The Supplemental Security Income Program and Welfare Reform

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Abstract:

Over the past 20 years, the Supplemental Security Income Program (SSI), which provides federally funded income support for disabled individuals, has become one of the most important means-tested cash aid programs in the United States. However, little research has examined the determinants of growth in SSI caseloads across states and over time. In this paper I use state panel data, exploiting variation both across states and over time, to determine what factors determine SSI disabled caseloads. I examine the relative importance of a number of factors, including economic conditions, health conditions, relative program generosity, and state fiscal situations. I then examine the effect of welfare reform as well as the effect of variation across states in welfare policies. Given previous research that provides evidence of interactions between the SSI program and other welfare programs that provide income support to single-mother families, I also examine how the effects of the factors listed above have changed since the passage of major welfare reform in 1996. Results suggest that both economic conditions and welfare reform have significant effects on SSI participation and that the SSI program has become more responsive to business cycles since welfare reform.

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I. Introduction

Over the past 20 years, the Supplemental Security Income Program (SSI), which provides federally funded income support for disabled individuals, has become one of the most important means-tested cash aid programs in the United States. The number of adult disabled SSI recipients increased by 89 percent between 1990 and 2010, and the number of child SSI cases quadrupled over this same time period. However, existing research tells us little about the determinants of SSI caseloads, which vary dramatically both across states and over time.

During this same time period, major welfare reform was enacted in the United States. The passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) in 1996 replaced the Aid to Families with Dependent Children (AFDC) program with the Temporary Assistance for Needy Families (TANF) program and was said by then-President Bill Clinton to "end welfare as we know it." Welfare reform corresponded with substantial increases in labor supply and earnings for a number of former welfare recipients, and with unprecedented decreases in the number of AFDC/TANF recipients.

Understanding variation in SSI caseloads is particularly important in the post-welfare reform era for a number of reasons. While SSI is targeted on the disabled and AFDC/TANF is targeted on single mothers, there is some degree of substitutability between the two programs. Previous research provides evidence that some portion of the increase in SSI caseloads can be attributed to efforts to reform the AFDC/TANF program over the same time period (Schmidt and Sevak 2004). Evidence also suggests that some localities actively attempted to move TANF recipients facing time limits to SSI (Pavetti and Kauff 2006). If this is the case, the SSI program might represent an alternative safety net for disabled former welfare recipients. Work by Duggan and Kearney (2007) suggests that SSI benefits have become an important source of income for disadvantaged families and can reduce the incidence of family poverty.

Despite the growth of the SSI program, little research has been done on the determinants of SSI caseloads. Understanding what causes these caseloads to rise is increasingly important from a policy perspective. In this paper I use state panel data, exploiting variation both across

states and over time, to determine what factors affect SSI disabled caseloads, analyzing adult disabled cases and child disabled cases separately. I examine the relative contribution of a number of factors, including economic conditions and demographic variables, health conditions, relative program generosity, and state fiscal situations. I then examine the effect of welfare reform, as well as the effect of variation across states in welfare policies such as time limits and sanctions for noncompliance. Given previous research that provides evidence of interactions between the SSI program and other welfare programs that provide income support to single-mother families, I also examine how the effect of the factors listed above has changed after passage of major welfare reform in 1996. This could be particularly important in the context of the Great Recession, given evidence that suggests that cash aid through the AFDC/TANF program has become less cyclical after welfare reform (for example, Bitler and Hoynes, 2010).

II. Background

A. The Supplemental Security Income Program

SSI is a federally funded program that has provided income support to disabled individuals with limited financial resources since 1974.[1,2,3] One of the original goals of the program was to combine a number of existing state programs aimed at helping the elderly and disabled poor into a federal program with minimum benefit amounts and national eligibility standards (Kennedy 1999). As illustrated in Figure 1, both the adult disabled population (ages 18–64) and the child disabled population (ages 0–17) have increased substantially over the past 30 years. Figure 2 presents the number of SSI participants divided by the relevant population (18–64 for adults, 0–17 for children) and shows that these increases over time have not been

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[1] SSI also provides means-tested income support to the elderly (ages 65 and older). This paper focuses entirely on the SSI-disabled, since a very different set of factors is likely to affect SSI caseloads among the elderly.
[2] The majority of SSI funding is federal, but many states do supplement benefits with state funds.
[3] The SSI program differs from the Social Security Disability Insurance (SSDI) program, a social insurance program that provides benefits to disabled workers who have a sufficient work history to qualify, independent of income and asset tests. The majority of former welfare recipients are not eligible for SSDI, due to insufficient work history.

driven by changes in relative cohort size. Not surprisingly, the increases in the SSI-disabled caseload have led to significant increases in federal spending on the SSI-disabled program. As illustrated in Figure 3, total federal dollars spent on the SSI-disabled program increased from $10.4 billion in 1980 to $38.1 billion in 2009 (all figures in real 2009 dollars). These figures compare with federal 2006 expenditures on TANF of $21 billion, on Food Stamps (also known as the Supplemental Nutrition Assistance Program (SNAP)) of $30 billion, and on the Earned Income Tax Credit of $45 billion (Moffit et al. 2009). However, these comparisons are likely to significantly *underestimate* federal funding on SSI, since they do not include expenditures on Medicaid to SSI recipients.

The federal SSI benefit rate for an individual living alone with no other sources of income is $674 in 2011, and individuals with assets in excess of $2000 are generally ineligible.[4] In addition to asset and income tests, SSI applicants must go through a five-step process to determine whether they have a qualifying disability. First, they must show that they do not earn more than the "substantial gainful activity" (SGA) amount defined by the Social Security Administration. In the second step, those with "non-severe" disabilities or disabilities that are not expected to end in death or last at least 12 months are rejected. In the third step, those with impairments determined by an SSA list to be extremely severe are immediately allowed. In step 4, applicants who are able to work in jobs that they previously held are denied benefits. In step 5, applicants who are deemed able to work in any type of job (conditional on their age, education, and work history) are denied.[5]

B. State-level Variation in SSI Caseloads

Figure 4 presents adult-disabled SSI caseloads (per 1000 population) for a selected group of states between 1980 and 2010. This graph makes clear that even among states in the same region, a great deal of variation exists in both levels and growth of the SSI program.[6] Southern states tend to have some of the highest rates of SSI participation. However, while caseloads rose

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[4] Values of an individual's home, automobile, and household goods and personal effects are excluded from the asset test.
[5] See Lahiri et al. (1995) for a detailed description of the disability determination process.
[6] Similar variation exists for child-disabled caseloads across states.

in West Virginia over the entire 1980–2010 period, they peaked in Mississippi in the mid-1990s and have fallen in most of the subsequent years. New England states Massachusetts and Rhode Island had similar rates of SSI participation in 1980, but diverged in the mid-1990s. Even states with the lowest SSI participation rates, such as New Hampshire and Wyoming, experienced different patterns in the timing of their caseload growth.

While SSI is a federally financed program, there are a number of reasons why we might expect to see state-level variation in SSI participation. First, there may be large differences across states in the demand for SSI. The underlying health of the population varies dramatically by state (Subramanian et al. 2001), and variation in economic conditions across states will affect the number of individuals who would qualify for SSI on the basis of means and asset testing. There could also be interactions between the two—evidence suggests that self-reports of disability, and therefore decisions to apply for SSI benefits, respond endogenously to economic conditions (Waidmann et al. 1995). There are also differences across states in the generosity of other programs that could be considered substitutes for SSI (for example, Bound et al. 1998; Kubik 1999; Garrett and Glied 2000).

Differences also exist across states in the stringency of disability determinations. Even though the disability determination process is regulated by the federal Social Security Administration, initial disability determinations are made by state disability determination service agencies (DDS). State DDSs are responsible for gathering and obtaining medical evidence and making initial determinations on the disability status of an applicant. Evidence from a federal tightening of disability standards in the late 1970s suggests that states interpreted this tightening in different ways and as a result experienced significantly different changes in their allowance rates (Marvel 1982; Gruber and Kubik 1997). More recent evidence shows large differences in initial allowance rates across examiners (Maestas et al. 2010) and in denial rates across appeals judges (French and Song 2011). In addition, there is evidence that suggests that the political party of a state's governor can affect disability application rates (Coe et al. 2011).

C. Potential Explanations for Growth in SSI

As described above, the SSI program has increased dramatically in size over recent years. A great deal of this growth can be attributed to a series of changes in the program stemming from both legislative action and court challenges. The Disability Reform Act of 1984 relaxed the review process for new SSI applicants and also relaxed the continuing disability review process for existing beneficiaries. These changes disproportionately affected individuals with musculoskeletal conditions and mental disorders. The relaxation of disability determination rules was extended to children in the late 1980s and early 1990s. The Social Security Administration began outreach for disabled and blind children beginning in 1989. A number of child mental health impairments, including attention deficit hyperactivity disorder (ADHD), were added to the list of impairments. Finally, a Supreme Court decision in 1990, *Sullivan v. Zebley*, rejected the Social Security Administration's policy of more restrictive standards for children. Due to these changes, testimony from the General Accounting Office to the Senate Finance Committee in 1995 suggested that a large part of the program growth over the 1990s could be accounted for by increases in SSI participation among children (the average annual growth rate in child SSI cases was 16.4 percent between 1986 and 1993). Rupp and Stapleton (1995) suggest that the very nature of the SSI program experienced a significant change beginning in the late 1980s.

The passage of welfare reform in 1996 was associated with direct changes to the SSI program that, for the most part, sought to reverse some of the expansions discussed above.[7] PRWORA made the eligibility standard for children more restrictive, and SSA estimated that approximately 1/3 of child recipients would need to have their eligibility redetermined according to the new standards. PRWORA also eliminated eligibility for noncitizens (although legislation the following year grandfathered in legal immigrants who had entered the country before 1996) and eliminated drug addiction and alcoholism as qualifying conditions. These programmatic changes were at the federal level and therefore did not vary across states. However, the evidence in the previous section does imply that these changes may have been implemented differently by various states' disability determination services.

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[7] For more detailed information about these changes, see Schmidt (2004).

A number of studies have looked at the effects of economic conditions on growth in disability caseloads. Much of this work has focused on the SSDI program, which, given the nature of the two programs, is more likely to be tied to workers and therefore more likely to respond to economic conditions. Autor and Duggan (2003) find that shifts in state-level labor demand predict changes in SSDI participation in ways that interact with the disability program reforms mentioned above. However, the authors note in a footnote that state-level changes in SSI participation, unlike changes in SSDI, are unrelated to changes in labor force participation of high school dropouts. Black et al. (2002) exploit changes in coal prices as a shock to local earnings growth to examine effects of earnings on disability program participation. They find that both SSDI and SSI participation respond to earnings shocks, but that SSI participation is less responsive than SSDI participation.

Other papers that have looked at the effects of the unemployment rate on disability caseloads find mixed results. Work by Stapleton and co-authors (Rupp and Stapleton 1995; Stapleton et al. 1998; Stapleton et al. 1999) suggests that increased unemployment rates associated with the recession of the early 1990s played an important role in the growth of applications and awards during the pre-welfare reform years, but that the unemployment rate had a stronger effect on applications than on awards. Coe et al. (2011) find a positive and significant effect of the unemployment rate on SSDI applications. However, papers by Garrett and Glied (2000) and Schmidt and Sevak (2004) found that unemployment rates were negatively and significantly associated with SSI caseloads for children and female-headed households, respectively. In his review, McVicar (2006) argues that disability and unemployment could be either complements or substitutes, and cites research from a number of case studies that similarly find a negative relationship between unemployment rates and disability rolls (for example, Beatty and Fothergill 1996, 2002).

One potential difficulty with examining the effect of the unemployment rate on disability caseloads is definitional. The unemployment rate measures the number of unemployed individuals divided by the labor force. To be included in the labor force, unemployed individuals must be actively looking for work. But to be eligible for SSA's disability programs, you have to show that you cannot work. The relationship between the

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unemployment rate and SSI caseloads might vary depending on whether the pool of entrants to SSI includes individuals who were working, versus those who were unemployed but actively looking for work, versus those who were out of the labor force entirely. Bound et al. (2003) report that only 30 percent of SSI applicants were employed three years prior to their application. In addition, as noted by Faggio and Nickell (2005), the relationship between disability receipt and the unemployment rate could exhibit reverse causality if those exiting the labor force for disability receipt were the most likely to be unemployed. Autor and Duggan's (2003) results suggest that disability benefit-induced changes in the labor force behavior of lower-skilled workers might have lowered the unemployment rate by 1/2 of a percentage point since 1984.

Even though both SSI and SSDI rolls have increased dramatically over time, there remains a debate in the literature about whether the underlying prevalence of disability and poor health has changed. Cutler and Richardson (1997) suggest that the health of the U.S. population has been increasing over time. Duggan and Imberman (2009) look at self-reported activity-limiting conditions, and find that changes in health over the past two decades should actually have slowed the growth of SSDI.

However, other aspects of measured health have been worsening over this time period. Most notably, obesity rates have increased dramatically, rising from approximately 15 percent in 1980 to over 30 percent in 2010. Lakdawalla et al. (2004) find that disability prevalence has been increasing among non-elderly adults, and that between 1/10 and 1/2 of this growth can be explained by increases in obesity, depending on the age group. Similarly, Butcher and Park (2008) find that growth in the share of prime-age males who are obese can explain 3–12 percent of the increase in nonemployment among men between the 1980s and 2000s. In addition, treatment for mental health disabilities has increased dramatically over this time period. In 2002, over 60 percent of disabled recipients 18–64 years of age were eligible on the basis of a mental disability.

D. Interactions between SSI and AFDC/TANF

Some portion of the increase in SSI caseloads may also be attributed to efforts to reform the AFDC/TANF program over the same time period. Both programs serve disadvantaged populations that tend to have low levels of education and minimal work history. In addition, even though AFDC/TANF is not targeted on the disabled, high rates of both physical and mental impairments exist among recipients (Loprest and Acs 1995; Danziger et al. 2000; Nadel et al. 2003/2004).

There are advantages to both states and individuals to moving beneficiaries from AFDC/TANF to SSI. Because SSI is federally funded, whereas AFDC was funded by a matching grant, states benefitted financially from moving recipients from AFDC to SSI. PRWORA strengthened these incentives by replacing AFDC's matching grants with fixed TANF block grants. For individuals, monthly SSI benefits are larger than AFDC benefits in most states. SSI benefits are also increased each year to reflect changes in the cost of living, while TANF benefits tended to decrease in real terms over this time period. As a result, the gap between benefits in the two programs has increased. Wamhoff and Wiseman (2005/2006) note that in 2003 an SSI award to an adult in a three-person TANF family would increase family income by 115.4 percent on average and that this gain was 6 percent higher than it was in 1996. Even without the widening financial incentives, SSI is relatively more attractive post welfare-reform, given that TANF has stringent work requirements, time limits, and sanctions for not complying with rules. This is particularly true for women with barriers to employment.[8] As TANF becomes relatively less attractive, more individuals may be willing to undergo the lengthy SSI eligibility determination process.

Existing research documents significant interactions between SSI and AFDC/TANF. Garrett and Glied (2000) find that in the years immediately following the *Sullivan v. Zebley* decision, the states with the highest AFDC benefits saw the smallest increase in SSI participation among children. Kubik (1999) finds that families who were likely to receive higher levels of cash benefits from other programs were less likely to apply for SSI. Schmidt and Sevak (2004) find

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[8] The PRWORA legislation does allow states to exempt up to 20 percent of their caseload from the federal time limits for hardship reasons.

that the state-level welfare waivers that preceded welfare reform in 1996 led to a significant increase in the likelihood that single-mother families reported SSI receipt. Wamhoff and Wiseman (2005/06) find that 16 percent of families receiving TANF in 2003 included a child or adult SSI recipient. They conclude that "a significant proportion of each year's SSI awards to disabled non-elderly people go to TANF recipients (p. 22)."

III. Study Contributions

Despite the rapid growth in SSI caseloads, little work has examined the factors that influence changes in SSI caseloads across states and over years. Notable exceptions include Duggan and Kearney (2007), which includes a section on demographic determinants of child SSI participation, and Coe et al. (2011), which looks at state-level determinants of SSDI application rates, but also looks at SSDI-SSI concurrent applications.

In this paper I use state panel data, exploiting variation both across states and over time, to determine what factors affect SSI disabled caseloads, analyzing adult disabled cases and child disabled cases separately. I examine the relative contribution of a number of factors, including economic conditions and demographic variables, health conditions, relative program generosity, and state fiscal situations.

Given the interactions between SSI and AFDC/TANF outlined above, it is important to examine the effects of welfare reform on SSI caseloads. Furthermore, the effects of other variables on SSI caseloads (for example, economic conditions) might plausibly be expected to differ before and after passage of welfare reform in 1996. For example, Bitler and Hoynes (2010) find that participation in cash welfare programs like TANF has become less cyclical since welfare reform, but that participation in the Food Stamp program has become more cyclical, as have poverty rates. They argue that the changes implemented by PRWORA mean that the TANF cash safety net provides less protection post welfare-reform, but that other programs such as Food Stamps are helping to mitigate negative recessionary impacts.[9]

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[9] Bitler and Hoynes (2010) find no evidence that self-reported SSI participation has become more cyclical after welfare reform. However, unlike their analysis of AFDC/TANF and Food Stamps, their analysis of SSI participation does not look at SSI administrative data, which are not subject to the underreporting found by Meyer et al. (2009).

IV. Methodology and Data

I estimate equations of the form:

$$Ln(Caseload)_{st} = \theta X_{st} + \gamma P_{st} + \delta_s + \lambda_t + \varepsilon_{st}, \qquad (1)$$

where *Caseload* is a dependent variable measuring the number of adult SSI-disabled recipients, the number of female SSI-disabled recipients, or the number of child SSI-disabled recipients in state *s* during year *t*. I estimate regressions for female SSI-disabled recipients separately, since welfare reform should have had larger effects on SSI participation of women.[10] These counts of SSI recipients come from the Social Security Administration's administrative data and as a result are not subject to the significant underreporting of transfer program participation that has been found in most household surveys (Meyer et al. 2009). I divide these recipient totals by the relevant population to calculate a caseload share, and then take natural logs. *X* is a vector of economic and demographic characteristics that vary by state and year, and *P* is a vector of policy variables. This specification controls for state fixed effects (δ_s) and year fixed effects (λ_t), causing model identification to be driven by changes across states and over time.[11] The sample period consists of years 1990–2010. I calculate robust standard errors clustered by state.

Economic variables analyzed include the log of per capita personal income and the unemployment rate. Demographic variables include the percentage of births that occur to unmarried mothers, the share of the population that is black, and the share of the population that consists of newly arrived immigrants. These variables have been shown to affect AFDC/TANF caseloads in previous literature. In addition, having an unmarried mother is significantly associated with SSI receipt for children (Duggan and Kearney 2007). Policy variables analyzed include the minimum wage (the maximum of the federal or state minimum wage in place in that state and year) as well as variables that approximate the relative benefit generosity of SSI and AFDC/TANF. Since SSI benefits are set at the federal level, there is no cross-state variation in the main benefit amount. However, many states provide supplementary SSI benefits. I control for the maximum SSI state supplement for a disabled individual. I also

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[10] To more precisely estimate the effects of welfare reform, it would be useful to have information on SSI receipt by single mother families. However, this is not possible with the administrative data.

[11] This general approach is similar to that used by Blank (2001) to examine the determinants of AFDC caseloads.

control for the maximum AFDC/TANF benefit for a family of three. Given the important role played by states in administering their SSI programs, and the finding of Coe et al. (2011) that the governor's political party significantly affects SSDI-SSI concurrent applications, I include an indicator for whether the state has a Democratic governor. I also control for the share of the population that is obese, which previous literature has shown to contribute to disability rates.

As described above, there have always been state-level fiscal incentives for moving recipients from AFDC to SSI. PRWORA strengthened these incentives by replacing AFDC's matching grants with fixed TANF block grants. Work by Kubik (2003) has shown that states undergoing unexpected fiscal distress were more likely to show increases in child SSI caseloads relative to their AFDC population during the 1990s. I use Kubik's fiscal distress measure (calculated from data collected from the National Association of State Budget Officers (NASBO)), which is defined as follows:

Unexpected fiscal shock = (actual state expenditures – forecasted state expenditures) – (actual state revenues – forecasted state revenues).

A positive value indicates that the state had a larger deficit than it had forecasted and therefore suggests fiscal stress at the state level. I allow positive and negative fiscal shocks to have asymmetric effects on SSI caseloads. The fiscal shock value is divided by the state population to create a per capita value.

In addition, as mentioned earlier, the passage of welfare reform itself had implications for SSI caseloads. I control for the timing of the implementation of major welfare reform with an indicator for when a major statewide waiver was enacted in the pre-PRWORA years and an indicator for when a state's TANF plan is implemented post-PRWORA. These variables have been used by a number of researchers to estimate effects of welfare reform on a variety of outcomes, including but not limited to AFDC/TANF caseloads and labor force participation (for example, Schoeni and Blank 2000; Bitler et al. 2006a and 2006b; Matsudaira and Blank 2008).

The passage of PWRORA also led to a significant devolution of power to determine welfare policy from the federal government to the states. In the years since 1996, there has been a large increase in the variation across states in welfare policies. In some localities, impending TANF time limits were an impetus to try to more actively move recipients to SSI (see, for

example, Pavetti and Kauff (2006)), so variation in time limit policies could be important. In addition, evidence from the states suggests that families with disabilities were more likely to be sanctioned from TANF than other families (Cherlin et al. 2001; Goldberg and Schott 2002), so sanction policies could lead to higher SSI caseloads. I examine the effects of TANF time limits and sanction policies on SSI caseloads.[12]

I consider the specification in equation (1), above, to be the baseline specification. However, I also estimate several alternate specifications. First, given the potential concerns raised in Section II about the unemployment rate, I follow work by Faggio and Nickell (2005) and instrument for the unemployment rate using a shift-share measure developed by Bartik (1991). This measure isolates exogenous changes in labor demand by taking the national industry employment shares in each period and weighting by the initial state-level industrial composition.[13]

Finally, it is possible that the passage of welfare reform caused structural changes in the relationship between SSI caseloads and other variables. To test this possibility, I interact the indicator for TANF implementation with my main variables of interest. Table 1 presents summary statistics for all model variables. A detailed description of each variable and its source can be found in the data appendix.

V. Results

Table 2 presents results using adult disabled SSI caseload share as the dependent variable. Columns 1 and 2 present results from the baseline specification and Columns 3 and 4 present results from the instrumental variables specification. For each specification, the first column controls for welfare reform by including indicators for whether a major welfare waiver was in place and for when TANF was implemented, and the second column replaces those indicators with controls for TANF strict time limits and TANF sanction policies.

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[12] Thanks are due to Jordan Matsudaira and Rebecca Blank for providing these data.
[13] Thanks are due to Chris Foote for providing these data.

The results presented in Column 1 show that for adults, economic variables have significant effects on the SSI caseload share, but not always in the direction that would be expected if SSI is a substitute for employment. Higher per capita personal income is associated with a lower SSI caseload share, significant at the 1-percent level. The coefficient estimate suggests that a 10 percent increase in per capita personal income would be associated with a 6 percent decrease in SSI caseload share. However, higher unemployment rates are also associated with a significantly lower SSI caseload share, such that a one-percentage-point increase in the unemployment rate would lead to a 2.4 percent decrease in caseload share.[14,15] This unemployment rate effect is the opposite of findings by Stapleton et al. (1998, 1999) but is consistent with results from Garrett and Glied (2000) and Schmidt and Sevak (2004).

The share of births that are nonmarital is positively and significantly associated with the adult disabled SSI caseload share. A one-standard-deviation increase in the share of nonmarital births would lead to an increase in SSI caseload share of approximately 8 percent. For adults, higher AFDC/TANF benefits for a family of three are negatively associated with the SSI caseload share. The obesity rate is not significantly associated with adult SSI participation. Consistent with work by Kubik (2003), I find that unexpected state-level deficit shocks significantly affect the adult SSI caseload share, with the effect for a negative shock roughly twice the magnitude of the effect of a positive shock.

While the point estimate on TANF implementation is positive, it is not statistically different from zero. However, the major welfare waivers implemented pre-PRWORA are positively and significantly associated with SSI caseload share, consistent with work by Schmidt and Sevak (2004). Column 2 replaces the indicators for passage of welfare reform with variables for specific state welfare policies. The magnitudes and statistical significance of the other variables are largely unchanged. The presence of strict state TANF time limits is negatively and significantly associated with SSI caseload share, which is the opposite of what would be

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[14] Regressions using the employment/population ratio instead of the unemployment rate provide similar results.
[15] Regressions estimated without state fixed effects do find the expected significant positive correlation between unemployment rates and SSI caseload share.

expected.[16] However, state sanction policies for TANF recipients are positively and significantly associated with higher SSI caseload share among adults, consistent with evidence that the disabled were more likely to be sanctioned from the TANF rolls. The presence of a TANF sanction policy is associated with a 4.8 percent increase in SSI caseload share.[17]

Results from the instrumental variables specification in Columns 3 and 4 are generally similar to the baseline specification. Contrary to work by Faggio and Nickell (2005), instrumenting for unemployment rates actually *increases* the magnitude of the estimated negative effect on caseload share. IV results also show a negative and significant effect of the share of newly arrived immigrants on caseload share, as well as a positive and significant relationship between the obesity rate and SSI participation.

Results in Table 3 present similar results, but for the SSI-disabled share among adult women. These results are similar in magnitude and statistical significance to the results presented in Table 2. Unemployment rates continue to be negatively and significantly associated with SSI caseload shares, although they are no longer statistically significant in the IV specification. As would be expected, the welfare reform variables (both indicators for implementation as well as specific TANF time limit and sanction policies) have a stronger effect for women than for the overall adult disabled SSI caseload.

Results in Table 4 analyze child SSI caseload share. Economic conditions have similar effects on the child caseload share as on the adult caseload share, with both log per capita personal income and the unemployment rate negatively and significantly associated with child caseload share. The share of nonmarital births is positively and significantly associated with the child SSI caseload share, as is the share of the population that is black.

Higher minimum wages are positively associated with the share of the child population receiving SSI benefits, which is somewhat counterintuitive if we think that higher minimum wages increase the return to work and therefore make disability benefit receipt less attractive.

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[16] Regressions that control for lagged time limits, or that control for the presence of binding time limits (where some segment of the TANF population could be dropped from the rolls for reaching the time limits) provide similar results.

[17] In regressions not reported here, I allow the effects of sanction policies to vary depending upon whether they are immediate full family sanctions or gradual and partial sanctions. I find no evidence that the effects of TANF sanctions differ by type.

One possible interpretation of this coefficient might be that higher minimum wages reduce employment opportunities for the low-skilled parents of disabled children. However, another possibility is that if states that are more likely to increase their minimum wage are also states where it is easier for children to get onto SSI, this result might be picking up some unobservable differences in state generosity.[18] Relative generosity of AFDC/TANF and SSI benefits seem to matter in the expected directions, with higher AFDC/TANF benefits and lower SSI supplements both reducing child SSI caseload share. As in the adult regressions, TANF sanction policies also significantly increase child SSI caseload share.

Results in Table 5 allow the effects of the model variables to differ in the post-PRWORA period by interacting variables with the indicator for TANF implementation. Results for adults are presented in Columns 1 and 2, for women in Columns 3 and 4, and for children in Columns 5 and 6. Columns 1, 3, and 5 display baseline results (without welfare reform variables) that constrain the effect of model variables to be constant throughout the entire sample period. Columns 2, 4, and 6 present the coefficient for each model variable, as well as its interaction with the indicator for the implementation of TANF. For some model variables, the effects remain relatively constant throughout the entire model period, as the interaction terms are not statistically different from zero. This is the case for log per capita personal income, which has relatively consistent effects throughout the 1990–2010 time period. However, there are some interesting differences that emerge when effects are allowed to differ by period. There is some evidence that the relative magnitudes of AFDC/TANF benefits and SSI supplements matter less after welfare reform for children, which would be consistent with the weakening of the safety net provided through TANF. Results also suggest that the effect of having a Democratic governor on SSI caseload share has become more positive since welfare reform, and that the positive association between the black population share and the SSI caseload share has become weaker after welfare reform.

Interestingly, despite the somewhat counterintuitive relationship between the unemployment rate and the SSI caseload share over the full time period, the interaction

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[18] Adding a variable that measures the generosity of state-level earned income tax credits (EITC) to the regressions results in significant, positive, state EITC effects and reduces the magnitude of the minimum wage coefficients, lending support to this interpretation.

between unemployment rates and TANF implementation is positive. For women, the coefficient on the interaction term approaches statistical significance at the 10-percent level, and for children, it is positive and strongly statistically significant. These results suggest that for all groups except adult males, the SSI caseload share has become *more* cyclical post-PRWORA.

These results are robust to a number of specification tests. Estimating equation (1) with a dependent variable in levels instead of logs provides similar results, as does adding controls for the educational level of the population. Excluding the years of the Great Recession does not substantially change estimates, suggesting that the post-welfare reform unemployment rate results are not driven by the extremely high and sustained levels of unemployment seen during and after 2008. Unemployment rate effects are robust to excluding the fiscal shock variables, as well as to excluding per capita personal income. Results are also robust to accounting for spatial correlation (see Foote 2007), both by calculating Cameron-Gelbach-Miller (2006) standard errors that account for this correlation and by interacting year fixed effects with dummies for census regions (Foote 2007).

VI. Discussion

This paper provides preliminary evidence about the role of economic conditions and policy variables on adult and child SSI-disabled caseloads, and about how those effects may have changed in the post-welfare reform era. Preliminary results suggest that higher levels of per capita income reduce the SSI caseload share for both adults and children, and that higher percentages of nonmarital births are associated with greater SSI participation. The welfare waivers implemented in the early 1990s have had a significant effect on SSI participation among adult women, and TANF sanction policies significantly increase SSI caseload share for both adults and children. Results from a specification that allows effects to vary post TANF-implementation suggest that SSI participation has become more cyclical post-welfare reform for adult women as well as for children, and that the presence of a Democratic governor is more positively associated with SSI caseload share after welfare reform.

The robust negative relationship between unemployment rates and SSI caseload share for all groups is puzzling, although results suggest that this relationship has become

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significantly less negative since welfare reform. Further work is necessary to fully understand this relationship. One possibility is that it is related to the distinction between stocks and flows. The dependent variable used in this analysis represents the stock of individuals on the SSI program, but economic conditions should affect transfer program rolls primarily through the flow of individuals onto and off of the program (for example, Grogger et al. 2003; Klerman and Haider 2004). Since for many recipients SSI is an absorbing state, this suggests looking directly at application rates. I am in the process of obtaining these data, and the next version of this paper will incorporate them into this analysis.

The evidence presented here suggests a direct relationship between elements of welfare reform and SSI participation among women and children. Furthermore, the increased cyclicality of the SSI program is consistent with existing evidence that suggests that cash benefits through AFDC/TANF provide less recessionary protection after passage of welfare reform than previously and with evidence that other programs such as Food Stamps have become more cyclical post welfare reform (Bitler and Hoynes 2010). These findings suggest that SSI is, to some extent, playing the role of an alternative safety net in the post-welfare reform era. As a result, the program could have important implications for the wellbeing of low-income families, particularly given the sustained high unemployment rates during and following the Great Recession.

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Data Appendix

Number of SSI recipients: Data on the number of adult disabled and child disabled SSI recipients come from the *Social Security Bulletin's Annual Statistical Supplement* (various years) and are counts of the number of recipients of federally administered payments in December of the given year. Data on the number of female disabled SSI recipients are unpublished counts and were obtained directly from the Social Security Administration.

Population: from the U.S. Census Bureau

Per capita personal income: from the Bureau of Economic Analysis's Regional Economic Accounts

Unemployment rate: from the Bureau of Labor Statistics Local Area Unemployment Statistics

Percent nonmarital births: from the National Center of Health Statistics Vital Statistics Reports

Minimum wage: from Autor et al. (2010)

Maximum SSI state supplement: Data for 2002–2010 come from *State Assistance Programs for SSI Recipients* and measure the maximum state supplement available to a disabled individual living alone. Data for 1999–2001 come from the 2004 Green Book. Data for 1990–1998 come from the Green Book, various years, collected by the University of Kentucky Center for Poverty Research.

Maximum AFDC/TANF benefit for a family of 3: Data for 1997–2010 come from the Urban Institute Welfare Rules Data Base, Table IIA4. When multiple values were given for a state (CA, MA, WI), the highest was used. Data for 1980–1996 come from the Green Book (various years), collected by the University of Kentucky's Center for Poverty Research.

Obesity rates: These rates were generated by the author from Behavioral Risk Factor Surveillance System microdata.

Unexpected fiscal shock: Data on actual state expenditures and revenues (in millions of dollars) in year *t* are obtained from the National Association of State Budget Officers' State Fiscal Survey in year *t*+1. Forecasted state expenditures and revenues in year *t* were obtained from the State Fiscal Survey for years *t*-1. Fiscal shock = (actual state expenditure – forecasted state expenditure) – (actual state revenue – forecasted state revenue).

Major welfare waiver: This is an indicator that a major state-wide welfare reform waiver was implemented in a state pre-PRWORA. The variable turns on when a waiver is implemented, then turns off when TANF is implemented. If the waiver is in effect for only part of the year, the dummy variable is replaced with the fraction of the year in which the plan was in effect. The variables were obtained from Rebecca Blank and Jordan Matsudaira

TANF implementation: This is an indicator that the state has implemented TANF. If TANF is in effect for only part of the first year, the dummy variable is replaced with the fraction of the year in which the plan was in effect. The variables were obtained from Rebecca Blank and Jordan Matsudaira.

Table 1: Summary Statistics

	Mean
SSI adult disabled share (*100)	2.39
	(1.01)
SSI adult female disabled share (*100)	2.24
	(0.91)
SSI child disabled share (*100)	1.25
	(0.68)
Ln per capita personal income	10.23
	(0.18)
Unemployment rate	5.48
	(1.80)
Percent nonmarital births	33.90
	(7.97)
Share black	11.19
	(11.63)
Share newly arrived immigrants	0.236
	(0.217)
Minimum wage	5.20
	(0.50)
SSI state supplement (in 100s)	0.325
	(0.708)
Maximum AFDC/TANF benefit for a family of three (in 100s)	4.18
	(1.67)
Governor is Democrat	0.47
Diabetes rate	6.18
	(1.90)
Negative deficit shock	0.00002
	(0.00010)
Positive deficit shock	0.00005
	(0.00020)
Major welfare waiver	0.05
TANF implemented	0.67
Binding TANF time limits	0.42
TANF Sanctions	0.73

Notes: Standard deviations are in parentheses. Detailed descriptions and source information can be found in the data appendix. All dollar amounts are converted to real 2000 dollars.

Table 2: Determinants of SSI Adult Disabled Caseloads

VARIABLES	Baseline		IV	
	(1)	(2)	(3)	(4)
Unemployment rate	-0.0245***	-0.0236***	-0.0446*	-0.0512**
	(0.00649)	(0.00631)	(0.0259)	(0.0230)
Log per capita personal income	-0.596***	-0.630***	-0.588**	-0.773***
	(0.172)	(0.164)	(0.231)	(0.228)
Percent nonmarital births	0.00997***	0.0104***	0.0173***	0.0183***
	(0.00301)	(0.00284)	(0.00389)	(0.00338)
Share black	0.00937	0.0110	0.0302*	0.0343**
	(0.0158)	(0.0139)	(0.0161)	(0.0142)
Share newly arrived immigrants	0.00855	0.0156	-0.0923*	-0.0871*
	(0.0548)	(0.0534)	(0.0561)	(0.0517)
Minimum wage	0.0114	0.00891	0.0182	0.0104
	(0.0115)	(0.0118)	(0.0166)	(0.0137)
Max AFDC/TANF benefit for family of 3	-0.0413**	-0.0390**	-0.0529***	-0.0470***
	(0.0182)	(0.0180)	(0.0186)	(0.0168)
Maximum state SSI supplement	-0.0255	-0.0333	-0.0291	-0.0426
	(0.0320)	(0.0326)	(0.0340)	(0.0325)
Governor is Democrat	-8.24e-05	-0.00322	-0.00754	-0.00995
	(0.0101)	(0.00971)	(0.00972)	(0.00931)
Obesity rate	-0.00330	-0.00279	0.00777**	0.00763**
	(0.00355)	(0.00322)	(0.00390)	(0.00349)
Negative deficit shock	39.11***	34.81***	3.389	-5.912
	(12.03)	(12.25)	(128.2)	(124.2)
Positive deficit shock	15.23**	14.68**	-56.59*	-64.95*
	(6.090)	(5.582)	(33.24)	(33.77)
TANF implemented	0.0102		0.00225	
	(0.0337)		(0.0455)	
Major welfare waiver implemented	0.0289*		0.0579*	
	(0.0169)		(0.0324)	
TANF strict time limits		-0.0434**		-0.0416**
		(0.0189)		(0.0197)
TANF sanction		0.0476***		0.0385
		(0.0169)		(0.0327)
R-squared	0.982	0.983	0.975	0.974

Dependent variable is log of adult SSI caseload share. Robust standard errors clustered by state in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 3: Determinants of SSI Adult Disabled Caseloads -- Women

VARIABLES	Baseline		IV	
	(1)	(2)	(3)	(4)
Unemployment rate	-0.0283***	-0.0276***	-0.0278	-0.0386
	(0.00721)	(0.00698)	(0.0282)	(0.0246)
Log per capita personal income	-0.562***	-0.594***	-0.440*	-0.658***
	(0.180)	(0.173)	(0.237)	(0.232)
Percent nonmarital births	0.0117***	0.0122***	0.0164***	0.0181***
	(0.00307)	(0.00292)	(0.00435)	(0.00362)
Share black	0.00808	0.00999	0.0313*	0.0370**
	(0.0161)	(0.0146)	(0.0162)	(0.0151)
Share newly arrived immigrants	0.0298	0.0353	-0.0884	-0.0878
	(0.0509)	(0.0494)	(0.0597)	(0.0540)
Minimum wage	0.00943	0.00657	0.0108	0.00369
	(0.0119)	(0.0122)	(0.0162)	(0.0126)
Maximum AFDC/TANF benefit for family of 3	-0.0353*	-0.0333*	-0.0472**	-0.0412**
	(0.0189)	(0.0188)	(0.0226)	(0.0200)
Maximum state SSI supplement	-0.0283	-0.0362	-0.0332	-0.0481
	(0.0303)	(0.0309)	(0.0370)	(0.0341)
Governor is Democrat	-0.00127	-0.00441	-0.00777	-0.0105
	(0.0104)	(0.0100)	(0.0103)	(0.00947)
Obesity rate	-0.000603	-0.000151	0.00887**	0.00874**
	(0.00368)	(0.00343)	(0.00405)	(0.00350)
Negative deficit shock	25.66**	21.35*	-21.35	-27.30
	(11.90)	(11.99)	(143.0)	(132.9)
Positive deficit shock	10.77*	10.28*	-41.55	-53.67*
	(5.547)	(5.143)	(33.26)	(30.74)
TANF implemented	0.0107		0.0366	
	(0.0347)		(0.0497)	
Major welfare waiver implemented	0.0406**		0.0996***	
	(0.0188)		(0.0348)	
TANF strict time limits		-0.0414**		-0.0453**
		(0.0193)		(0.0193)
TANF sanction		0.0559**		0.0701**
		(0.0212)		(0.0344)
R-squared	0.979	0.979	0.969	0.969

Dependent variable is log of adult SSI caseload share for women. Robust standard errors clustered by state in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 4: Determinants of SSI Child Disabled Caseloads

VARIABLES	Baseline		IV	
	(1)	(2)	(3)	(4)
Unemployment rate	-0.0463***	-0.0467***	-0.0260	-0.0817
	(0.00845)	(0.00843)	(0.0803)	(0.0869)
Log per capita personal income	-1.029***	-1.023***	-0.676	-2.084***
	(0.237)	(0.228)	(0.482)	(0.731)
Percent nonmarital births	0.0151***	0.0153***	0.0314***	0.0383***
	(0.00432)	(0.00433)	(0.0113)	(0.0110)
Share black	0.0384**	0.0392**	0.124***	0.138***
	(0.0181)	(0.0180)	(0.0273)	(0.0241)
Share newly arrived immigrants	-0.0295	-0.0329	-0.414***	-0.366***
	(0.0347)	(0.0361)	(0.0910)	(0.0706)
Minimum wage	0.0617***	0.0599***	0.0369	-0.0567
	(0.0191)	(0.0193)	(0.0394)	(0.0379)
Maximum AFDC/TANF benefit for family of 3	-0.0813***	-0.0825***	-0.158***	-0.121***
	(0.0228)	(0.0228)	(0.0378)	(0.0347)
Maximum state SSI supplement	0.0597**	0.0605**	0.0812	-0.0120
	(0.0280)	(0.0285)	(0.0562)	(0.0635)
Governor is Democrat	0.00199	0.00210	0.0105	0.0123
	(0.0151)	(0.0150)	(0.0250)	(0.0249)
Obesity rate	-4.79e-05	-0.000234	0.0262***	0.0216**
	(0.00451)	(0.00455)	(0.00830)	(0.00903)
Negative deficit shock	32.59	32.12	-157.1	-195.7
	(26.05)	(25.67)	(280.2)	(343.1)
Positive deficit shock	24.49**	24.09**	31.48	-48.13
	(11.20)	(10.79)	(94.66)	(77.23)
TANF implemented	-0.00764		-0.152	
	(0.0633)		(0.139)	
Major welfare waiver implemented	0.0169		0.264***	
	(0.0338)		(0.0891)	
TANF strict time limits		0.00345		-0.0682
		(0.0247)		(0.0433)
TANF sanction		0.0533*		0.0759
		(0.0286)		(0.104)
R-squared	0.974	0.974	0.887	0.875

Dependent variable is log of child SSI caseload share. Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

# Table 5: Determinants of SSI Caseloads, with differential effects post-welfare reform

VARIABLES	Adult Disabled Caseload Share		Adult Disabled Caseload Share - Women		Child Disabled Caseload Share	
	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	-0.0250***	-0.0293***	-0.0289***	-0.0359***	-0.0465***	-0.0620***
	(0.00647)	(0.00797)	(0.00724)	(0.00814)	(0.00832)	(0.00837)
* reform		0.00839		0.0135		0.0328***
		(0.00793)		(0.00831)		(0.0102)
Log per capita personal income	-0.595***	-0.515***	-0.560***	-0.450***	-1.029***	-0.649***
	(0.174)	(0.154)	(0.182)	(0.163)	(0.237)	(0.212)
* reform		-0.0195		-0.0209		-0.0614
		(0.0225)		(0.0235)		(0.0386)
Percent nonmarital births	0.0101***	0.00993***	0.0118***	0.0112***	0.0151***	0.0139***
	(0.00304)	(0.00293)	(0.00311)	(0.00298)	(0.00432)	(0.00422)
* reform		-0.00119		-0.00117		0.00452
		(0.00214)		(0.00239)		(0.00298)
Share black	0.0100	0.0232*	0.00902	0.0234*	0.0388**	0.0413**
	(0.0157)	(0.0128)	(0.0161)	(0.0138)	(0.0182)	(0.0155)
* reform		-0.00358**		-0.00359**		-0.00115
		(0.00141)		(0.00146)		(0.00231)
Share newly arrived immigrants	0.00637	-0.00310	0.0268	0.00939	-0.0307	0.0129
	(0.0539)	(0.0512)	(0.0497)	(0.0465)	(0.0341)	(0.0329)
* reform		0.0338		-0.0207		0.189**
		(0.0711)		(0.0648)		(0.0916)
Minimum wage	0.0109	-0.00279	0.00875	-0.00147	0.0614***	0.00697
	(0.0117)	(0.0348)	(0.0123)	(0.0374)	(0.0193)	(0.0675)
* reform		0.00578		0.00370		0.0336
		(0.0395)		(0.0424)		(0.0678)
Maximum AFDC/TANF benefit for family of 3	-0.0412**	-0.0347*	-0.0352*	-0.0346*	-0.0811***	-0.0909***
	(0.0183)	(0.0179)	(0.0192)	(0.0176)	(0.0230)	(0.0210)
* reform		0.00995		0.00607		0.0254
		(0.0158)		(0.0150)		(0.0152)
Maximum state SSI supplement	-0.0271	-0.0147	-0.0305	-0.0162	0.0588**	0.0478*
	(0.0327)	(0.0255)	(0.0310)	(0.0242)	(0.0280)	(0.0261)
* reform		0.000270		0.00940		-0.0405*
		(0.0186)		(0.0185)		(0.0238)
Governor is Democrat	-0.000434	-0.0267*	-0.00175	-0.0324**	0.00182	-0.0143
	(0.0101)	(0.0135)	(0.0104)	(0.0148)	(0.0153)	(0.0218)
* reform		0.0327**		0.0383**		0.0215
		(0.0154)		(0.0181)		(0.0261)
Obesity rate	-0.00334	-0.00875*	-0.000660	-0.00803	-6.04e-05	-0.000955
	(0.00362)	(0.00465)	(0.00379)	(0.00487)	(0.00455)	(0.00613)
* reform		0.00885*		0.0100**		0.00159
		(0.00481)		(0.00493)		(0.00890)
Negative deficit shock	38.98***	-94.15	25.44**	-48.41	32.37	212.1
	(12.10)	(144.5)	(11.82)	(157.5)	(25.87)	(167.9)
* reform		123.2		62.22		-187.2
		(147.0)		(160.6)		(174.2)

	(1)	(2)	(3)	(4)	(5)	(6)
Positive deficit shock	15.59**	-122.0**	11.27**	-78.00	24.69**	87.00
	(6.051)	(47.27)	(5.546)	(47.53)	(11.12)	(68.73)
* reform		140.3***		88.13*		-66.75
		(50.13)		(50.39)		(69.34)
R-squared	0.982	0.985	0.978	0.981	0.974	0.977

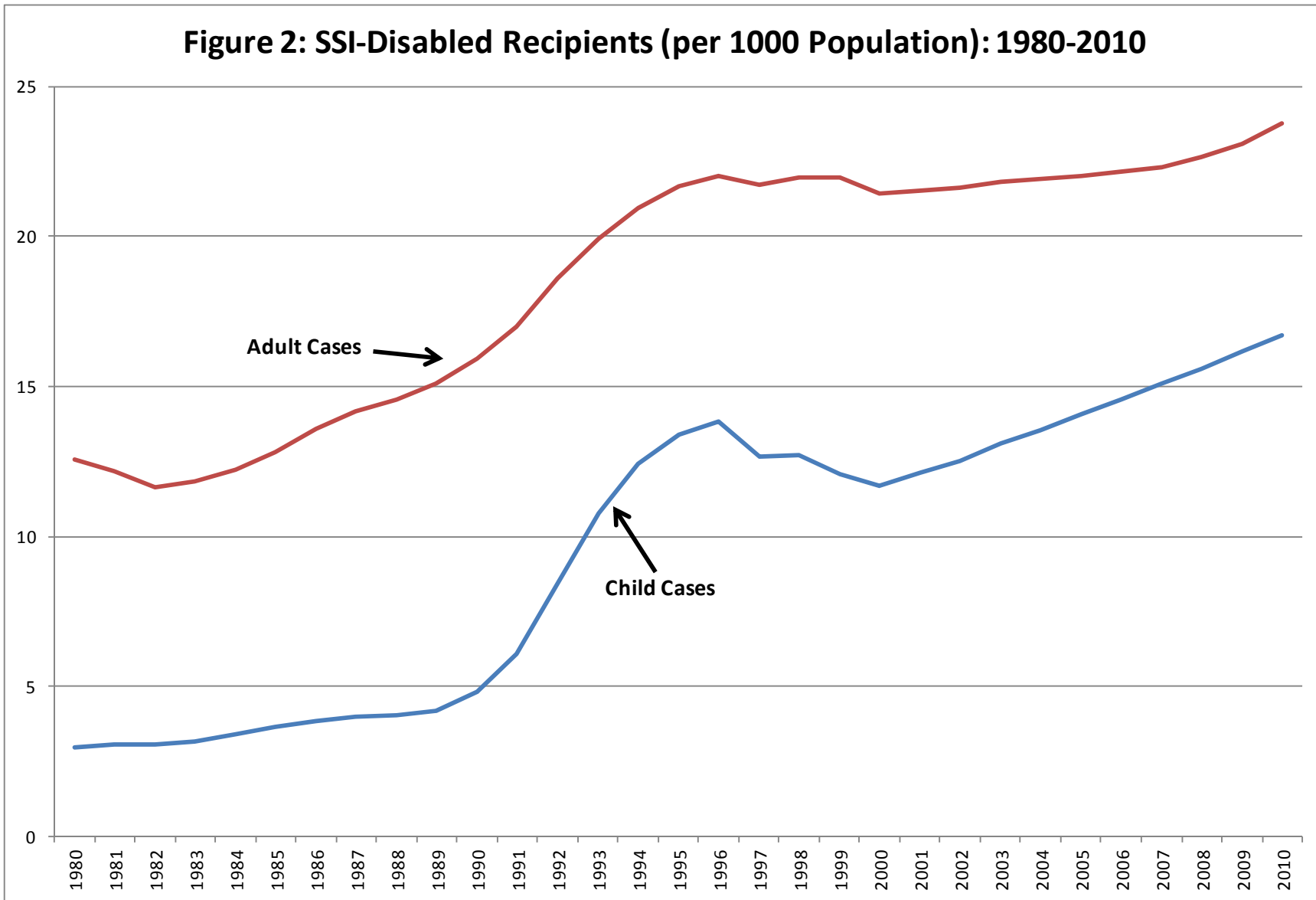Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Figure 1: SSI Disabled Cases 1980-2010
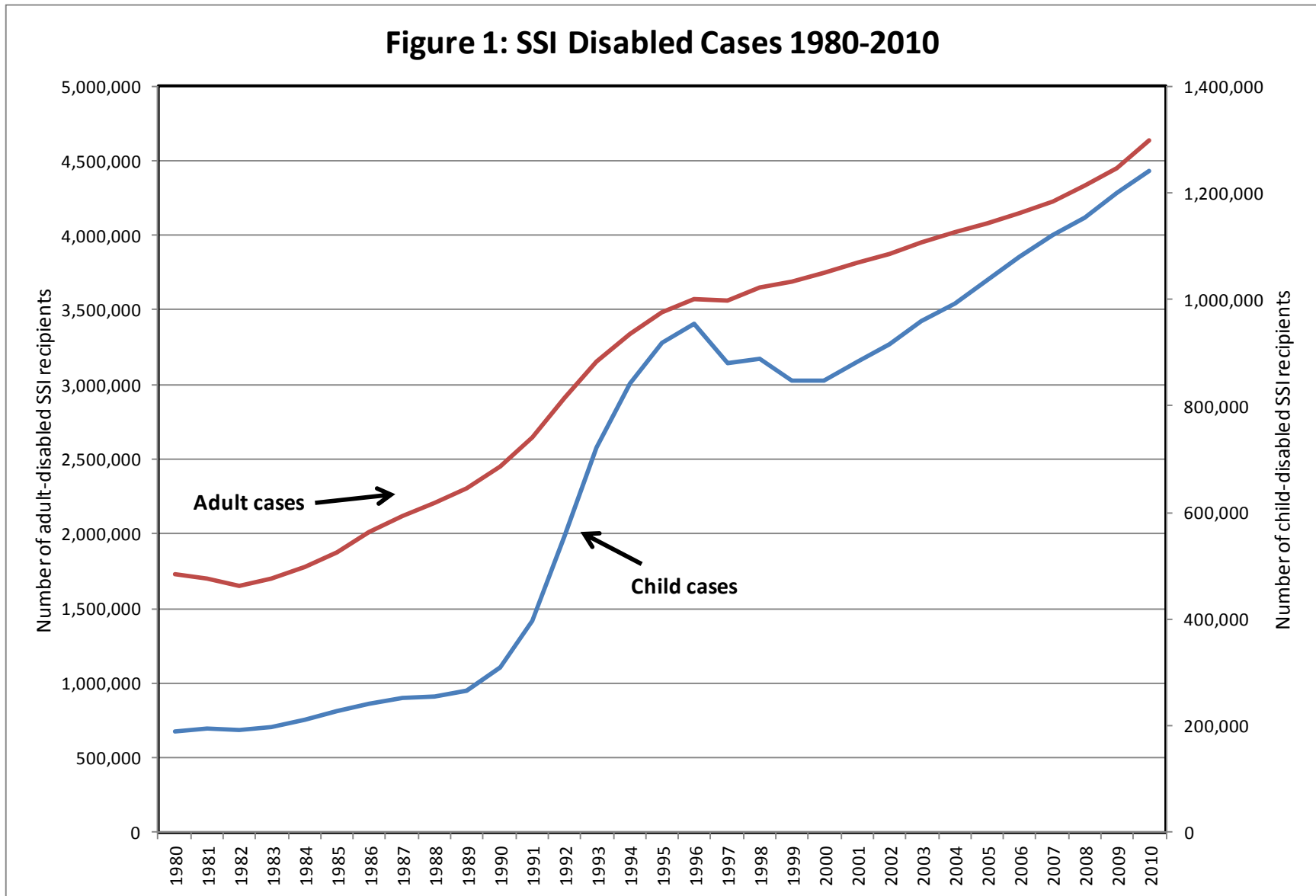
Source: *Annual Statistical Supplement to the Social Security Bulletin,* various years.

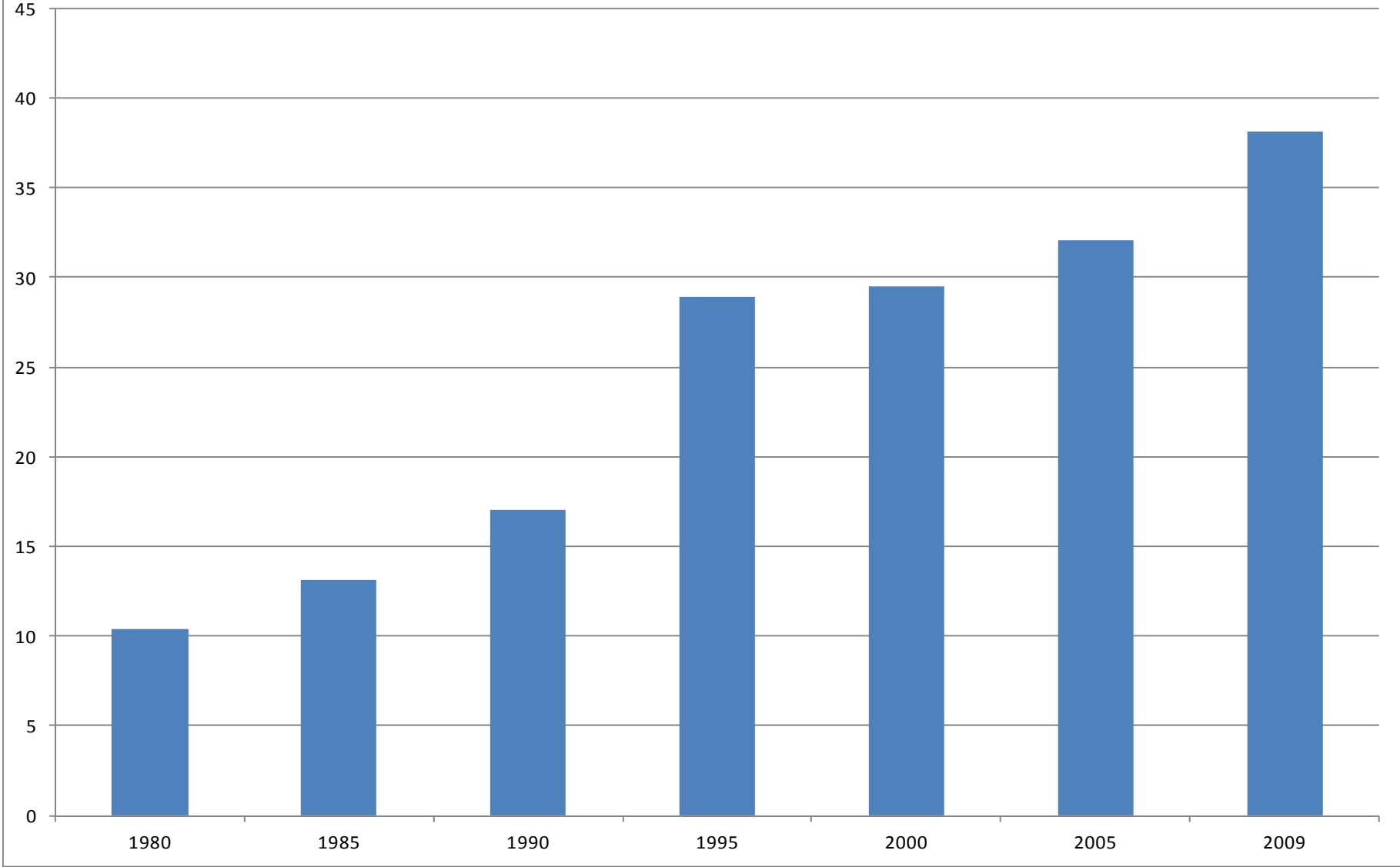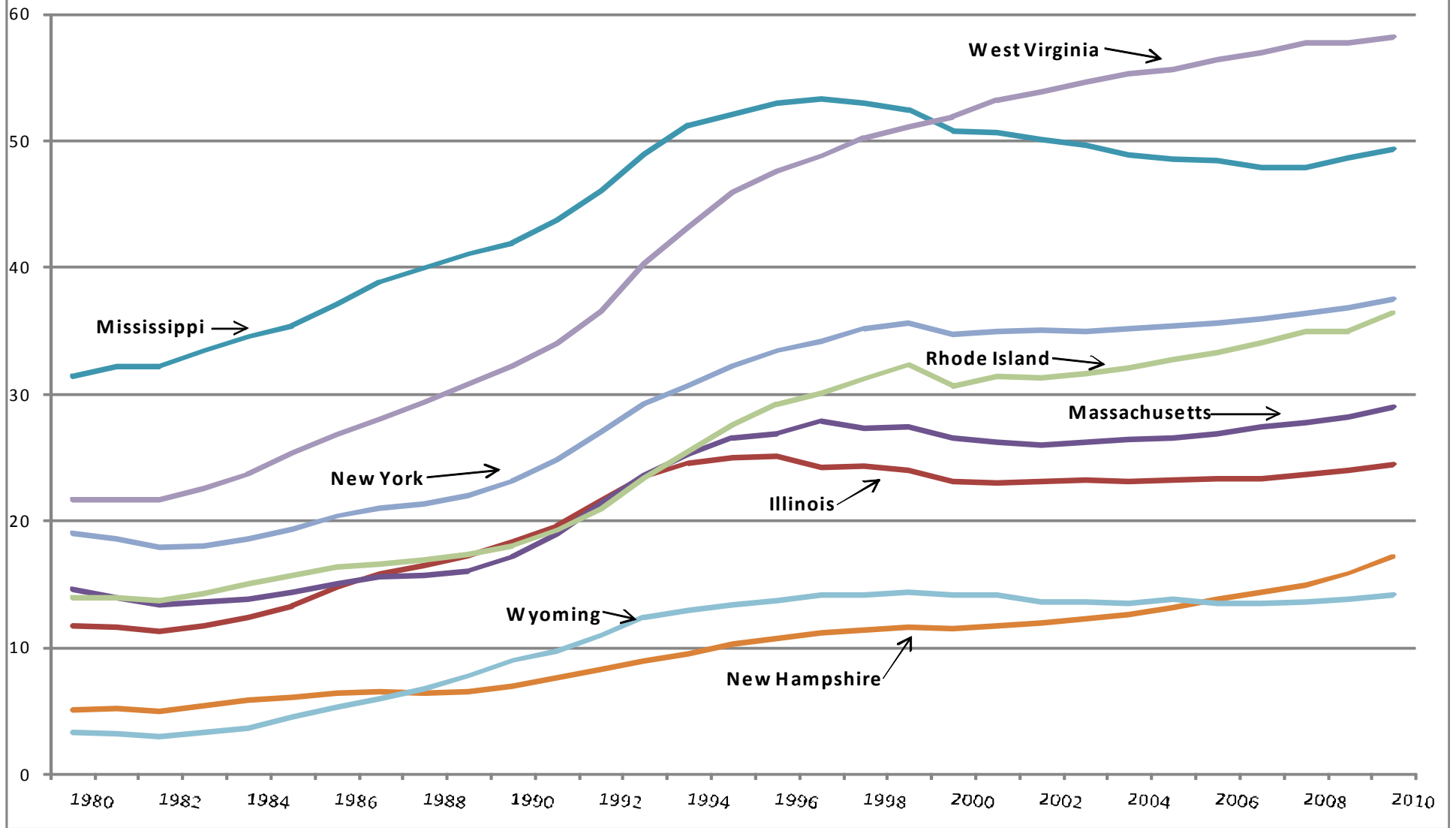**Figure 2: SSI-Disabled Recipients (per 1000 Population): 1980-2010**

Adult Cases

Child Cases

Source: *Annual Statistical Supplement to the Social Security Bulletin*, various years, and Census Bureau population estimates, various years.

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Figure 3: Total Federal SSI-Blind and SSI-Disabled Payments, (in Billions of 2009$)

Source: *Annual Statistical Supplement to the Social Security Bulletin,* various years.

Figure 4: SSI-Disabled Adults (per 1000 population) Selected States, 1980-2010

Source: *Annual Statistical Supplement to the Social Security Bulletin*, various years, and Census Bureau population estimates, various years.

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