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Is West Virginia a Haven for Disabled Workers? An Evolving Story

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Abstract

With a particular focus on West Virginia, this study utilizes state-level monthly panel data over 13 years (2010-2022) to examine the determinants of the rates of application of individuals for Social Security Administration disabled worker income payments (SSDI) and the initial recommendations of those applications for approval by the states. Application rates are particularly sensitive to the educational attainment of state populations and approval rates to economic conditions. However, in contrast to media coverage and public perceptions, both the number of applications for SSDI and approval rates have been declining nationally and in West Virginia.

1 Introduction

Most individuals of good will subscribe to some form of the notion that those who are better off financially in society should extend help to those who are less fortunate. Persons coping with disabilities usually are included among those deserving of assistance. In 2013, however, National Public Radio (NPR) aired what many considered an expose of governmental disability programs, noting that, over the previous fifteen years, the number of Americans receiving disability payments had nearly doubled to approximately 14 million individuals (Joffe-Walt, 2013a).

In this series of reports, Chana Joffe-Walt of NPR used phrases such as “*The Disability-Industrial Complex*” to describe a series of profit-motivated parties who worked to get more individuals onto disability rolls (Joffe-Walt, 2013b,c). The indicted parties in this regard were lawyers, physicians, and key personnel in local and state governmental units — the latter realizing that an individual constituent who is on disability costs their governmental unit little or nothing because the federal government picks up the cost, while the same individual on welfare imposes a variety of costs on their governmental jurisdictions and surrounding populations.

West Virginia often has been a center of attention in this scenario. In December 2020, West Virginia ranked first among the states with 4.5% of its resident population being reported as disabled by the SSA relative to the national average of 2.5% (Social Security Administration, 2024a; U.S. Census Bureau, 2023). In 2021, approximately 36% of West Virginians who were 18 or more years old were recorded by the Centers for Disease Control and Prevention (CDC) as having some disability, second highest among the 50 states and substantially higher than the national average of 27.2% (Centers for Disease Control and Prevention, 2023). These are among the reasons why, historically, West Virginia has been labeled by some as the welfare and disability capital of the United States (Duncan, 2015). However, whether this label continues to apply is subject to debate.

In this paper, we empirically explore whether socioeconomic conditions influence the flow of individuals who apply for Social Security Disability Insurance Income (more commonly referred to as SSDI income) from the Social Security Administration. Using a state-level panel of monthly observations from 2010 to 2022, we

test whether the education levels statistically influence SSDI application rates. We also test whether, among the states in our sample, there are statistically significant but unobservable differences among the states.

The level of individuals receiving disability income is a function of individuals who apply for SSDI income and initial recommendations by state agencies to federal agencies regarding approval of applications for SSDI benefits. We examine the hypothesis that state-level initial approvals are sensitive to economic conditions, that is, whether state authorities increase (or decrease) initial approval rates as economic conditions fluctuate. We then investigate whether there are statistically significant differences among the selected states in our sample regarding SSDI approval recommendations, that is, is there sufficient empirical evidence to conclude that West Virginia is markedly different than the other states in the sample?

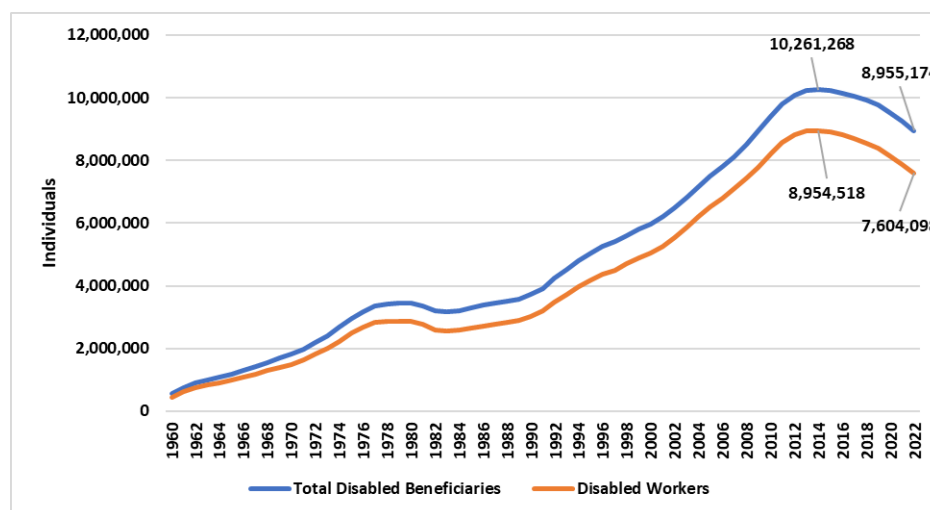
We empirically investigate these non-causal hypotheses using the Ordinary Least Squares (OLS) and two-way error components estimator. Our focus is state-level variation and whether West Virginia is different with respect to applications and initial approval rates. We find that West Virginia is statistically different from other states with respect to application rates. We ask how much of this difference is due to group differences in the levels of the independent variables versus how much is attributable to differences in the magnitude of regression coefficients using the Blinder-Oaxaca (B-O) decomposition (Blinder, 1973; Oaxaca, 1973). We conclude with observations regarding whether West Virginia is the disability capital of the United States and offer directions for future research.

2 Background

The Social Security Administration reported that in December 2022, 8,955,174 Americans received Social Security disability benefits as disabled workers, disabled widow(er)s, or disabled adult children. Disabled workers comprised 84.9% (7,604,098) of disability recipients in December 2022 (Social Security Administration, 2023). Figure 1 illustrates the total number of disability recipients and disabled workers receiving payment from the SSA from 1960 to 2022.

The 2013 Joffe-Walt argument that the number of disability recipients had grown significantly over the previous fifteen years was supported by the evidence available at the time of broadcast. However, the number of disabled workers receiving payments peaked at 8,954,518 individuals in 2014. In 2022, total disability payment recipients were 12.7% lower than 2014 and there were 15.1% fewer disabled workers receiving SSDI benefits. Total applications for disability status to Social Security field offices also declined, as did the number of new awards (an award means the individual receives a check from the government) (Social Security Administration, 2024b).

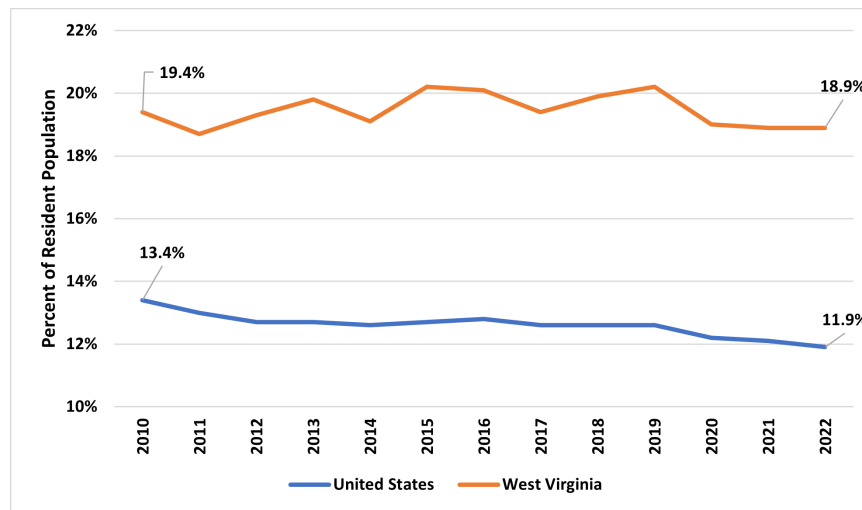
Figure 1: Total Disabled Beneficiaries and Disabled Workers Receiving Benefits, 1960 - 2022



One must first be judged to be disabled to be eligible to receive a disabled worker stipend (SSDI) from the

federal government. Figure 2 illustrates the percent of the population with an identified disability between 2010 and 2022 for the United States and West Virginia, a state whose percentages of individuals with disabilities historically have been the highest in the nation (Social Security Administration, 2023, 2024b). From 2010 to 2022, the national average has declined by 2.5 percentage points, relative to a 0.5 percentage point decline for West Virginia. Not surprisingly, this period coincided with the longest peacetime economic expansion in U.S. history. We note that Figure 2 represents the stock of individuals with a identified disability and not the flow of new applications for SSDI.

Figure 2: Percent of Population with a Disability, United States and West Virginia, 2010 – 2022

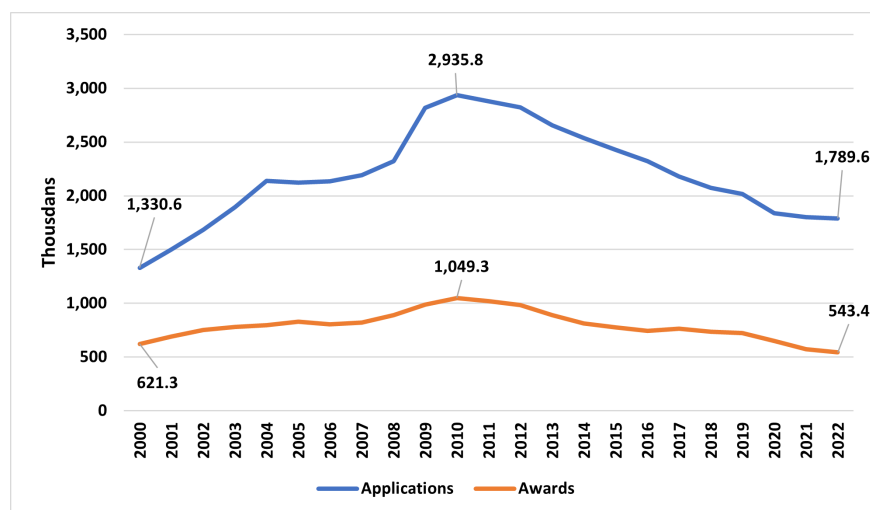


An individual seeking Social Security disability status typically applies through a local SSA field office a state agency, typically known as a Disability Determination Service (DDS). DDS offices are funded by the federal government. The local SSA field office, if involved, will verify non-medical eligibility requirements, which may include age, marital status, income, employment, and other factors. The SSA field office will then hand the case over to the state DDS for the medical evaluation of the disability claim (Keiser, 2010; Smalligan and Boyens, 2019). The DDS makes an initial recommendation to the SSA concerning the disability application. While an positive initial recommendation by a DDS is not sufficient to receive disability status and SSDI income from the SSA, it is a necessary component of any final, positive determination by the SSA. In West Virginia, the state DDS is the Disability Determination Section of the state's Division of Rehabilitation Services.

Throughout the nation, state agencies like West Virginia's Disability Determination Section make recommendations to local SSA field offices. If the DDS determines that an application does not merit a positive recommendation regarding disability status, an appeal can be lodged with the DDS or with an administrative judge in the SSA's Office of Disability Adjudication and review. The complexity of evaluating whether an individual is too disabled to work may increase the likelihood of an appeal (Flaubert et al., 2019). A negative initial recommendation often results in applicants utilizing attorneys, physicians, and rehabilitation professionals who advocate the applicants' cases at the state and federal level (American Association of Retired Persons, 2021).

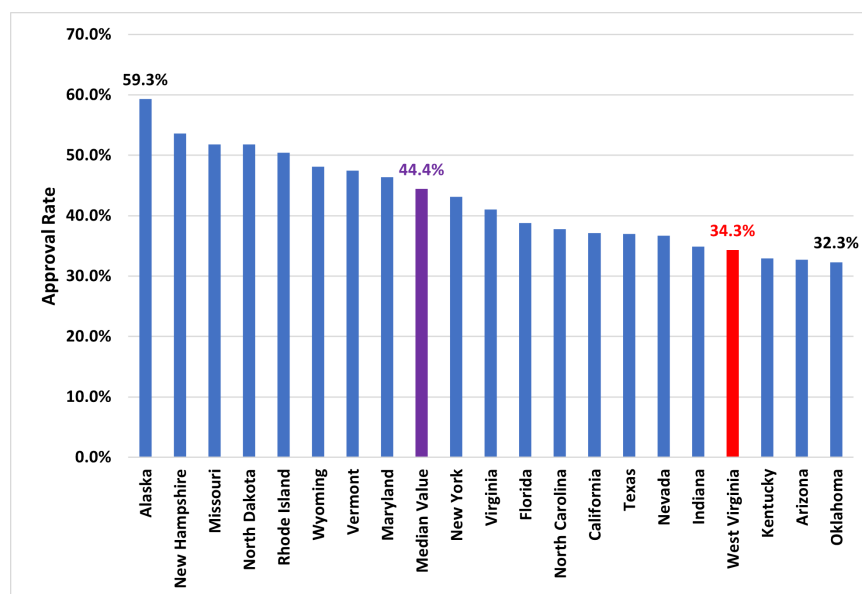
When National Public Radio (NPR) covered this story in 2013, its reporter alleged that there had arisen a "*Disability-Industrial Complex*" composed of profit-motivated parties whose goal was to make money for themselves by increasing the ranks of those receiving SSDI income from the federal government. Illustratively, NPR reported that one law firm by itself was managing 30,000 disability cases in 2013 (Joffe-Walt, 2013c). As Figure 3 reveals, however, the annual number of disabled-worker benefit applications and awards have declined substantially since their respective peaks in 2010. The ratio of awards to benefits has fallen as well, from a high of 52.0% in 1998 to 30.4% in 2022 (Social Security Administration, 2023). The average current SSDI recipient received a monthly payment of \$1,536.95 in February 2024 (Social Security Administration, 2024a).

Figure 3: Annual Disabled Worker Benefit Applications and Awards, United States, 2000 – 2022



How frequently do state agencies make positive recommendations on the SSDI applications that come to them? Figure 4 discloses that in June 2023, the median state approval rate was 44.4% and West Virginia's rate was only 34.3%. One can also see in most of the selected states, a majority of applicants' requests for SSDI support were not recommended for approval. We note that West Virginia's lower than national average approval rate reflects the flow of new applications rather than the stock of previously approved applications for benefits.

Figure 4: Initial Social Security Disability Income Application Approval Rates, June 2023



3 A Brief Review of the Literature

Despite 7,604,098 disabled workers receiving approximately \$11.3 billion in SSDI payments in December 2022 (Social Security Administration, 2023), there has been relatively little research attention devoted to the hypothesis of interest. Three observations are pertinent in this regard. First, there has been far more

medical research on the determinants of disability than economic research on such. Second, when economic studies of the determinants of disability have been conducted, often they have focused on countries other than the United States. Third, there has been very little research focusing on the state-level determinants of SSDI behavior and therefore existing studies do not pick up state effects that are important because it at this level that the initial screening and recommendations concerning worker disability are made.

Early studies of the determinants of SSDI disability nearly always were national in character and sought to explain why disability awards were increasing in number. Lower expected wages, after controlling for individual health conditions and health-related job requirements, appear to significantly influence whether individuals are more likely to report work related disablement (Chirikos and Nestel, 1984). A survey of 16 studies found strong evidence of business-cycle effects on applications and awards (Rupp and Stapleton, 1995). An individual applicants self-assessed disability status is a significant predictor of whether they will apply, appeal, and receive an SSDI award (Benítez-Silva et al., 1999). More liberal eligibility and benefits formulae implemented by the SSA prior to 2000 stimulated SSDI applications and reduced employment (Autor and Duggan, 2003). The age, health, and gender of individuals influenced disability behavior, as did application approval rates and general economic conditions. Increasing economic inequality exercised an upward influence on SSDI rates while Medicare had the opposite effect (Duggan and Imberman, 2009). Approximately 9% of male heads of household have a chronic or severe disability by age 50, rising to 15% by age 56. Households with chronic or severely disabled men experience significant declines in earnings, income, and consumption, incentivizing households to seek out supplementary income in the form of SSDI (Meyer and Mok, 2019).

There is little quarrel today over whether the factors identified by Autor and Duggan (2003) and Duggan and Imberman (2009) have some influence over SSDI activity; they do, but the salient question is — how much? Further, little attention has been given to the individual states where, as we have seen, the initial recommendations concerning disability are made and major differences exist in approval rates. The racial or ethnic group of an individual appears to statistically significantly influence the risk of disability (Chibnall et al., 2006; Ciol et al., 2008; Kennedy et al., 2004; Williams et al., 2012). Gender also may be a factor, with older women seeking disability at greater rates than men (Chen et al., 2022; Gravseth et al., 2007). In addition, age often appears to have an important influence on the propensity of individuals to opt for disability (Pagán, 2013).

Individual characteristics may not be the sole determinant of disability. The social and cultural determinants of health may influence the observed level of disability (Ellen et al., 2001; Froehlich-Grobe et al., 2021). For example, the influence and attitudes of peers influence decisions whether to seek or display disability. Geographic location may influence disability rates as rural individuals report disability at higher rates than urban individuals across most age, gender, and racial combinations (Sage et al., 2019; Sjaastad, 1962). There are observable differences in age migration schedules for persons with and without disability, reflecting urban-rural housing preferences and migration decisions (von Reichert and Berry, 2020). Disability rates may also be higher in rural areas because individuals invest in moves from one site to another if they perceive at the margin that the move will be profitable for them (Sjaastad, 1962). Thus, the presence or absence of attractive jobs may push or pull individuals from one site to another. However, by itself, disability may prevent individuals from moving and those with disabilities may perceive smaller towns and rural areas to be more accommodating to them.

Perceptions of disabled workers, however, may not be reflected in the data. As noted previously, NPR observed in 2013 that SSDI beneficiaries had more than doubled in recent memory. This perception persists in the popular press. Pulrang (2021), for example, recently opined, “Though rarely spoken of directly, disabled people are often thought of as at best unreliable narrators of their own experience, at worst lazy and greedy scammers.” As we have seen, however, data from the 2010-2020 decade generally contradict this notion. The rate of which the Social Security Administration the SSDI rejects proposals it receives from the states was 8.6% higher in 2020 than it was in 2000. However, nothing in this arena is fixed in stone. In February 2020, approximately 6.4 million individuals aged 16 years and over that were in the civilian labor force reported a disability. This estimate sharply rose in the second half of 2020 and continued to rise, peaking at approximately 8.5 million persons in August 2023 (U.S. Bureau of Labor Statistics, 2024). If some proportion of these individuals decide to file for SSDI benefits, we are likely to observe a reversal of the recent trend towards lower annual applications and awards.

4 Data and Econometric Strategy

4.1 Data Sources and Descriptive Statistics

The analysis in this paper focuses on the SSDI behavior of a selection of states and, in particular, West Virginia. It is reasonable to expect that state economic and social conditions influence state SSDI behavior. For example, disability status may be related to working conditions. There is abundant evidence that mining employees may fall victim to serious health maladies such as pneumococcus and silicosis, both of which relate to their inhalation of dust particles or exposure to asbestos. Cancer is a frequent outcome of these maladies.

In our sample of states, we sought to compare West Virginia to other coal mining (and non-coal mining) states to observe their behavior. Kentucky, Pennsylvania, Tennessee, Virginia, and Wyoming are included in our sample of states to reflect this need. Further, because West Virginia is a state characterized by lower than the national average household incomes and educational levels, two other states (Mississippi and New Mexico) with similar income/educational circumstances are included in the sample and note that mining is not a significant contributor to incomes in Mississippi. Two states (California and Texas) were added that have much larger economies and record higher income and educational levels. Relatively speaking, mining is an important economic contributor in Texas but much less so in California. California and Texas also offer useful contrasts to other states because they report relatively low percentages of workers receiving SSDI income. The resulting panel of monthly observations for the ten select states covers the years from 2010 to 2020.

Table 1 presents mean values of selected variables for the sample states as well as the United States overall. In December 2020, approximately 4.6% of adult workers in West Virginia received SSDI income, almost 1.9 and 3 times higher than the United States and California, respectively. West Virginia's population also was the oldest of any of the states in our sample and about 10% older than the United States average.

We also should note that median household income was approximately 1.4 times higher in the United States than West Virginia in 2022 and, in the same year, the percentage of West Virginians in poverty also was 1.4 times higher than the national average. West Virginia additionally has the largest percentage of individuals who are classified as having disabilities (19.4% versus the 13.4% national average). These are factors that might contribute to higher SSDI rates. West Virginia's rate of initial approval of SSDI applications flowing to it was 2.4% below the national average in 2022 (Social Security Administration, 2023). Given the variation among states with respect to applications and approvals, we argue any empirical analysis of SSDI should recognize differences in state behavior.

4.2 Econometric Strategy

To test the hypotheses regarding SSDI application rates and initial approval rates, we define two dependent variables. The first dependent variable, Application Rate, is the number of SSDI proposals per 1,000 people in a state. The second dependent variable, Recommendation Rate, is equal to ratio of SSDI applications receiving a favorable initial state recommend to the total number of SSDI applications. We define a matrix, \mathbf{X} , of control variables which have been previously found to be significant determinants of application rates or initial state approval rates. We define the dependent and independent variables and their sources in Table 2.

We employ panel data and specify the general estimation form as:

$$Y_{i,t} = \alpha_i + \gamma_t + \beta X_{it} + \epsilon_{i,t} \quad (1)$$

where α_i and γ_t denote the unobservable individual state and time effects, respectively, and ϵ_{it} represents a stochastic error term. The subscripts i and t denote country and time periods, respectively. We first employ a pooled least squares estimator and then introduce state-level dummy variables to examine the hypothesis regarding the distinctiveness of West Virginia.

We also employ the two-way fixed effects estimator, which has been referred to as 'a default method' to explore that casual influences in the sample panel data (Imai and Kim, 2021). While two-way fixed effects estimations do have some statistical and practical limitations associated with their use (for example, one

Table 1: Mean Values of Selected Variables

| State | Disabled Population December 2020 | Adult Workers Receiving SSDI December 2020 | Applicants Receiving Initial Approval 2022 | Median Household Income 2022 | Completed High School or More 2022 | Median Age 2022 | Poverty Rate 2022 | Unemployment Rate December 2022 |
|---------------|---|--|--|------------------------------------|--|--------------------|----------------------|------------------------------------|
| United States | 13.4% | 2.4% | 36.8% | \$74,580 | 89.6% | 39.0 | 12.6% | 3.5% |
| West Virginia | 19.4% | 4.6% | 34.4% | \$52,460 | 89.1% | 42.9 | 17.9% | 3.9% |
| California | 11.7% | 1.5% | 36.8% | \$85,300 | 84.7% | 37.9 | 12.2% | 4.1% |
| Kentucky | 18.1% | 4.1% | 33.7% | \$55,880 | 89.0% | 39.4 | 16.5% | 3.9% |
| Mississippi | 18.6% | 4.0% | 34.1% | \$48,610 | 87.6% | 38.9 | 19.1% | 4.0% |
| New Mexico | 17.1% | 2.8% | 34.4% | \$56,420 | 88.0% | 39.4 | 17.6% | 3.5% |
| Pennsylvania | 14.6% | 2.9% | 39.2% | \$72,210 | 92.2% | 40.9 | 11.8% | 4.3% |
| Tennessee | 15.0% | 3.3% | 40.0% | \$65,380 | 90.4% | 39.2 | 13.3% | 3.5% |
| Texas | 12.4% | 1.8% | 34.7% | \$74,410 | 86.1% | 35.6 | 14.0% | 4.1% |
| Virginia | 12.7% | 2.3% | 42.4% | \$85,170 | 91.5% | 39.0 | 10.6% | 3.1% |
| Wyoming | 14.7% | 2.2% | 43.6% | \$73,090 | 93.7% | 39.1 | 11.8% | 3.9% |

Disabled population and percent of applicants receiving initial approval from Social Security Administration (2023).

Remaining variables from Federal Reserve Bank of St. Louis, Federal Reserve Economic Data (FRED) (2023).

Percent in poverty is defined as the percentage of households with incomes less than 100% of the defined poverty level.

cannot employ potentially important invariant dummy variables when doing fixed effects regressions), they have become a staple estimating technique when one relies upon panel data, and we utilize them here. We do note, however, there are growing concerns about causal inference with this estimator (de Chaisemartin and D’Haultfoeulle, 2023), however, we also argue that our non-causal approach to the hypotheses of interest is appropriate for the use of the least squares and fixed effects estimators.

With respect to the control variables, we acknowledge that the estimated coefficients for these variables may not be interpretable with respect to our testable hypotheses. Our set of control variables include median household income, income inequality, and the dummy variables for the proportion of the population that identified as Black, Asian, or Hispanic. We take this approach for two reasons. First, the control variables are intended to generate consistent estimates of the regressors of interest and may be confounded with other controls (Cinelli and Hazlett, 2020). Second, the estimated coefficients for the control variables should be, at best, viewed with caution (Hünernund and Louw, 2023). We report the marginal effects of the main variable of interest and do not report the estimated coefficients for the control variables though these estimates are available upon request.

5 Empirical Results

Tables 3 and 4 presents the empirical estimates from the pooled least squares estimator, the least squares estimator with state-level dummies, and a two-way error components estimator with state-level and time effects. We reject the null hypothesis of homoscedasticity and present the White-corrected standard errors in each table. As we discuss below, our preferred estimator is the least squares estimator with state-level dummies as the pooled estimator fails to capture these individual effects and the two-way error components estimator demeans the data such individual and time-invariant effects are removed from the estimates.

5.1 Application Rates

Table 3 presents estimates with respect to application rates. While one might expect application rates to increase as economic conditions deteriorate, we fail to reject the null hypothesis that the coefficient for the unemployment rate is equal to zero for all three specifications. While we reject the null hypothesis of zero for the coefficient for the poverty rate for the two-way error components estimator, this coefficient appears to be fragile with respect to the exclusion of the individual and-or time effects. We conclude there is no robust empirical evidence to suggest that economic conditions influence the rate of SSDI applications.

A priori, we would expect an inverse relationship between the mean level of education and SSDI applications and the empirical evidence in Table 3 supports this argument. We reject, at the 1% level of statistical significance, that the coefficient for the percentage of the adult population with a high school education or higher is equal to zero for each estimator. A 1% decline in the percent of adults with a high school or higher education is associated with a 0.0097 to 0.038 point rise in a representative state’s application rate per 1,000 individuals. While this may appear to be a small increase, the practical significance is large as the median state’s application rate per 1,000 individuals is 0.2514. In other words, using the median state and the lower bound of the estimates in Table 3, a 1% decrease in the adult population with a high school or higher education induces an approximately 3.9% increase in SSDI applications per 1,000 individuals.

With respect to the state-level dummy variables, we reject the null hypothesis of zero for six of the nine states in Table 3 (noting that Virginia is the omitted reference state). These results suggest that unobservable state-level characteristics, such as culture and attitudes toward work, significantly statistically influence SSDI application rates in a number of states. We highlight that the estimated coefficient for West Virginia is statistically significant at the 1% level and is equal to 0.7958, markedly larger than other statistically significant state coefficients. Given the median state application rate is 0.2514, there is sufficient empirical evidence to suggest that West Virginia has a significantly higher SSDI application rate than the other states in the sample, suggesting that what is acceptable behavior in one state may be less acceptable in other states.

Table 2: Variables, Definitions, and Sources

| Variable | Description | Data Source |
|-------------------------|---|--|
| Application rate | Number of SSDI proposals per 1,000 people in a state | Social Security Administration (SSA) (2023) |
| Recommendation rate | Percent of SSDI applications receiving a state agency initial positive recommendation | SSA (2023) |
| Unemployment rate | State unemployment rate (in percent) | Federal Reserve Bank of St. Louis (FRED) (2023) |
| Median household income | Real median state household income in 2022 prices | FRED (2023) |
| Income inequality | Ratio of average hourly wage rate to the median hourly wage rate | FRED (2023) |
| Median age | Median age of each state's population | Census Bureau American Community Survey (ACS) (2023) |
| Foreign born | Percent of population born outside of the United States | ACS (2023) |
| High school | Percent of adults who have graduated from high school | ACS (2023) |
| White | Percent of population that self-describes as white | ACS (2023) |
| Black | Percent of population that self-describes as Black | ACS (2023) |
| Asian | Percent of population that self-describes as Asian | ACS (2023) |
| Hispanic | Percent of population that self-describes as Hispanic | ACS (2023) |

Table 3: Regression Estimates for the Determinants of SSDI Application Rates
Selected States, 2010 - 2022

| Variable | Pooled OLS | OLS with State Dummies | Two-Way Fixed Effects |
|----------------------------|------------------------|---------------------------|--------------------------|
| Treatment Variables | | | |
| Unemployment rate | 0.0003 (0.0018) | 0.0007 (0.0011) | -0.003 (0.0019) |
| Poverty rate | 0.0013 (0.0058) | 0.0009 (0.0039) | -0.0063** (0.0031) |
| High school | -0.0380*** (0.0052) | -0.0197*** (0.0050) | -0.0097*** (0.0026) |
| Median age | 0.0736*** (0.0031) | 0.0065 (0.0051) | 0.0367*** (0.0056) |
| Foreign born | 0.0046** (0.0019) | 0.0071** (0.0035) | 0.0148*** (0.0029) |
| West Virginia dummy | — | 0.7958*** (0.0775) | — |
| California dummy | — | -0.3036*** (0.0920) | — |
| Kentucky dummy | — | 0.1283*** (0.0539) | — |
| Mississippi dummy | — | 0.0299 (0.0544) | — |
| New Mexico dummy | — | -0.0981 (0.0668) | — |
| Pennsylvania dummy | — | 0.1172*** (0.0411) | — |
| Tennessee dummy | — | 0.0433 (0.0384) | — |
| Texas dummy | — | -0.1942*** (0.0524) | — |
| Wyoming dummy | — | 0.1584** (0.0652) | — |
| Control Variables | Yes | Yes | Yes |
| Observations | 1327 | 1327 | 1327 |
| F-Statistic | 158.0*** | 271.6*** | 12.5*** |
| Adjusted R-Squared | 0.686 | 0.920 | — |

Standard errors in parentheses. All standard errors are White (1980) corrected.

*** = statistically significant at 0.01 level

** = statistically significant at 0.05 level

* = statistically significant at 0.1 level

Median household income, income inequality, and race variables are included as controls.

The OLS estimates include a constant term.

Full estimation results available upon request.

5.2 Initial State Approval Rates

It is one thing to apply for SSDI and quite another to be recommended by the appropriate state panel to the Social Security Administration for support. State initial recommendation rates are heterogeneous. In

2022, state recommendations for approval among our ten-state sample ranged from 33.67% for Kentucky to 43.6% for Wyoming (West Virginia was 34.4%).

In Table 4, we investigate the determinants of initial state approval rates for SSDI. In contrast to application rates per 1,000 individuals, state approval rates appear to be sensitive to economic conditions. We reject the null hypothesis of zero at the 1% level of statistical significance for the unemployment rate and the poverty rate. All else being equal, a 1% increase in the unemployment rate increases initial state approvals by 0.3126 to 0.6824 percentage points. On the other hand, higher poverty rates appear to lower state initial approval rates, which suggests that relatively poor states may be reluctant to increase disability rolls.

While the median age in the sample states does not appear to influence statistically the number of SSDI applicants, it does appear to influence negatively the rate of initial approvals by state agencies. All else being equal, states with older populations have lower initial approval rates than states with younger populations. Perhaps state decision makers may believe that ordinary retirement or non-work-related Social Security disability programs are more appropriate than SSDI in these circumstances.

Education, as with application rates, is a statistically significant determinant of state initial approval rates. We reject the null hypothesis of zero at the 1% level of statistical significance for each of the models presented in Table 4. However, while higher levels of education appear to negatively influence application rates, they appear to positively influence initial approval rates. A 1% increase in the proportion of adults with a high school or higher education increases initial approval rates by 0.72 to 1.6%. More highly education adults may be more able to transition into alternative forms of employment if they become disabled but, if they do apply for disability, may be able to present more clearly their case or have sufficient resources to hire counsel to present a successful case on their behalf.

We do reject the null hypothesis that coefficient for the foreign born population is equal to zero at the 1% level of statistical significance. A 1% increase in the proportion of the foreign born population lowers the initial approval rate by 0.45 to 0.78 percentage points. This is in contrast to the earlier finding that an increase in the proportion of foreign born population increases SSDI application rates at the 1% level of statistical significance. Perhaps some decision makers harbor feelings that “they should not have come here if they could not support themselves.”

5.3 Blinder-Oaxaca Decomposition

Given that West Virginia has a markedly higher application rate than other states in the sample, the question arises how much of this difference is due to group differences in the levels of the independent variables and how much is attributable to differences in the magnitude of regression coefficients (Blinder, 1973; Elder et al., 2010; Oaxaca, 1973). The mean difference in the dependent variable is the aggregation of the effects of different components, including (1) the mean difference between levels of observable variables, (2) differential effects captured by the regression coefficients, and (3) unobserved variation (Rahimi and Hashemi Nazari, 2021). We employ the Blinder-Oaxaca (B-O) decomposition in this section to investigate how “different” West Virginia is with respect to the other states in the sample.

With respect to the SSDI application rate, we note the mean application rate per 1,000 individuals for the non-West Virginia group is 0.26 while it is 1.02 for West Virginia, leading to a difference in group means of -0.754. Performing a three-fold B-O decomposition, we estimate that the coefficient for the differences in group endowments (the magnitudes of the independent variables) is equal to 0.0504 with an estimated standard error of 3.670. We fail to reject the null hypothesis of zero with regards to the contribution of group endowments to the difference in group means in SSDI application rates. For unobserved variation, we estimate a coefficient of -0.1958 with a standard error of 3.6702, also failing to reject the null hypothesis of zero.

On the other hand, we estimate the coefficient for the differential effects (the estimated coefficients for the independent variables) is equal to -0.609 with an estimated standard error of 0.0155. We reject the null hypothesis of zero at the 1% level of statistical significance and conclude that a significant proportion of the difference in group means is driven by the differential effects, instead of structural endowments or unobserved variation. When we turn our attention to the differences in group means with respect to initial approval rates, we find similar evidence to suggest that differential effects are statistically significant while

Table 4: Regression Estimates for the Determinants of SSDI Initial Approval Rates
Selected States, 2010 - 2022

| Variable | Pooled OLS | OLS with State Dummies | Two-Way Fixed Effects |
|----------------------------|------------------------|---------------------------|--------------------------|
| Treatment Variables | | | |
| Unemployment rate | 0.6824*** (0.1307) | 0.7274*** (0.1555) | 0.3126*** (0.1069) |
| Poverty rate | -0.4860*** (0.1755) | -1.1115*** (0.2273) | -0.7713*** (0.1765) |
| High school | 1.5749*** (0.1651) | 1.4410*** (0.2825) | 0.7197*** (0.1487) |
| Median age | -1.3552*** (0.1080) | -1.9885*** (0.4430) | -3.4719*** (0.3171) |
| Foreign born | -0.4517*** (0.0745) | -0.6676*** (0.1633) | 0.7839*** (0.1625) |
| West Virginia dummy | — | -7.3313 (5.3842) | — |
| California dummy | — | 15.3713*** (5.0025) | — |
| Kentucky dummy | — | -10.3206*** (3.6188) | — |
| Mississippi dummy | — | -6.0863*** (3.0878) | — |
| New Mexico dummy | — | 8.3179** (3.4546) | — |
| Pennsylvania dummy | — | -10.4105*** (2.7128) | — |
| Tennessee dummy | — | -12.0470*** (2.6166) | — |
| Texas dummy | — | 2.0601 (2.9469) | — |
| Wyoming dummy | — | 11.0187*** (3.6237) | — |
| Control Variables | Yes | Yes | Yes |
| Observations | 1327 | 1327 | 1327 |
| F-Statistic | 413.9*** | 395.2*** | 30.5*** |
| Adjusted R-Squared | 0.742 | 0.835 | — |

Standard errors in parentheses. All standard errors are White (1980) corrected.

*** = statistically significant at 0.01 level

** = statistically significant at 0.05 level

* = statistically significant at 0.1 level

Median household income, income inequality, and race variables are included as controls.

The OLS estimates include a constant term.

Full estimation results available upon request.

the coefficients for group endowments and unobserved variation are statistically insignificant. It appears that the differences in group means between West Virginia and the other states are largely attributable to the determinants rather than differences in endowments or unexplained variation in the group means.

6 Conclusions and Recommendations

It has been alleged that the United States Supreme Court appears to pay attention to public opinion and election returns in its decision-making (Casillas et al., 2011). Analogously, those making recommendations at the state level concerning SSDI income applications appear to be giving some heed to economic conditions and demographics, neither of which explicitly is a part of their decision criteria. Subtly, they appear to pay some attention to which way the wind is blowing, economically speaking.

It is no surprise to find that the flow of applicants for disability income support is somewhat sensitive to educational attainment, but it is a bit perplexing to find that holding other things equal, foreign born SSDI applicants are less likely to receive approvals. An important lesson of our research is that local idiosyncrasies loom large in any explanation of either SSDI application rates or SSDI approval rates.

Even though West Virginia leads the nation in the percentage of working age individuals receiving some form of disability income, the rate at which the state's responsible recommending agency (the Disability Determination Section of the state's Division of Rehabilitation Services) makes positive recommendations is below the national average. These rate data reflect a classic example of the difference between stocks (the state leading the nation in the percent of individuals receiving disability income) and flows (the number of West Virginians applying for such or being approved for such). If West Virginia is the SSDI capital of the United States (Duncan, 2015), it is not because its responsible agency tends to approve high proportions of the SSDI applications it receives.

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