Disability Benefit Receipt by State and County, 1970-2018: Description and Dataset*

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Abstract

Abstract: This paper describes the digitization of county-level data from Social Security Administration publications on Social Security Disability Insurance (DI) beneficiaries and Supplemental Security Income (SSI). Data sets are created that begin in the 1970s and go through until 2018, which are merged with population data to create rates of DI and SSI receipt in the working-age population. The variables are described and then used to analyze patterns in disability benefit receipt across counties and over time. Other data are also merged with these data to examine what is correlated with disability benefits at the county level. The DI and SSI data will be made freely available for use in examining a wide variety of disability policy questions.

Keywords: DI; SSI; disability incidence; geographic differences in disability receipt; state; county.

* This research was supported by the U.S. Social Security Administration through grant RDR18000003 to the National Bureau of Economic Research as part of the SSA Disability Research Consortium. We are extremely grateful to Nancy Early for generating aggregated data sets from Social Security Administration program data. The findings and conclusions expressed are solely those of the author and do not represent the views of SSA, any agency of the Federal Government, or the NBER. I am grateful to Indu Guha for outstanding research assistance.

1. Introduction

There is substantial geographic variation in the receipt of federal disability benefits. For example, between 1993 and 2009, the fraction on Social Security Disability Insurance (DI) in the state with the highest rate (Mississippi) was roughly three times larger than the state with the lowest rate (Utah) (Coe et al., 2011). The variation is even greater at the county level, with rural counties in the South and Appalachia region having DI and SSI rates in 1990 that were several times higher than the national average (McCoy, Davis and Hudson, 1994). At the extremes, some counties have up to one-fifth of their working-age residents on DI, while others had less than one percent (Gettens, Lei and Henry, 2016). There is similar geographic heterogeneity in Supplemental Security Income (SSI).

It is important to examine this variation in more detail. States have been the most commonly used geographical unit (e.g., Strand, 2002; McVicar, 2006). Yet there is enormous variation within states that is missed in such analysis; for example, Virginia has counties with some of the highest as well as the lowest rates of DI receipt in the United States. McCoy, Davis and Hudson (1994) examine county-level differences, but focus only on 1990.

Easily accessible county-level data over a long period of time will allow more research to understand geographic variation. There are some examples of how county-level data has allowed researchers to do this. For example, Black, Daniel and Sanders (2002) examine how economic conditions related to the coal boom and bust affected disability receipt; Autor, Dorn and Hanson (2013) examine how Chinese import competition affects local labor markets and DI participation; and Foote, Grosz and Stevens (2018) examine how mass layoffs affect DI applications and allowances. A broader, more accessible data series will stimulate more research of this type.

This paper outlines the creation of datasets containing the rates of DI beneficiaries and SSI recipients in the working-age population. The Social Security Administration (SSA) publishes *OASDI Beneficiaries by State and County* and *SSI Recipients by State and County* each year, but these are underutilized because they have been in paper form until 1998 and subsequently as online state-specific PDF/Excel files. These data were collected, digitized and cleaned. Disability policy researchers will be able to use them for standalone analysis, merge it with other socioeconomic data, or use it to explore the potential of a topic before seeking more detailed administrative data.

The DI data is available from 1970 to 2018, with the exception of 1981. The SSI data is available from 1974 to 2018, with the exception of 1978. These data also include information on payments and subgroups where available. Given there are more than 3,000 counties, this means that these data include between 100,000 and 150,000 observations for the main variables.

The features of the datasets are described in some detail. They are then used to examine how the distribution of disability benefit receipt varies over time, in terms of aspects like the location of counties with the highest rates of beneficiaries or recipients, relative dispersion across counties, and how much variation occurs across states and within states. These data are also merged with information on demographic characteristics, economic activity, population health and living costs/house prices. Different regression specifications are used to understand the correlations between these measures and the DI and SSI rates. These results showcase the data and reveal potential avenues for research using these data.

2. State and county data on disability benefit receipt

For many decades, extracts of the Master Beneficiary Record have been used to produce a snapshot of DI beneficiaries in current payment status in each state and county in each year. This

was called *Social Security Beneficiaries by State and County* until 1985, and has since been called *OASDI Beneficiaries by State and County*. A similar publication, *SSI Recipients by State and County*, has been created for SSI recipients using extracts from the Supplemental Security Record since SSI started in 1974.

Paper copies of the OASDI publication series were obtained from 1970 through to 1998, which the exception of 1981.[1] Online versions are available from 1999. Paper copies of the SSI publication series were obtained for 1974 to 1997, and online versions are available from 1998 to 2018. This means that the DI data is available from 1970 to 2018, with the exception of 1981, and the SSI data are available from 1974 to 2018.

The paper copies were digitally scanned and sent for data entry by Digital Divide Data. Two separate operators keyed the data into Excel files and a third operator conducted quality control, resulting in accuracy expected to be at least 99.5%. Once the files were provided, Federal Information Processing System (FIPS) codes were attached on the basis of county and state names. The data were further checked for transcription and other errors, and corrected where found.

The data are for December of each year. They are generally taken from 100% data extracts, although the OASDI data for 1986 is based on a 10% extract of the Master Beneficiary Record. The information in the publications changes over the years; the appendix describes the disability benefit variables and the years they are present. The data sets include all of the available information, even if it appears for a limited period of time. The appendix also includes information on the rules under which data were suppressed to protect confidentiality. These also vary over time.

[1] Searches for this publication occurred at a number of places, including SSA libraries at Woodlawn and in DC, and having SSA publications staff search their own archives.

County-level population data were merged into the data sets to allow calculation of disability benefit rates. This comes from Census Bureau data that was compiled by the Surveillance, Epidemiology, and End Results program of the National Cancer Institute. The data includes annual estimated population counts by sex and single years of age. Data for county-equivalents in Alaska and Hawaii are not available in the earlier years.

For DI, I sum the "working-age" population in each county that is between age 18 and the Full Retirement Age (FRA), which is the age at which DI beneficiaries are converted to the Retirement Insurance program. The FRA was 65 for all cohorts through to those born in 1937, who turned age 65 in 2002. Starting with the 1938 cohort, the FRA increased in two-month increments, so the 1938 cohort has a FRA of 65 and 2 months, the 1939 cohort has a FRA of 65 and 4 months, etc. After the FRA reached 66 for the 1943 birth cohort, it was stable for ten years before again beginning to rise by two-month increments until it reached 67. I therefore adjusted the population counts to take one-sixth of the county population aged 66 in 2003, one-third of the county population aged 66 in 2004, and so on, to account for DI beneficiaries staying in the program to similar ages.

For SSI, the "working-age" population to calculate rates is ages 18 to 64 throughout. Individuals who meet the SSI asset and work requirements can apply for SSI on the basis of age from age 65, however SSI recipients who are receiving SSI on the basis of a disability continue to be counted under that part of the program even after they reach 65. Where it is available, county information on the number of SSI recipients aged between 18 and 64 is combined with information on the population aged between 18 and 64 to calculate the SSI recipients in the working-age population (who should all be receiving SSI on the basis of disability or blindness).

Some county borders change over time, and that occurs at different times in different data sets. Counties that had border changes were merged together to create consistent geographical units over time. This affects relatively few counties; the changes are concentrated in Alaska and in Virginia, where several of the independent cities and surrounding counties have changed over time. All of the details are provided in the appendix.

3. Data characteristics, data quality and summary statistics

In this section, I describe the basic characteristics of the data sets, including a comparison to statistics from other available SSA sources.

3.1 Social Security Disability Insurance data

Summary statistics for the cleaned DI data are presented in Table 1. There are 148,368 observations from 1970 to 2018, except for 1981. FIPS state and county identifiers are attached to all observations. For all of the variables, this table shows the number of observations, mean, standard deviation, minimum and maximum values. All of the values have ranges that are reasonable and broadly consistent with other available data.

The only variable available for all observations is the number of primary beneficiaries. In Figure 1, the annual sum of the number of primary beneficiaries in the county data is compared to the national numbers for equivalent years, which is taken from the most recent Annual Statistical Report of the Social Security Disability Insurance Program (SSA, 2019a).[2] The series are very similar; there is a slight undercount in the county data, but it is around 98% of the national total or higher. This is due to confidentiality restrictions and a small number of beneficiaries not being assigned to a county.

[2] Some early years are not in this publication, and are taken from "Trends in the Social Security and Supplemental Security Income Disability Programs" at: https://www.ssa.gov/policy/docs/chartbooks/disability_trends/sect01.html

In Table 2, more detailed summary statistics are provided for the rate of primary beneficiaries per working-age population. For this and subsequent analyses, Alaska and Hawaii are dropped, as population data are not available throughout for these data. This creates a balanced panel of 147,456 observations, which consist of 3,072 county-equivalents for 48 years. The summary statistics for each year are provided. In line with national trends reported in SSA (2019a), the average rate of disability beneficiaries increases over time. It increases from 1.6% of the working-age population in 1970 to 6% in 2013, and is flat thereafter. The standard deviation increases over time, roughly in proportion to the increase in the average.

Table 3 shows the equivalent summary statistics as Table 2, except it is for all DI beneficiaries (i.e., primary beneficiaries and their dependents) and is based on the entire population. These data are not available for 1975 to 1979, but for other years the patterns are similar. It is interesting to note in both tables, the 75th percentiles and maximum values show how many people in some counties received DI payments. A large number of counties have more than 7-8% of their relevant populations receiving DI benefits, with the maximum values as much as 23% in the later years.

The data seems consistent over time and closely matching statistics from SSA publications. This suggests that the data entry and processes involved in creating consistent county-equivalents and matching them to population data has worked well.

3.2 Supplemental Security Income data

Summary statistics for the cleaned SSI data are presented in Table 4. There are 139,065 observations from 1974 to 2018, except for 1978. FIPS state and county identifiers are attached to all observations. As for DI in Table 1, this table shows the number of observations, mean,

standard deviation, minimum and maximum values for all of the variables. All of the values have ranges that are reasonable and broadly consistent with other available data.

The two primary SSI counts are the number of blind and disabled adult SSI recipients, and all SSI recipients aged between 18 and 64 (who were all receiving it on the basis of blindness or disability). In Figure 2, the annual sum of these measures in the county data is compared to published numbers of SSI recipients aged 18 to 64 from 1974 to 2018. These are taken from the most recent *SSI Annual Statistical Report* (SSA, 2019b) and the chartbook identified in footnote 2. The direct comparison with the national statistics is with the SSI recipients aged 18 to 64, which begins in my data in 1991. These series are almost identical, suggesting that confidential restrictions only have a minor impact on overall numbers. Blind and disabled adult SSI recipients is a broader measure. That is reflected in the higher numbers throughout the sample period, although the trends in the series are similar.

In Table 5, more detailed summary statistics are provided for blind and disabled adult SSI recipients. For this and subsequent analyses, a balanced panel is used. To achieve this: (i) 1974 is dropped, because counties in four states are missing; (ii) Massachusetts is dropped, because its counties are missing through 1977; (iii) Alaska and Hawaii are dropped, as population data are not available throughout for these states; and (iv) dropping counties that are suppressed in some years.

This creates a balanced panel that consist of 2,268 county-equivalents each year for 43 years. The summary statistics for each year are provided. In line with national trends reported in SSA (2019b), the average rate of SSI recipients increases over time. It increases from 2% of the working-age population in 1975 to 4% by 2018. Table 6 shows the equivalent summary statistics for SSI recipients aged 18 to 64, from 1991 to 2018. It reaches 3.4% in the last few years of the

sample period. Like the DI data, the SSI data seems consistent over time. This suggests that the data entry and processes involved in creating consistent county-equivalents and matching them to population data has occurred at a fairly high rate.

4. Insights on disability benefit receipt

In this section, I describe some of the features of the data. These analyses can help to understand how disability benefits varies across counties and over time, and role of state-level factors versus other factors.

4.1 Social Security Disability Insurance

To give some direct information about the counties with the highest rate of primary DI beneficiaries in their working-age populations, Table 7 lists the 20 counties with the highest rates in 1970 and 2018 and also in 1994, which is halfway through the period over which the data were available. In 1970, the highest rate was 6.35% in McDowell County in West Virginia, a relatively small county that borders Virginia. There are another seven West Virginian counties in the 20 highest rates nationally. Other states with a lot of representation in the highest 20 counties are Kentucky with six and Virginia with four counties. The counties are small and tend to be rural, and their location is consistent with the putative "disability belt" of high benefit rates through the Appalachian region and the South (McCoy, Davis, and Hudson, 1994).

By 1994, the rate in McDowell had nearly doubled to 10.9%. This was the second highest in the country, with only a higher rate of 13.4% in the Virginian county of Buchanan. All of the rates in the 20 highest counties were higher than the highest rate in 1970. Ten of the counties present in 1970 are there in 1994, with the other ten counties new. The 20 counties are still

concentrated in a similar region, with 15 of the 20 in Kentucky, Virginia or West Virginia, and a further two in Tennessee.

The changes are similar between 1994 and 2018. The rates grew, so that all of these 20 counties had DI benefit rates of between 14.2% and 20.1%. Twelve of the 20 counties were in the list in 1994, and seven were present in 1970. This suggests that there is long-run persistence in the number of DI beneficiaries in a location, even as the overall numbers in the program grew substantially. Again. 15 of the 20 counties are in Kentucky, Virginia or West Virginia, with three in Alabama.

We can measure persistence across the different time periods for all of the county sample by looking at the Spearman correlation in which counties rank in terms of the fraction of the working-age population receiving DI benefits. A correlation of one means that counties stay in the same relative position between one time period and the next, while a correlation of zero means that there is no relationship in rankings between time periods. Table 8 shows the rank correlations between 1970, 1980, 1990, 2000, 2010 and 2018. The rank correlation between 1970 and 2018 is 0.70, which means there is extremely strong persistence in the rate of DI beneficiaries. The diagonal values give the rank correlations over similar periods of time. In the first ten years between 1970 and 1980, the rank correlation is 0.89. Over subsequent periods, the correlations are: 0.89 between 1980 and 1990; 0.90 between 1990 and 2000; 0.93 between 2000 and 2010; and 0.97 between 2010 and 2018. This and comparisons of the other diagonals suggest that the rank correlations have been increasing over time, especially in the 2000s.

Table 9 presents a similar set of rank correlation results for annual changes in DI benefit rates. These rank correlations are weak, and often negative. The most recent annual change year, from 2017 to 2018, is negatively correlated with all of the earlier periods. This is the only period

when there is a net decline in DI benefit rates, which means that this decline is occurring in counties that were growing in earlier periods, including as far back as between 1970 and 1971.

Another important feature of the data is the dispersion in DI benefit rates across counties, and how that varies over time. Figure 3 shows kernel densities for DI benefit rates for three different years: 1970, 1994 and 2018. As the number of DI beneficiaries has increased over time, the absolute dispersion has increased and the positive skewness has increased.

To assess more clearly what is happening to relative dispersion, Figure 4 shows the ratios of the DI benefit rates at different percentiles of the annual distributions. The year 1986 is omitted, as the use of a 10% extract of the Master Beneficiary Record in that year creates a much higher level of dispersion that is not comparable to other years. Panel A shows the ratio of 75th percentile rate divided by the 25th percentile, showing the relative ratio at the upper quartile relative to the lower quartile. This ratio is fairly standard from 1970 until the mid-1980s. From the 1980s through to around 1990, as DI beneficiary rates grew, the relative dispersion shrank. This suggests that more of the growth was in counties with relatively low rates of DI benefit receipt. From around 2005, the dispersion increased and returned to roughly similar levels to the original dispersion, which suggests that more of the recent growth comes from counties with above-median rates of DI receipt. The annual ratio of the 90th to the 10th percentile is shown in Panel B of Figure 4. This is measuring the relative dispersion further out in the tails of the distribution, and shows a broadly similar pattern to those already described for Panel A.

One interesting question is how much of the county-level variation is explained by states, and whether that has changed over time. The fraction of the total variation that occurs within states – rather than between them – is shown for each year in Figure 5. Again, 1986 is omitted because of the different underlying variation coming from a 10% extract of the Master

Beneficiary Record. In 1970, about two thirds of the variation occurs within states, so that the other third is accounted for by state differences. The fraction of variation that occurs within states decreases through to 1983, when it around 60% and then increases back to around two thirds by the early 1990s. Since then, a decreasing fraction of the total variation has been explained by within-state variation. One way to think about this is that state factors were becoming increasingly important over the last two decades.

4.2 Supplemental Security Income

The analysis of SSI recipients largely mirrors that conducted for DI beneficiaries. Table 10 lists the 20 counties with the highest rates of adult blind and disabled SSI recipients in each of 1975, 1994 and 2018. The highest rate of SSI receipt in 1975 is 8.3%, and all 20 counties have rates of 6.1% or higher. There is again a concentration among rural counties in the South: five counties are in Tennessee, four in Mississippi, three in Georgia, two in Kentucky, and then the remaining counties are scattered in other states, although predominantly in Southern states. By 1994, these highest rates increased to more than 15% in five states and more than 12% in all 20 counties. Kentucky has 11 counties, while Mississippi still had four. Seven of the counties in the list for 1994 were present in 1975.

In 2018, all of the rates had again grown, so that the percentage was 14% or higher. The concentration in Kentucky continued, with the state having 14 of the 20 counties. Alabama had three counties. Eleven of the counties are also present in 1994, including nine of the counties in Kentucky. This suggests that there is long-run persistence in the SSI program as well as in DI.

I measure persistence across the different time periods for all of the county sample through looking at the Spearman correlation in where counties rank in terms of the fraction of the working-age population receiving SSI. Table 11 shows the rank correlations between 1975,

1980, 1990, 2000, 2010 and 2018. The rank correlation between 1975 and 2018 is 0.76, which means there is extremely strong persistence in the rate of SSI recipients. When broken down into shorter time periods, the persistence is increasing in recent periods – the rank correlation between 2010 and 2018 is 0.98. Table 12 shows the rank correlation using SSI recipients aged 18-64 for the years when that measure is available. For a given pair of years, the rank correlations are extremely similar across the two measures of SSI rates at the county level. Tables 13 and 14 presents a similar set of rank correlation results for annual changes in SSI rates. These rank correlations are much weaker, and do not display a clear pattern over time.

I produce similar figures for blind and disabled adult SSI recipients as to those produced for DI beneficiaries. Figure 6 shows the kernel densities for 1975, 1994 and 2018; the dispersion increases as the rates rise over time, although they appear to be slightly more compressed than the changes over time for DI benefits.

Measure of relative dispersion are provided in Figure 7. Panel A shows the annual ratio of 75^{th} percentiles to the 25^{th} percentiles, while the annual ratio of the 90^{th} to the 10^{th} percentile is shown in Panel B. For both measures, the relative dispersion decreased from the early 1980s through to 2018. The changes are substantial; the 90/10 ratio decreases from close to seven to around 4.5. This shows that the growth has not been proportional, which suggests there has been a general increase in the level of SSI receipt across the distribution.

To assess how much of the county-level variation is explained by states, Figure 8 shows the fraction of the total variation that occurs within states for each year. In the early 1980s, less than 60% of the variation occurs within states, so that more than 40% is accounted for by state differences. The fraction of variation that occurs within states increases from there, so that it

accounts for more than 70% of the total variation by 2018. In contrast to the DI analysis, this suggests that state factors are becoming less important over time.

It is also interesting to compare the rank correlation between DI and SSI rates at the county level. It is possible that DI and SSI are substitutes, as SSI is available to people with limited or low work histories who are not insured for DI or not insured at high enough benefit levels to be higher than SSI payment rates. On the other hand, there are common county-level factors that affect DI and SSI numbers. It is clear from Figure 9 that the latter effect dominates, with a high positive correlation that is generally between 0.75 and 0.8. It steadily increased over time, suggesting that DI and SSI rates are either both high or both low in the same locations.

5. Insights from combining data with other county-level information

There is long-term persistence in county-level disability benefit rates, although there is movement of where counties rank. There is also variation over time in the level of dispersion across counties and the amount of variation of explained by states. It is interesting to merge these data with other socioeconomic data, to examine the correlations between disability receipt and other county characteristics.

5.1 Data on socioeconomic characteristics

Data are drawn from a number of sources that have information over many years that are available at the county level.

Demographic data. Demographic measures can be created from the already-described population data from the Census Bureau that was compiled by the Surveillance, Epidemiology, and End Results program of the National Cancer Institute. The data includes annual estimated

population counts by sex, race and single years of age. This is used to calculate the fraction of the population by sex and in different age and race groups. This is available throughout.

Mortality data. Mortality is a widely available measure of population health. I use a compilation of mortality data from the Institute for Health Metrics and Evaluation. The mortality rates are created from deidentified death records from the National Center for Health Statistics, who compile data from death certificates lodged with state vital statistics bureaus. Census population data are used to create the rates. Mortality rates are separately available for those aged 25 to 45, 45 to 65, and above 65. The first two measure mortality rates and health among the working-age population, while the mortality rates for the oldest age group will drive the overall mortality rate in a county and likely reflect overall levels of population health. This is available from 1980 to 2014.

Housing price data. House prices are a widely available measure of local living costs. Housing price index data is available from the Federal Housing Finance Agency, which constructs an index of housing prices that starts in 1975 and is available at the county level (Bogin, Doerner, and Larson, 2016). It uses proprietary data held by the Agency on single family homes with roughly constant characteristics throughout the measurement period. It is constructed by regressing the change in log sale price of a home on period fixed effects and then taking the exponential of the fixed effects coefficients. The Index is available from 1975, although the coverage of the data is not complete in the earlier years.

Earnings and employment. Information on county-level measures is taken from the Regional Economic Accounts of the Bureau of Economic Analysis. The Bureau constructs statistics based primarily on data from the U.S. Bureau of Labor Statistics and the Internal Revenue Service, and then uses additional data and adjustments. Net earnings and jobs per capita

are measures of economic activity that are consistently available in the data. This is available from the mid-1970s.

In order to have all of the covariates in the analysis, the data is restricted from 1980 to 2014. This is merged separately into the DI and SSI data sets. This allows me to consider the relationship between DI and SSI rates and these various measures in regressions where DI or SSI rates are the dependent variable and the other measures are used as independent variables. The regression model takes the form:

$$y_{it} = X_{it}\beta + \gamma_{it} + \epsilon_{it} \quad (1)$$

Where y_{it} is either the DI or SSI rates in county i and year t. In terms of the independent variables on the right-hand side, X_{it} are county-level characteristics that are related to economic activity (earnings and employment); population health (mortality rates); living costs (housing price index values); and demographic characteristics (age, sex and race measures). I use three different sets of controls: (1) a complete set of year dummy variables, to control for common shocks; (2) year dummies plus county fixed effects, to control for permanent differences related to each county; and (3) year and county fixed effects, plus state-by-year fixed effects to control for time-varying state-level characteristics (such as state policies). There is no "right" specification; they are measuring the conditional correlations using different types of variation.

5.2 Social Security Disability Insurance

In this section, the dependent variable is the number of primary DI beneficiaries divided by the working-age population (18 to the Full Retirement Age). Table 15 shows the three sets of results for the full sample of counties from 1980 to 2014. Column (1) shows the results with only year fixed effects. These correlations essentially show what sort of characteristics are associated with higher rates of DI beneficiaries. For the demographic characteristics, DI rates are positively

correlated with the proportion of residents who are female; who are of working age and especially between ages 60 to 64; and the fraction white and, to a lesser degree, the fraction who are black (relative to the fraction who are of another race). There is a positive correlation with the mortality risks at all ages, suggesting that counties with high mortality rates have higher DI rates. There is a positive correlation with house prices, although the relationship is weaker than many of the other ones. There is a negative correlation with average net earnings, meaning that areas where average earnings are low has relatively higher DI benefit rates. It is interesting that the R-squared is 0.81, suggesting that these measures explain a lot of the cross-county and temporal variation.

The results with county fixed effects added are in column (2), and results with the further addition of state-by-year fixed effects are in column (3). Most of the key takeaways are fairly similar across both of these columns. The relationships reverse for the fraction female and younger age groups, but stay the same for older age groups (the fractions aged 50-59 and 60-64) and the race variables. For mortality, the most important determinant is the mortality risk of people aged 65 plus, while mortality risks in younger age groups either have a negative or no relationship with the rate of DI beneficiaries. This may be because deaths in younger groups are more commonly related to accidents and other external causes, and suggests that further investigation using causes of death is warranted. The housing price index does not have a statistically significant relationship with DI receipt once county fixed effects are added, and then the relationship becomes negative and statistically significant once state-by-year fixed effects are added. This suggests that, once controlling for time-varying state factors and permanent county characteristics, it is the counties where there has been a decrease in housing prices that have seen an increase in DI rates. The relationship of DI rates to average net earnings remains negative for

all three specifications, while jobs per capita becomes positive and statistically significant for the second and third specification. This positive relationship may be related to DI insurance coverage, where more jobs per capita increases the number of people qualifying for Social Security, or potentially other factors worthy of further investigation.

In Table 16, the same regression results are presented for two time periods: 1980 to 1997 and 1998 to 2014. I present the results from each specification side-by-side for ease of comparison. The direction of the relationships are generally consistent across the earlier and later time periods, with the size of the coefficients often increasing as the size of DI grew over time. For the results using the third specification, there are some differences in the relationships in the earlier and later time periods. The fraction female has a statistically significant negative relationship to DI rates in the early years which is not present in the later period. The mortality risk for people aged 25 to 45 has a negative relationship to DI receipt in the early period and a positive one in the later period; both are statistically significant at the 1% level.

In Table 17, I present the regression results split between metropolitan and non-metropolitan counties. These are defined using US Department of Agriculture classifications for 1993, which is roughly halfway through the sample period.[3] When using the first specification (i.e., only with year fixed effects), the primary difference is that housing prices are positively related to DI receipt in metropolitan counties but negatively related to DI receipt in non-metropolitan counties. For the other two specifications, the fraction female has a negative relationship to DI rates in metropolitan counties but not in non-metropolitan counties. Conversely, the positive relationship between the fraction of the population aged 60-64 and DI rates is present in the non-metropolitan sample but not in the metropolitan one. The different

[3] Categories 1-3 are classified as metropolitan counties. Available at: https://wayback.archive-it.org/5923/20110914000642/http://www.ers.usda.gov/Briefing/Rurality/RuralUrbCon/priordescription.htm

relationships to housing prices observed for the first specification is present in these other specifications, raising an interesting question as to why this different appears across the different types of counties.

5.2 Supplemental Security Income

A similar set of exercises are completed using the county-level rate of blind and disabled adult SSI recipients as the dependent variable. The results using the main sample is presented in Table 18. The fraction female is associated with higher rates of SSI receipt. There is no consistent pattern for the relationship between SSI receipt and the age composition variables, while there is a weak positive relationship between the fraction black and SSI receipt that is only statistically significant in the second specification. SSI receipt has a positive correlation with the mortality risk variables for all three age groups in the first specification. Once county fixed effects are added, the coefficient on the variable for mortality risk aged 45-65 becomes negative and statistically significant at the 1% level. Once state-by-year fixed effects are added, the relationship between SSI receipt and mortality risk for ages 25 to 45 is no longer statistically significant, while statistically significant coefficients remain for the other two groups that is negative for those aged 45-65 and positive for those aged 65 and over. The housing price index has a positive relationship with the SSI rates in the first two specifications, and a negative relationship with SSI rates for the third one; all relationships are statistically significant at the 1% level. Like with the DI analysis, examining and understanding these differences is an interesting direction for future research.

The results for the two different time periods are presented in Table 19. The relationship between mortality risk and SSI receipt differs over time, with the relationship among younger age groups strongest in the early period and the relationship to the oldest age group strongest in

the later period. The housing price relationship is positive in the early time period but negative in the later one. The other relationships are fairly stable over time.

In Table 20, I present the regression results split between metropolitan and non-metropolitan counties. When using the first specification (i.e., only with year fixed effects), the primary difference is that the fraction white and fraction black are negatively related to SSI receipt in metropolitan counties but positively related to SSI receipt in non-metropolitan counties. For the other two specifications, the fraction female has a negative relationship to SSI rates in metropolitan counties and a positive relationship in non-metropolitan counties. Across the specifications and samples, the relationship of SSI receipt to housing prices varies substantially. These again raise some interesting issues worthy of further exploration.

6. Conclusion

The Social Security Administration has developed some great resources for researchers and policy makers, including annual publications providing statistical information on program activity at the county level. This paper outlines the structure of the data and shows some interesting patterns and uses of it. The data will be made available to everyone, providing a data asset for people interesting federal disability support.

There is substantial geographic variation in the number of people who receive disability benefits through the DI and SSI programs. Understanding this geographic variation is important to understand the value of these programs. The analysis suggests that, as the programs have grown, geographic patterns have changed. The nature of this change is not uniform across the programs; for example, while the relative dispersion of SSI rates has decreased over time, it has varied in the DI program. When DI and SSI rates are linked to measures of economic activity,

population health, living costs and so on, many correlations are in expected directions although the exercise also shows that there are some interesting patterns and puzzles that can inform future research.

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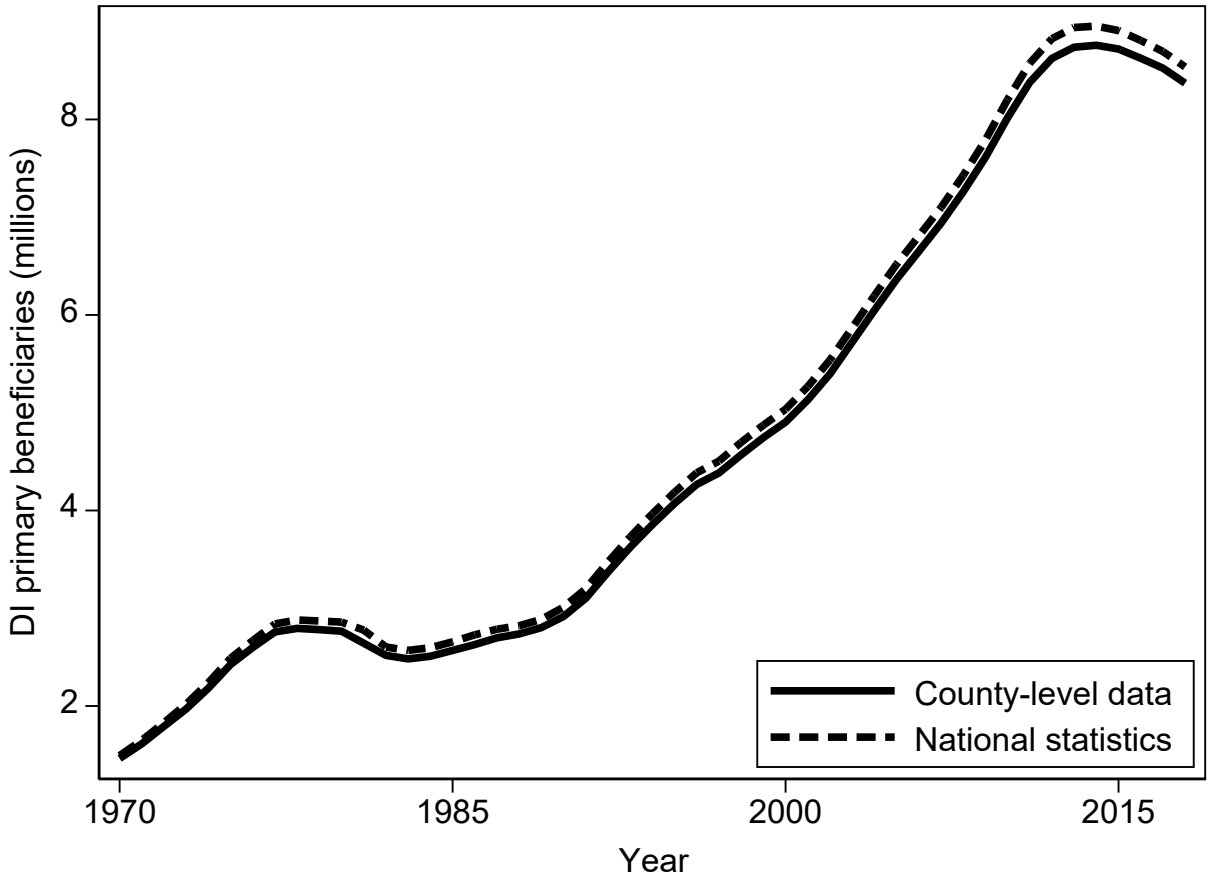
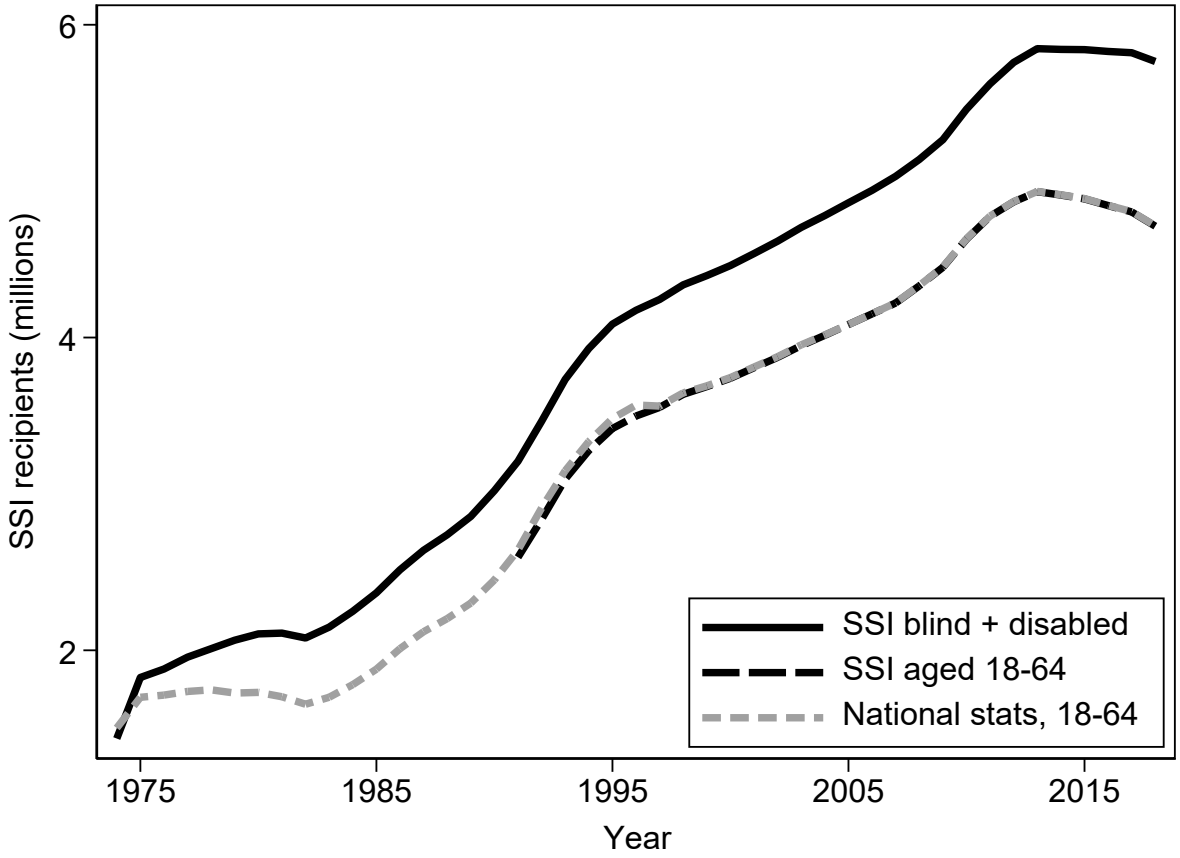
Figure 1. Comparison of number of DI beneficiaries in county data and national statistics



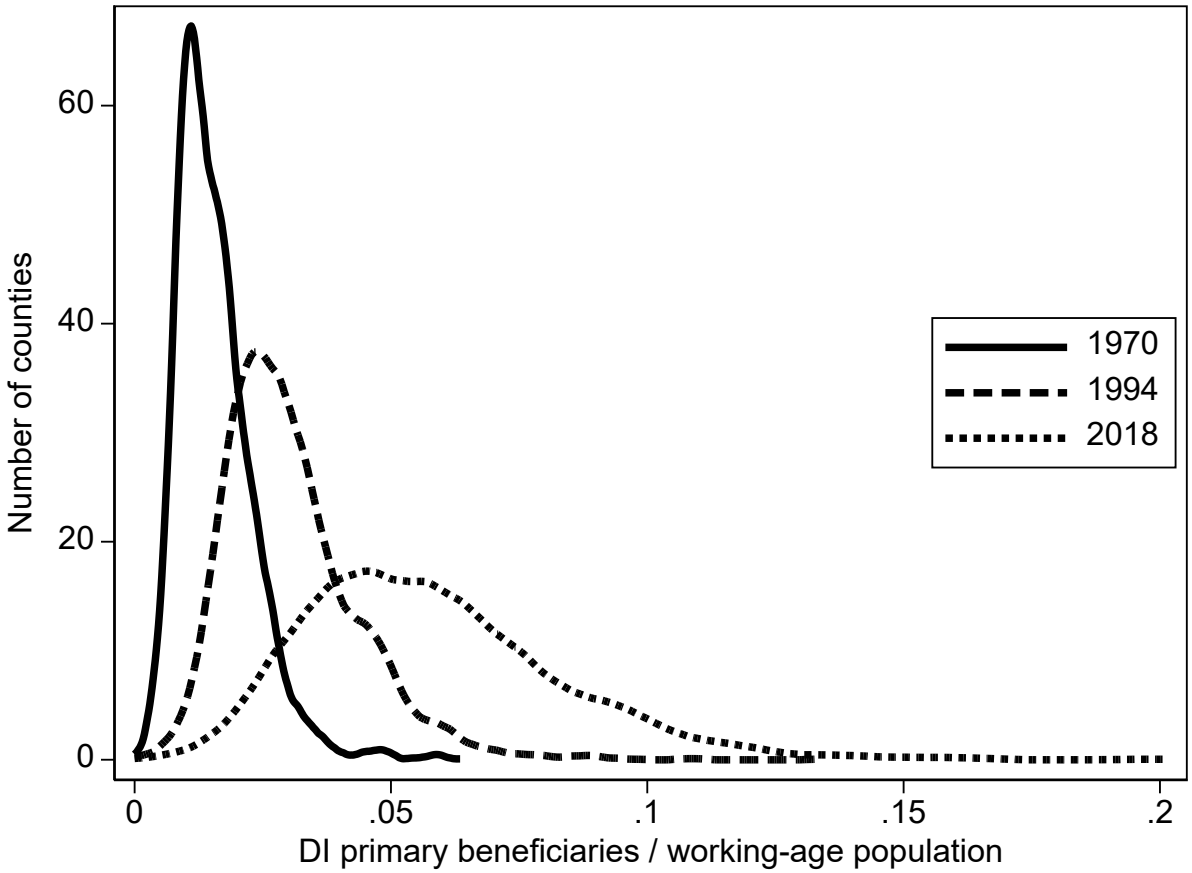
Sources: Author's own calculations and SSA (2019a).

Figure 2. Comparison of number of SSI recipients in county data and national statistics



Sources: Author's own calculations and SSA (2019b).

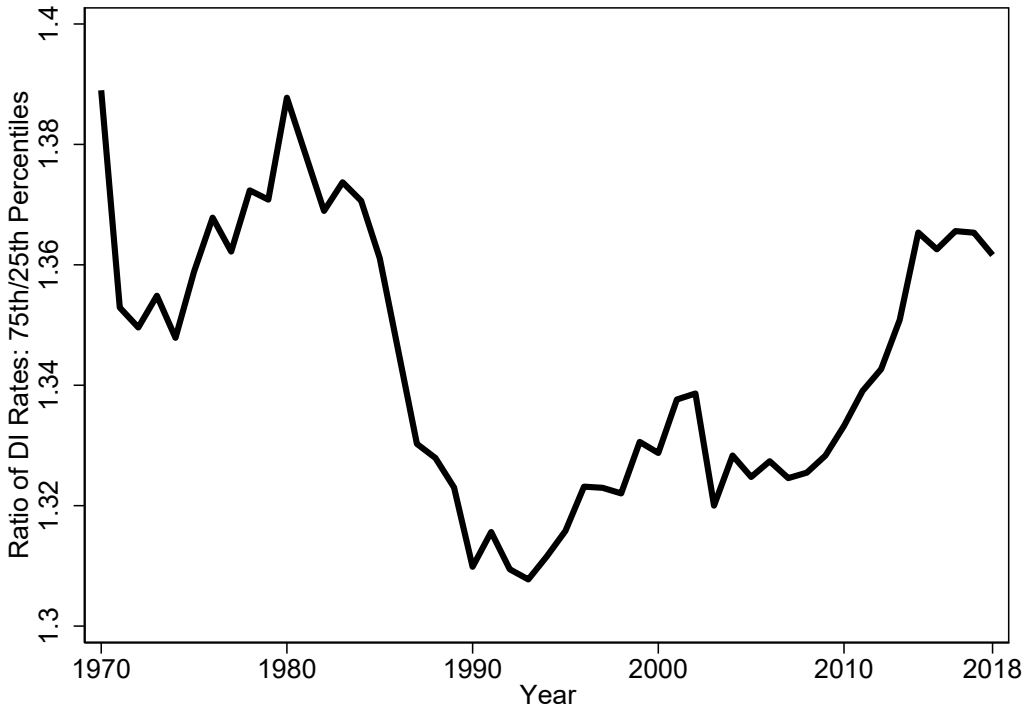
Figure 3. Distribution of DI benefit rates across counties, selected years



Notes: This figure shows the triangular kernel densities for the distribution of primary DI beneficiary rates in different years. This approximates the probability density functions of these data.

Figure 4. Dispersion of DI beneficiary rates over time

A: Ratios of $75^{th}/25^{th}$ percentiles



B: Ratios of $90^{th}/10^{th}$ percentiles

Figure 5. Proportion of the variation in DI benefit rates occurring within states

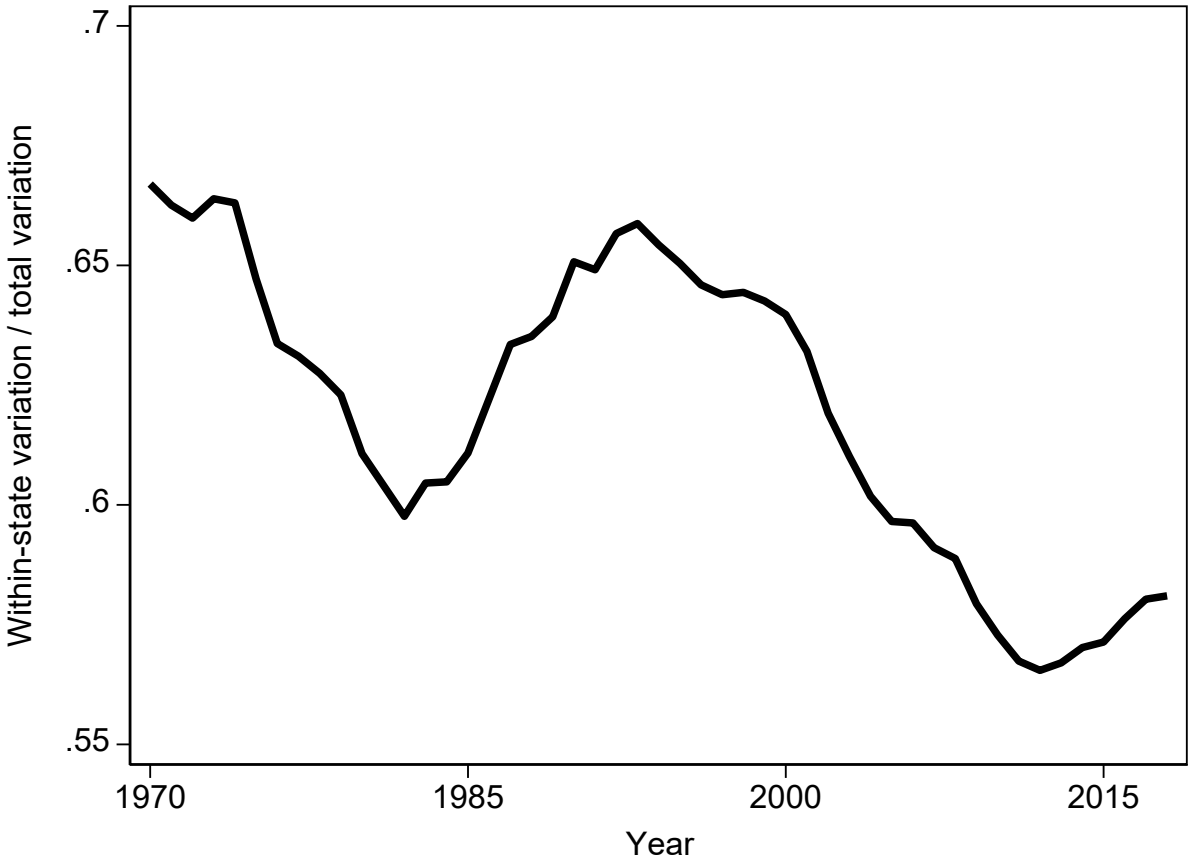
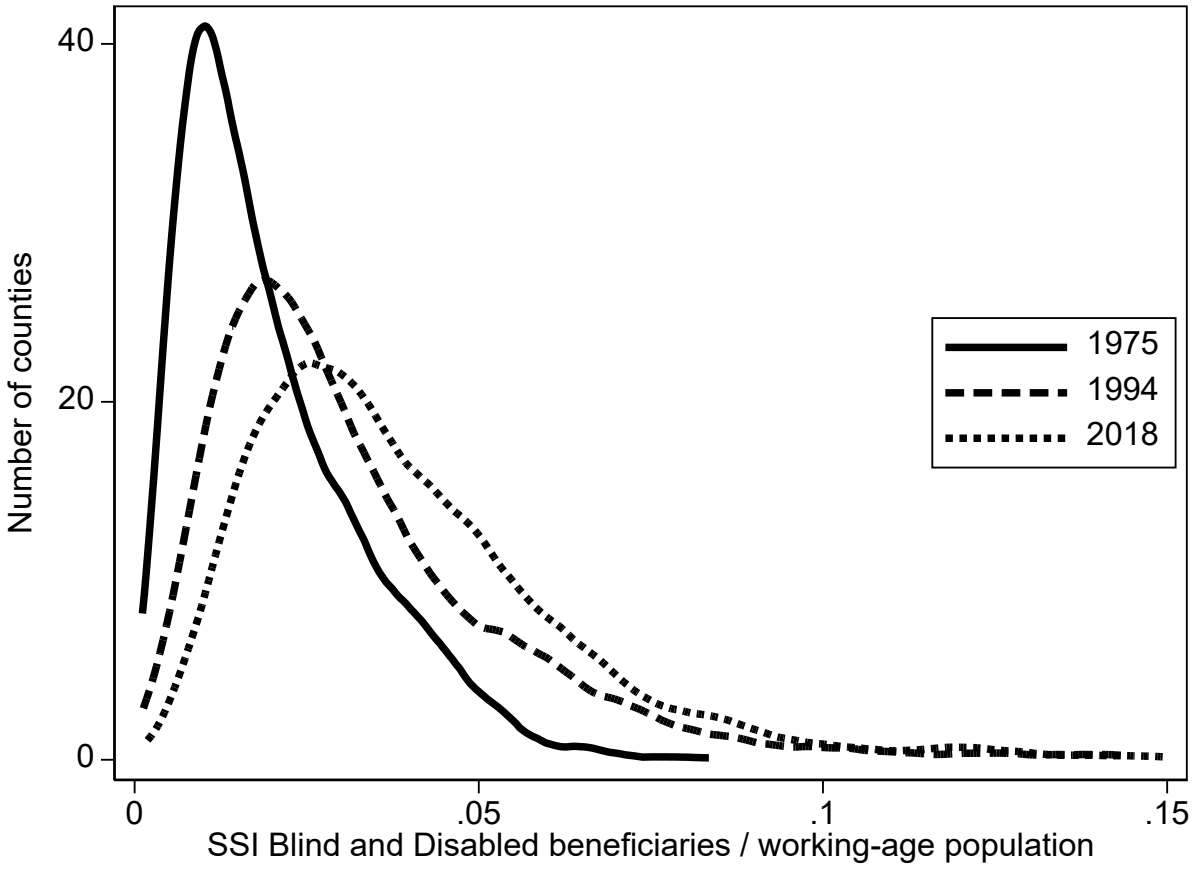


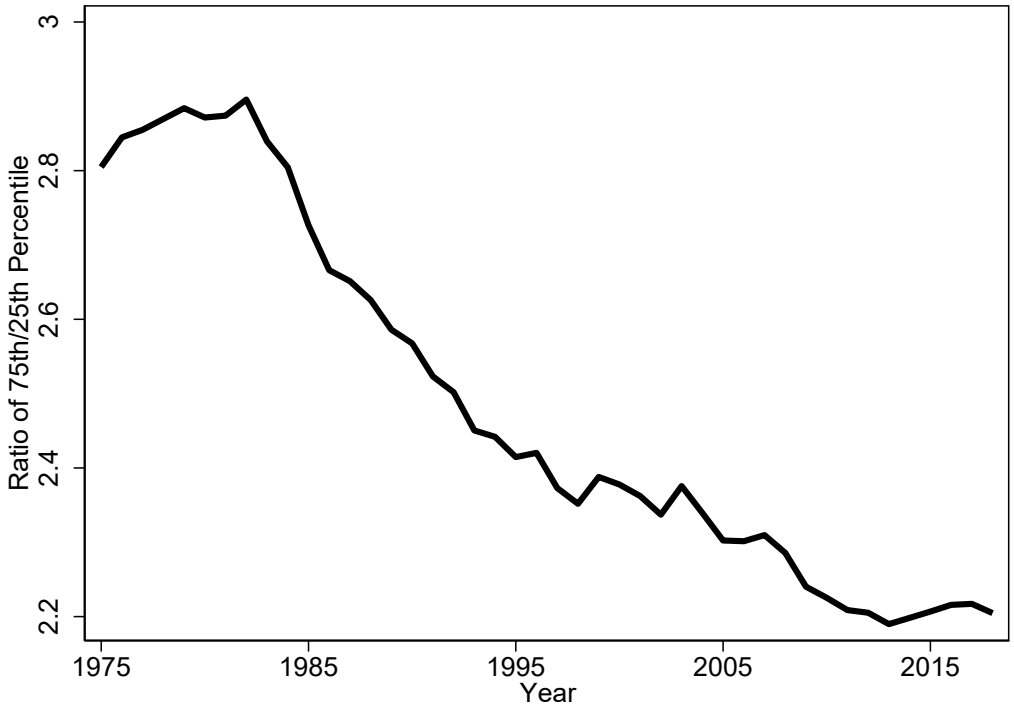
Figure 6. Distribution of SSI recipient rates across counties, selected years



Notes: This figure shows the triangular kernel densities for the distribution of primary DI beneficiary rates in different years. This approximates the probability density functions of these data.

Figure 7. Dispersion of SSI recipient rates over time

A: Ratios of $75^{th}/25^{th}$ percentiles



B: Ratios of $90^{th}/10^{th}$ percentiles

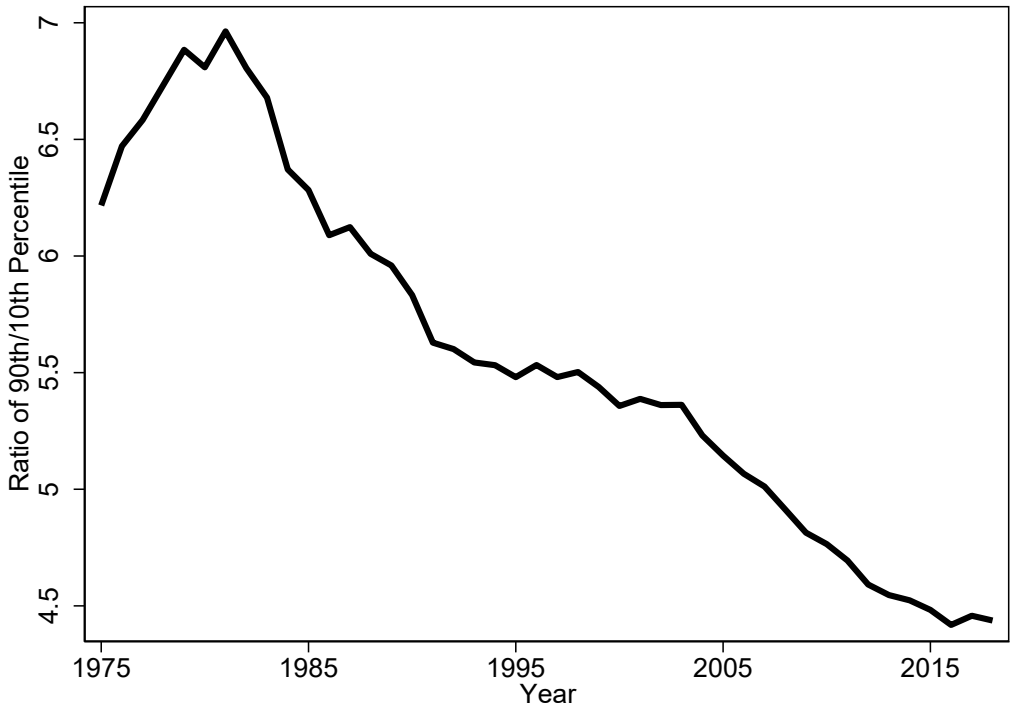


Figure 8. Proportion of the variation in SSI recipient rates occurring within states

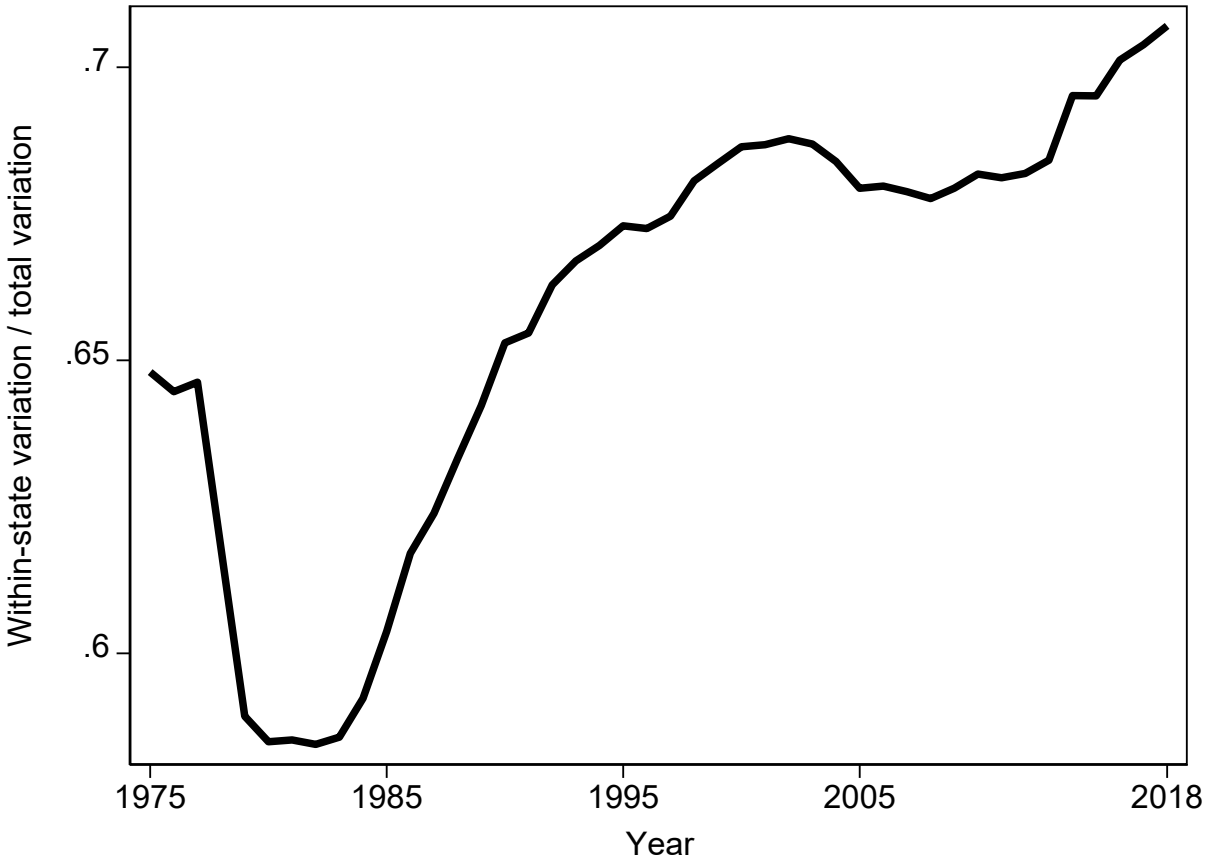


Figure 9. Correlation between DI and SSI rates over time

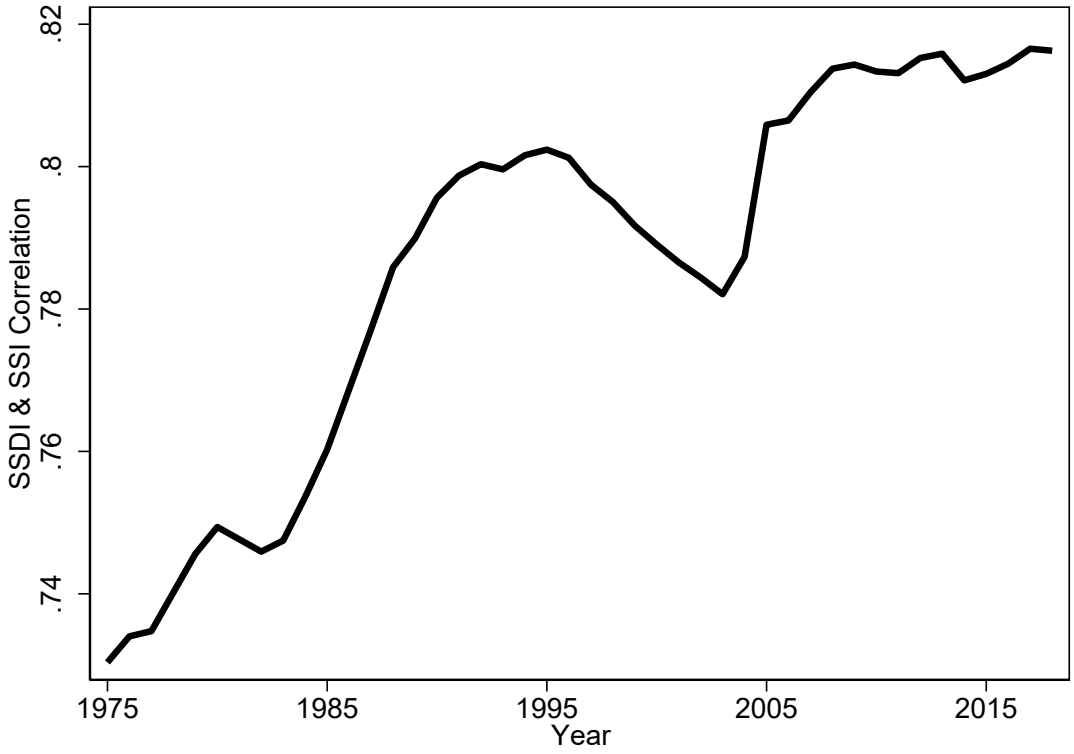


Table 1. Summary statistics for the DI data set

Variable Name	Observations	Mean	Std. Dev.	Min	Max
Identifiers					
Year	148,368	--	--	1970	2018
State FIPS codes	148,368	--	--	1	56
County FIPS codes	148,368	--	--	1001	56045
Beneficiaries in current payment status					
Total beneficiaries	132,913	2,081	6,012	0	212,825
Primary beneficiaries (workers)	148,368	1508	4,625	0	176,295
Dependent beneficiaries (spouses and children)	132,913	498	1,310	0	49,831
Spouse beneficiaries	117,458	65.2	181.8	0	11,901
Child beneficiaries	117,458	440.9	1,156	0	37,930
Monthly payments					
Payments – Primary beneficiaries ($000s)	148,368	25,794	292,315	0	32,400,000
Payments – Dependents (spouses and children) ($000s)	132,913	110.6	344.5	0	13,381
Payments – Spouses ($000s)	117,458	12.5	34.52	0	1,695
Payments – Children ($000s)	117,458	112.6	334.3	0	12,310
Population counts					
Total population					
Population – Ages 18 to 64	147,986	52,903	194,261	0	6,564,820
Population – Age 18 to Full Retirement Age	147,986	53,188	195,280	0	6,658,534
Population – Above Full Retirement Age	147,986	10,579	35,405	0	1,262,887
Population – Age 0 to Full Retirement Age	147,986	75,583	273,882	0	8,922,116
Rate of DI beneficiaries per working-age population					
Rate of DI beneficiaries – All	132,607	0.0346	0.0207	0	0.226
Rate of DI beneficiaries – Primary	147,967	0.0350	0.0221	0	0.213

Table 2. Summary statistics – Rate of primary DI beneficiaries per working-age population

Year	Mean	Standard Deviation	Min	25th Percentile	50th Percentile	75th Percentile	Max
1970	0.016	0.007	0	0.010	0.014	0.019	0.063
1971	0.017	0.008	0	0.011	0.015	0.021	0.065
1972	0.018	0.008	0	0.012	0.017	0.023	0.075
1973	0.020	0.009	0	0.013	0.018	0.024	0.088
1974	0.021	0.009	0	0.014	0.019	0.026	0.088
1975	0.023	0.010	0.002	0.015	0.021	0.028	0.089
1976	0.024	0.010	0	0.016	0.022	0.029	0.090
1977	0.024	0.011	0	0.017	0.023	0.031	0.095
1978	0.024	0.011	0	0.016	0.023	0.030	0.095
1979	0.024	0.010	0	0.016	0.022	0.030	0.087
1980	0.023	0.010	0	0.016	0.022	0.029	0.079
1981	--	--	--	--	--	--	--
1982	0.021	0.009	0	0.014	0.019	0.026	0.066
1983	0.020	0.009	0	0.014	0.019	0.026	0.067
1984	0.020	0.009	0	0.014	0.019	0.026	0.064
1985	0.021	0.009	0	0.014	0.019	0.026	0.067
1986	0.021	0.011	0	0.014	0.020	0.027	0.092
1987	0.022	0.009	0.001	0.015	0.021	0.027	0.074
1988	0.022	0.010	0	0.016	0.021	0.028	0.079
1989	0.023	0.010	0	0.016	0.021	0.028	0.088
1990	0.024	0.010	0	0.017	0.022	0.029	0.094
1991	0.025	0.011	0	0.018	0.023	0.031	0.106
1992	0.027	0.012	0	0.019	0.025	0.033	0.112
1993	0.029	0.012	0	0.020	0.027	0.035	0.116
1994	0.030	0.013	0	0.021	0.028	0.037	0.134
1995	0.032	0.014	0	0.022	0.029	0.039	0.149
1996	0.033	0.015	0	0.023	0.030	0.040	0.158
1997	0.034	0.015	0	0.023	0.031	0.041	0.163
1998	0.035	0.016	0	0.024	0.032	0.042	0.174
1999	0.036	0.016	0	0.025	0.033	0.044	0.184
2000	0.037	0.017	0	0.025	0.034	0.045	0.191
2001	0.038	0.017	0	0.026	0.035	0.047	0.193
2002	0.040	0.018	0	0.028	0.037	0.049	0.197
2003	0.042	0.019	0	0.029	0.038	0.051	0.201
2004	0.044	0.020	0	0.030	0.040	0.053	0.203
2005	0.046	0.020	0	0.032	0.042	0.056	0.205
2006	0.048	0.021	0	0.033	0.044	0.057	0.209
2007	0.049	0.022	0	0.034	0.045	0.059	0.208
2008	0.051	0.022	0	0.035	0.047	0.062	0.206
2009	0.053	0.023	0	0.037	0.049	0.064	0.206
2010	0.055	0.024	0.005	0.038	0.051	0.067	0.208
2011	0.057	0.025	0.006	0.039	0.053	0.070	0.207
2012	0.059	0.025	0	0.041	0.054	0.072	0.203
2013	0.060	0.026	0	0.041	0.055	0.073	0.204
2014	0.060	0.026	0	0.041	0.056	0.073	0.213
2015	0.060	0.026	0	0.041	0.056	0.074	0.198
2016	0.059	0.026	0	0.041	0.056	0.074	0.200
2017	0.059	0.025	0	0.041	0.055	0.073	0.205
2018	0.058	0.025	0	0.040	0.055	0.072	0.201

Table 3. Summary statistics – Rate of all DI beneficiaries per working-age population

Year	Mean	Standard Deviation	Min	25th Percentile	50th Percentile	75th Percentile	Max
1970	0.018	0.010	0	0.011	0.016	0.023	0.098
1971	0.020	0.011	0	0.012	0.017	0.024	0.095
1972	0.021	0.011	0	0.014	0.019	0.026	0.105
1973	0.023	0.012	0	0.015	0.020	0.028	0.113
1974	0.024	0.012	0	0.016	0.022	0.030	0.115
--	--	--	--	--	--	--	--
1980	0.026	0.012	0	0.017	0.024	0.033	0.106
1981	--	--	--	--	--	--	--
1982	0.022	0.011	0	0.014	0.020	0.028	0.083
1983	0.021	0.010	0.001	0.014	0.019	0.026	0.083
1984	0.021	0.010	0	0.014	0.019	0.026	0.088
1985	0.021	0.010	0	0.014	0.020	0.027	0.096
1986	0.022	0.012	0	0.014	0.020	0.028	0.101
1987	0.023	0.011	0.003	0.015	0.021	0.028	0.102
1988	0.023	0.011	0	0.015	0.021	0.028	0.108
1989	0.023	0.011	0	0.016	0.021	0.029	0.121
1990	0.024	0.012	0	0.016	0.022	0.030	0.128
1991	0.025	0.012	0	0.017	0.023	0.031	0.141
1992	0.027	0.013	0	0.019	0.025	0.033	0.150
1993	0.029	0.014	0	0.020	0.026	0.035	0.164
1994	0.031	0.014	0	0.021	0.028	0.037	0.176
1995	0.032	0.015	0	0.022	0.029	0.039	0.190
1996	0.033	0.016	0	0.022	0.030	0.040	0.199
1997	0.033	0.016	0	0.022	0.030	0.040	0.199
1998	0.033	0.016	0	0.022	0.030	0.041	0.206
1999	0.034	0.017	0	0.023	0.031	0.042	0.213
2000	0.035	0.017	0	0.023	0.032	0.042	0.220
2001	0.036	0.017	0	0.024	0.033	0.044	0.219
2002	0.037	0.018	0	0.025	0.034	0.045	0.219
2003	0.039	0.018	0	0.026	0.035	0.047	0.222
2004	0.041	0.019	0	0.027	0.037	0.049	0.221
2005	0.042	0.020	0	0.028	0.038	0.051	0.222
2006	0.043	0.020	0	0.029	0.040	0.052	0.226
2007	0.045	0.021	0	0.030	0.041	0.054	0.221
2008	0.046	0.021	0	0.031	0.042	0.056	0.215
2009	0.048	0.022	0	0.032	0.044	0.058	0.214
2010	0.050	0.023	0.005	0.034	0.046	0.061	0.214
2011	0.052	0.023	0.006	0.035	0.048	0.064	0.212
2012	0.053	0.024	0	0.036	0.049	0.065	0.206
2013	0.054	0.024	0	0.036	0.050	0.066	0.199
2014	0.053	0.024	0	0.036	0.050	0.066	0.206
2015	0.053	0.024	0	0.036	0.050	0.066	0.194
2016	0.052	0.023	0	0.035	0.049	0.065	0.197
2017	0.052	0.023	0	0.035	0.049	0.064	0.198
2018	0.051	0.023	0	0.034	0.048	0.063	0.191

Table 4. Summary statistics for SSI data set

Variable Name	Observations	Mean	Std. Dev.	Min	Max
Identifiers					
Year	139,065	--	--	1974	2018
State FIPS codes	139,065	--	--	1001	56045
County FIPS codes	139,065	--	--	1	56
SSI recipients					
SSI recipients – Blind and disabled adults	135,648	1265.7	6227.4	0	275,113
SSI recipients – Blind adults	67,652	23.43	133.26	0	6,676
SSI recipients – Disabled adults	67,652	842.6	4389.3	0	218,175
SSI recipients – Aged 18 to 64	86,534	1312.5	5491	0	194,804
Monthly payments					
Pay – Blind and disabled individuals ($000s)	37,090	190.72	1276.9	0	72,116
Pay – Blind and disabled couples ($000s)	37,090	8.58	70.21	0	5,929
Total population					
Population – Ages 18 to 64	138,770	54,027	196809	0	6,564,820
Rate of DI beneficiaries per working-age population					
Rate of SSI recipients – Blind + disabled adults	135,353	0.0263	0.022	0	0.4946
Rate of SSI recipients – Ages 18 to 64	86,498	0.0261	0.0196	0	0.4439

Table 5. Summary statistics: Rate of SSI blind and disabled adult recipients per working-age pop.

Year	Mean	Standard Deviation	Min.	25th Percentile	50th Percentile	75th Percentile	Max.
1975	0.020	0.014	0.001	0.010	0.016	0.027	0.262
1976	0.020	0.014	0.001	0.010	0.016	0.028	0.274
1977	0.021	0.015	0.001	0.010	0.017	0.028	0.283
1978	--	--	--	--	--	--	--
1979	0.020	0.014	0.001	0.010	0.017	0.028	0.086
1980	0.020	0.014	0.001	0.010	0.017	0.028	0.089
1981	0.020	0.014	0.001	0.010	0.016	0.028	0.092
1982	0.020	0.014	0.001	0.009	0.016	0.027	0.094
1983	0.020	0.014	0.001	0.010	0.016	0.028	0.093
1984	0.021	0.015	0.001	0.010	0.017	0.029	0.098
1985	0.022	0.015	0.001	0.011	0.018	0.030	0.104
1986	0.023	0.016	0.001	0.012	0.019	0.031	0.110
1987	0.024	0.016	0.001	0.012	0.020	0.032	0.118
1988	0.025	0.017	0.001	0.013	0.020	0.033	0.123
1989	0.026	0.018	0.001	0.013	0.021	0.034	0.139
1990	0.027	0.018	0.001	0.014	0.022	0.035	0.146
1991	0.028	0.019	0.001	0.015	0.023	0.037	0.153
1992	0.030	0.020	0.001	0.015	0.024	0.038	0.168
1993	0.031	0.022	0.001	0.016	0.026	0.040	0.182
1994	0.033	0.023	0.001	0.017	0.026	0.042	0.197
1995	0.033	0.024	0.001	0.018	0.027	0.042	0.217
1996	0.034	0.024	0.001	0.018	0.027	0.043	0.223
1997	0.034	0.024	0.001	0.018	0.028	0.043	0.225
1998	0.034	0.024	0.001	0.018	0.028	0.042	0.229
1999	0.034	0.024	0.001	0.018	0.028	0.042	0.229
2000	0.034	0.024	0.001	0.018	0.028	0.042	0.236
2001	0.034	0.024	0.001	0.018	0.028	0.042	0.236
2002	0.034	0.024	0.001	0.018	0.028	0.043	0.241
2003	0.034	0.024	0.001	0.018	0.028	0.043	0.239
2004	0.035	0.024	0.001	0.019	0.028	0.043	0.246
2005	0.036	0.025	0.001	0.019	0.029	0.044	0.230
2006	0.036	0.025	0.001	0.019	0.030	0.044	0.230
2007	0.036	0.025	0.001	0.019	0.030	0.045	0.227
2008	0.037	0.025	0.001	0.020	0.030	0.046	0.226
2009	0.037	0.025	0.001	0.021	0.031	0.046	0.225
2010	0.038	0.025	0.001	0.021	0.032	0.048	0.235
2011	0.039	0.025	0.001	0.022	0.033	0.049	0.233
2012	0.040	0.026	0.001	0.023	0.034	0.050	0.233
2013	0.040	0.026	0.001	0.023	0.034	0.051	0.234
2014	0.040	0.026	0.001	0.023	0.034	0.051	0.307
2015	0.040	0.026	0.001	0.023	0.035	0.051	0.240
2016	0.040	0.026	0.002	0.023	0.035	0.051	0.239
2017	0.040	0.026	0.002	0.023	0.035	0.051	0.237
2018	0.040	0.025	0.002	0.023	0.035	0.051	0.228

Table 6. Summary statistics – Rate of SSI recipients aged 18-64 per working-age population

Year	Mean	Standard Deviation	Min	25th Percentile	50th Percentile	75th Percentile	Max
1991	0.022	0.014	0.001	0.012	0.018	0.027	0.131
1992	0.023	0.015	0.001	0.013	0.020	0.029	0.140
1993	0.025	0.017	0.001	0.014	0.021	0.031	0.159
1994	0.026	0.018	0.001	0.014	0.022	0.033	0.169
1995	0.027	0.019	0.001	0.015	0.022	0.034	0.183
1996	0.027	0.019	0.001	0.015	0.023	0.034	0.191
1997	0.028	0.019	0.001	0.015	0.023	0.034	0.190
1998	0.028	0.020	0.001	0.015	0.023	0.034	0.194
1999	0.028	0.020	0.001	0.015	0.023	0.034	0.194
2000	0.028	0.020	0.001	0.015	0.023	0.035	0.200
2001	0.028	0.020	0.001	0.015	0.023	0.035	0.199
2002	0.028	0.020	0.001	0.016	0.024	0.035	0.203
2003	0.029	0.020	0.001	0.016	0.024	0.035	0.199
2004	0.029	0.020	0.001	0.016	0.024	0.036	0.207
2005	0.030	0.020	0.001	0.017	0.025	0.037	0.192
2006	0.030	0.020	0.001	0.017	0.025	0.037	0.190
2007	0.030	0.020	0.001	0.017	0.026	0.038	0.191
2008	0.031	0.020	0.001	0.017	0.026	0.038	0.187
2009	0.031	0.021	0.001	0.018	0.027	0.039	0.189
2010	0.032	0.021	0.001	0.019	0.028	0.040	0.196
2011	0.033	0.021	0.001	0.019	0.028	0.042	0.192
2012	0.034	0.021	0.001	0.020	0.029	0.042	0.194
2013	0.034	0.021	0.001	0.020	0.030	0.043	0.191
2014	0.034	0.021	0.001	0.020	0.030	0.043	0.250
2015	0.034	0.021	0.001	0.020	0.030	0.043	0.195
2016	0.034	0.021	0.002	0.020	0.029	0.043	0.192
2017	0.034	0.021	0.002	0.020	0.029	0.043	0.195
2018	0.033	0.020	0.002	0.020	0.029	0.042	0.191

Table 7. Counties with the highest primary DI beneficiary rates for various years

Year	1970		1994		2018	
Rank	County Name	Rate	County Name	Rate	County Name	Rate
1	McDowell County, WV	6.35%	Buchanan County, VA	13.42%	Dickenson County, VA	20.14%
2	Norton City, VA	6.01%	McDowell County, WV	10.87%	Buchanan County, VA	19.56%
3	Logan County, WV	5.95%	Dickenson County, VA	10.86%	McDowell County, WV	16.49%
4	Mingo County, WV	5.93%	Norton City, VA	9.68%	Floyd County, KY	16.45%
5	Dickenson County, VA	5.85%	Wyoming County, WV	9.25%	Mingo County, WV	16.44%
6	Perry County, KY	5.83%	Martin County, KY	9.14%	Lewis County, ID	16.18%
7	Fayette County, WV	5.76%	Russell County, VA	9.13%	Leslie County, KY	16.05%
8	Raleigh County, WV	5.51%	Leslie County, KY	8.83%	Pike County, KY	15.92%
9	Carroll County, VA	5.43%	Breathitt County, KY	8.81%	Harlan County, KY	15.57%
10	Harlan County, KY	5.06%	Lee County, VA	8.79%	Norton City, VA	15.49%
11	Boone County, WV	4.98%	Searcy County, AR	8.74%	Magoffin County, KY	15.35%
12	Letcher County, KY	4.95%	Harlan County, KY	8.69%	Wilcox County, AL	15.18%
13	Webster County, WV	4.94%	Wise County, VA	8.61%	Letcher County, KY	15.09%
14	Leslie County, KY	4.89%	Floyd County, KY	8.55%	Russell County, VA	15.04%
15	Floyd County, KY	4.89%	Pike County, KY	8.25%	Wolfe County, KY	14.84%
16	Martin County, KY	4.88%	Campbell County, TN	8.17%	Hale County, AL	14.78%
17	Wyoming County, WV	4.78%	Mingo County, WV	8.02%	Wise County, VA	14.46%
18	Ripley County, MO	4.77%	Wayne County, MO	7.95%	Sharp County, AR	14.43%
19	Tazewell County, VA	4.74%	Scott County, TN	7.83%	Greene County, AL	14.26%
20	Fall River County, SD	4.67%	Fall River County, SD	7.80%	Wyoming County, WV	14.20%

Table 8. Spearman rank correlations of primary DI beneficiary rates, various years

Year pairs	1970	1980	1990	2000	2010	2018
1970	1	0.891	0.811	0.767	0.729	0.701
1980	--	1	0.890	0.832	0.798	0.778
1990	--	--	1	0.899	0.847	0.826
2000	--	--	--	1	0.929	0.900
2010	--	--	--	--	1	0.969
2018	--	--	--	--	--	1

Table 9. Spearman rank correlations of *annual changes in* primary DI beneficiary rates

Year pairs	1970-1971	1979-1980	1989-1990	1990-2000	2009-2010	2017-2018
1970-1971	1	-0.061	0.030	0.081	0.148	-0.115
1979-1980	--	1	-0.016	-0.010	0.071	-0.003
1989-1990	--	--	1	0.039	0.043	-0.105
1990-2000	--	--	--	1	0.126	-0.101
2009-2010	--	--	--	--	1	-0.127
2017-2018	--	--	--	--	--	1

Table 10. Counties with the highest blind and disabled adult SSI recipient rates for various years

Year	1975		1994		2018	
Rank	County Name	Rate	County Name	Rate	County Name	Rate
1	Wheeler County, GA	8.34%	Owsley County, KY	24.73%	Owsley County, KY	26.76%
2	Wilson County, AL	8.20%	Wolfe County, KY	19.66%	Wolfe County, KY	22.78%
3	Wilcox County, GA	7.71%	Breathitt County, KY	19.13%	McDowell County, WV	22.72%
4	Holmes County, MS	7.56%	Clay County, KY	17.91%	Breathitt County, KY	20.58%
5	Montgomery County, MS	7.38%	Alpine County, CA	15.81%	Clay County, KY	20.39%
6	Evangeline Parish, LA	6.83%	McCreary County, KY	14.43%	Magoffin County, KY	17.60%
7	Jefferson County, MS	6.83%	Holmes County, MS	14.44%	Wilcox County, AL	19.23%
8	Breathitt County, KY	6.82%	Wilcox County, AL	13.91%	Humphreys County, MS	15.36%
9	McCormick County, SC	6.82%	McDowell County, WV	14.33%	Mingo County, WV	17.05%
10	Candler County, GA	6.74%	Quitman County, MS	13.88%	Bell County, KY	15.30%
11	Hancock County, TN	6.65%	Bell County, KY	13.87%	Floyd County, KY	15.21%
12	Wolfe County, KY	6.57%	Hancock County, TN	13.81%	Whitley County, KY	15.15%
13	Scott County, TN	6.55%	Magoffin County, KY	13.73%	Lee County, KY	15.05%
14	Mill County, TX	6.36%	Lee County, KY	13.18%	Perry County, AL	15.01%
15	Humphreys County, MS	6.33%	Noxubee County, MS	13.09%	Leslie County, KY	14.84%
16	Adair County, OK	6.33%	Jackson County, KY	13.15%	Perry County, KY	14.96%
17	San Miguel County, TN	6.30%	Leslie County, KY	12.91%	Dallas County, AL	14.52%
18	Clay County, TN	6.23%	Knox County, KY	12.78%	Harlan County, KY	14.44%
19	Mora County, NM	6.18%	Jefferson County, MS	12.54%	Martin County, KY	14.36%
20	Lake County, TN	6.15%	Oglala Lakota County, SD	12.46%	Knox County, KY	14.24%

Table 11. Spearman rank correlations of blind and disabled SSI recipient rates, 1975-2018

Year pairs	1975	1980	1990	2000	2010	2018
1975	1	0.966	0.907	0.822	0.783	0.757
1980	--	1	0.951	0.866	0.820	0.790
1990	--	--	1	0.945	0.899	0.875
2000	--	--	--	1	0.965	0.944
2010	--	--	--	--	1	0.977
2018	--	--	--	--	--	1

Table 12. Spearman rank correlations of SSI recipient rates aged 18-64, 1991-2018

Year pairs	1991	2000	2010	2018
1991	1	0.944	0.897	0.871
2000	--	1	0.958	0.935
2010	--	--	1	0.971
2018	--	--	--	1

Table 13. Spearman rank correlations of *annual changes* of blind and disabled SSI recipient rates

Year	1975-76	1979-80	1989-90	1999-00	2009-10	2017-18
1975-76	1	0.063	0.086	-0.002	0.026	-0.090
1979-80	--	1	0.103	0.036	0.052	-0.114
1989-90	--	--	1	0.069	0.067	-0.164
1999-00	--	--	--	1	0.022	0.030
2009-10	--	--	--	--	1	-0.043
2017-18	--	--	--	--	--	1

Table 14. Spearman rank correlations of *annual changes* of SSI recipient rates aged 18-64

Year	1991-92	1999-00	2009-10	2017-18
1991-92	1	0.024	0.118	-0.245
1999-00	--	1	0.028	-0.015
2009-10	--	--	1	-0.086
2017-18	--	--	--	1

Table 15. Relationship between primary DI rates and other characteristics, 1980-2014

	Baseline	County fixed effects	Removing state factors
	(1)	(2)	(3)
Fraction female	0.189**	-0.0491**	-0.0368**
	(0.0121)	(0.0159)	(0.0136)
Fraction aged 18-30	0.0121*	-0.116**	-0.0725**
	(0.00553)	(0.00931)	(0.00989)
Fraction aged 31-39	0.112**	-0.0603**	-0.0368**
	(0.0142)	(0.0131)	(0.0123)
Fraction aged 40-49	0.0958**	-0.00340	-0.0546**
	(0.0119)	(0.0126)	(0.0117)
Fraction aged 50-59	0.0855**	0.0614**	0.0672**
	(0.0161)	(0.0120)	(0.0108)
Fraction aged 60-64	0.430**	0.0726**	0.115**
	(0.0261)	(0.0195)	(0.0187)
Fraction white	0.0321**	0.0595**	0.0409**
	(0.00443)	(0.0120)	(0.0125)
Fraction black	0.0109*	0.0428**	0.0261
	(0.00430)	(0.0141)	(0.0148)
Mortality risk for ages 25-45 (per million residents)	0.00397**	-0.00393**	-0.0118**
	(0.000769)	(0.00119)	(0.00127)
Mortality risk for ages 45-65 (per million residents)	0.00144**	-0.00261**	-0.000279
	(0.000279)	(0.000536)	(0.000546)
Mortality risk for ages 65+ (per million residents)	0.000684**	0.00306**	0.00308**
	(0.0000849)	(0.000137)	(0.000145)
Housing Price Index ($ million)	2.506*	1.662	-6.376**
	(1.156)	(0.874)	(1.386)
Average Net Earnings ($ million)	-0.853**	-0.386**	-0.272**
	(0.0452)	(0.0281)	(0.0273)
Jobs per capita (x 1,000)	-0.614	3.263**	3.329**
	(0.806)	(1.190)	(1.019)
Constant	-0.200**	-0.0953**	-0.0986**
	(0.00943)	(0.0164)	(0.0155)
R-squared	0.808	0.961	0.974
Number of observations	67,970	67,970	67,931
Year fixed effects	X	X	X
County fixed effects		X	X
State-by-year fixed effects			X
Standard errors in parentheses			
* p<0.05 ** p<0.01			

Table 16. Relationship between primary DI rates and other characteristics, by time period

	Baseline		County fixed effects		Removing state factors	
	1980-1997	1998-2014	1980-1997	1998-2014	1980-1997	1998-2014
	(1)	(2)	(3)	(4)	(5)	(6)
Fraction female	0.115**	0.213**	0.0157	0.00837	0.0422**	-0.0144
	(0.00980)	(0.0150)	(0.0152)	(0.0198)	(0.0162)	(0.0165)
Fraction aged 18-30	0.00887*	0.00695	-0.0427**	-0.0795**	-0.0152	-0.104**
	(0.00363)	(0.00666)	(0.00736)	(0.0130)	(0.00927)	(0.0114)
Fraction aged 31-39	0.0491**	0.0753**	-0.0307**	-0.111**	-0.0400**	-0.0729**
	(0.0113)	(0.0156)	(0.0107)	(0.0156)	(0.0124)	(0.0139)
Fraction aged 40-49	0.0707**	0.122**	0.000151	0.00552	0.00525	-0.0635**
	(0.0131)	(0.0149)	(0.0118)	(0.0161)	(0.0136)	(0.0131)
Fraction aged 50-59	0.0873**	0.109**	0.0475**	0.0304*	0.0503**	0.0460**
	(0.0217)	(0.0182)	(0.0144)	(0.0133)	(0.0154)	(0.0122)
Fraction aged 60-64	0.220**	0.459**	0.0938**	0.109**	0.0659**	0.0869**
	(0.0279)	(0.0313)	(0.0207)	(0.0226)	(0.0242)	(0.0204)
Fraction white	0.0155**	0.0363**	0.0332**	0.127**	0.0283**	0.0989**
	(0.00439)	(0.00468)	(0.00789)	(0.0154)	(0.00851)	(0.0144)
Fraction black	0.00614	0.0104*	0.0248*	0.0855**	0.0178	0.0685**
	(0.00401)	(0.00471)	(0.0101)	(0.0174)	(0.0105)	(0.0164)
Mortality risk for ages 25-45 (per m.)	0.00147**	0.00320**	0.00181**	0.00202	0.00466**	-0.00696**
	(0.000559)	(0.000943)	(0.000622)	(0.00269)	(0.000692)	(0.00218)
Mortality risk for ages 45-65 (per m.)	0.00135**	0.00308**	-0.00247**	-0.00205*	-0.00334**	-0.000290
	(0.000169)	(0.000426)	(0.000373)	(0.000897)	(0.000377)	(0.000757)
Mortality risk for ages 65+ (per m.)	0.000125*	0.000329**	0.00161**	0.00322**	0.00168**	0.00300**
	(0.0000595)	(0.000121)	(0.000119)	(0.000199)	(0.000123)	(0.000184)
Housing Price Index ($m)	2.363*	4.289**	-2.168**	-1.173	-3.890**	-5.047**
	(0.960)	(1.229)	(0.689)	(0.682)	(0.948)	(0.995)
Average Net Earnings ($m)	-0.669**	-0.765**	-0.191**	-0.275**	-0.231**	-0.172**
	(0.0413)	(0.0485)	(0.0284)	(0.0229)	(0.0288)	(0.0207)
Jobs per capita (x 1,000)	-0.394	-2.737*	0.0572	3.031	1.319	2.404
	(0.550)	(1.209)	(0.763)	(1.610)	(0.750)	(1.386)
Constant	-0.104**	-0.210**	-0.0734**	-0.212**	-0.0855**	-0.151**
	(0.00774)	(0.0112)	(0.0125)	(0.0222)	(0.0151)	(0.0186)
R-squared	0.756	0.764	0.964	0.971	0.974	0.980
Number of observations	24191	43779	24148	43779	24126	43762
Year fixed effects	X	X	X	X	X	X
County fixed effects			X	X	X	X
State-by-year fixed effects					X	X

Standard errors in parentheses
* p<0.05 ** p<0.01

Table 17. Relationship between primary DI rates and other characteristics, metro/non-metro counties

	Baseline		County fixed effects		Removing state factors	
	Metro.	Non-metro.	Metro.	Non-metro.	Metro.	Non-metro.
	(1)	(2)	(3)	(4)	(5)	(6)
Fraction female	0.118**	0.226**	-0.153**	0.0132	-0.0757**	0.00325
	(0.0192)	(0.0162)	(0.0286)	(0.0195)	(0.0273)	(0.0164)
Fraction aged 18-30	-0.00469	0.0219**	-0.101**	-0.141**	-0.0565**	-0.0895**
	(0.00680)	(0.00776)	(0.0132)	(0.0130)	(0.0145)	(0.0133)
Fraction aged 31-39	0.0635**	0.125**	-0.0486**	-0.100**	-0.0389*	-0.0666**
	(0.0161)	(0.0204)	(0.0152)	(0.0186)	(0.0162)	(0.0167)
Fraction aged 40-49	0.0198	0.128**	-0.0536**	-0.00211	-0.0696**	-0.0532**
	(0.0178)	(0.0144)	(0.0174)	(0.0169)	(0.0193)	(0.0148)
Fraction aged 50-59	0.125**	0.103**	0.1000**	0.0474**	0.0649**	0.0667**
	(0.0207)	(0.0194)	(0.0187)	(0.0154)	(0.0184)	(0.0132)
Fraction aged 60-64	0.325**	0.395**	-0.0396	0.107**	0.0355	0.121**
	(0.0358)	(0.0317)	(0.0309)	(0.0242)	(0.0350)	(0.0218)
Fraction white	0.00718	0.0479**	0.0687**	0.0688**	0.0375*	0.0495**
	(0.00753)	(0.00485)	(0.0143)	(0.0181)	(0.0150)	(0.0175)
Fraction black	-0.00946	0.0232**	0.0584**	0.0893**	0.0305	0.0553**
	(0.00780)	(0.00458)	(0.0160)	(0.0224)	(0.0173)	(0.0211)
Mortality risk for ages 25-45 (per m.)	0.000363	0.00515**	-0.00247*	-0.000171	-0.00578**	-0.0105**
	(0.000821)	(0.000848)	(0.00121)	(0.00189)	(0.00140)	(0.00201)
Mortality risk for ages 45-65 (per m.)	0.00173**	0.00174**	-0.00252**	-0.00441**	-0.00162*	-0.00146
	(0.000294)	(0.000392)	(0.000610)	(0.000864)	(0.000668)	(0.000817)
Mortality risk for ages 65+ (per m.)	0.000384**	0.000551**	0.00245**	0.00359**	0.00264**	0.00345**
	(0.0000940)	(0.000131)	(0.000171)	(0.000216)	(0.000186)	(0.000207)
Housing Price Index ($m)	2.864*	-5.051**	3.030**	-9.632**	-1.186	-19.77**
	(1.146)	(1.928)	(0.862)	(2.467)	(1.791)	(2.824)
Average Net Earnings ($m)	-0.638**	-1.071**	-0.335**	-0.420**	-0.308**	-0.252**
	(0.0568)	(0.0581)	(0.0418)	(0.0358)	(0.0478)	(0.0318)
Jobs per capita (x 1,000)	1.615	0.422	1.974	9.310**	3.610**	5.797**
	(0.955)	(1.101)	(1.404)	(1.875)	(1.302)	(1.559)
Constant	-0.108**	-0.234**	-0.0273	-0.144**	-0.0570**	-0.125**
	(0.0135)	(0.0116)	(0.0220)	(0.0245)	(0.0216)	(0.0221)
R-squared	0.829	0.806	0.948	0.962	0.968	0.976
Number of observations	25,428	42,474	25,428	42,474	25,385	42,374
Year fixed effects	X	X	X	X	X	X
County fixed effects			X	X	X	X
State-by-year fixed effects					X	X

Standard errors in parentheses
* p<0.05 ** p<0.01

Table 18. Relationship between blind and disabled adult SSI rates and other characteristics, 1980-2014

	Baseline	County fixed effects	Removing state factors
	(1)	(2)	(3)
Fraction female	0.153**	0.0398**	0.0489**
	(0.0200)	(0.0144)	(0.0141)
Fraction aged 18-30	-0.00340	0.0105	-0.00661
	(0.00847)	(0.00824)	(0.00995)
Fraction aged 31-39	0.0566*	-0.0342**	-0.0364**
	(0.0228)	(0.0115)	(0.0125)
Fraction aged 40-49	-0.0299	-0.0426**	-0.0338**
	(0.0197)	(0.0115)	(0.0125)
Fraction aged 50-59	0.197**	0.0524**	0.0228*
	(0.0227)	(0.0103)	(0.0110)
Fraction aged 60-64	-0.213**	-0.0415*	-0.00105
	(0.0398)	(0.0188)	(0.0191)
Fraction white	0.00442	0.00484	-0.00939
	(0.00612)	(0.00921)	(0.00983)
Fraction black	0.00201	0.0322**	0.0229
	(0.00598)	(0.0121)	(0.0124)
Mortality risk for ages 25-45 (per million residents)	0.00681**	0.00245*	-0.000850
	(0.00115)	(0.00122)	(0.00123)
Mortality risk for ages 45-65 (per million residents)	0.00126**	-0.00249**	-0.00338**
	(0.000444)	(0.000483)	(0.000578)
Mortality risk for ages 65+ (per million residents)	0.000498**	0.00151**	0.00237**
	(0.000137)	(0.000133)	(0.000170)
Housing Price Index ($ million)	10.52**	2.010**	-4.048**
	(1.818)	(0.773)	(1.344)
Average Net Earnings ($ million)	-0.946**	-0.205**	-0.172**
	(0.0794)	(0.0277)	(0.0274)
Jobs per capita (x 1,000)	-0.964	1.104	-0.288
	(1.276)	(1.009)	(0.939)
Constant	-0.119**	-0.0500**	-0.0617**
	(0.0155)	(0.0144)	(0.0152)
R-squared	0.631	0.969	0.977
Number of observations	56,367	56,367	56,328
Year fixed effects	X	X	X
County fixed effects		X	X
State-by-year fixed effects			X
Standard errors in parentheses			
* p<0.05 ** p<0.01			

Table 19. Relationship between blind and disabled adult SSI rates and other characteristics, by time period

	Baseline		County fixed effects		Removing state factors	
	1980-1997	1998-2014	1980-1997	1998-2014	1980-1997	1998-2014
	(1)	(2)	(3)	(4)	(5)	(6)
Fraction female	0.137**	0.169**	0.0772**	0.0525**	0.130**	0.0366*
	(0.0207)	(0.0241)	(0.0231)	(0.0172)	(0.0245)	(0.0173)
Fraction aged 18-30	-0.0201**	0.00951	-0.00893	-0.0151	0.0346*	-0.0479**
	(0.00713)	(0.0112)	(0.0117)	(0.00942)	(0.0148)	(0.00984)
Fraction aged 31-39	-0.0109	0.0505	-0.0651**	-0.0399**	-0.0562**	-0.0574**
	(0.0235)	(0.0273)	(0.0159)	(0.0106)	(0.0169)	(0.0118)
Fraction aged 40-49	0.0400	-0.00825	0.0574**	-0.0426**	0.0618**	-0.0436**
	(0.0259)	(0.0269)	(0.0157)	(0.0114)	(0.0188)	(0.0117)
Fraction aged 50-59	0.0276	0.258**	-0.0938**	0.0144	-0.0469*	0.00759
	(0.0401)	(0.0273)	(0.0177)	(0.0106)	(0.0197)	(0.0118)
Fraction aged 60-64	-0.169**	-0.233**	-0.0781*	0.0614**	-0.0538	0.0459**
	(0.0504)	(0.0474)	(0.0323)	(0.0164)	(0.0386)	(0.0173)
Fraction white	-0.0161*	0.0101	0.00801	0.00599	0.00442	0.0154
	(0.00756)	(0.00676)	(0.0120)	(0.0101)	(0.0118)	(0.0108)
Fraction black	-0.00589	0.00162	0.0467**	0.0152	0.0341*	0.0315*
	(0.00751)	(0.00671)	(0.0180)	(0.0118)	(0.0165)	(0.0127)
Mortality risk for ages 25-45 (per m.)	0.00370**	0.00742**	0.0101**	-0.00249	0.0148**	-0.00177
	(0.000943)	(0.00153)	(0.00108)	(0.00224)	(0.00144)	(0.00227)
Mortality risk for ages 45-65 (per m.)	0.000739*	0.00262**	-0.00519**	0.00155*	-0.00723**	-0.000495
	(0.000333)	(0.000680)	(0.000470)	(0.000744)	(0.000575)	(0.000743)
Mortality risk for ages 65+ (per m.)	0.000587**	-0.00000740	0.00197**	0.000587**	0.00236**	0.00123**
	(0.000111)	(0.000199)	(0.000161)	(0.000175)	(0.000213)	(0.000175)
Housing Price Index ($m)	11.22**	10.16**	0.524	-0.0929	-6.680**	-4.277**
	(2.168)	(1.793)	(0.998)	(0.468)	(1.396)	(0.783)
Average Net Earnings ($m)	-1.051**	-0.811**	-0.294**	-0.121**	-0.240**	-0.118**
	(0.0827)	(0.0838)	(0.0382)	(0.0212)	(0.0377)	(0.0201)
Jobs per capita (x 1,000)	1.769	-3.444	2.517**	5.342**	0.177	4.003**
	(1.029)	(1.839)	(0.925)	(1.219)	(0.860)	(1.129)
Constant	-0.0717**	-0.130**	-0.0840**	-0.0382*	-0.128**	-0.0388*
	(0.0151)	(0.0188)	(0.0193)	(0.0151)	(0.0225)	(0.0154)
R-squared	0.635	0.598	0.975	0.984	0.982	0.987
Number of observations	21,200	35,167	21,168	35,167	21,146	35,150
Year fixed effects	X	X	X	X	X	X
County fixed effects			X	X	X	X
State-by-year fixed effects					X	X

Standard errors in parentheses
* p<0.05 ** p<0.01

Table 20. Relationship between blind and disabled adult SSI rates and other characteristics, metro/non-metro counties

	Baseline		County fixed effects		Removing state factors	
	Metro.	Non-metro.	Metro.	Non-metro.	Metro.	Non-metro.
	(1)	(2)	(3)	(4)	(5)	(6)
Fraction female	0.157**	0.208**	-0.0693*	0.0793**	-0.00849	0.0793**
	(0.0266)	(0.0273)	(0.0316)	(0.0177)	(0.0298)	(0.0172)
Fraction aged 18-30	-0.0462**	0.0216	0.00842	-0.0214	0.00201	-0.0323*
	(0.0112)	(0.0112)	(0.0119)	(0.0110)	(0.0160)	(0.0125)
Fraction aged 31-39	-0.0476*	0.121**	-0.0441**	-0.0778**	-0.0530**	-0.0642**
	(0.0228)	(0.0336)	(0.0127)	(0.0156)	(0.0151)	(0.0178)
Fraction aged 40-49	-0.132**	-0.00281	-0.0317*	-0.0689**	-0.0636**	-0.0154
	(0.0226)	(0.0242)	(0.0142)	(0.0151)	(0.0165)	(0.0169)
Fraction aged 50-59	0.171**	0.267**	0.0345*	0.0446**	-0.00704	0.0321*
	(0.0256)	(0.0302)	(0.0140)	(0.0135)	(0.0148)	(0.0143)
Fraction aged 60-64	-0.331**	-0.285**	-0.172**	0.0417	-0.119**	0.0649**
	(0.0525)	(0.0502)	(0.0272)	(0.0234)	(0.0277)	(0.0230)
Fraction white	-0.0566**	0.0284**	0.0115	0.00596	-0.0160	0.00940
	(0.0129)	(0.00698)	(0.0104)	(0.0191)	(0.0117)	(0.0171)
Fraction black	-0.0558**	0.0216**	0.0342**	0.0757**	0.0111	0.0599*
	(0.0137)	(0.00659)	(0.0123)	(0.0252)	(0.0138)	(0.0237)
Mortality risk for ages 25-45 (per m.)	0.00255*	0.00796**	0.00362**	0.00562**	0.00121	0.00196
	(0.00106)	(0.00143)	(0.00126)	(0.00205)	(0.00125)	(0.00234)
Mortality risk for ages 45-65 (per m.)	0.00128**	0.00151*	-0.00307**	-0.00258**	-0.00402**	-0.00344**
	(0.000424)	(0.000658)	(0.000601)	(0.000809)	(0.000708)	(0.000918)
Mortality risk for ages 65+ (per m.)	0.000402**	0.000398	0.00143**	0.00141**	0.00218**	0.00235**
	(0.000121)	(0.000224)	(0.000174)	(0.000193)	(0.000219)	(0.000237)
Housing Price Index ($m)	10.31**	1.874	2.079**	-3.740	-0.0835	-12.84**
	(1.608)	(3.591)	(0.780)	(2.134)	(1.680)	(2.358)
Average Net Earnings ($m)	-0.598**	-1.507**	-0.185**	-0.272**	-0.188**	-0.210**
	(0.0664)	(0.135)	(0.0323)	(0.0433)	(0.0352)	(0.0436)
Jobs per capita (x 1,000)	1.866	1.956	-1.406	11.52**	-1.479	6.630**
	(1.316)	(2.187)	(1.171)	(1.804)	(1.127)	(1.737)
Constant	-0.0140	-0.178**	0.0105	-0.0679**	-0.00643	-0.100**
	(0.0218)	(0.0196)	(0.0211)	(0.0248)	(0.0220)	(0.0232)
R-squared	0.626	0.650	0.947	0.972	0.965	0.979
Number of observations	23,513	32,820	23,513	32,820	23,470	32,721
Year fixed effects	X	X	X	X	X	X
County fixed effects			X	X	X	X
State-by-year fixed effects					X	X

Standard errors in parentheses
* p<0.05 ** p<0.01

Appendix 1: Details for DI data

A1.1 Variable list for DI Data

Variable	Description
Identifiers	
year	Year
stfips	State code – Federal Information Processing Standard (FIPS)
fips	County code – Federal Information Processing Standard (FIPS)
Beneficiaries	
ben_di_all	Total recipients
ben_di_worker	Primary (worker) beneficiaries
ben_di_spouse_kid	Dependent (spouses + children) beneficiaries
ben_di_spouse	Spouses who are dependents
ben_di_kid	Children who are dependents
Monthly payments	
pay_di_all	Total monthly DI payments ($000s)
pay_di_worker	Monthly payments – primary (worker) beneficiaries ($000s)
pay_di_spouse_kid	Monthly payments – dependents (spouses + children) ($000s)
pay_di_spouse	Monthly payments – spouses ($000s)
pay_di_kid	Monthly payments – children ($000s)
Population	
pop0_fra	Population aged 0 to the Full Retirement Age
pop18_64	Population aged 18 to 64 years
pop18_fra	Population aged 18 to the Full Retirement Age
popfra_99	Population aged above Full Retirement Age

A1.2 Years that variables are available

Note: There are no data for 1981.

		Years covered		
#	***DI variables***	**1970-1974**	**1975-79**	**1980-2017**
1	ben_di_all	X		X
2	ben_di_worker	X	X	X
3	ben_di_spouse_kid	X		X
4	ben_di_spouse			X
5	ben_di_kid			X
	Monthly payments			
6	pay_di_all	X		X
7	pay_di_worker	X	X	X
8	pay_di_spouse_kid	X		X
9	pay_di_spouse			X
10	pay_di_kid			X
	Population			
12	pop0_fra	Not AK,HI	Not AK,HI	X
13	pop18_64	Not AK,HI	Not AK,HI	X
14	pop18_fra	Not AK,HI	Not AK,HI	X
15	popfra_99	Not AK,HI	Not AK,HI	X

A2.3 Data notes from *Social Security/OASDI Beneficiaries by State and County*

Information is for DI beneficiaries in current payment status in December. Other key notes from the publications:

- The data in this report are derived from the Master Beneficiary Record, the principal administrative file of Social Security beneficiaries. The 1986 publication is based on a 10% extract; the other years are based on the full data.
- The monthly benefit is the amount payable after any reductions.
- Some Social Security beneficiaries have a representative payee—a person designated by the Social Security Administration to receive their monthly benefit when such action is in the beneficiary's best interest. About three percent of all adult beneficiaries and virtually all child beneficiaries under age 18 have representative payees. For most children, the representative payee is the parent with whom the child resides. For beneficiaries with representative payees, the state and county designations are those of the representative payees, not those of the beneficiaries.
- State totals do not necessarily represent the sum of the county totals.
- All suppressed values are coded to missing (see below for rules).

Years	*Disclosure procedures*
1970-1985	No disclosure restrictions.
1986	Rounds to 10 because it is scaled up from a 10 percent sample.
1987	To avoid disclosure of information about individuals, counties with small number of beneficiaries is coded to missing (replaced with an asterisk in the document). If the total benefit amount for any payment category is less than $500, the amount is rounded to zero.
1988-2018	County data on the number of beneficiaries is rounded either to the next higher multiple of 5 or the next lower multiple of 5, in such a way that the difference between each rounded and unrounded cell value, each rounded and unrounded row total, and each rounded and unrounded column total is less than 5. After the numbers in Table 4 have been rounded, the dollar amounts in Table 5 are proportionately adjusted upward or downward, as appropriate.

Appendix 2: Details for SSI Data

A2.1 Variable list for SSI Data

Variable	Description
Identifiers	
year	Year
state_name	State abbreviation
stfips	State code – Federal Information Processing Standard (FIPS)
fips	County code – Federal Information Processing Standard (FIPS)
county_name	County name
SSI recipients	
recip_dis	Recipients based on disability
recip_blind_adults	Recipients based on blindness – adults
recip_dis_adults	Recipients based on disability – adults
recip_blind_dis_adults	Recipients based on disability or blindness – adults
recip_age18_64	Recipients aged 18 to 64
SSI payment units	
units_blind_dis_indiv	Payment units based on disability or blindness – individuals
units_blind_dis_coup	Payment units based on disability or blindness – couples
SSI monthly payments	
pay_blind_dis_indiv	Monthly payments based on disability or blindness – individuals ($000s)
pay_blind_dis_coup	Monthly payments based on disability or blindness – couples

A2.2 Years that variables are available

	Years covered					
SSI variables	**1974-1977**	**1978**	**1979-1990**	**1991-1996**	**1997**	**1998-2018**
recip_blind_dis_adults	X		X	X	X	X
recip_dis_adults	X		X	X		
recip_blind_adults	X		X	X		
recip_age18_64				X	X	X
units_blind_dis_indiv			X			
units_blind_dis_coup			X			
pay_blind_dis_indiv			X			
pay_blind_dis_coup			X			

A2.3 Data notes from *SSI Recipients by State and County*

Information is for federally administered payments (i.e., federal and federally administered state payments) to people receiving SSI in December. Other key notes from the publications:

- All suppressed values are coded to missing (see below for rules).
- State totals do not necessarily represent the sum of the county totals.

- At least for the first few years, recipients are excluded if their "adult unit designation" changes in the December quarter (i.e., they become adults) or county coding is inconsistent. Numbers are provided in the 1970s – this does not seem to affect large numbers.
- Additional notes around coverage for specific years:
  - In 1974, county data are missing for Alaska, Massachusetts and Texas, while blind and disabled children are combined with blind and disabled adults for Michigan
  - In 1975, county data are missing for Alaska and Massachusetts
  - In 1976 and 1977, county data are missing for Massachusetts

Years	***Disclosure procedures***
1975	Payment information is "truncated" (rounded down) rather than rounded to the nearest thousand dollars
1976-1990	Use "controlled random rounding." If the number of recipients, individuals or couples is odd, it is rounded to the next lowest or next highest even number with equal probability. Even numbers are not changed. After this rounding, the dollar amounts of the payments are proportionately adjusted.
1991-2002	Total numbers of recipients are always reported, although eligibility categories are suppressed for counties with less than 15 recipients. Payment information is not shown for counties with less than four recipients.
2003	Total number of recipients and eligibility categories are suppressed whenever there are less than 15 recipients.
2004	Total numbers of recipients are reported except when there is only one recipient. Eligibility categories are suppressed for counties with less than 15 recipients or when there is only one recipient in a category. Payment information is not shown for counties with less than one recipient.
2005-2009	Total numbers of recipients are reported except when recipients are below a "predetermined threshold." Eligibility categories are suppressed for counties with less than 15 recipients or when the recipients in a category are below than a "predetermined threshold." Payment information is not shown for counties when the recipients are below than a "predetermined threshold."
2010-2018	Total numbers of recipients are reported except when recipients are below a "predetermined threshold." Eligibility categories are suppressed for counties with less than ten recipients or when the recipients in a category are below than a "predetermined threshold." Payment information is not shown for counties when the recipients are below than a "predetermined threshold."

Appendix 3: Creating a consistent set of counties using Census boundary changes

A consistent set of counties is based on Census information on changes and data checks; key information is available here: https://www.census.gov/geo/reference/county-changes.html

State	New Identifier	Original FIPS	County names
Alaska	2010	2010	Aleutian Islands
		2013	Aleutians East
		2016	Aleutians West
	2030	2030	Angoon
		2105	Hoonah-Angoon
		2230	Skagway
		2231	Skagway-Yakutat-Angoon
		2232	Skagway-Hoonah-Angoon
		2282	Yakutat
	2040	2040	Barrow
		2140	Kobuk
		2185	North Slope
		2188	Northwest Arctic
	2050	2050	Bethel
		2068	Denali
		2080	Cordova-McCarthy
		2160	Kuskokwim
		2240	Southeast Fairbanks
		2250	Upper Yukon
		2260	Valdez-Chitina-Whittier
		2261	Valdez-Cordova
		2290	Yukon-Koyukuk
	2070	2070	Dillingham
		2164	Lake and Peninsula
	2120	2120	Kenai-Cook Inlet
		2122	Kenai Peninsula
		2210	Seward
	2130	2130	Ketchikan Gateway
		2190	Outer Ketchikan
		2195	Petersburg
		2198	Prince of Wales-Hyder
		2200	Prince of Wales
		2201	Prince of Wales-Outer Ketchikan
		2275	Wrangell
		2280	Wrangell-Petersburg
	2158	2158	Kusilvak
		2270	Wade Hampton
Arizona	4012	4012	La Paz
		4027	Yuma

Colorado	8001	8001	Adams
		8013	Boulder
		8014	Broomfield
		8059	Jefferson
		8123	Weld
Florida	12025	12025	Dade
		12086	Miami-Dade
Montana	30031	30031	Gallatin
		30067	Park
		30113	Yellowstone
New Mexico	35006	35006	Cibola
		35061	Valencia
South Dakota	46071	46071	Jackson
		46131	Washbaugh
	46102	46102	Oglala Lakota
		46113	Shannon
Virginia	51005	51005	Alleghany
		51560	Clifton Forge city
	51015	51015	Augusta
		51790	Staunton city
		51820	Waynesboro city
	51019	51019	Bedford
		51031	Campbell
		51680	Lynchburg city
	51053	51053	Dinwiddie
		51149	Prince George
		51730	Petersburg city
	51059	51059	Fairfax
		51600	Fairfax city
	51081	51081	Greensville
		51595	Emporia city
	51083	51083	Halifax
		51780	South Boston city
	51095	51095	James City
		51830	Williamsburg city
	51123	51123	Nansemond city
		51800	Suffolk city
	51143	51143	Pittsylvania
		51590	Danville city
	51153	51153	Prince William
		51683	Manassas city
		51685	Manassas Park city
	51161	51161	Roanoke
		51770	Roanoke city
	51165	51165	Rockingham
		51660	Harrisonburg city

51177	51177	Spotsylvania
	51630	Fredericksburg city
51191	51191	Washington
	51520	Bristol city
51199	51199	York
	51700	Newport News city
	51735	Poquoson city

Appendix 4: Population data

Population data are taken from Census Bureau intercensal single-year-of-age county-level population estimates downloaded from the Cancer SEER website:

http://seer.cancer.gov/popdata/download.html

Population data are provided at the county-year level for ages 0-17 years, 18-64 years and 65+ years. The county merges outlined in #4 are also applied to these data. Additional merges are required here:

https://gis.cancer.gov/tools/seerstat_bridge/fips_vars/

Note: In the early years, population counts are not available at the county level for Alaska and Hawaii.