The Effect of the Americans with Disabilities Act on Supplemental Security Income

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March 2023

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Abstract

The Americans with Disabilities Act (ADA) was passed in 1990 and implemented in 1992 with the goal of eliminating discrimination against disabled workers. It did so by requiring employers to accommodate disabled workers and by providing protections against discrimination based on a disability in terms of hiring, termination, and wage decisions. While a number of studies have examined the ADA's impact on the employment of disabled individuals, it is important to also understand the impact on their use of federal disability programs, including Supplemental Security Income (SSI). I investigate this using state and county data on SSI outcomes for blind and disabled adults, together with a range of complementary data on demographic and economic characteristics. There is evidence of an increase in SSI applications and allowances in the first three years after the implementation of the ADA in all states treated by the ADA. These effects are concentrated in states that had no employment protections prior to the ADA, as opposed to states with protections but no disability accommodations. Compared to the findings for Social Security Disability Insurance (SSDI), the effects of the ADA are similar in terms of increases in applications and stronger in terms of increases in allowances. The results suggest that some of the ADA's effects on employment may have led disabled individuals to apply for SSI.

Citation

1. Introduction

The Americans with Disabilities Act (ADA) was a prominent law that prohibits discrimination on the basis of disability. It was passed in July 1990, and the employment provisions were implemented in July 1992. It extended employment protections to disabled workers in terms of hiring, termination, and wage decisions. These protections were similar to those provided on the basis of sex, race, and other characteristics by earlier civil rights legislation. It also required employers to provide reasonable accommodations to disabled job applicants and employees so they could perform their jobs.

Several studies have examined the employment effects of the ADA. DeLeire (2000) and Acemoglu and Angrist (2001) find that the ADA decreased the employment of disabled workers, which is opposite to the intended effects of the ADA. Both papers use survey data to compare the changes in employment trends of disabled and nondisabled people after the introduction of the ADA. Acemoglu and Angrist (2001) also exploit state-level variation in charge rates after the introduction of the ADA. Deleire (2000) used the Survey of Income and Program Participation (SIPP) and Acemoglu and Angrist used the Current Population Survey (CPS). The authors argue the ADA affected the incentives to hire disabled workers and limited their work options.

Subsequent research has raised doubts about this conclusion. Hotchkiss (2004) uses the CPS and SIPP to replicate the findings of both studies. She argues that the apparent decline in the labor force participation among the disabled is likely to result from changes in the definitions of disabled individuals, rather than because the ADA caused them to leave the labor force. Houtenville and Burkhauser (2004) use the CPS

and a different definition of disability than Acemoglu and Angrist (2001) do. They find that the decline in employment among the disabled occurred well before the introduction of the ADA. Jolls and Prescott (2004) exploit state variation in antidiscrimination laws to separately examine the effects of workplace accommodations for disabled workers and antidiscrimination provisions. They find similar employment effects in the states affected by the accommodations by themselves as the states affected by both protections and accommodations, suggesting that the requirements for accommodations are the main source of the negative employment effects. These effects were present for a short period of time. Recently, Armour et al. (2018) examine the employment effects of the ADA Amendments Act of 2008, which expanded the definition of disability in the ADA. They find that it increased the hiring of some types of disabled workers. These studies have only examined the impacts of federal disability programs in passing.[1]

In a previous paper, Moore (2021), I examined how the ADA affected the number of Social Security Disability Insurance (SSDI) applications, allowances, and beneficiaries. I find evidence of an increase in SSDI applications, although there is little direct evidence that these higher applications result in more SSDI allowances. The number of SSDI beneficiaries increases slightly over time, suggesting that the ADA may have led to some combination of higher allowances and lower terminations. All of these effects are concentrated in states that had no employment protections prior to the ADA, as opposed to states with protections but no disability accommodations.

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[1] For example, Jolls and Prescott (2004) look at Social Security Disability Insurance applications between 1990 and 1993, with only limited attention given to the similarity of application rates across treated and comparison states in earlier years. They find imprecise increases.

These results suggest a link between the ADA and disability-benefit claiming. However, SSI recipients may have a different response than SSDI beneficiaries, as they typically have lower earnings, fewer years of employment, fewer assets, different demographic characteristics, and are more likely to lose eligibility because of the SSI asset requirements that are in addition to the medical and vocational criteria common to both SSDI and SSI. This project will help understand the consistency of the ADA's impact on disabled adults across the two main federal disability programs.

In this current paper, I complement the previous analysis by examining how the ADA affected the number of SSI applications, allowances, and beneficiaries for blind and disabled adults (throughout, "SSI" refers to blind and disabled adults who apply for or receive benefits through the program). Understanding the impacts on SSI is important in its own right, given the size of the program and its sizeable growth through the 1990s. It is also informative to compare the results for SSI to those for SSDI, as SSI provides benefits to lower-income individuals who may be affected differently by disability employment protections and accommodations than SSI recipients. More broadly, estimating the effects of the ADA on federal disability programs can help to understand the impacts of the ADA on the labor market, as SSDI and SSI had nationally consistent policies around the time that the ADA was introduced and should not have suffered from the same definitional issues that seem to complicate the employment analysis using survey data.

I undertake two complementary approaches to examining the ADA's effects on SSI outcomes. First, I use state-level data to follow the most common approach in previous studies: estimating the effects of the ADA in a differences-in-differences

specification by comparing the outcomes in states that were affected by the ADA rules ("treated" states) to states that were not, because they already had legislation in place that provided disability protections or accommodations equivalent to or greater than the ADA ("comparison" states). Figure 1 shows a map of the states treated by the ADA and those that were not, and shows the variation across treated states in how they were affected by workplace accommodations and antidiscrimination protections.

The second approach uses county-level data to control for local labor market characteristics. It follows a similar difference-in-differences design to the one just described, except that counties on state borders in a "treated" state are compared to neighboring counties in "control" states. The approach is similar to a method used by Dube et al. (2010), who use such pairings to assess the effects of minimum wage. One limitation of this method is that the outcomes available are much more limited. There are also recent concerns that counties may be too local a level for characterizing labor markets, affecting the inferences that can be made using this empirical design (Jha et al. 2022).

Several data sources are used that span 1980 to 1997. State-level data on the number of SSI applications and allowances come from Autor and Duggan (2003), while state- and county-level data on the number of SSI recipients come from the long-standing annual SSA publication, *SSI Recipients by State and County* (described in Moore 2020). Other data on population numbers, demographics, and economic characteristics come from the Current Population Survey and a compilation of Census Intercensal Population Estimates by the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program.

After the passage of the ADA, there is evidence of an increase in SSI applications in treated states, especially in the first three years after its implementation, although some of that increase seems to be explained by labor market and economic activity (which also may be indirectly related to the ADA). Following Jolls and Prescott's (2004) analysis of the ADA's employment effects, I further analyze the effects in (1) states that had neither disability employment protections nor accommodations prior to the ADA and (2) states that had disability employment protections but not regulations around providing workplace accommodations for disabled workers. As discussed already, the distribution of the different types of states are shown in Figure 1. For SSI applications, I estimate increases in both types of states. The increase is largest in treated states that had no employment protections or accommodations prior to the ADA, with a statistically significant increase of around 1.2 to 1.7 SSI applications annually per 1,000 working-age individuals in the first three years after the ADA's implementation (1992 to 1994). The increase for the same period is smaller in states with disability employment protections but no disability accommodations, at around 0.4 to 0.7 SSI applications annually per 1,000 working-age individuals, and not statistically different from zero in all specifications. However, states with no employment protections or accommodations had higher SSI rates before the ADA than states with protections but no disability accommodations. Hence, the estimated increases are more similar relative to the SSI application rates in the two types of treated states in the reference year of 1988: around 11% to 15% for the first group of treated states and around 6% to 11% for the second group of treated states. There are no statistically significant effects on SSI applications beyond the first three years that the ADA was implemented.

In terms of results for SSI allowances, while there is no effect of the ADA for all treated states, there is a statistically significant increase in the allowance rate in the first three years after the ADA's implementation for states that had neither disability protections nor accommodations prior to the ADA. The estimates are around 0.8 to 0.9 allowances annually per 1,000 working-age residents over the 1992-1994 period, which is a large increase of around 20% to 22% relative to pre-ADA baseline rates. This is a different result than Moore (2021) found for SSDI allowances, where there were no statistically significant increases in either group of treated states after the ADA was passed and introduced.

There is little direct evidence that these higher applications and allowances increase the number of SSI recipients. There are positive estimates for the ADA's effects on the stock of SSI recipients, but the estimates are not precise. The ones that are precise also have some statistically significant coefficients prior to the passage of the ADA, suggesting that there are different pretrends in the treated and control states. Once state-specific time trends are added to the specifications producing these statistically significant results, both the statistically significant pretrends and the post-ADA effects disappear. The county-level analysis also points to potentially higher SSI recipient rates, although the results are imprecise. In the current analysis, it is difficult to determine whether the results for all SSI recipients are due to statistical imprecision or higher exit rates from SSI. (I do not have exit rates in my data.)

Overall, the results suggest that the ADA may have affected key SSI outcomes, and that it did so by increasing the protections provided to disabled workers. This is broadly consistent with the SSDI results in Moore (2021), although the size of the

effects on applications and allowances are slightly larger for SSI than for SSDI in relative terms. These results demonstrate that it is important to further understand the overall effects on federal disability outcomes.

The motivation behind legislating to protect and support disabled workers is that it will increase their employment and earnings. It is important to understand the impact of this support on their need for social insurance, as it helps both to understand how the use of SSI changes over time and why SSI rates vary across states. It also helps to better understand how the ADA affected the work activity of disabled workers, as the consistency and accuracy of the SSI administrative data in this project helps inform the broader literature on the effects of the ADA. The current findings suggest that the decreased employment rates found for disabled workers in some studies may also be present in terms of their use of SSI and SSDI.

2. Empirical approach

Complementary approaches are taken to estimate the effects of the ADA on SSI outcomes. Both use a differences-in-differences approach, where states treated by the ADA are compared to states unaffected by the federal legislation. One approach uses state-level data, which allows a substantial number of time-varying socioeconomic controls to be added to the regression to account for other factors that may affect SSI outcomes around the time of the ADA's introduction.

Another set of analysis is done with county-level data, and follows papers that have used adjacent counties that span state borders to estimate the effects of minimum wage laws on employment. Fewer covariates are available at the county level, but the finer geographic detail allows for the introduction of location-by-year fixed effects that flexibly control for characteristics specific to local areas, such as local labor markets.

These approaches are similar to a previous RDRC project examining the effects of the ADA on SSDI outcomes (Moore 2021). The advantage of using these similar approaches is that it is possible to compare the results for these two large federal disability programs fairly easily.

2.1 State-level analysis

The state-level analysis uses differences-in-differences specifications. In all cases, the comparison sample consists of states that already had "ADA-like" disability employment protections and accommodations. Even though the federal ADA law applied to these states, it had no practical effect as employers were already subject to regulations that were similar to — or more stringent than — the provisions in the ADA.

The ADA's overall impact is estimated using all other states in the treatment sample. Employers in these states experienced some change in disability employment laws after the introduction of the ADA. One regression specification estimates the differences between treatment and comparison states in each year, relative to 1988 as a reference year that is just before the ADA was implemented. It is as follows:

$$y_{st} = \alpha_s + \theta_t + X_{st}\lambda + \sum_{\substack{t=1980 \\ t \neq 1988}}^{1997} D_t * Treated_s \beta^t + u_{st} \quad (1)$$

In this specification, y_{st} is the SSI outcome in a given state s and year t. The outcomes examined are the rates of SSI blind or disabled adult applications, allowances and recipients per working-age population (i.e., ages 18 to 64 years). On the right-hand side, α_s represents a complete set of state fixed effects that controls for permanent differences in SSI outcomes across states; θ_t is a complete set of time fixed effects that captures common time trends in SSI outcomes; and X_{st} represents time-varying state-level factors that might affect SSI activity, such as changes in demographic characteristics and economic activity. The specific covariates are described along with the results, and I consider the sensitivity of the results to the inclusion of different sets of controls. The variable $Treated_s$ is a dummy variable equal to one if the state did not have ADA-like regulations, and zero otherwise. Time-varying differences between treated and comparison states are identified by the interaction of $Treated_s$ with the time dummy variables D_t, which are equal to one in year t and zero otherwise.

As shown in the equation and discussed below, data for 1980 to 1997 is used. The reference year is 1988, which is the year before any ADA-related legislation was passed. The coefficients of interest β^t come from the interaction of the treatment identifier and the year dummy variables, and measure the annual differences in SSI

outcome variables for treated and control states relative to the reference year. I estimate standard errors allowing for heteroskedasticity and an arbitrary correlation in errors at the state level. Some of the specifications are weighted by the working-age population in each state in each year.

Equation (1) enables me to flexibly compare treated states to comparison states to assess the effects of the ADA. There are several years of data before the introduction of the ADA, which provides an opportunity to assess whether the states in the two samples are comparable in terms of SSI outcomes before the introduction of the ADA. If the trends are similar before the ADA, then it is likely that any observed deviations in outcomes after the ADA is due to change in employment laws (on the assumption that this is the only meaningful change specific to the treatment states).

One concern is that estimates for individual years may be imprecise. To address that concern, I also use a difference-in-differences specification that groups years together:

$$y_{st} = \alpha_s + \theta_t + X_{st}\lambda + \sum_{\substack{t=1982-84 \\ t \neq 1988}}^{1995-97} P_t * Treated_s \beta_P^t + u_{st} \qquad (2)$$

The time dummy variables P_t represent periods spanning three years. The first period is 1982 to 1984; as described below, this uses three years of data as the data for 1981 is missing for all of the SSI outcomes (1980 is now omitted). The other pre-ADA period that is estimated spans 1985 to 1987. These are estimated relative to year 1988, as are all of the post-ADA effects. The next period, spanning 1989 to 1991, estimates the effects during a period when the ADA was discussed and passed (in 1989 and 1990) and before it was implemented in July 1992. The other two periods, 1992 to 1994 and 1995 to 1997, measure the effects of the ADA after it was implemented. Aside from

grouping the estimated effects to increase precision, all other elements of the regression remain the same.

In addition to estimating the overall effects of the ADA, it is also interesting to estimate if the effects differ by the type of impacts that the ADA had. Following Jolls and Prescott's (2004) analysis of the employment effects of the ADA, I separately analyze the effects in (1) states that had neither disability employment protections nor accommodations prior to the ADA and (2) states that had disability employment protections but not regulations around providing workplace accommodations for disabled workers. To estimate these effects, Equation (1) is adapted to be the following:

$$y_{st} = \alpha_s + \theta_t + X_{st}\lambda + \sum_{\substack{t=1980 \\ t \neq 1988}}^{1997} D_t * Tr\_Full_s \beta_F^t + \sum_{\substack{t=1980 \\ t \neq 1988}}^{1997} D_t * Tr\_Accom_s \beta_A^t + u_{st} \quad (3)$$

The dummy variable Tr_Full_s is equal to one if the state did not have ADA-like protections or accommodations, and zero otherwise. The β_F^t coefficients measure the annual differences in SSI outcome variables for these states relative to states that had "ADA-like" regulations. Likewise, the dummy variable Tr_Accom_s is equal to one if the state only did not have ADA-like accommodations, and zero otherwise. The β_A^t coefficients measure the annual differences in SSI outcome variables for these states affected by the ADA accommodations regulations relative to states that had "ADA-like" regulations. Other covariates are specified at the state level, and therefore remain the same as in equation (1).

The treated states can also be split in the specification where states are grouped in three-year periods, as follows:

$$y_{st} = \alpha_s + \theta_t + X_{st}\lambda + \sum_{\substack{t=1982-84 \\ t \neq 1988}}^{1995-97} P_t * Tr\_Full_s \beta_{PF}^t + \sum_{\substack{t=1982-84 \\ t \neq 1988}}^{1996-98} P_t * Tr\_Accom_s \beta_{PA}^t + u_{st} \quad (4)$$

where the new dummy variables identifying the states affected by the ADA in different ways match the description for Equation (3).

These different equations enable the effects of the ADA to be estimated using the data available at the state level. In combination, they provide different information about the magnitude and precision of any changes after the ADA, when the changes occur, and what parts of the ADA legislation may account for such changes.

2.2 County-level analysis

The state-level specifications allow for the inclusion of state fixed effects and time fixed effects, but time-varying location-based fixed effects are difficult to implement without soaking up all of the variation in the data (e.g., state-by-year fixed effects) or using large geographic regions that do not control for local labor factors (e.g., region-by-year fixed effects using the four census regions: Northeast, Midwest, West, and South). Despite time-varying covariates in the state-level data, it is possible that unobserved factors bias the estimates.

County-level data provides the opportunity to implement an identification strategy that helps to address these concerns. The approach is to focus on counties that lie on a state border, and to compare counties that are in states whose disability employment conditions are affected by the ADA to adjacent counties that are not. It exploits that the treatment of changing disability employment rules is applied to only parts of a common local labor market. This identification strategy was adopted by Dube et al. (2010) when examining the employment effects of minimum-wage laws on earnings and employment in restaurants and other low-wage sectors, and is in the spirit of early research on minimum wages that examined employment effects close to state borders (Card and

Krueger 1994). Pairs of counties that span state borders has also been used to examine

other questions, including the political and economic effects of the disenfranchisement

of Black citizens in the South (Naidu 2012); the effects of minimum-wage laws on

employment flows (Dube et al. 2016); the employment effects of unemployment

insurance generosity (Boone et al. 2021); the effects of Medicaid expansions on crime

(He and Barkowski 2020); and the spatial spillovers from COVID-19 stay-at-home

orders (Elenev et al. 2021).

This empirical approach is implemented as follows:

$$y_{cpt} = \alpha_c + \theta_{pt} + X_{ct}\lambda + \sum_{\substack{t=1980 \\ t \neq 1988}}^{1997} D_t * Treated_c\beta^t + u_{cpt} \qquad (5)$$

where *c* indexes counties, *t* still indexes years, and *p* indexes pairs of contiguous

counties that span state borders. The SSI outcome is given by y_{cpt}, and the focus will be

on SSI recipient rates as they are available on a consistent basis at the county level. On

the right-hand side, α_c represents a complete set of county fixed effects to control for

permanent differences in SSI outcomes across counties and θ_{pt} represents a complete

set of pair-time fixed effects. The ability to include the latter set of fixed effects is the

major advantage of this approach, as they account for common shocks happening at

the annual level to local sets of counties.

The term X_{ct} represents time-varying, county-level factors that might affect SSI

activity, such as changes in demographic characteristics. The specific covariates are

described along with the results, and I consider the sensitivity of the results to the

inclusion of different sets of controls. The variable $Treated_s$ is a dummy variable equal

to one if the county is in a state did not have ADA-like regulations, and zero otherwise.

Time-varying differences between counties in treated and comparison states are

identified by the interaction of $Treated_c$ with the time dummy variables D_t, which are equal to one in year t and zero otherwise. As with the state-level analysis, the data are for 1980 to 1997 and the reference year is 1988. This and subsequent regressions are weighted by the working-age population in each county in each year.

The coefficients of interest, $\beta,^t$ come from the interaction of the treatment identifier and the year dummy variables, and measure the annual differences in SSI outcome variables for treated and control counties relative to the reference year. I estimate standard errors allowing for heteroskedasticity and an arbitrary correlation in errors at the border-pair level; the latter decision deals with the potential for a mechanical correlation across county-pairs, and potentially along entire segments of state borders (Dube et al. 2010).

There are a few things to note about the construction of the sample for this analysis. First, only a subset of counties are on state borders. In this setting, after merges are implemented to create consistent county borders over time, there are 1,108 counties included in the border-county analysis. Second, some counties are contiguous to multiple counties in another state (or, in a small number of cases, states). The data is created at the county-pair-year level, which means that if a county is adjacent to two cross-border counties then it appears twice in the data, with a different border pair identifier in the second instance. To ensure that counties are given equal weight in the analysis, the regressions are weighted by the inverse of the number of pairings it has with cross-border counties. The median number of pairings is two, and the maximum is seven.

As with the state-level analysis, the analysis is varied in terms of the time periods over which the effects are estimated and whether a distinction is made between states that were affected by the ADA both in terms of disability employment protections and disability employment accommodations, and states that were only affected in terms of accommodations.

To increase precision, the county-level specification groups years together in a way that is similar to Equation (2):

$$y_{cpt} = \alpha_c + \theta_{pt} + X_{ct}\lambda + \sum_{\substack{t=1982-84 \\ t \neq 1988}}^{1995-97} P_t * Treated_c \beta_P^t + u_{cpt} \qquad (6)$$

The time dummy variables P_t span the same time periods as before, and the regression is otherwise the same as Equation (5).

The regressions are adjusted to allow the effects to differ across states based on the type of treatment. This is also similar to the state-level approach shown in Equations (3) and (4):

$$y_{cpt} = \alpha_c + \theta_{pt} + X_{ct}\lambda + \sum_{\substack{t=1980 \\ t \neq 1988}}^{1997} D_t * Tr\_Full_c \beta_F^t + \sum_{\substack{t=1980 \\ t \neq 1988}}^{1997} D_t * Tr\_Accom_c \beta_A^t + u_{cpt} \qquad (7)$$

$$y_{cpt} = \alpha_c + \theta_{pt} + X_{ct}\lambda + \sum_{\substack{t=1982-84 \\ t \neq 1988}}^{1995-97} P_t * Tr\_Full_c \beta_{PF}^t + \sum_{\substack{t=1982-84 \\ t \neq 1988}}^{1995-97} P_t * Tr\_Accom_c \beta_{PA}^t + u_{cpt} \qquad (8)$$

To recall, the dummy variable Tr_Full_c is equal to one if the county is in a state did not have ADA-like protections or accommodations, and zero otherwise. Likewise, the dummy variable Tr_Accom_c is equal to one if the county is in a state that had ADA-like protections but not ADA-like accommodations, and zero otherwise.

Together, these regression specifications provide several different ways to estimate the effects of the ADA on SSI outcomes. The identifying variation for these estimates comes from three sources: (i) border pairs that contain fully treated and accommodations only; (ii) border pairs that contain fully treated and ADA-like; and (iii)

border pairs that contain accommodations only and ADA-like. The first is an important source of variation for the Tr_Full_c estimate as there are not many border pairs that span fully treated and ADA-like states.

3. Data

3.1 SSI outcomes

I use several SSI outcomes. All of these are available at the state level, while a more limited set are available at the county level.

SSI applications and allowance

I calculate application and allowance rates at the state level. Counts of SSI applications and allowances are from Autor and Duggan (2003), which the authors make available on David Autor's website.[2] These state-level SSI counts were taken from administrative data by Kalman Rupp and David Stapleton, and are available for 1980 to 1998 with the exception of 1981. Disability allowances are dated according to the year of application rather than the year of decision. These were extracted around the year 2000, so the data likely undercounts the allowances made in the last couple of years of the data. For that reason, and to be consistent with the data for SSI recipients, I limit the analysis to 1997.

SSI recipients

The number of SSI recipients in each year is taken from digitized versions of the publication *SSI Recipients by State and County*. Extracts of the Supplemental Security

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[2] See: https://economics.mit.edu/faculty/dautor/data/autduggan03 [Last accessed: March 24, 2023].

Record have been used to produce a snapshot of SSI recipients in current payment status in each state and county in December of each year. I have digitized them, and describe the data in more detail elsewhere (Moore 2020). I use the number of blind and disabled adult SSI recipients because they are available consistently through these years. These are also available for 1980 to 1997, with the exception of 1981.

State-level and county-level counts are used. Some county borders change over time; 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 Virginia, where several of the independent cities and surrounding counties have changed over time. Details of these changes are provided in the appendix.

Rates for all of these SSI outcomes are created by dividing annual counts by the number of 18- to 64-year-old people annually in each state or county. These population data are taken from Census Bureau intercensal, single-year-of-age, county-level population estimates compiled by the Surveillance, Epidemiology, and End Results (SEER) program of the National Cancer Institute. The data are available on their website.[3] I use these population estimates instead of those from the Current Population Survey (CPS), which are used by Autor and Duggan (2003) and others, as it is not possible to create county population estimates using the CPS. There are only minor differences between these different population estimates.

Summary statistics for the SSI outcomes at a state level are provided in Table 1. Data for Alaska and Hawaii are not used, as those states cannot be used in the county-

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[3] See: http://seer.cancer.gov/popdata/download.html (Last accessed: September 24, 2021).

level analysis, although the District of Columbia is included. The balanced panel has 833 observations (49 x 17 years). SSI applications per working-age population average 7.2 applications per 1,000 individuals, and range between 2.1 and 20.9. The summary statistics for the SSI allowance rate are roughly 30% to 40% of these values, with SSI allowances per 1,000 individuals averaging 2.7 and ranging between 0.5 and 7.8. The total number of SSI recipients averages 18.3 per 1,000 individuals over this period, and ranges between 3.0 and 52.1.

3.2 Other data

The state-level covariates generally come from the March supplement of the Current Population Survey (CPS). The CPS is a monthly household survey conducted by the Census Bureau for the Bureau of Labor Statistics. The CPS Annual Social and Economic Supplement is conducted in March and asks additional information on income and work experience. There are around 60,000 households and 150,000 individuals in each year of the survey.

I use microdata from the CPS for 1980 to 1997 to create various covariates for each state in every year. All calculations use the standard CPS sampling weights. There are a set of demographic measures. This includes the fraction of men and women in the following age groups: 18 to 24 years, 25 to 39 years, 40 to 54 years, and 55 to 64 years. It also includes the fractions in different race groups (white, Black, and other race); educational attainment categories (less than high school, completed high school, some college, and completed college); and the fraction of married men and women. I also create a set of economic measures. This includes unemployment and labor force nonparticipation rates for men and women in the same age groups as described above.

At the county level, covariates are calculated from the intercensal data compiled by Cancer SEER described above. The demographic controls include the same sex, age and race groups described above, all of which are available in these data. The other controls are not available at the county level, so there is a reliance on the more comprehensive fixed effects to account for time-varying changes in economic and other outcomes.

I use the data from Dube et al. (2010) to identify border counties and organize them into county pairs. The county identifiers were checked and corrected to account for county merges and any other inconsistencies across the datasets. There are 1,108 counties located along state boundaries in the USA mainland in this data set.

4. State-level results

4.1 Results for SSI applications

I first focus on whether the ADA affects applications for SSI. The outcome is blind or disabled adult SSI applications per 1,000 individuals of working age (ages 18 to 64 years). The analysis is done between 1980 and 1997 for 49 states (including the District of Columbia, and excluding Alaska and Hawaii).

Figure 2 shows application rates comparing states treated by the ADA to the comparison states (i.e., the ADA-like states). Rates in both groups are scaled relative to 1988, to make it easier to compare the trends over time. The trends are similar prior to the passage of the ADA in 1990; the differences relative to 1988 average 0.04 applications per 1,000 population and are always within 0.3 applications per 1,000 population. The trends remain similar in 1989 to 1990, which is when the ADA was

being developed and passed, but prior to its implementation in July 1992. The largest differences occur in 1992 and 1993, when the states treated by the ADA have SSI application rates that average 0.9 higher than the comparison states, relative to 1988. The differences decrease from 1994.

Table 2 shows the regression results from using various versions of Equation (2), with years grouped in three-year periods. The results reported in Column (1) come from Equation (2) only with year fixed effects; Column (2) shows results with state fixed effects added; Column (3) shows results with the addition of demographic controls; and Column (4) shows results with economic controls, which are primarily unemployment rates for specific demographic groups. This presentation helps to understand what accounts for differences across the treated and comparison states, and how stable the estimates are to different approaches.

Prior to the introduction of the ADA, there are no statistically significant differences in application rates between treated and control states once state fixed effects are added, and the coefficients generally shrink with the additional controls. The post-ADA coefficients are positive and larger in magnitude than the ones before its passage. Once state fixed effects are added, there is a statistically significant increase in SSI applications in the 1992 to 1994 period of 0.62 applications per 1,000 residents, which stays at a similar magnitude and level of precision after adding the demographic controls in Column (3). Once the economic controls are added in column (4), the 1992 to 1994 estimate shrinks to 0.48 and is no longer statistically significant at the 5% level. Relative to the 1988 SSI application rates in treated states, these estimates imply an increase of around 7% to 9% after the implementation of the ADA.

To further explore this, Figure 3 shows the annual coefficients of interest and 95% confidence intervals for SSI application rates estimated with the regression controls given in Equation (1). Relative to 1988, treated states have around 0.6 more SSI applications in 1993 than the comparison states. This difference is statistically different from zero at a 5% level. The differences are smaller and not statistically significant in other years.

Following Jolls and Prescott (2004), the differences in SSI application rates are separately examined by how the ADA potentially affected the employment of disabled workers. The SSI application rates in no employment protection and protection without accommodation states are compared to the comparison ADA-like states in Figure 4. As before, the raw differences in SSI application rates are shown relative to 1988.

Both types of treated states have similar trends to the comparison states prior to 1988 and during the 1989 to 1991 period of ADA implementation. States without employment protections or accommodations had a large relative increase in SSI applications from 1992. It peaks at around 1.8 SSI applications per 1,000 population in 1993. The differences decrease thereafter. States already with employment protections but no accommodations had a pattern similar to the overall results, with the same trends as the comparison sample except for slightly elevated application rates between 1992 and 1994.

The regression Equation (2) is estimated separately for these two groups of treated states. In both cases, all of the ADA-like states are used as the comparison sample; this is done for ease of exposition, as it produces results similar to using Equation (4). The first set of results is equivalent to those in Column (4) of Table 2, as

they come from a specification that includes year and state fixed effects, as well as time-varying demographic and economic controls. A second set of results, where states are weighted by the working-age population in a state, is a further form of robustness.

These results are presented in Table 3. Across the results, there are no statistically significant differences in SSI application rates prior to the introduction of the ADA. After the ADA, treated states that did not have employment protections or accommodations experienced a sizeable increase in SSI application rates from around the time ADA was implemented, as shown in Columns (1) and (2). In the 1992 to 1994 period, SSI applications are 1.2 to 1.7 annual applications per 1,000 population, and statistically different from zero at the 5% level. Relative to the reference-period (unweighted and weighted) means in these states, this represents an increase of 11% to 15% in SSI applications.

The estimates for treated states that had protections but no accommodations are presented in Columns (3) and (4) of Table 3. When the observations are weighted by the working-age populations, there is an increase of 0.75 SSI applications per 1,000 population in the 1992 to 1994 period that is statistically significant at the 5% level. Without weighting, in Column (3), the estimated change in that period is 0.42 applications and not statistically significant. Relative to the average SSI application rates in treated states in the reference period, this implies a relative increase of around 6% to 11%. There are estimated increases of around 0.3 applications in the subsequent periods that are not statistically significant at the 5% level.

To further explore these patterns, Figure 5 shows the annual coefficients of interest and 95% confidence intervals for SSI application rates for treated states without

protections or accommodations (in Panel A) and treated states with protections and no accommodations (in Panel B). These are estimated with equation (1), and show the differences in SSI application rates relative to 1988. In both panels, the annual coefficients prior to 1988 are not statistically significant at the 5% level. In the "no protections" states, the estimated differences after the ADA are positive and statistically significant at the 5% level over the 1991 to 1994 period. In the "protections but no accommodations" states, the estimated changes are positive but not statistically significant at conventional levels.

In summary, there is evidence of an increase in SSI applications in the years immediately after the implementation of the ADA. These effects are largest in the states that were affected by the disability employment protections contained within the ADA, both in absolute and relative terms, although there is a smaller and less-precisely estimated increase in states that were only affected by the ADA's disability employment accommodations.

4.2 Results for SSI allowances

I next consider changes in SSI allowance rates. The results for applications suggest that allowances may increase after the ADA in states that were treated by it, although applicants induced to apply as a result of the ADA may have had a different likelihood of being allowed SSI than other applicants.

The analysis parallels that done for SSI applications, as all of the data have the same state-level structure and use the same covariates. Figure 6 shows SSI allowance rates comparing states treated by the ADA to the comparison states. Rates in both groups are scaled relative to 1988 to make it easier to compare the trends over time.

The trends are similar prior to the passage of the ADA, and also prior to the implementation of the ADA. There is visual evidence that allowance rates increased in treated states between 1992 and 1994, before returning to the same trends as the comparison states.

In the regression results presented in Table 4, the changes in SSI allowance rates in states treated by the ADA relative to states already like the ADA are positive but not statistically significant at conventional levels. These results come from various versions of Equation (2), with years grouped in three-year periods. The results reported in Column (1) come from Equation (2) only with year fixed effects; Column (2) shows results with state fixed effects added; Column (3) shows results with the addition of demographic controls; and Column (4) shows results with economic controls, which are primarily unemployment rates for specific demographic groups. Across these results, there are no statistically significant coefficients before and after the ADA, with the point estimates in the last three columns around 0.2 SSI allowances per 1,000 residents. These point estimates are similar to those for SSI applications relative to their baseline means, so the lack of precision could partially reflect the lower frequency of allowances compared to applications.

To further explore this, Figure 7 shows the annual coefficients of interest and 95% confidence intervals for SSI allowance rates estimated using Equation (1). Relative to 1988, SSI allowance rates are slightly higher after the ADA for several years in treated states, although the coefficients are small and not statistically different from zero.

As with the analysis of SSI applications, SSI allowances are analyzed in no employment protection and protection without accommodation states and compared to ADA-like states. The raw rates are presented in Figure 8. There is a similar pattern in allowance rates in both panels, with similar pre-ADA trends and differences that appear around 1992, when the ADA was introduced. That gap is larger and more persistent for states that had no employment protections or accommodations prior to the passage of the ADA. It is around 0.8 SSI allowances per year in 1992, 1993 and 1994, and declines thereafter. As a rate, the magnitude of the gap is roughly half that seen for the same states in terms of SSI applications. In states with employment protections but no disability accommodations prior to the ADA, the 1992 to 1994 gap is about one-quarter the size of the gap in the top panel and does not persist beyond 1994.

The regression estimates using three-year periods are presented in Table 5. There are no statistically significant differences in SSI allowance rates prior to the introduction of the ADA. After the ADA, treated states that did not have employment protections or accommodations experienced a sizeable increase in SSI allowance rates from around the time ADA was implemented, as shown in Columns (1) and (2). In the 1992 to 1994 period, SSI allowance are higher by 0.8 to 0.9 allowances per 1,000 population each year in the treated states, and statistically different from zero at the 1% level. Relative to the reference-period (unweighted and weighted) means in these states, this represents an increase of around 20% in SSI allowance rates. In the 1995 to 1997 period, the estimates are positive — at 0.15 allowances per 1,000 residents in the unweighted regression and 0.47 in the regression weighted by working-age populations — but not statistically significant at conventional levels.

The estimates for treated states that had protections but no accommodations are presented in Columns (3) and (4) of Table 5. The post-ADA estimates are positive but not statistically significant. The point estimates in the 1992 to 1994 period are around 0.13 to 0.24 allowances per 1000 residents, which is small in relative as well as absolute terms compared to the results in the first two columns. There is no strong evidence that the statistically significant results for SSI applications for these treated states results in more allowances. The annual regression coefficients, which are presented in Figure 9, confirm the findings in Table 5.

In summary, there is a discernible change in SSI allowance rates after the ADA in states that had no employment protections or accommodations. This is consistent with the results for SSI applications. Furthermore, it is different to the findings for SSDI allowances in Moore (2021), where there was no discernible change after the ADA (even though there was an increase in SSDI applications). This suggests that SSI applicants affected by the ADA may be, on average, in worse health and more likely eligible for disability benefits, resulting in more allowances.

4.3 Results for SSI recipients

I next consider changes in overall SSI recipient numbers. Annual changes are due to the changes in allowances relative to terminations due to death, medical improvement, no longer being eligible, or aging into the SSI retirement criteria. This SSI outcome therefore provides another way to analyze the effects of the ADA. It is also the SSI outcome available at the county level, which provides a different way to examine the ADA's effects.

Figure 10 shows SSI recipient rates comparing states treated by the ADA to the comparison states. Rates in both groups are scaled relative to 1988, to make it easier to compare the trends over time. The trends are relatively similar prior to the passage of the ADA, and then widen after the passage of the ADA. Consistent with the results for SSI applications and allowances, there is some visual evidence that the overall number of SSI recipients changed after the introduction of the ADA.

In the regression results presented in Table 6, the changes in SSI recipient numbers in states treated by the ADA relative to states already like the ADA are not statistically significant. These results come from various versions of Equation (2), with years grouped in three-year periods. With the extra controls across Columns (1) to (4), the coefficients shrink but the estimates after the ADA are generally positive. This is also similar in Figure 11, which shows the annual coefficients of interest and 95% confidence intervals for SSI recipient rates that are estimated using Equation (1). However, across both sets of results, the confidence intervals include magnitudes similar to the results for SSI applications and allowances, and therefore may be consistent with some growth in entry into the SSI program.

With only three states without disability employment protections prior to the ADA, it is possible any impacts on that group are missed in the aggregate impacts. To examine this, I separately examine how the ADA potentially affected no employment protection states and protection without accommodation states.

In Figure 12, the raw rate of SSI recipients relative to 1988 are shown for these two groups, together with the equivalent rates for ADA-like states. For these results, the states without employment protections or accommodations have a different trend to the

comparison ADA-like states before the passage of the ADA, while the pre-ADA trends are similar across the treated and comparison states when focusing on states that already had employment protections but no accommodations. Given the different trends in the top panel of Figure 12, for that sample, the regression results include estimates from a specification that includes state-specific time trends.

These results, along with the other regression results from Equation (2), are shown in Table 7. In both cases, all of the ADA-like states are used as the comparison sample. For states without employment protections or accommodations prior to the ADA, there are statistically significant differences in SSI recipient rates prior to the introduction of the ADA in both the unweighted (Column (1)) and weighted (Column (3)) results. There are also statistically significant differences after the introduction of the ADA. However, once state-specific time trends are added, equivalent estimates — in Columns (2) and (4) — do not have statistically significant pretrends or post-ADA effects. The other sample of treated states, which had employment protections but no disability accommodations, have no statistically significant results before or after the introduction of the ADA. These results are presented in Columns (5) and (6) of Table 7.

In summary, there is no precise evidence of an increase in SSI recipients after the implementation of the ADA. That said, the confidence intervals are wider for this outcome than for the previous outcomes, which may account for these results.

5. County-level results for SSI recipients

As discussed in Section 4, time-varying location-based fixed effects cannot be implemented with the state-level data. The results using county-level data are limited to SSI recipients, but they provide useful robustness for the state-level results. The

approach is to focus on counties that lie on a state border, and to compare counties that are in states whose disability employment conditions are affected by the ADA to adjacent counties that are not. In the data set, there are 1,108 counties on state borders. They create 2,239 pairs that span state borders (some counties border more than one other county across state lines). As with the state-level analysis, the data span from 1980 to 1997, with 1981 missing from the analysis.

The analysis is conducted using the three-year periods to increase precision, and the overall estimates come from Equation (6). Like before, the reference period is 1988, and the estimated effects measure the differences between states treated by the ADA and comparison states in terms of the number of SSI recipients per 1,000 population. The coefficients and standard errors are shown in in Column (1) of Table 7. The coefficients in the post-ADA period are positive but not statistically significant at conventional levels, although the confidence intervals include estimates that are potentially economically meaningful and consistent with the state-level results.

Table 9 presents results for the different samples in terms of how states were affected by the ADA. The SSI recipient rates in no employment protection and protection without accommodation states are compared to each other and the comparison ADA-like states. This breakdown is less informative than for the state-level analysis, possibly indicating that the unemployment rate controls available for that analysis, but not for the county-level analysis, are important for accounting for underlying trends in SSI recipient numbers. The reduced precision resulting from the larger standard errors in this analysis make it hard to draw more than suggestive inferences from this analysis.

In summary, these additional results indicate that there may have been some increase in SSI recipient numbers after the introduction of the ADA. However, the gains from being able to analyze outcomes at the county level are offset by the fewer controls and more limited SSI outcomes.

6. Conclusion

The results point to the ADA, and employment laws for disabled workers more generally, as a determinant of SSI application and allowance outcomes. This complements research on SSDI outcomes using the same empirical approach and similar data (Moore 2021), and also contributes to research examining the sources of geographic variation in federal disability receipt (e.g., McCoy et al. 1994, Strand 2002, McVicar 2006, Chaffin and Corder 2018, Gettens et al. 2018).

The results point to an increase in SSI that is concentrated in the three states in the South that had the most limited disability employment laws prior to the passage of the ADA. These results suggest that concerns about the ADA having affected employment may be valid, and that disabled workers with reduced employment prospects were more likely to use SSI when the ADA increased employment protections. This is consistent with the findings for SSDI applications and allowances in Moore (2021), although the effect on allowances is clearer and more striking for SSI than found for SSDI. This is interesting, as SSI protects individuals with more limited work histories who may be more affected by changes in employment incentives. In combination, these projects shed light on the important issues around how disability employment laws interact with the federal safety net for disabled workers.

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Figures and tables

Figure 1: Map showing the different states with existing ADA-like regulations, disability employment protections but not accommodations, and neither protections nor accommodations
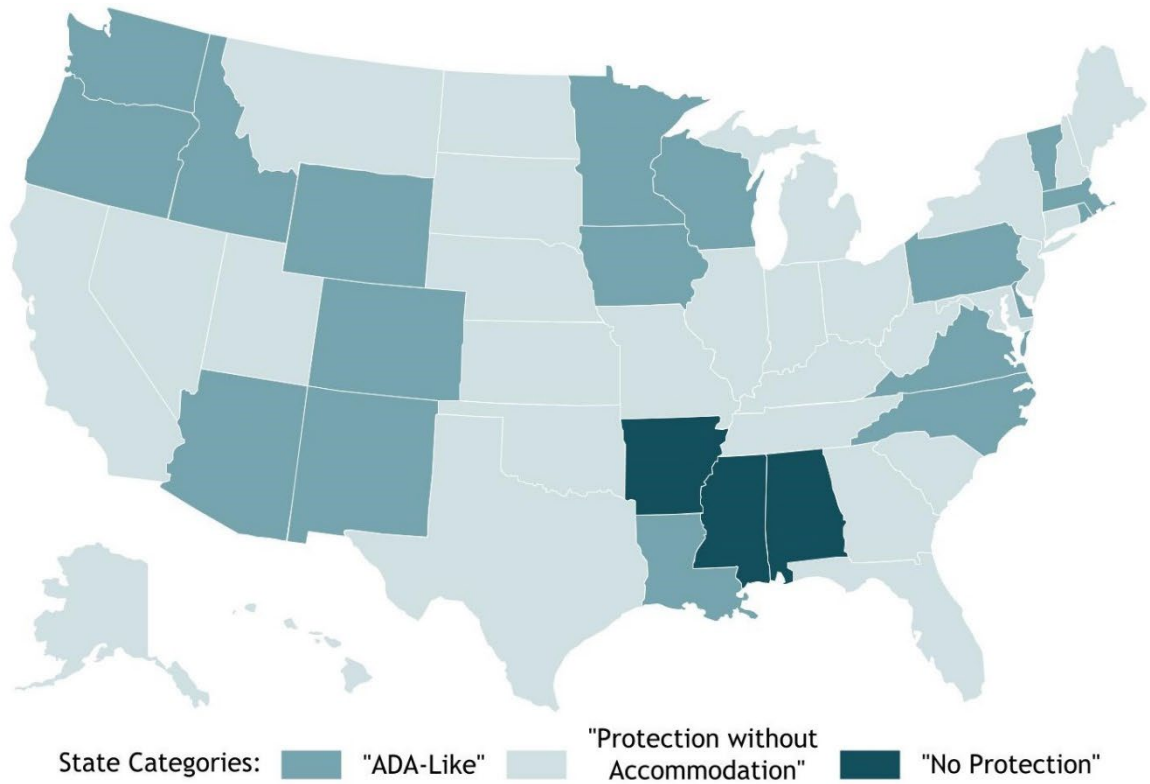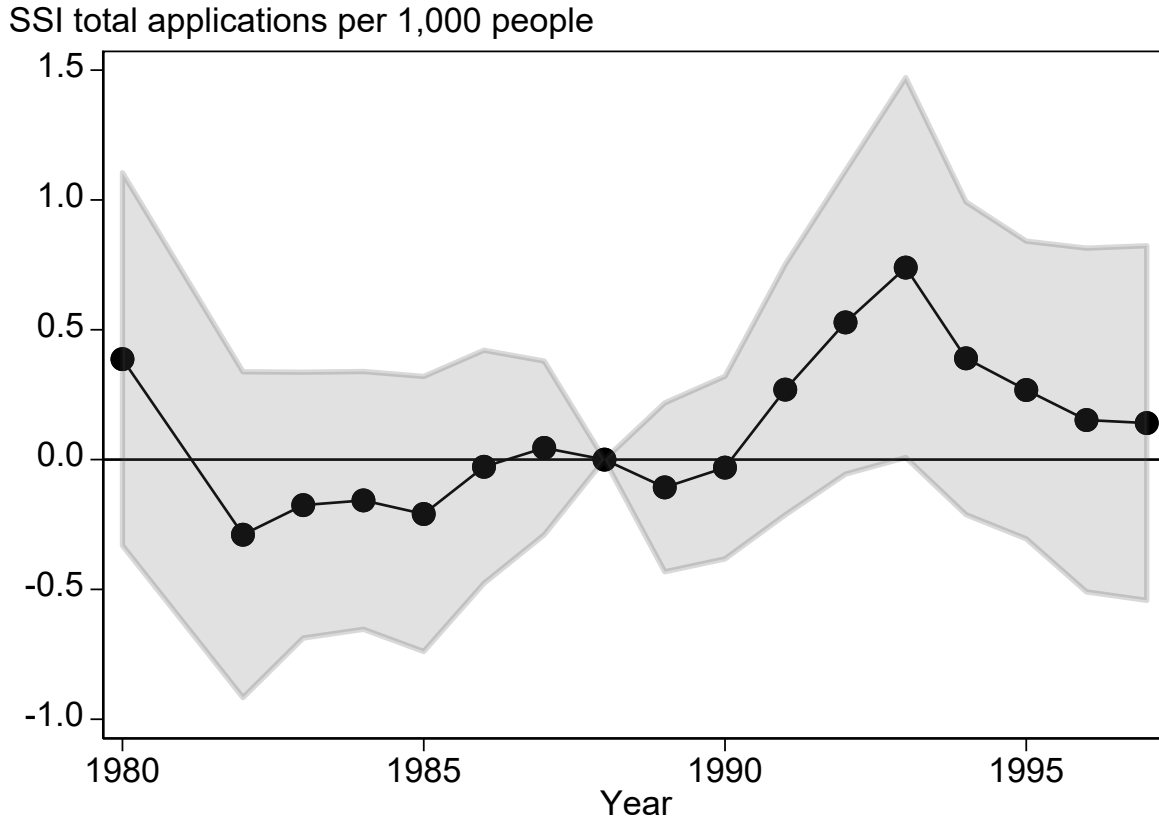
Figure 2: Comparison of SSI application rates in states with and without existing disability employment laws similar to the Americans with Disabilities Act of 1990, relative to rates in 1988

SSI applications per 1,000 people minus 1988 level
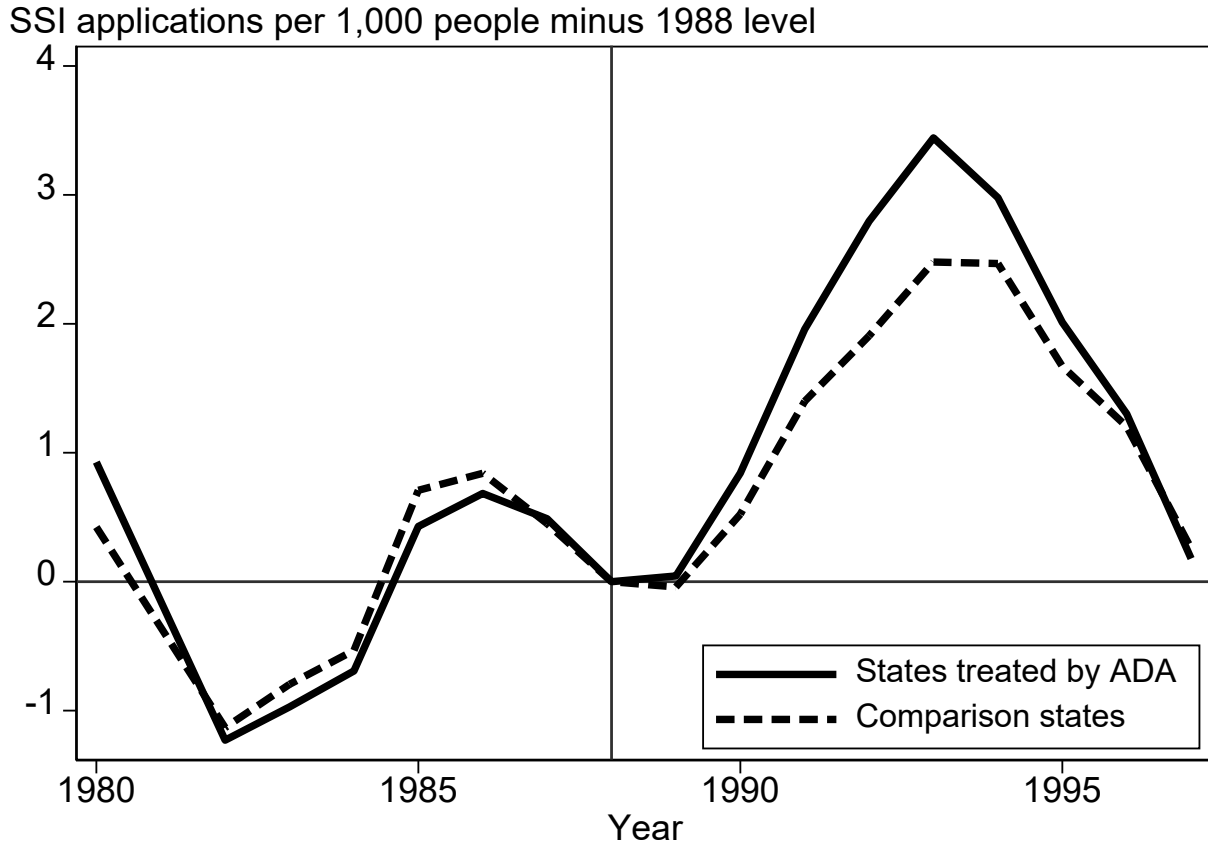
Figure 3: Estimated differences in SSI applications rates in states treated by the ADA relative to comparison states, coefficients and 95% confidence intervals

SSI total applications per 1,000 people

Figure 4: Comparison of SSI application rates in states with and without existing disability employment laws similar to the Americans with Disabilities Act of 1990, relative to rates in 1988
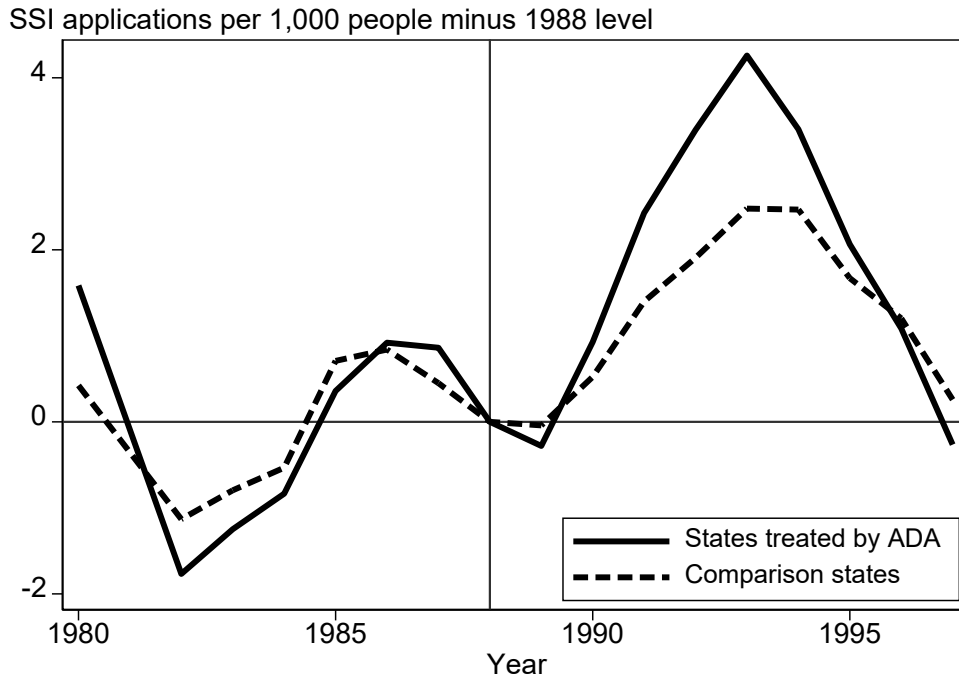
A: No employment protection versus ADA-like states

SSI applications per 1,000 people minus 1988 level

B: Protection without accommodation versus ADA-like states

SSI applications per 1,000 people minus 1988 level

Year

Figure 5: Estimated differences in SSI applications rates in states treated by the Americans with Disabilities Act of 1990 relative to comparison states

A: No employment protection versus ADA-like states

SSI total applications per 1,000 people

B: Protection without accommodation versus ADA-like states
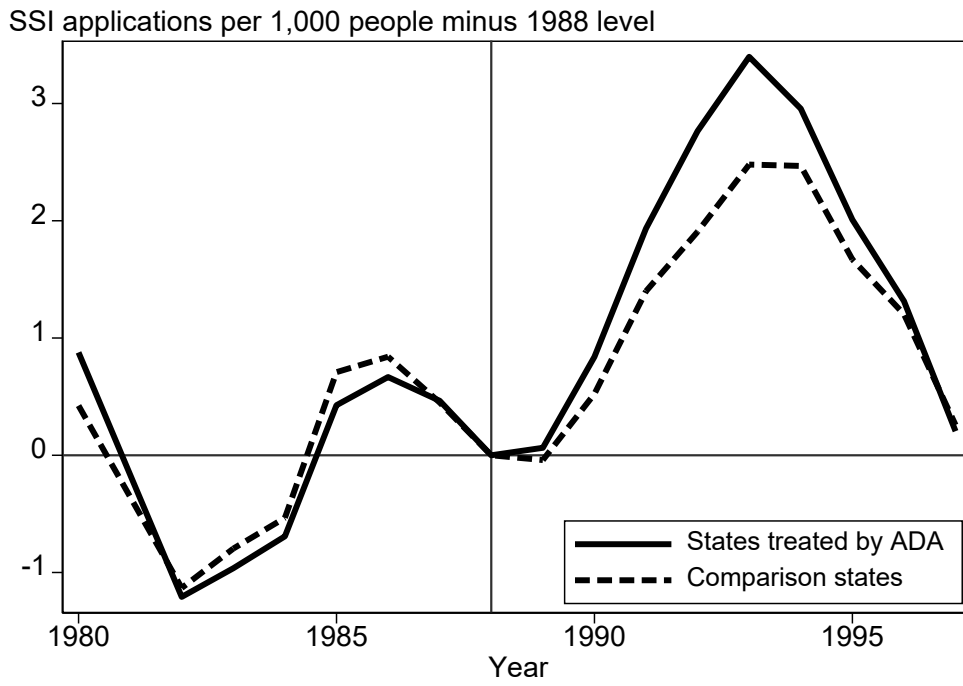
SSI total applications per 1,000 people

Figure 6: Comparison of SSI allowance rates in states with and without existing disability employment laws similar to the Americans with Disabilities Act of 1990, relative to rates in 1988

SSI awards per 1,000 people minus 1988 level

Figure 7: Estimated differences in SSI allowance rates in states treated by the Americans with Disabilities Act of 1990 relative to comparison states
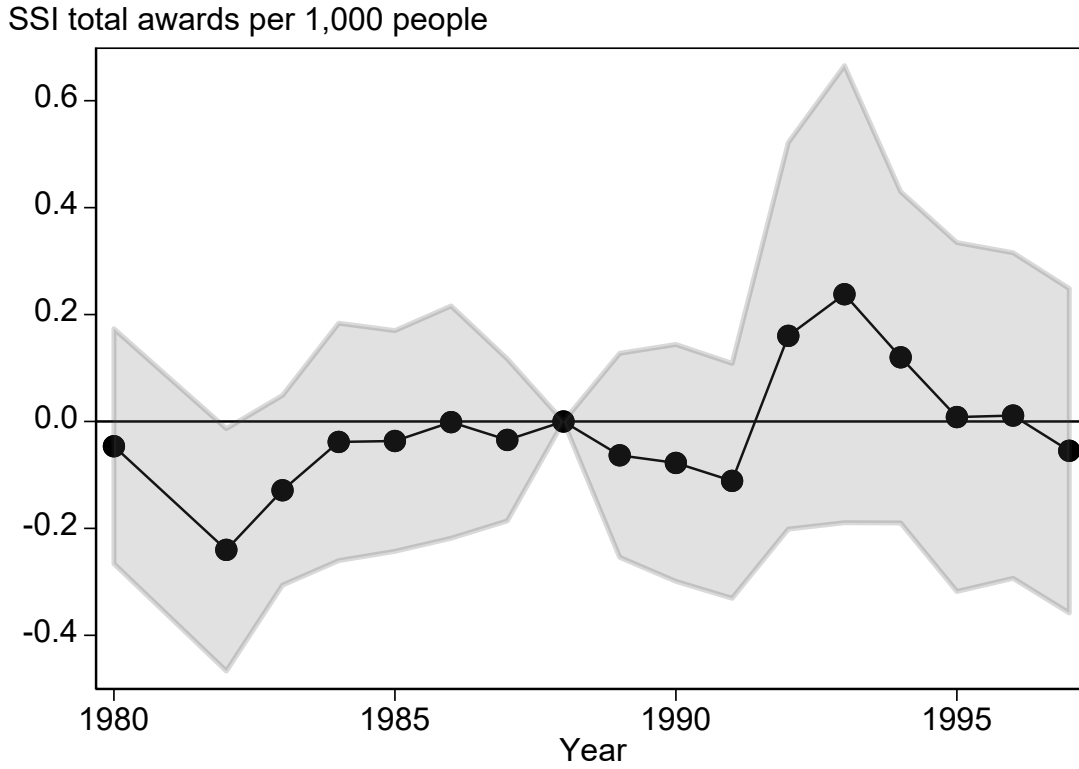
SSI total awards per 1,000 people

Figure 8: Comparison of SSI allowance rates in states with and without existing disability employment laws similar to the Americans with Disabilities Act of 1990, relative to rates in 1988

A: No employment protection versus ADA-like states

SSI awards per 1,000 people minus 1988 level

B: Protection without accommodation versus ADA-like states

SSI awards per 1,000 people minus 1988 level

Legend:
- States treated by ADA (solid line)
- Comparison states (dashed line)
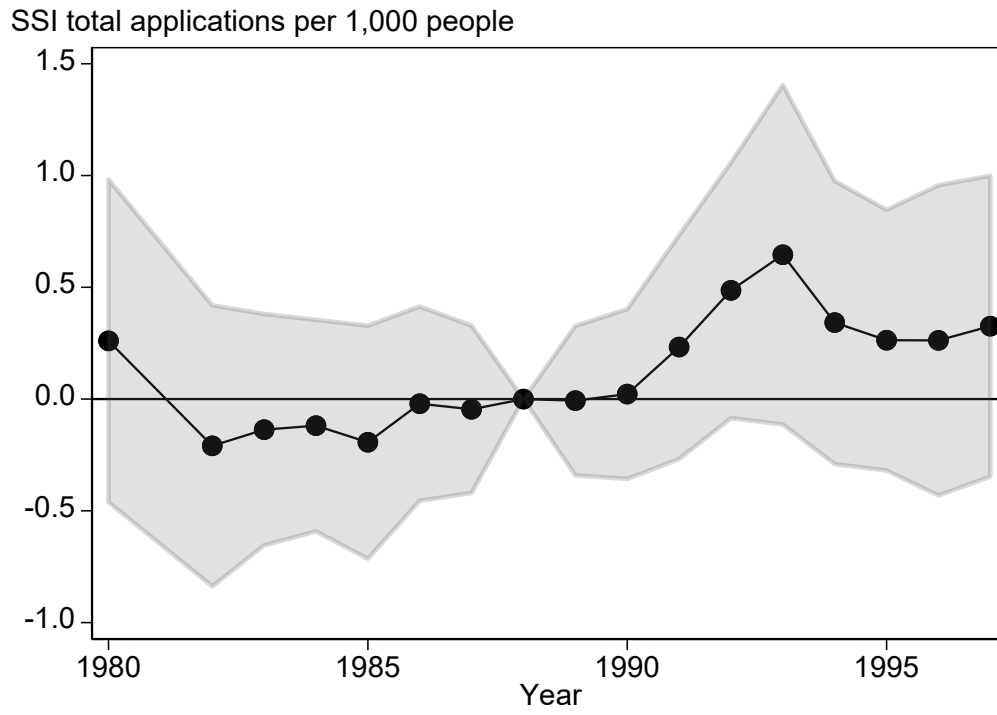
X-axis: Year (1980, 1985, 1990, 1995)
Y-axis: -1, 0, 1, 2

Figure 9: Estimated differences in SSI allowance rates in states treated by the Americans with Disabilities Act of 1990 relative to comparison states

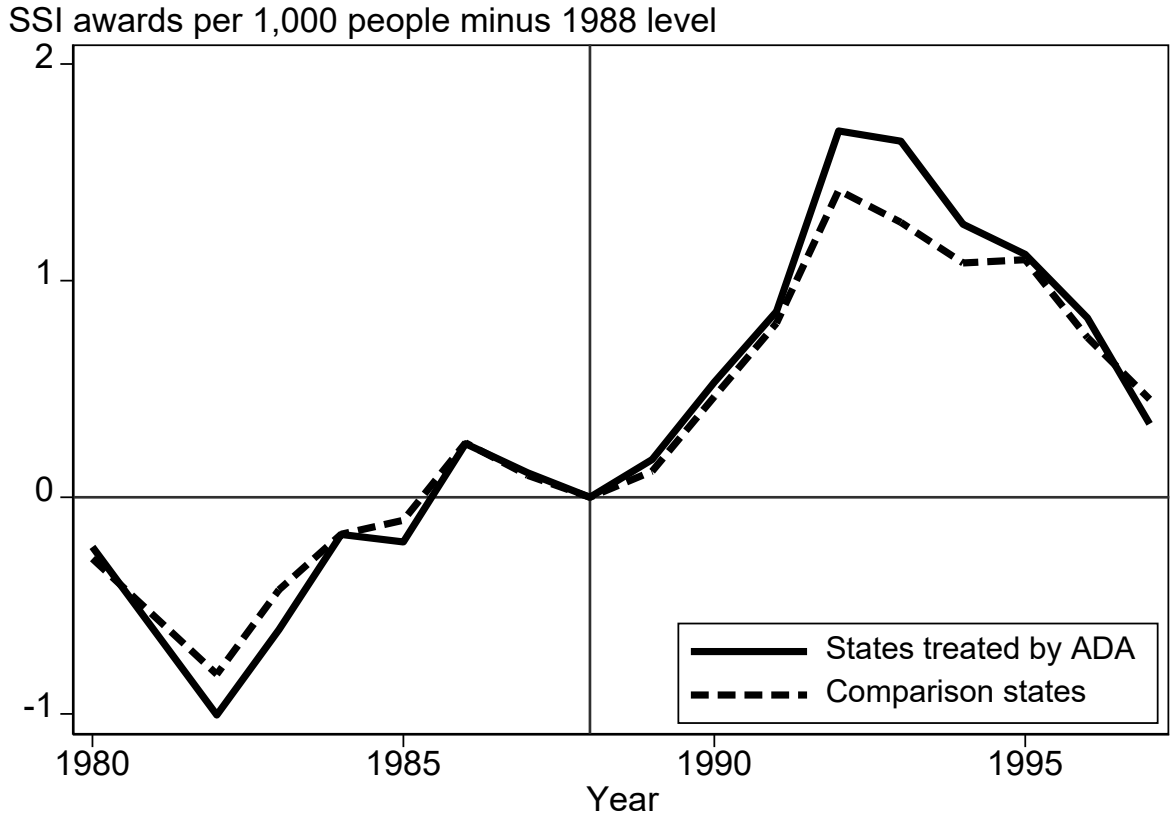A: No employment protection versus ADA-like states

B: Protection without accommodation versus ADA-like states

SSI total awards per 1,000 people

Figure 10: Comparison of SSI recipient rates in states with and without existing disability employment laws similar to the Americans with Disabilities Act of 1990, relative to rates in 1988

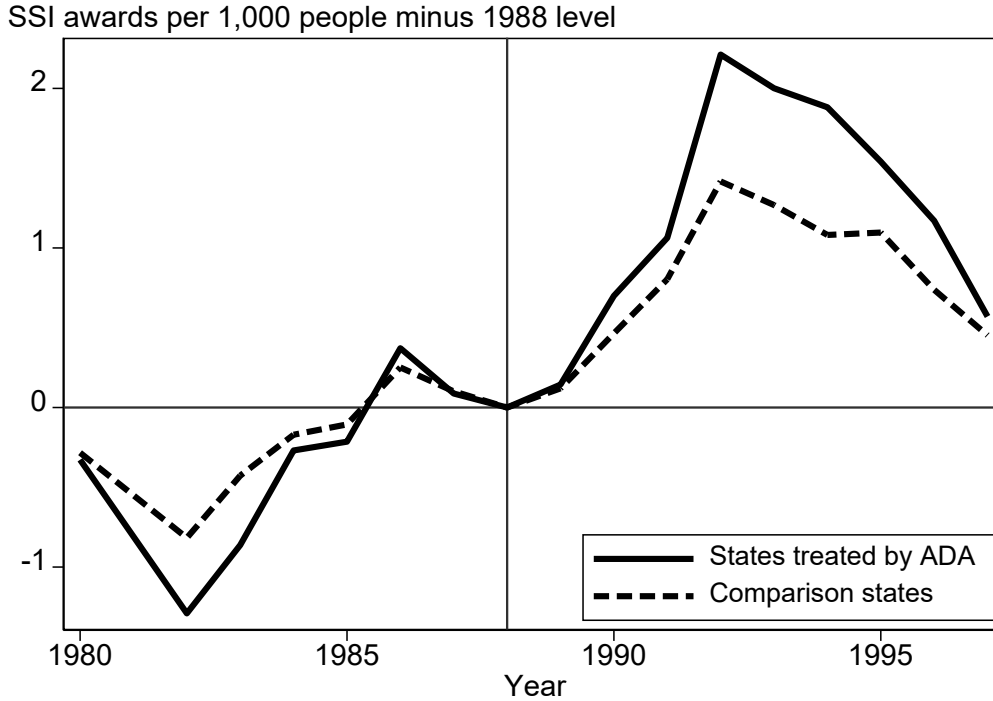SSI beneficiaries per 1,000 people minus 1988 level

Figure 11: Estimated differences in SSI recipient rates in states treated by the

Americans with Disabilities Act of 1990 relative to comparison states
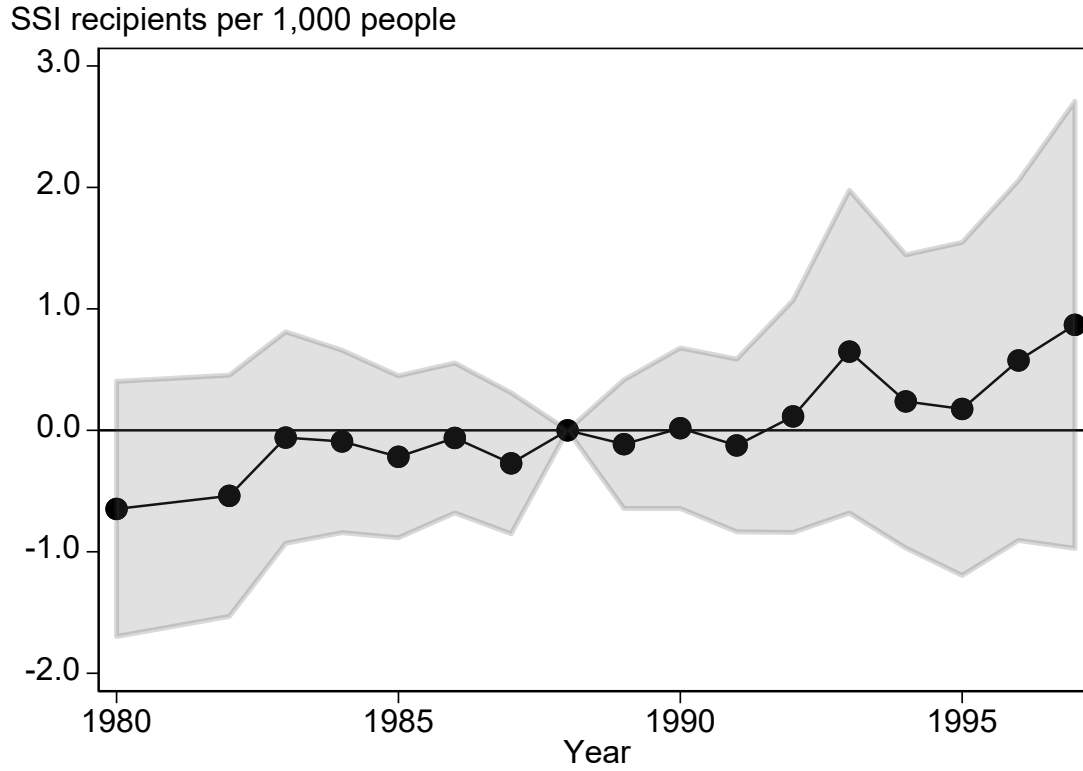
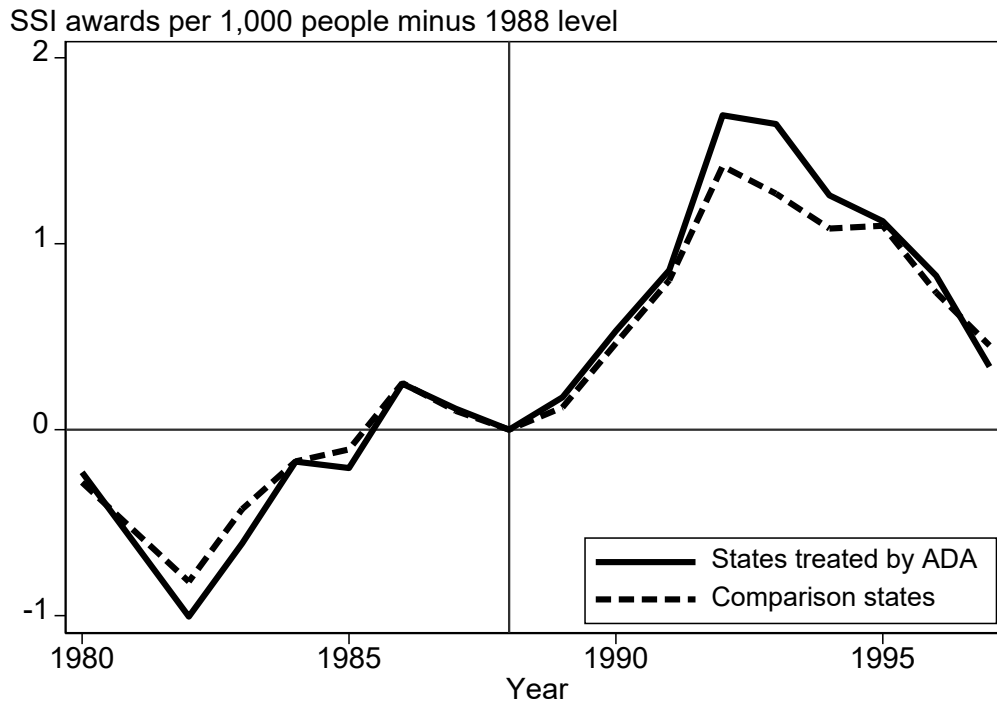*Figure 12: Comparison of SSI recipient rates in states with and without existing disability employment laws similar to the Americans with Disabilities Act of 1990, relative to rates in 1988*

A: No employment protection versus ADA-like states

SSI beneficiaries per 1,000 people minus 1988 level

B: Protection without accommodation versus ADA-like states

SSI beneficiaries per 1,000 people minus 1988 level
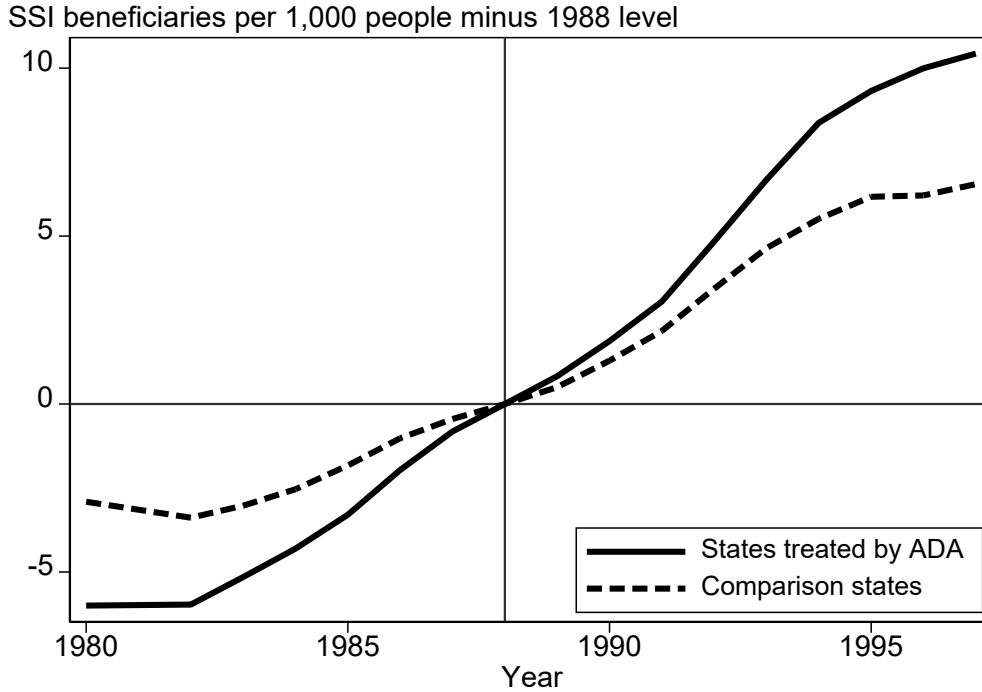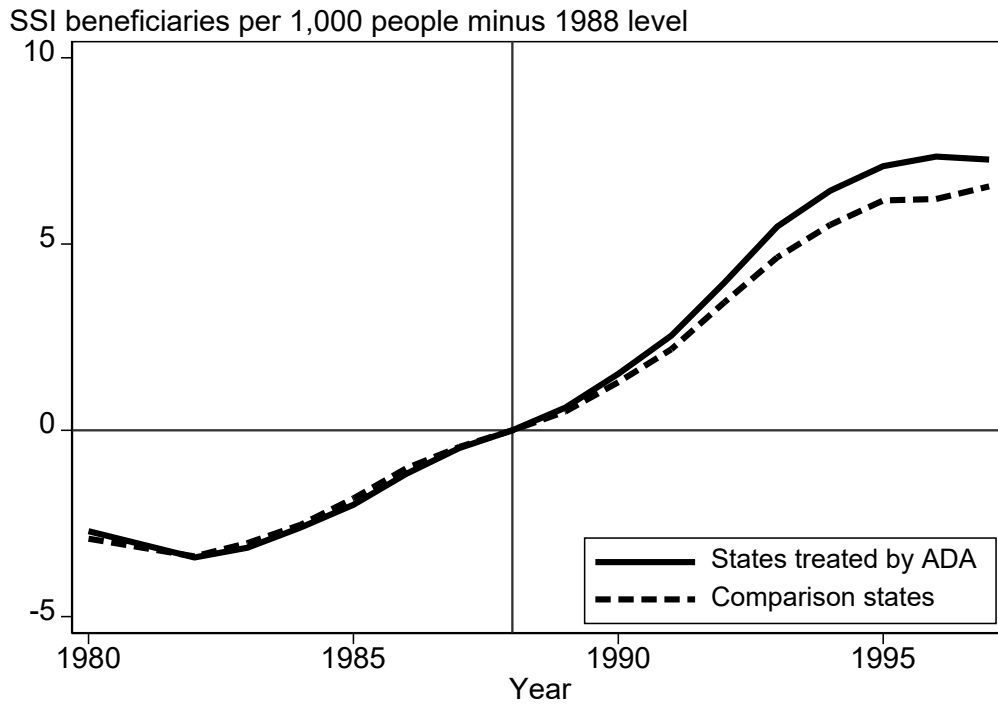
Figure 13: Estimated differences in SSI recipient rates in states treated by the Americans with Disabilities Act of 1990 relative to comparison states

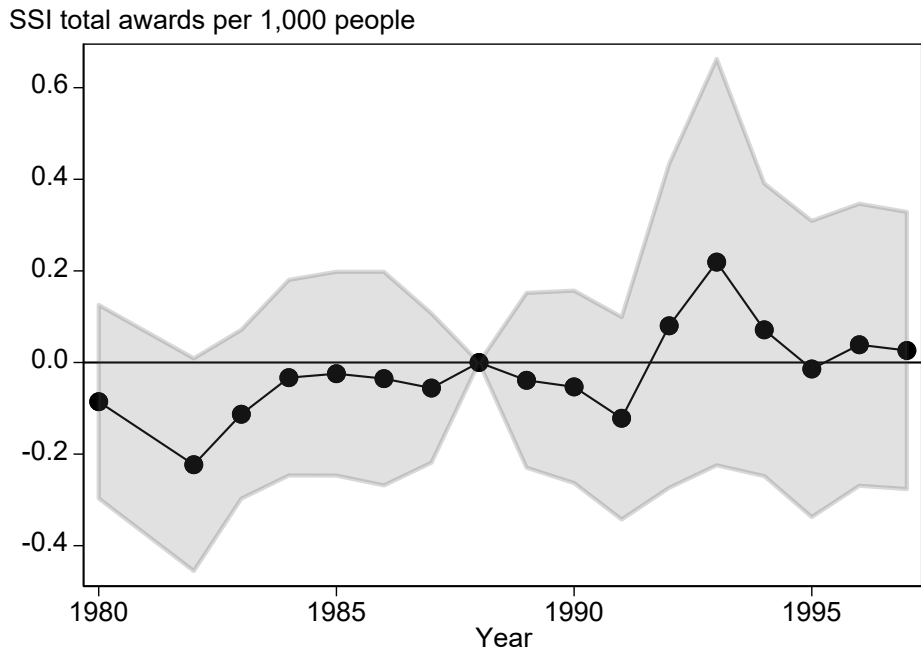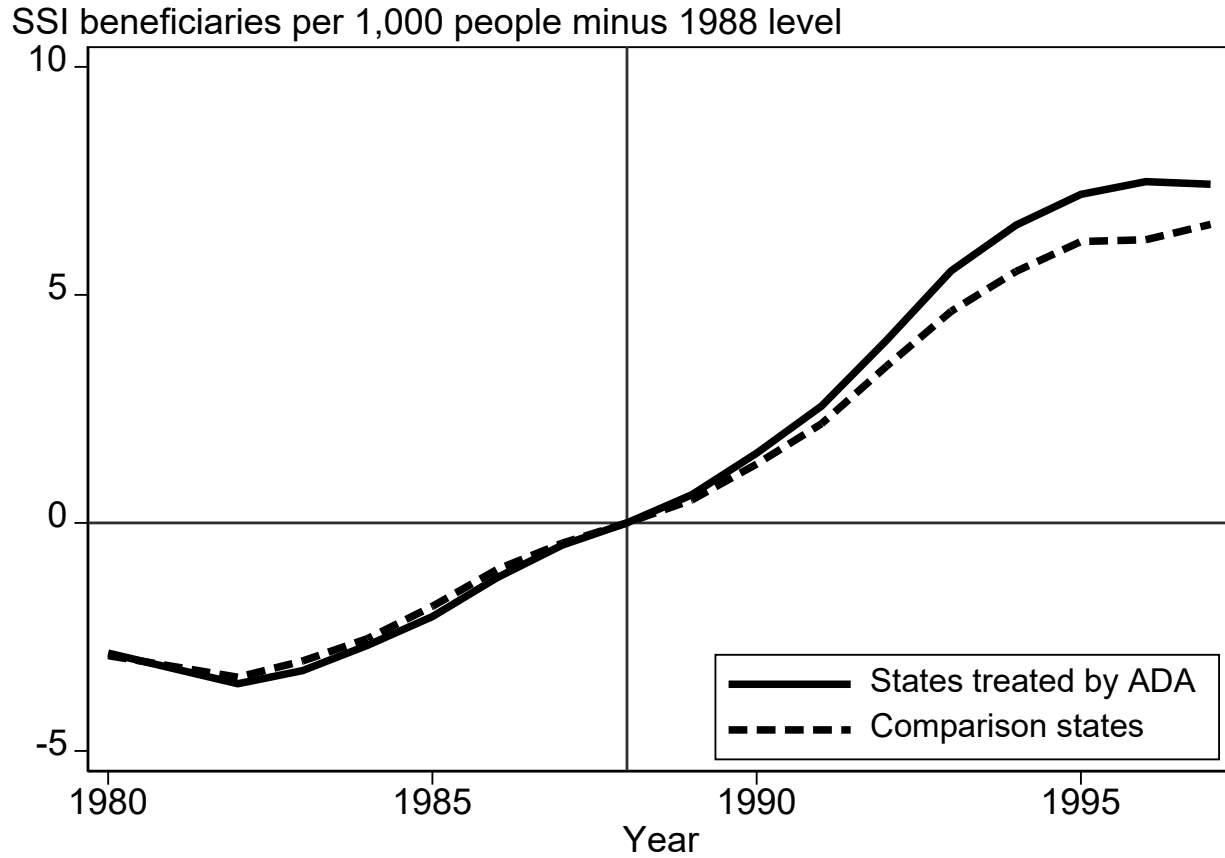A: No employment protection versus ADA-like states

SSI recipients per 1,000 people
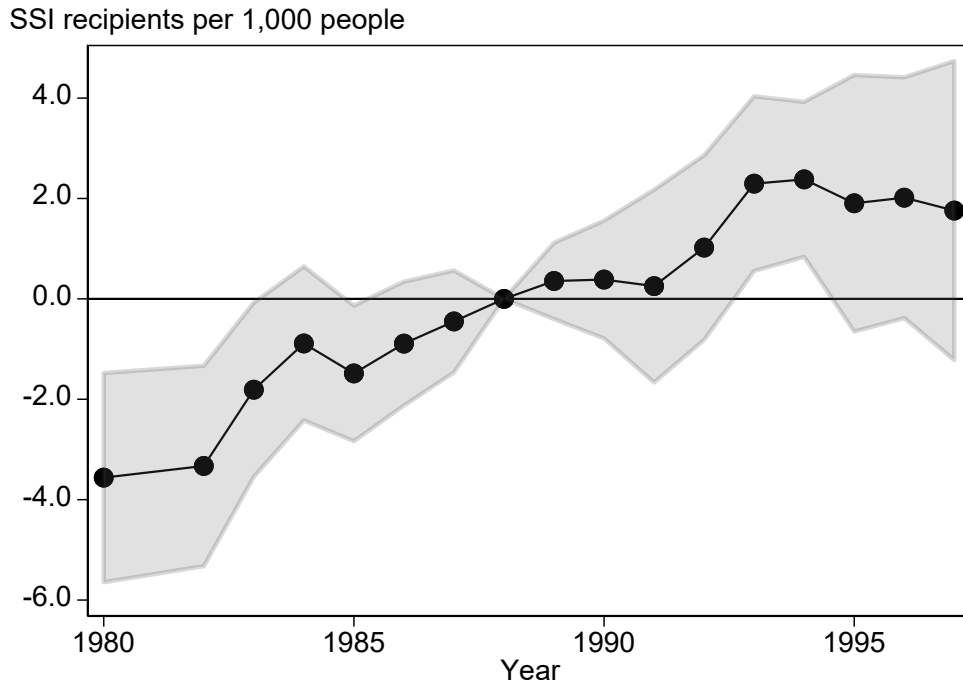
B: Protection without accommodation versus ADA-like states

SSI recipients per 1,000 people

Table 1: Summary statistics for SSI state outcomes, 1980-1997

Variable Name	Observations	Mean	Std. Dev.	Min	Max
Identifiers					
Year	833	--	--	1980	1997
State FIPS codes	833	--	--	1	56
SSI Outcomes					
Total applications	833	22,829	26,206	700	190,880
Total applications per 1,000 people	833	7.2	2.9	2.1	20.9
Total allowances	833	8,638	10,258	150	79,500
Total allowances per 1,000 people	833	2.7	1.2	0.5	7.8
Total recipients	833	61,675	83,831	934	630,896
Total recipients per 1,000 people	833	18.3	8.8	3.0	52.1

Notes: This table summarizes the annual state-level SSI data. The sample includes all years from 1980 to 1997 except 1981. The sample includes Washington D.C. and all states except Alaska and Hawaii.

Table 2: Estimated differences in SSI applications per 1000 people in all states treated by the Americans with Disabilities Act relative to comparison states

	Baseline model	Adding state fixed effects	Adding demographic controls	Adding economic controls
	(1)	(2)	(3)	(4)
Years 1982-84	1.268* (0.554)	-0.146 (0.307)	-0.190 (0.291)	-0.202 (0.241)
Years 1985-87	1.307 (0.665)	-0.108 (0.150)	-0.124 (0.159)	-0.074 (0.155)
Year 1988	--	--	--	--
Years 1989-91	1.531* (0.683)	0.116 (0.146)	0.127 (0.145)	0.017 (0.154)
Years 1992-94	2.030* (0.846)	0.616* (0.299)	0.617* (0.289)	0.479 (0.294)
Years 1995-97	1.629* (0.635)	0.214 (0.302)	0.199 (0.308)	0.184 (0.282)
Average rate in treated states in the reference period	6.85	6.85	6.85	6.85
Number of observations	784	784	784	784
R-squared	0.255	0.939	0.941	0.947
Year fixed effects	X	X	X	X
State fixed effects		X	X	X
Demographic controls			X	X
Economic controls				X

Note: * < 0.05, ** <0.01

Table 3: Estimated differences in SSI applications per 1000 people in states treated by the Americans with Disabilities Act relative to comparison states

	Treated states with no employment protection		Treated states with protections but no accommodations	
	Not weighted by population	Weighted by population	Not weighted by population	Weighted by population
	(1)	(2)	(3)	(4)
Years 1982-84	-0.418 (0.610)	-0.135 (0.837)	-0.168 (0.235)	-0.149 (0.229)
Years 1985-87	0.215 (0.301)	0.395 (0.344)	-0.104 (0.161)	-0.084 (0.224)
Year 1988	--	--	--	--
Years 1989-91	0.046 (0.295)	0.535 (0.268)	0.056 (0.162)	0.309* (0.137)
Years 1992-94	1.189** (0.347)	1.736** (0.382)	0.422 (0.299)	0.746** (0.275)
Years 1995-97	-0.175 (0.429)	0.449 (0.542)	0.293 (0.284)	0.260 (0.325)
Average rate in treated states in the reference period	10.9	11.2	6.25	6.51
Number of observations	352	352	720	720
R-squared	0.968	0.968	0.934	0.939
Population-weighted		X		X

* denotes p<0.05, ** denotes p<0.01. Standard errors in parentheses are clustered by state. All columns include state and year fixed effects, demographic controls and economic controls. Observations weighted by the size of the state's adult population.

Table 4: Estimated differences in SSI allowances per 1000 people in all states

treated by the Americans with Disabilities Act relative to comparison states

	Baseline model	Adding state fixed effects	Adding demographic controls	Adding economic controls
	(1)	(2)	(3)	(4)
Years 1982-84	0.297 (0.163)	-0.147 (0.101)	-0.142 (0.103)	-0.127 (0.087)
Years 1985-87	0.414* (0.190)	-0.030 (0.075)	-0.020 (0.079)	-0.025 (0.078)
Year 1988	--	--	--	--
Years 1989-91	0.405 (0.227)	-0.039 (0.075)	-0.018 (0.076)	-0.085 (0.083)
Years 1992-94	0.667 (0.334)	0.223 (0.174)	0.259 (0.163)	0.175 (0.159)
Years 1995-97	0.484 (0.283)	0.040 (0.155)	0.049 (0.149)	-0.016 (0.137)
Average rate in treated states in the reference period	2.51	2.51	2.51	2.51
Number of observations	784	784	784	784
R-squared	0.364	0.896	0.901	0.912
Year fixed effects	X	X	X	X
State fixed effects		X	X	X
Demographic controls			X	X
Economic controls				X

Table 5: Estimated differences in SSI allowances per 1000 people in states treated by the Americans with Disabilities Act relative to comparison states

	Treated states with no employment protection		Treated states with protections but no accommodations	
	Not weighted by population	Weighted by population	Not weighted by population	Weighted by population
	(1)	(2)	(3)	(4)
Years 1982-84	-0.268 (0.184)	-0.078 (0.299)	-0.119 (0.085)	-0.107 (0.101)
Years 1985-87	0.068 (0.162)	0.142 (0.211)	-0.041 (0.085)	-0.048 (0.113)
Year 1988	--	--	--	--
Years 1989-91	0.063 (0.234)	0.225 (0.168)	-0.071 (0.078)	0.018 (0.089)
Years 1992-94	0.810** (0.177)	0.884** (0.180)	0.126 (0.161)	0.244 (0.185)
Years 1995-97	0.153 (0.327)	0.468 (0.427)	0.015 (0.137)	-0.006 (0.136)
Average rate in treated states in the reference period	3.93	4.00	2.30	2.36
Number of observations	352	352	720	720
R-squared	0.939	0.945	0.897	0.916
State-specific time trends		X		X

* denotes $p<0.05$, ** denotes $p<0.01$. Standard errors in parentheses are clustered by state. All columns include state and year fixed effects, demographic controls and economic controls. Observations weighted by the size of the state's adult population.

Table 6: Estimated differences in SSI recipients per 1000 people in all states

treated by the Americans with Disabilities Act relative to comparison states

	Baseline model	Adding state fixed effects	Adding demographic controls	Adding economic controls
	(1)	(2)	(3)	(4)
Years 1982-84	2.930 (1.714)	-0.409 (0.402)	-0.404 (0.462)	-0.240 (0.389)
Years 1985-87	3.142 (1.828)	-0.197 (0.180)	-0.077 (0.197)	-0.232 (0.227)
Year 1988	--	--	--	--
Years 1989-91	3.444 (2.010)	0.105 (0.165)	0.381 (0.266)	-0.122 (0.256)
Years 1992-94	3.898 (2.331)	0.559 (0.559)	0.798 (0.612)	0.332 (0.544)
Years 1995-97	4.287 (2.620)	0.948 (0.935)	0.890 (0.830)	0.488 (0.706)
Average rate in treated states in the reference period	18.2	18.2	18.2	18.2
Number of observations	784	784	784	784
R-squared	0.211	0.965	0.968	0.977
Year fixed effects	X	X	X	X
State fixed effects		X	X	X
Demographic controls			X	X
Economic controls				X

Table 7: Estimated differences in SSI recipients per 1000 people in states treated

by the Americans with Disabilities Act relative to comparison states

	Treated states with no employment protection				Treated states with protections but no accommodations	
	Not weighted by population	Not weighted by population and with state time trends	Weighted by population	Weighted by population and with state time trends	Not weighted by population	Weighted by population
	(1)	(2)	(3)	(4)	(5)	(6)
Years 1982-84	-1.944** (0.663)	0.024 (0.521)	-1.578 (0.862)	0.282 (0.708)	-0.043 (0.364)	-0.094 (0.397)
Years 1985-87	-0.917* (0.400)	-0.206 (0.275)	-1.056* (0.448)	-0.065 (0.385)	-0.169 (0.275)	-0.160 (0.307)
Year 1988	--			--	--	--
Years 1989-91	0.343 (0.620)	-0.261 (0.363)	0.474 (0.475)	0.055 (0.287)	-0.050 (0.285)	0.154 (0.302)
Years 1992-94	1.795** (0.604)	0.039 (0.256)	1.730* (0.726)	0.321 (0.393)	0.221 (0.563)	0.884 (0.626)
Years 1995-97	1.906 (1.152)	-0.360 (0.466)	2.606* (1.109)	0.270 (0.513)	0.504 (0.773)	0.895 (0.760)
Average rate in treated states in the reference period	31.1	31.1	31.3	31.3	16.3	18.3
Number of observations	352	352	352	352	720	720
R-squared	0.987	0.997	0.985	0.996	0.971	0.975
Population-weighted			X	X		X
State-specific trends		X		X		

* denotes $p<0.05$, ** denotes $p<0.01$. Standard errors in parentheses are clustered by state. All columns include state and year fixed effects, demographic controls and economic controls. Observations weighted by the size of the state's adult population.

Table 8: Estimated differences in SSI recipients per 1000 people in border counties treated by the Americans with Disabilities Act relative to contiguous counties in unaffected states

	Not weighted by population	Weighted by population
	(1)	(2)
Years 1982-84	0.637 (0.763)	0.897 (0.671)
Years 1985-87	0.721 (0.885)	0.980 (0.756)
Year 1988	--	--
Years 1989-91	0.610 (1.030)	0.717 (0.868)
Years 1992-94	0.345 (1.211)	0.362 (1.031)
Years 1995-97	0.500 (1.344)	0.358 (1.161)
Average rate in treated states in the reference period	18.2	18.2
Number of observations	35,508	35,508
R-squared	0.851	0.893
Population-weighted		X

Standard errors in parentheses are clustered by state. All columns include state and year fixed effects, demographic controls and economic controls. Observations weighted by the size of the state's adult population.

Table 9: Estimated differences in SSI recipients per 1000 people in border counties treated by the Americans with Disabilities Act relative to contiguous counties in other states

	Treated states with no employment protection		Treated states with protections but no accommodations	
	Not weighted by population	**Weighted by population**	**Not weighted by population**	**Weighted by population**
	(1)	**(2)**	**(3)**	**(4)**
Years 1982-84	-3.506*	-1.676	1.247	0.535
	(1.616)	(1.820)	(0.679)	(0.881)
Years 1985-87	-2.555	0.027	1.262	0.445
	(1.781)	(2.038)	(0.767)	(0.847)
Year 1988	--	--	--	--
Years 1989-91	-2.779	-0.472	1.005	-0.761
	(1.954)	(2.296)	(0.875)	(1.015)
Years 1992-94	-3.730	-2.355	0.700	-2.094
	(2.275)	(2.484)	(1.027)	(1.452)
Years 1995-97	-2.792	-2.887	0.621	-3.004
	(2.604)	(2.745)	(1.152)	(1.818)
Average rate in treated states in the reference period	31.	31.3	16.3	18.3
Number of observations	35,508	35,508	35,508	35,508
R-squared	0.894	0.905	0.894	0.905
Population-weighted		X		X

* denotes p<0.05, ** denotes p<0.01. Standard errors in parentheses are clustered by state. All columns include state and year fixed effects, demographic controls and economic controls. Observations weighted by the size of the state's adult population. There are 39,960 observations in the analysis.

Appendix A

A1. 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
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