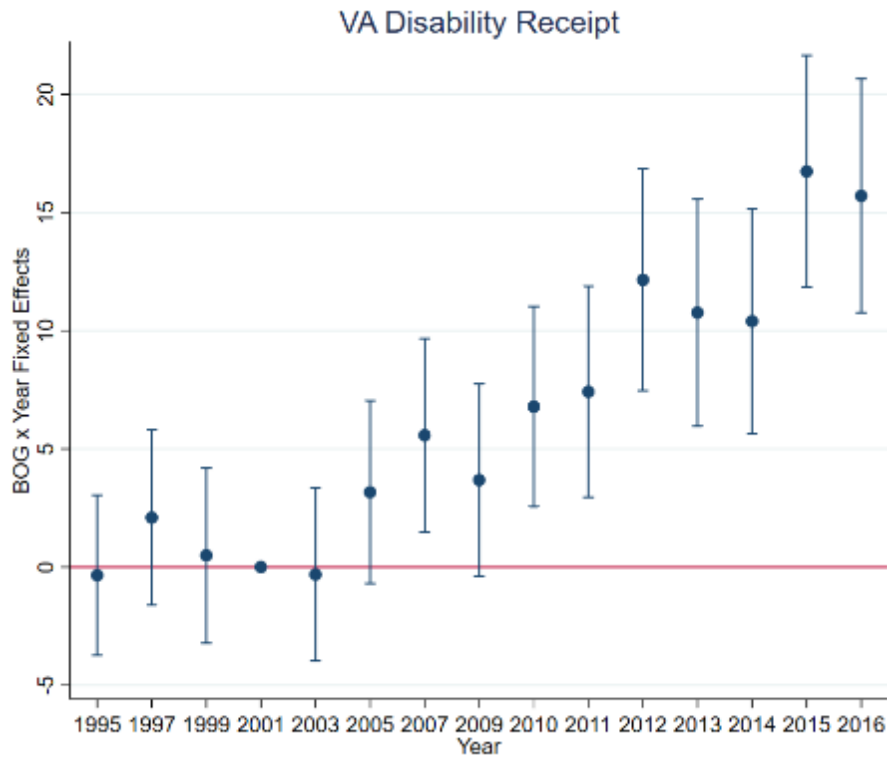
# Baseline Characteristics (1995-2001)

Variable	BOG	NOG	Difference
<i>Census Region</i>			
<b>Northeast</b>	18.8%	20.5%	-1.7**
<b>Midwest</b>	25.8%	24.9%	0.9
<b>South</b>	29.7%	31.1%	-1.4
<b>West</b>	25.7%	23.5%	2.2**
<i>Demographics</i>			
<b>Age</b>	50.20	49.73	0.47***
<b>White</b>	88.4%	89.5%	-1.1*
<b>Black</b>	8.7%	7.6%	1.2**
<b>Hispanic</b>	3.6%	2.5%	1.1***
<b>Married</b>	73.9%	75.5%	-1.5*
<b>HSgrad or less</b>	40.4%	36.6%	3.7***
<b>College degree</b>	34.8%	39.7%	-5.0***
<b>Work-preventing Disability</b>	7.3%	5.0%	2.3***
<b>In Labor Force</b>	86.8%	90.2%	-3.3***
<b>Self-Employed</b>	10.9%	13.9%	-3.0***
<b>Working for Others</b>	73.2%	74.0%	0.7
<b>Weekly Earnings (2016 \$)</b>	929	1005	-75.87***
<i>Service-Related</i>			
<b>VADC Receipt</b>	14.8%	6.3%	8.5***
<b>CDR 50+</b>	4.1%	1.0%	3.1***
<b>Served 5+ years</b>	16.8%	15.9%	0.9
<b>Military Service since 1990</b>	0.9%	3.1%	-2.2***

Sample includes 5,391 BOG and 6,198 NOG veterans from the Veterans Supplement to the CPS (1995, 1997, 1999, 2001). BOG is defined as Vietnam era veterans who reported active duty in Vietnam/Cambodia/ Laos (or surrounding waters) any time from 1961 to 1975. Weekly earnings data is only available for 4th and 8th month in sample, and equal zero for those not employed.

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

# Graphical Results: VADC Receipt



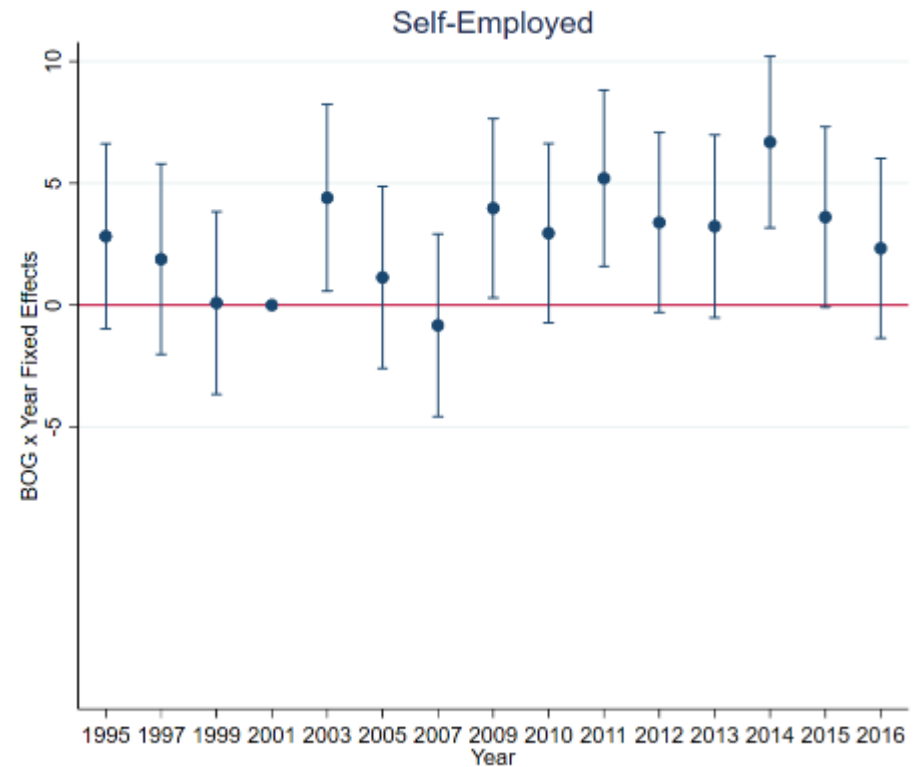
Notes: Estimated using VETCPS 1995-2016. Includes year, month, and age fixed effects, and indicators for black, hispanic, and HS or less. Regressions estimated as linear probability models and weighted with vetcps weights. DC Receipt and CDR  $\geq 50\%$  are indicator variables equal to 100 for receiving DC benefits or having a combined disability rating of 50% or above. Estimated main effects on BOG equal  $7.74^{***}$  and  $2.97^{***}$ , respectively. Error bars show 95% confidence intervals after clustering at the person level.

# Results: Shift into Self-Employment, Decrease in Full-Time Work

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Employed		Working for Others		Self-Employed		Unemployed	
BOG*(1995-97)		-1.29 (1.57)		-3.32 (2.05)		2.04 (1.55)		1.55*** (0.60)
BOG	-3.44*** (0.80)	-2.95*** (1.08)	0.06 (1.02)	1.33 (1.34)	-3.50*** (0.75)	-4.28*** (0.97)	0.68** (0.29)	0.09 (0.37)
BOG <sub>post</sub> *(2003-07)	-0.75 (1.35)	-1.25 (1.53)	-1.52 (1.57)	-2.80 (1.80)	0.77 (1.09)	1.55 (1.25)	0.01 (0.45)	0.61 (0.50)
BOG <sub>post</sub> *(2009-12)	-1.27 (1.51)	-1.76 (1.67)	-4.32*** (1.62)	-5.59*** (1.84)	3.05*** (1.05)	3.83*** (1.22)	-0.22 (0.53)	0.38 (0.57)
BOG <sub>post</sub> *(2013-16)	-3.48** (1.51)	-3.97** (1.68)	-6.64*** (1.55)	-7.92*** (1.78)	3.16*** (1.05)	3.94*** (1.22)	-0.83** (0.40)	-0.23 (0.46)
Mean of Dep Var	58.77	58.77	48.63	48.63	10.13	10.13	2.778	2.778
<i>N</i>	133142	133142	133142	133142	133142	133142	133142	133142
<i>R</i> <sup>2</sup>	0.215	0.215	0.172	0.172	0.015	0.015	0.007	0.008

All specifications include year, month, and age fixed effects, and indicators for black, hispanic, and HS or less. Regressions are estimated as linear probability models and weighted with vetcps weights. All dependent variables are indicator variables multiplied by 100; the means of Working for Others and Self-Employed sum to the share Employed. BOG is an indicator for Boots on the Ground. BOG\*(1995-97) is an interaction between BOG and an indicator for sample years 1995 and 1997; BOG interactions with 2003-07, 2009-12, and 2013-16 are defined similarly. There is no interaction between BOG and sample years 1999 and 2001. Standard errors clustered at person level in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

# Graphical Results: Type of Employment



Notes: Estimated using VETCPS 1995-2016. Dependent variable is indicator equal to 100. Includes year, month, and age fixed effects, and indicators for black, hispanic, and HS or less. Regressions estimated as linear probability model and weighted with vetcps weights. Estimated main effects on BOG equal 1.80 (not stat sig) and -4.23\*\*\*, respectively. Error bars show 95% confidence intervals after clustering at the person level.

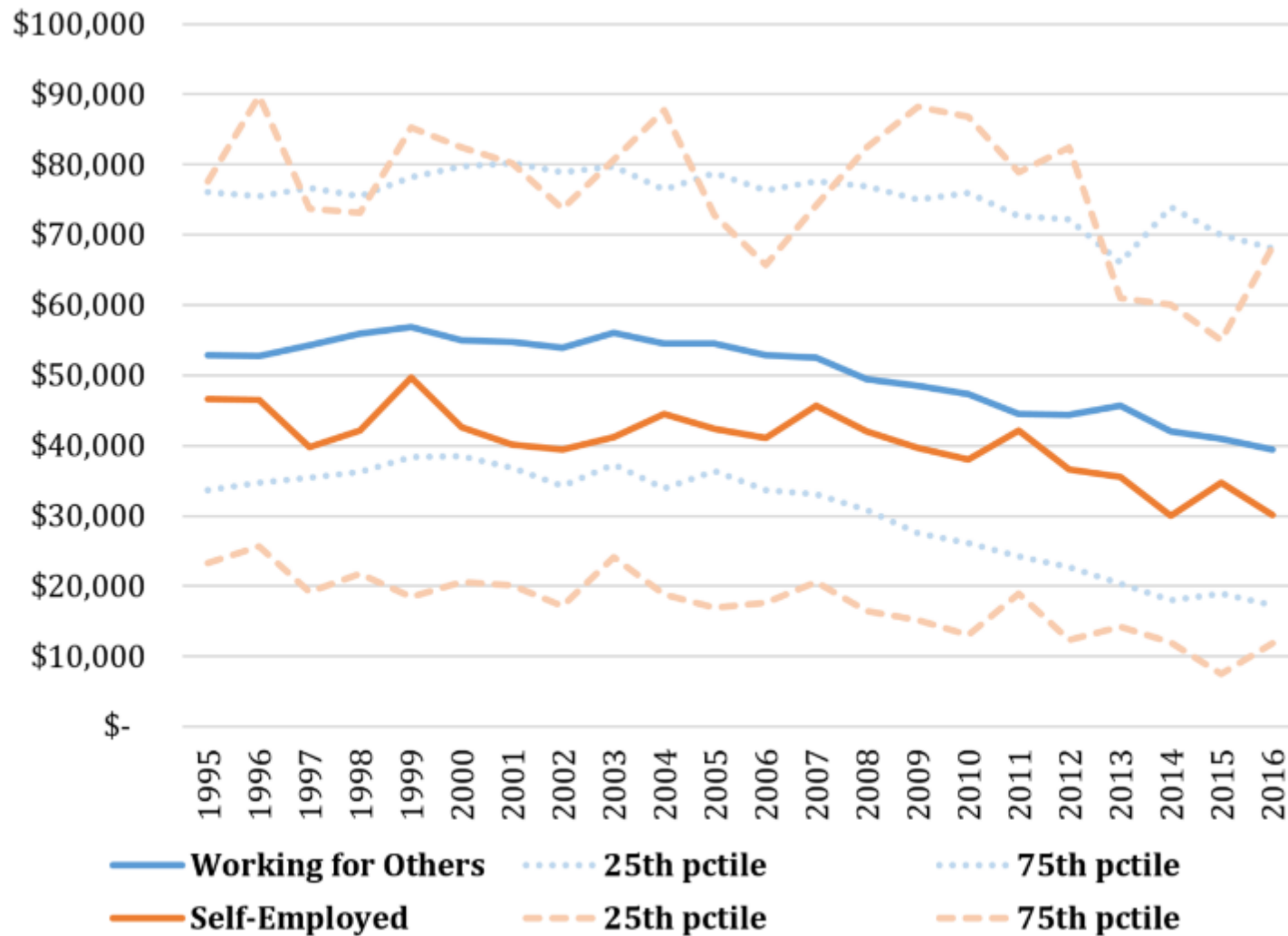


# Types of Self-Employment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Incorporated		Unincorporated		Construction		Prof/Business Services		All Other Industries	
BOG*(1995-97)		0.05 (0.97)		1.99 (1.27)		0.79 (0.74)		0.28 (0.79)		0.96 (1.20)
BOG	-1.47*** (0.46)	-1.49*** (0.58)	-2.03*** (0.62)	-2.80*** (0.80)	-0.36 (0.36)	-0.67 (0.47)	-0.97** (0.39)	-1.07** (0.51)	-2.17*** (0.57)	-2.54*** (0.73)
BOG <sub>post</sub> *(2003-07)	0.28 (0.68)	0.30 (0.77)	0.49 (0.90)	1.25 (1.04)	-0.03 (0.53)	0.27 (0.61)	0.35 (0.54)	0.46 (0.64)	0.45 (0.85)	0.82 (0.96)
BOG <sub>post</sub> *(2009-12)	1.43** (0.66)	1.45* (0.75)	1.62* (0.84)	2.38** (0.99)	0.08 (0.47)	0.39 (0.56)	0.41 (0.54)	0.52 (0.64)	2.55*** (0.81)	2.92*** (0.93)
BOG <sub>post</sub> *(2013-16)	1.32** (0.62)	1.34* (0.71)	1.84** (0.87)	2.60** (1.01)	-0.26 (0.48)	0.04 (0.56)	1.79*** (0.55)	1.90*** (0.64)	1.63** (0.81)	2.00** (0.93)
Mean of Dep Var	3.693	3.693	6.442	6.442	1.926	1.926	2.325	2.325	5.884	5.884
<i>N</i>	133142	133142	133142	133142	133142	133142	133142	133142	133142	133142
<i>R</i> <sup>2</sup>	0.010	0.010	0.008	0.008	0.004	0.004	0.008	0.008	0.010	0.010

All specifications include year, month, and age fixed effects, and indicators for black, hispanic, and HS or less. Regressions are estimates as linear probability models and weighted with vetcps weights. All dependent variables are indicator variables multiplied by 100 and the sum of Incorporated and Unincorporated equals the sum of Construction, Professional/Business Services, and Other Industries. BOG is an indicator for Boots on the Ground. BOG\*(1995-97) is interaction between BOG and an indicator for sample years 1995 and 1997; BOG interactions with 2003-07, 2009-12, and 2013-16 are defined similarly. There is no interaction between BOG and sample years 1999 and 2001. Standard errors clustered at person level in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

# Median Annual Earnings, by employment type



Source: March CPS 1996-2017 (survey responses are retrospective). All male Vietnam era veterans with YOB 1944 to 1953. Earnings are inflation adjusted.

# Summary

## In the long run BOG veterans, relative to NOG, are:

- 13 pp more likely to receive VADC benefits, and more likely to qualify for larger benefits
- 8 pp less likely to be working for others, but 4pp more likely to be self-employed

## How does this compare to other findings?

- Results suggest a third of veterans who got onto the program due to policy change left labor force
  - Larger than previously estimated short-term effects from ADGL 2016
- Similar to Maestas et al. (2013) and French-Song (2014) for SSDI

## We believe our novel results on self-employment merit further study

- Next we present preliminary statistics from other datasets to show characteristics of veteran business owners and trends for recent veterans

# Support for Veteran Owned Businesses

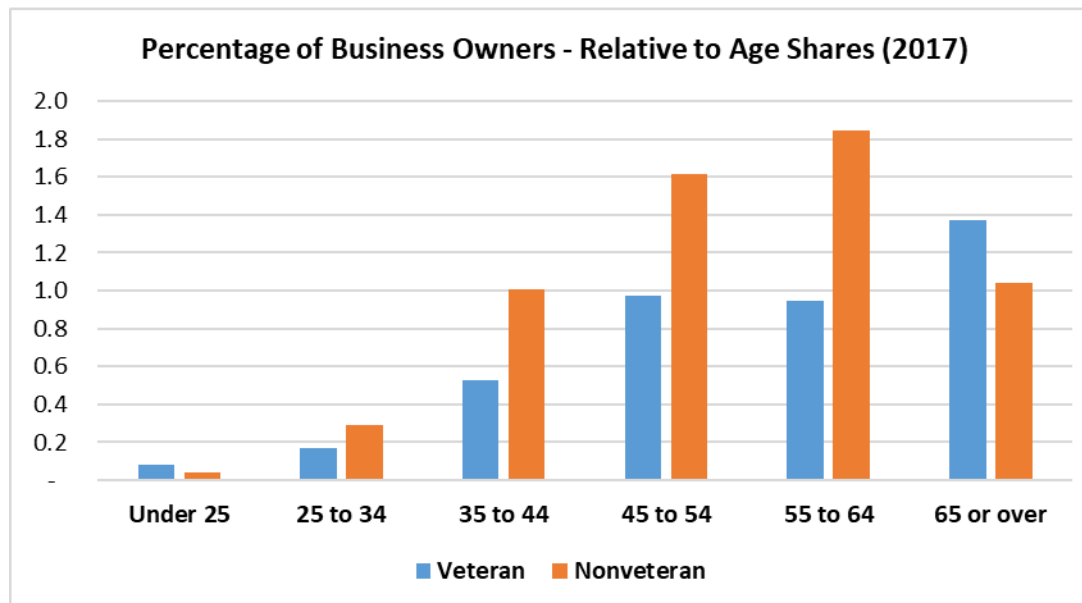
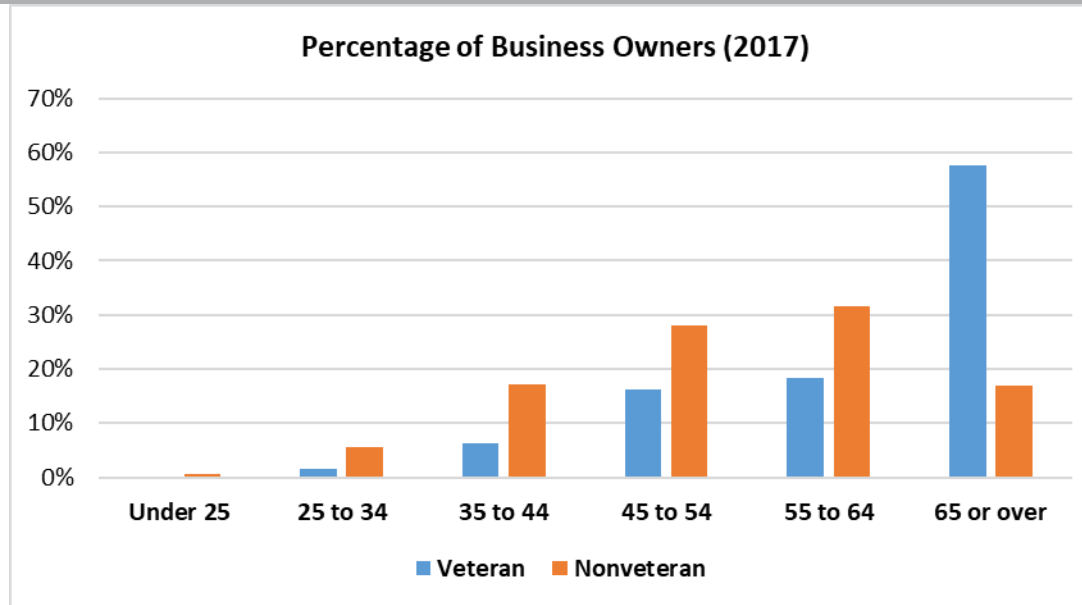
Office of Veterans Business Development (created in 1999) provides resources such as workshops, mentorship, and even loan guarantees

- Training services provided to over 100,000 veterans each year
- From 2010 to 2018, over 25,000 veterans were approved for small business 7(a) loan guarantees

In 2006, Veterans First Contracting Program created to give preference to Veteran Owned and Service-Disabled Veteran Owned Small Businesses when awarding federal contracts

- Approved firms are eligible to participate in VOSB and SDVOSB set-asides issued by VA
- Amounts to over \$3b annually awarded to eligible Veteran-Owned Small Businesses

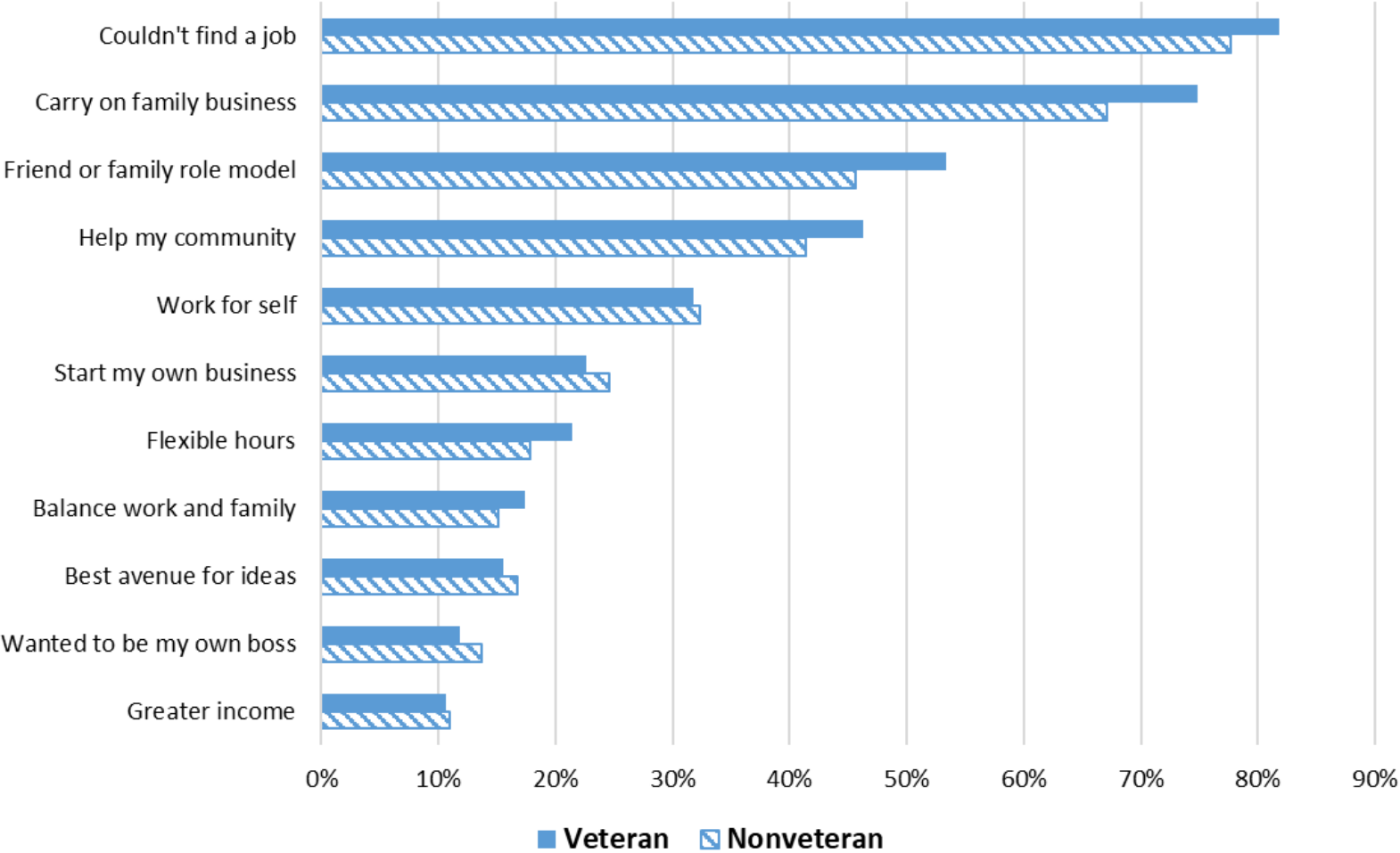
# Veteran Business Owners are Older than Non-veterans



Source: 2017 Annual Business Survey, "Characteristics of Business Owners"

# Reasons for Starting Own Business

Percentage Reporting Reason was "Not Important"



Source: 2017 Annual Business Survey, "Characteristics of Business Owners"

# DC also correlated w/ increased self-employment among younger veterans

- Use panel data from the Survey of Income and Program Participation (SIPP) to observe veterans who report new DC benefits over time
  - Two panels covering 2008 to 2013, and 2013 to 2016

VARIABLES	Vietnam-Era Veterans			Year of Birth 1970 or later		
	(1) In Labor Force	(2) Working for Employer	(3) Self-Emp	(4) In Labor Force	(5) Working for Employer	(6) Self-Emp
DC Receipt	-3.431* (1.752)	0.626 (1.794)	-2.810*** (0.977)	-7.007*** (1.922)	-9.392*** (2.258)	2.270** (1.062)
CDR 50+	-4.842** (2.020)	-7.459*** (2.068)	2.269** (1.126)	-4.502* (2.646)	-2.160 (3.109)	-0.268 (1.462)
Unempl Rate (%)	-0.130 (0.379)	0.0189 (0.388)	-0.156 (0.211)	0.250 (0.466)	-0.259 (0.547)	0.265 (0.258)
Constant	49.14*** (2.813)	37.77*** (2.880)	9.071*** (1.568)	89.67*** (3.403)	86.77*** (3.998)	0.999 (1.881)
Observations	16,657	16,657	16,657	5,681	5,681	5,681
Mean of Dep Variable	47.26	37.4	7.66	90.04	83.19	3.28
Age FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Person FE	X	X	X	X	X	X
R-squared	0.834	0.813	0.818	0.692	0.736	0.759

Observations aggregated to annual level, and dependent variables multiplied by 100. Regressions weighted by survey weights. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

# Conclusions and Future Work

VADC currently serves 5 million veterans, approx. 25% of the veteran population

- \$92 billion in benefits paid out in FY2019
- Understudied relative to the SSDI program (\$152b in FY2019)

Using a 2001 policy change that increased DC receipt for “boots-on-the-ground” Vietnam-era veterans, we find that disability benefits decreased labor force participation but increased self-employment

- By 2016, BOG veterans were 8pp less likely to be working for others but 4pp more likely to be self-employed

Huge potential for administrative data on VADC (application outcomes, CDR ratings) to allow us to better understand the implications of this large and fast-growing program