WHAT EXPLAINS VARIATION IN DISABILITY APPLICATION RATES ACROSS STATES?

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Introduction

Social Security Disability Insurance (SSDI) applications and benefit receipts vary greatly by state, which has led to concerns about potential inconsistencies in the way that states apply disability standards.[1] This possibility has prompted numerous Congressional hearings and reports, and led the Social Security Advisory Board to express concern about the Social Security Administration's ability to disentangle the potential causes. This *brief*, using a longer time period and more comprehensive list of variables than other studies, explores the extent to which health, demographic, and employment characteristics – as well as state policies or politics – explain the variation across states.

The discussion proceeds as follows. The first section describes an individual's SSDI application decision and factors that may influence state-level application rates. The second section presents variables used to determine the underlying causes of the state-level variation in application rates. The third section summarizes the results. The conclusion is that the health, demographic, and employment characteristics of each state explain the largest variations in SSDI application rates. Politics have little effect. Interestingly, states that require employers to provide temporary disability insurance have lower SSDI application rates.

SSDI Application Decisions at the Individual Level

In theory, an individual's decision to apply for SSDI is a matter of weighing the costs and benefits of application: one applies if it increases the expected present value of lifetime utility. Individuals are eligible for SSDI if they are not currently earning more than $1,000, are unable to do so for at least a year, and have worked long enough and recently enough to be covered.[2] Workers who apply must weigh their current earnings and future labor market opportunities against the future stream of SSDI benefits, plus Medicare coverage after two years, times the probability of being accepted to the program, minus any costs of application.[3] Thus, the health and demographic characteristics of the individuals in each state and the nature of the job market would be important factors explaining the variation among states in SSDI application rates.

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State policies and politics may also affect the application decision in the following ways.

Health Care

States are highly involved in determining access to and affordability of health insurance. Previous findings that Medicaid generosity influences Medicare use suggest that the value of Medicare coverage accompanying SSDI receipt is related to policies under a state's control.[4] In addition, states may limit the ability of insurance companies to price coverage based on individual health and demographic characteristics ("community rating") and to deny coverage ("guaranteed issue"), and states may even mandate individual health insurance coverage. Studies show that these regulations have a significant effect on coverage, and presumably also on subsequent health care access.[5]

The effect of health care access on the SSDI application rate is theoretically ambiguous. On the one hand, individuals with access to health insurance might be more likely to apply for SSDI because they would be less likely to go uninsured during the two-year waiting period for Medicare coverage.[6] On the other hand, individuals might be less likely to apply for SSDI benefits because Medicare coverage is relatively less attractive when they can obtain health insurance elsewhere.

Unemployment Insurance

The unemployment insurance (UI) program is a federal-state partnership based on federal law and administered at the state level. The state sets the benefit structure (eligibility requirements and benefit levels) and tax structure (wage base and tax rates). Recent research finds that a more generous UI benefit delays SSDI application and that UI benefit exhaustion affects the timing of SSDI application.[7] Thus, the hypothesis is that generous and/or long-lasting UI benefits will reduce the SSDI application rate.
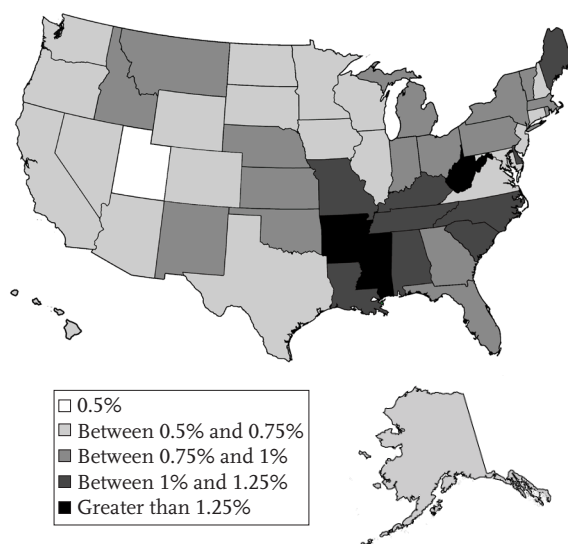
State Politics

Governors, who appoint the director of the state Disability Determination Services, may wish directors to be lenient in order to create political goodwill, to maximize federal income transfers into the state, or to

minimize the state's own payments through the safety net.[8] Further, the governor's political party affiliation could indicate potential changes in welfare policy or generosity. If individuals are aware that politics may influence program leniency, or just observe an increase in the probability of acceptance to the program, politics may influence the application decision.

The Variables

This project analyzes state-level data over the period 1993-2009.[9] The dependent variable is the annual SSDI application rate by state, expressed as a percentage of the state's working-age population (age 18-64) not receiving SSDI benefits.[10] As shown in Figure 1, average SSDI application rates between 1993 and 2009 varied substantially, ranging from 0.5 percent in Utah to 1.4 percent in Mississippi. A strong regional component is evident, with the South having much higher application rates and the West tending to have lower rates. Possible explanations for the variation in SSDI application rates include health/demographic/employment characteristics, state policies, and political factors.[11]

FIGURE 1. AVERAGE SSDI APPLICATION RATES, BY STATE, 1993-2009

Legend:
- □ 0.5%
- Between 0.5% and 0.75%
- Between 0.75% and 1%
- Between 1% and 1.25%
- ■ Greater than 1.25%

Note: Washington, DC is between .5% and .75%.
Source: Authors' calculations.

Health, Demographic, and Employment Characteristics

State-level health characteristics come from the Center for Disease Control's *Behavioral Risk Factor Surveillance Survey* (BRFSS). The BRFSS has been administered since 1984 and is the largest ongoing telephone survey in the United States. BRFSS provides detailed data on self-rated health; health-related behaviors such as smoking and drinking; and factors correlated with health conditions such as obesity, along with state-of-residence indicators.[12] Three health variables from the BRFSS, all of which would be expected to increase SSDI application rates, are used in the analysis:
- self-reported fair/poor health status;
- smoking (ever smoked more than 100 cigarettes); and
- self-reported body mass index (BMI).

Other important factors to be taken into account when determining SSDI applications are the socio-economic composition and employability of potential applicants. The variables used in the analysis include:
- Age of the population. Younger populations are less likely to be insured by SSDI and less likely to have a disability that warrants an application.[13] Individuals age 50 plus face a different screening process, in which it is easier to be accepted, so a state with a relatively older population would be expected to have a higher SSDI application rate.[14]

- Education. States with a higher proportion of their population with higher education would be expected to have lower SSDI application rates. The effect of low education is ambiguous. Individuals with less than a high school degree may be the most vulnerable, but also may not have enough steady work history to be insured under SSDI.

- White, non-Hispanic. The impact of race is ambiguous. States with a higher proportion of non-Hispanic whites could be expected to have lower rates of SSDI applications, because non-whites are more vulnerable. Or whites could have higher application rates because they are more likely to have steady job histories that enable them to qualify for SSDI.

- Male. States with a higher proportion of males would be expected to have higher SSDI application rates due to their higher rates of labor force participation.

- Married. States with a higher proportion of married residents would be expected to have lower SSDI application rates since married people tend to be healthier.

- Poor. States with a higher proportion of their population under the federal poverty line would be expected to have higher SSDI application rates.

Variations among states and over time in employment characteristics – such as occupation, industry composition, and the unemployment rate – are expected to be associated with differences in SSDI application rates. Variables include:
- Occupation and industry. The greater the proportion of a state's workforce employed in a blue-collar occupation or an agricultural industry, the higher the expected SSDI application rate.

- Unemployment rate. Because greater unemployment lowers the opportunity cost of applying for SSDI, higher unemployment should lead to more applications.

- Labor force participation rate. Discouraged workers may drop out of the labor force. So the lower the labor force participation rate, the higher the expected application rate.

State Policy

State policies with respect to unemployment insurance, health programs, and disability insurance could also affect application rates. Variables include:
- Maximum weeks of unemployment insurance. The longer the duration of UI, the lower the expected SSDI application rate.

- UI benefits/average wage. The higher the ratio, the lower the expected SSDI application rate.

- Strict regulation of private insurance market.[15] States are defined as strictly regulated if they have both community rating and guaranteed issue.[16] As discussed earlier, the impact on application rates could be either positive or negative.

- Medicaid buy-in. States with a Medicaid buy-in program have less strict earnings qualifications for Medicaid eligibility for disabled individuals who work, allowing better access to health insurance outside of the SSDI program.[17] Medicaid buy-in states are expected to have lower SSDI application rates.

- State-mandated employer temporary disability insurance (TDI). TDI programs, which were mostly enacted after the Great Depression, provide workers with partial compensation for wages lost due to temporary, non-occupational disabilities. Holding all else constant, the five states that mandate employer TDI should have lower SSDI application rates.[18]
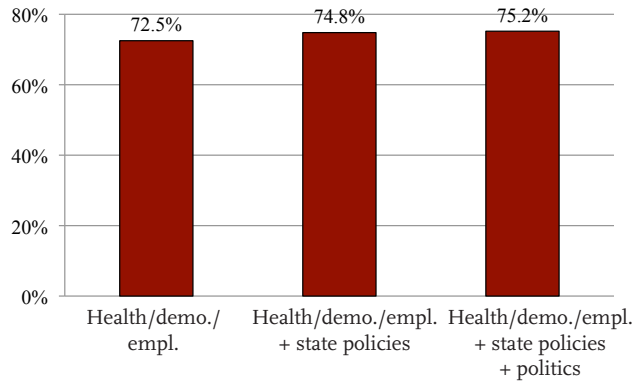
State Politics

Due to the concern about state politics influencing the administration of this federal program, three variables are included to test whether the governor's party affiliation or tenure in the job appear to have any influence on application rates. The variables are:
- governor's party affiliation;
- an indicator for reaching the term limit; and
- an indicator for an incumbent governor.[19]

Results

A regression equation related state SSDI application rates over the period 1993-2009 to the state health/demographic/employment variables, state policies,

FIGURE 2. PERCENT OF VARIATION IN STATE SSDI APPLICATION RATES EXPLAINED BY DIFFERENT FACTORS, 1993-2009

Note: Year fixed-effects adds 4.4 percent, leading to the R^2 of 79.6 reported in the Appendix.
*Source:* Authors' estimates.

and political factors. The descriptive statistics for the variables in the regression and the full results are shown in the Appendix.

Before discussing the individual variables, it is important to note the percent of the variation explained by the three groups of factors. As shown in Figure 2, health/demographic/employment variables alone explain over 70 percent of the variation; introducing state policies and politics adds relatively little explanatory power.

Figure 3 presents the coefficients from the regression analysis that were statistically significant. Most of the health/demographic/employment variables have the expected signs. Poor/fair health and high

FIGURE 3. IMPACT OF SELECTED FACTORS ON SSDI APPLICATION RATES, 1993-2009
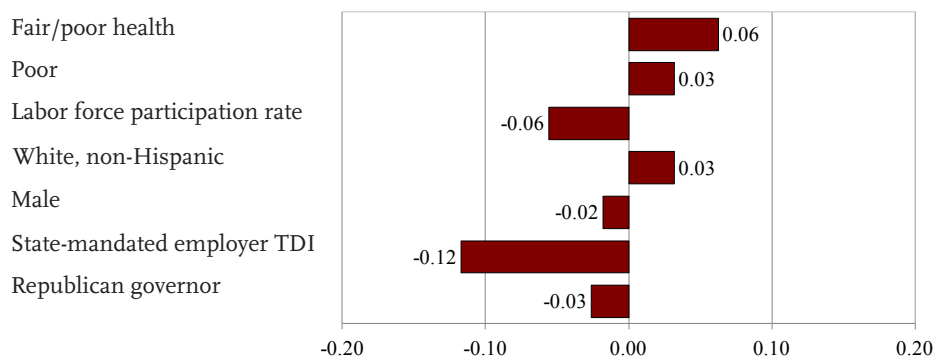
Notes: All results are statistically significant at least at the 10-percent level. Standard errors have been clustered at the state level. The results shown for continuous variables are for a one-standard-deviation change; in the case of dummy variables, the results show a change from zero to one.
Source: Authors' estimates.

levels of poverty increase a state's SSDI application rate. While the state-level unemployment rate is not significant, the discouraged-worker effect implied by the labor force participation rate is important.[20] The positive coefficient on the percent of the population that is non-Hispanic white reflects the steady earnings history needed to qualify for SSDI benefits. Interestingly, states with a high proportion of men have lower SSDI application rates – a puzzle.

In terms of state policy variables, the only one to have an effect is state-mandated, employer-provided TDI. As many recent reform proposals argue, private short-term insurance policies may implicitly act as a pre-screening mechanism and assist in getting individuals back to work before entering the permanent disability program. They may be more effective at getting their marginal claimants back to work, thus lowering total SSDI applications.

The only political variable with a statistically significant effect is having a Republican governor. The coefficient suggests that a conservative political environment discourages applications.

While it is interesting to see what is correlated with the SSDI application rates, it is important to put the marginal effects into context. Based on the regression coefficients, the state-level application rate would have averaged 1.0 percent between 1993-2009. If all health, demographic, and employment information were set at the best observed in the data (maximum value for characteristics with a positive coefficient and minimum value for characteristics with a negative coefficient), the application rate would have been only 0.5 percent – a 50-percent drop. If every state were assigned the worst health, demographic, and employment characteristics, the predicted application rate increases to 1.5 percent. In short, the health, demographic, and employment variables have a profound effect on the application rates.

Conclusion

This *brief* has examined why SSDI application rates vary so much between states. Not surprisingly, health, demographic, and employment characteristics are the major determinants of this state variation, explaining over 70 percent of the variation in total SSDI application rates. In addition, having state-mandated private TDI is associated with lower application rates, and the governor's political party is also correlated with the application rate. In short, the health, demographic, and employment characteristics of a state – not state policies or politics – explain most of the variation across states.

Endnotes

1 See McVicar (2006); Bound and Burkhauser (1999); and Rupp and Stapleton (1998).

2 The $1,000 ceiling is the 2011 limit for non-blind SSDI recipients. The limit for blind recipients is $1,640. To be covered by SSDI, one must have worked a specified number of quarters overall and a specified number of quarters in recent years; both are a function of an individual's age at disability onset.

3 For simplicity, our model assumes that SSDI recipients do not participate in the labor market again once being accepted into the program.

4 Cohen and Tumlinson (1997); and Pezzin and Kasper (2002).

5 Buchmueller and DiNardo (2002); and Long and Stockley (2009).

6 This hypothesis is explored in Gruber and Kubik (2002), who find that individuals with access to health insurance from a spouse are 26-74 percent more likely to apply for SSDI benefits than those without external access to health insurance.

7 Lindner (2011); and Rutledge (2011).

8 Iyengar and Mastrobuoni (2008) highlight this classic principal-agent problem and find that states with first-term governors allow fewer applicants onto the rolls than states with re-elected governors. They interpret this finding to mean that the SSDI rolls are manipulated for political purposes, but that there is a learning curve.

9 Data are missing for: Wyoming in 1993, Rhode Island in 1994, Washington, DC in 1995, and Hawaii in 2004 because of lack of coverage in the *Behavioral Risk Factor Surveillance Survey*; and Nevada in 1994 due to lack of detailed data from Social Security on SSDI-only applications.

10 The denominator is the number of residents age 18-64 in a state as of July 1 from the U.S. Census Bureau. From this figure we subtract the number of beneficiaries, obtained from the Social Security Administration *Statistical Bulletins* (SSA 1994-2009), since current beneficiaries are not at risk of applying.

11 We are grateful to Paul Davies of the Social Security Administration (SSA) for providing the Title 2 (DI) only, Title 16 (SSI) only, concurrent Title 2 and Title 16 receipts by state for FY1993-FY2010. The FY1993-FY2000 receipts data came from paper records from SSA's State Agency Operations Reports system. The FY2001-FY2010 receipts data are from SSA's Payment Management System.

12 While the BRFSS data include other health-related variables that may be related to the SSDI application rate (such as alcohol consumption, doctor visits, exercise habits, and mental health measures), these variables were not consistently available for all states over the entire 1993-2009 period.

13 To be insured for SSDI, one must have worked the required number of quarters based on age, and 20 quarters within the last 10 years.

14 Age is specifically in the SSDI determination process because the assessment of the ability to be retrained changes depending on whether an applicant is age 50-54 (Approaching Advanced Age), 55-59 (Advanced Age), or 60-64 (Retirement Age).

15 Data on state regulations of health insurance were compiled from The Henry J. Kaiser Family Foundation (2010a; 2010b), and Georgetown University Health Policy Institute (2004).

16 Herring and Pauly (2006).

17 These data were compiled from Kehn, Croake, and Schimmel (2010); Croake and Liu (2009); Gruman et. al (2008); Jensen (2004, 2006); Georgia Department of Community Health (https://www.gmwd.org/WebForms/StaticContent1.aspx); Delaware Health and Social Services (http://dhss.delaware.gov/dhss/dmma/); and Commonwealth of Kentucky (http://manuals.chfs.ky.gov/dcbs_manuals/DFS/VOLIVA/OMVOLIVA.pdf).

18 Five states enacted employer disability insurance mandates prior to the first year of data included in this analysis: California (1946), Hawaii (1969), New Jersey (1948), New York (1949), and Rhode Island (1942) (U.S. Social Security Administration 2010).

19 The political variables come from National Governors Association (2011) and Council of State Governments (2007).

20 This finding is not explained by colinearity. If we estimate the relationship without the unemployment rate, the labor force participation rate remains significant; if we estimate without the labor force participation rate, the unemployment rate remains insignificant.

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APPENDIX

TABLE A1. DESCRIPTIVE STATISTICS

	Mean	Standard deviation	Minimum	Maximum
Dependent Variable (Percent of Working-Age Population)				
Total SSDI application rate	0.83	0.24	0.06	1.65
Health, Demographic, and Employment Variables				
Health				
Fair/poor health	0.15	0.03	0.08	0.25
Ever smoke 100+ cigarettes	0.47	0.05	0.25	0.61
Overweight or obese (BMI)	0.59	0.06	0.42	0.71
Age Profile				
Age under 18	0.26	0.03	0.19	0.37
Age 18-25	0.11	0.01	0.07	0.16
Age 25-50 (omitted)	0.35	0.02	0.29	0.44
Age 50+	0.28	0.04	0.14	0.38
Education Profile				
Less than high school	0.15	0.05	0.05	0.33
High school degree (omitted)	0.34	0.05	0.20	0.48
Some college	0.42	0.06	0.23	0.57
Post-graduate	0.09	0.03	0.03	0.28
Other Demographics				
White, non-Hispanic	0.76	0.16	0.16	0.99
Male	0.49	0.01	0.46	0.52
Married	0.55	0.05	0.27	0.65
Poor	0.12	0.04	0.05	0.26
Occupation				
Service occupation	0.43	0.03	0.33	0.53
Blue-collar occupation	0.25	0.04	0.08	0.38
Other occupations (omitted)	0.32	0.05	0.21	0.58
Industry				
Agriculture and physical industries	0.29	0.05	0.11	0.42
Professional industries (omitted)	0.71	0.05	0.58	0.89
Labor Force				
Unemployment rate	0.05	0.02	0.02	0.13
Labor force participation rate	0.67	0.04	0.55	0.76
State Policy Variables				
Length of UI benefits (weeks)	31.66	9.27	26.00	66.33
UI benefits/average wage	0.37	0.06	0.20	0.55
Strict health regulation	0.13	0.33	0.00	1.00
Medicaid buy-in	0.37	0.48	0.00	1.00
State-mandated employer TDI	0.10	0.30	0.00	1.00
State Politics Variables				
Republican governor	0.54	0.50	0.00	1.00
Governor at term limit	0.29	0.45	0.00	1.00
Incumbent governor	0.39	0.49	0.00	1.00

Source: Authors' calculations.

Table A2. Regression Results for SSDI Applications, 1993-2009

Health, Demographic, and Employment Variables	Coefficient	Standard error
Fair/poor health	2.087 ***	(0.580)
Ever smoke 100+ cigarettes	0.267	(0.210)
Overweight or obese (BMI)	0.034	(0.370)
Age under 18	-0.247	(0.480)
Age 18-25	-0.649	(0.510)
Age 50+	0.234	(0.430)
Less than high school	-0.153	(0.400)
Some college	-0.313	(0.370)
Post-graduate	-0.664	(0.550)
White, non-Hispanic	0.200 *	(0.110)
Male	-1.785 **	(0.730)
Married	-0.445	(0.330)
Poor	0.799 **	(0.320)
Service occupation	-0.422	(0.380)
Blue-collar occupation	0.467	(0.510)
Agriculture and physical industries	0.448	(0.400)
Unemployment rate	1.087	(0.860)
Labor force participation rate	-1.393 ***	(0.470)
State Policy Variables		
Length of UI benefits	-0.003	(0.000)
UI benefits/average wage	0.081	(0.210)
Strict health regulation	-0.003	(0.030)
Medicaid buy-in	0.008	(0.020)
State-mandated employer TDI	-0.117 ***	(0.030)
State Politics Variables		
Republican governor	-0.026 *	(0.010)
Governor at term limit	0.029	(0.020)
Incumbent governor	-0.020	(0.010)
Constant	2.454 ***	(0.650)
Observations	862	
R-squared	0.796	

Note: * significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. Robust standard errors clustered by state are in parentheses. Also included are a set of year dummies (excluding 1993).
Source: Authors' calculations.