Are AFDC and SSI Substitutes?

by

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Abstract

Are AFDC and SSI Substitutes?

The passage of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 for the first time placed strict limits on the amount of support families could receive from the Aid to Families with Dependent Children program (AFDC). Generally, researchers and policy makers have both assumed that any substitute support that does arise will be from non-governmental sources – women will either find work, receive support from family members, or be aided by local religious organizations or other private charities. We investigate the potential for one government program, the Social Security Insurance (SSI) program, to simply substitute for the reductions in the AFDC program. We find strong evidence that AFDC and SSI are substitutes. This suggests that at least part of the effect of welfare reform will be to shift the burden of support for poor families from one government program to another rather than from governmental to non-governmental sources.

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I. Introduction

The passage of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 launched probably the most significant change in federal welfare policy in recent history. The act includes provisions that limit the length of time for which most welfare recipients can receive benefits (a maximum five-year lifetime limit and a maximum two-year limit for any one spell). These duration limits are the first ever imposed on the Aid to Families with Dependent Children (AFDC) program. The question that naturally follows is: “How will welfare recipients (mostly single women and their children) support themselves as their access to AFDC benefits diminishes?” It has been argued that under these circumstances these women will either find work, receive support from family members, or be aided by local religious organizations or other private charities. In general, the assumption is made that the support substituted for the lost AFDC benefits will come from a non-government source. One outcome that is less discussed is the potential for AFDC recipients who lose access to benefits to receive support from the Social Security Insurance (SSI) program.

The SSI and AFDC programs are similar on many dimensions. They are both large, means-tested federal welfare programs. In 1995, 4.9 million families, a total of 13.6 million individuals, participated in AFDC, generating 22 billion dollars in expenditures. Approximately 6.5 million individuals received SSI payments, costing the federal government about 27 billion dollars. Both programs have income and asset limits for eligibility that, if met along with other eligibility requirements, entitles the recipient to a monthly benefit payment, averaging $377 for AFDC and $458 for SSI. In addition, participants in both programs generally qualify for Medicaid benefits. While the asset limits for the SSI program are somewhat more generous than those for the AFDC program, the two programs are primarily distinguished by their additional eligibility requirements. AFDC households consist of at least one child under 18 and either a single mother or unemployed parents. SSI recipients qualify either by being elderly, blind or disabled. In some cases, an individual can qualify for both programs, in which case they
must choose which benefit to receive. It is also the case that a household can consist of both SSI and AFDC recipients. For example, a mother may qualify for SSI benefits for herself because of a disability while her children collect AFDC benefits. An AFDC household might have a child that receives SSI benefits, in which case the household does not receive AFDC benefits for that particular child.

Because the two programs are so similar and both include Medicaid eligibility, there is an incentive for low-income households with children to try to become eligible for one program if they lose eligibility for another, or if one becomes more generous with respect to the other. Take for example, the case of an AFDC mother who, under recent term-limit legislation, finds herself ineligible for benefits after 2 years. She clearly has an incentive to have herself or one of her children found eligible for the SSI program, because doing so will provide her family continued access to monthly welfare payments and Medicaid for that recipient.²

In this paper, we perform a simple test to determine whether or not there is evidence that individuals substitute SSI payments for AFDC payments as the AFDC program becomes less generous. We use a panel of state-level data from 1974 to 1992 on SSI participation and AFDC benefit levels in fixed-effects regressions to control for state differences and annual exogenous shocks. Our results indicate that a 10% decrease in AFDC benefit levels is associated with roughly a 2.5% increase in SSI participation. While recent reforms that tighten the eligibility requirements for SSI might limit the extent to which low-income households can now substitute from one program into another, the presence of term-limits will clearly provide economics incentives for program participants to substitute out of AFDC into SSI where possible.

¹ Number for AFDC is average monthly benefit per family for 1995. In 1995, average family size was 2.8 persons. SSI number is 1995 Federal monthly benefit to individual qualifying for SSI.
² The expected length of stay for an entrant in the SSI program is considerably longer, on the average, than for the AFDC program; see Rupp and Scott (1995). This is particularly true for children. While the average stay on SSI is longer than the average stay on AFDC, this does not imply, of course, the stay on SSI would be longer than the stay on AFDC for the marginal recipient who is deciding between AFDC and SSI participation. As the income and asset test are less restrictive for SSI than for AFDC, however, we suspect that this is indeed the case.
The remainder of the paper is organized as follows. Section 2 will provide some additional discussion of the SSI program and its eligibility requirements. Section 3 will describe the data and methods of analysis. Section 4 will report the results and Section 5 will contain our conclusions.

II. The SSI Program

Because our empirical analysis in this paper uses data from the years 1974-90, we will first describe the SSI program during that time period. We will then discuss changes in the SSI program that occurred during the 1990’s.

The Social Security Act of 1935 established federal grants to states that were to be used for the care of the aged, blind and disabled. In 1974, the federal SSI program replaced these grants with a federal income-maintenance program to be administered by the Social Security Administration. Because the new program had more lenient eligibility requirements and more generous payments than most of the former state programs, the post-1974 program is considerably larger than the state-level programs that preceded it.3

In order to qualify for SSI benefits, an individual must meet the income and asset requirements, as well as the criteria for one of the three recipient categories: aged, blind or disabled. According to the Committee on Ways and Mean, “The aged are defined as persons 65 years or older. The blind are individuals with 20/200 vision or less with the use of a correcting lens in the person’s better eye, or those with tunnel vision of 20 degrees or less. Disabled individuals are those unable to engage in any substantial gainful activity by reason of a medically determined physical or mental impairment expected to result in death or that has lasted, or can be expected to last, for a continuous period of at least 12 months.”4 Gainful activity is operationally defined as earning $500 a month after impairment-related

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3 States are free to supplement SSI benefits, and as 1996, 44 states offer some form of supplementation; 37 of these states began their supplementation in 1974; see Ponce (1996). Our measure of SSI expenditures includes any state supplementation.
4 Committee on Ways and Means, 1996, p.262.
expenses have been deducted. Children qualify if their impairment is of severity comparable to a qualifying adult.

Clearly it would seem that former AFDC participants would be more likely to qualify in the disabled category than the other two categories. For this reason it is interesting to note the process by which individuals are deemed “disabled” for the purpose of collecting SSI benefits. There are two ways by which adults qualify for disabled status. First, the administrator consults a “Listing of impairments.” Any adult applicant that has one of the listed impairments automatically qualifies. Any adult applicant that does not qualify from the list then receives an individual, and more subjective, assessment to determine if “the person would be able to do his own past work or any other work that exists in the national economy given his age, education and work experience.” From 1974-90, children qualified for SSI disability benefits only if they matched on the formal list of impairments. They did not receive an additional subjective determination of disability status.

The disabled category is the fastest growing segment of the SSI caseload. Between 1974 and 1990, the total SSI caseload increased 20% from 4 to 4.8 million. During this same time period, however, the disabled caseload doubled from 1.6 to 3.3 million. It is interesting to note that about 60% of all SSI-Disabled recipients between the ages of 18 and 64 qualify due to a mental, rather than physical disability. Almost half of these individuals qualify due to mental retardation, the remainder for other mental disorders. Schizophrenia is the most common diagnosis in the category of “other mental disorders” (Kochar and Scott, 1995). Furthermore, Kochar and Scott (1995) note that mental disability accounted for 42% of the growth in adult disability cases between 1987 and 1993.

Since 1990 there have been a number of changes in the SSI program that affect the determination of disability status. First, in 1990, several mental disorders that affect primarily children were added to

\[5\] Muller, Scott and Bye (1996) report that 13 percent of recipients report income in a year of benefit receipt.\[6\] Committee on Ways and Means, 1996, p.263.\[7\] Despite the rapid growth in beneficiaries, Rupp and Scott (1996) find no evidence that there are systematic reductions in the duration of SSI spells. Indeed, the fraction of cases surviving 48 months increased from about 48 percent in 1984 to 57 percent in 1990.
the listing of impairments. These included attention deficit hyperactivity disorder and eating disorders. Then, in 1991, the Supreme Court ruling in *Sullivan versus Zebley* prompted the SSA to begin administering the individualized assessments for children. Therefore, starting in 1991, children who did not match on the list of impairments could qualify through an individual assessment that determined if they could engage in “age-appropriate” activities. Furthermore, as a consequence of the *Zebley* ruling, the Social Security Administration contacted families of children who had applied for, but were denied, SSI benefits since 1980. Almost half a million children were sent notices of the change in eligibility requirements, telling them that their eligibility status might have changed.  

Since these changes in eligibility determination, children have been the fastest growing segment of the SSI disabled caseload. A GAO study found that “the number of children receiving SSI disability benefits more than doubled between 1989 and 1992, from 300,000 to 770,500.” Furthermore, the study found that two-thirds of this increase could be accounted for by increases in the diagnosis of mental impairments, such as mental retardation and attention deficit hyperactivity disorder.

While the changes to the SSI program in the early 1990’s tended to expand eligibility, there have been two recent changes that are intended to restrict access to SSI benefits for individuals without severe disabilities. These are in part a response to the rapid growth of the SSI caseload described above. The first change occurred in March 1996 when Congress passed legislation stating that individuals could not become eligible for SSI payments due to alcohol or drug addiction. Prior to this action, drug and alcohol addition were qualifying impairments. The second change was attached to the federal welfare reform bill, also passed in 1996. This bill ordered the SSA to end its use of individual assessments to determine the eligibility of children and return to the less subjective “Listing of impairments.”

Therefore, while the early 1990’s saw unprecedented changes in the SSI program that would have made it easier than ever for former or potential AFDC families to become eligible for SSI benefits,
legislation in the late 1990’s tightened eligibility requirements considerably. It is for this reason that we restrict our empirical analysis to the period from 1974 to 1990. The years in which the Zebley decision were in effect, particular given the efforts made to locate previously denied children and urge them to reapply, do not characterize the post-1996 climate in which AFDC families might be trying to obtain SSI benefits.

III. Data and Methods

We use a panel of state-level data from 1974, the start of the federal SSI program, through 1992, with observations on all 50 states and the District of Columbia. Data on the SSI program is obtained from Social Security Administration publications. Data on AFDC benefits for a family of four is obtained from various years of The Green Book publication of the U.S. House Ways and Means Committee. Figure 1 is a time series plot of the average state SSI disabled participation rate (SSI disabled caseload divided by population) and the average state AFDC benefit to a family four in the United States. AFDC benefits trend down during this time period while the SSI disabled participation rate steady rises. In Figure 2, we plot AFDC benefits and SSI participation over time for a few selected states. The graphs generally reflect what we see in the composite U.S. plot, that AFDC Benefits and SSI participation tend to move in opposite directions.

Our regression models are of the form:

\[ \log(SSI) = \beta_0 + \beta_1 \log(AFDC) + \beta_2 \log(Earnings) + \beta_3 X + \delta + \gamma + \epsilon \]

where SSI is the SSI disabled caseload divided by population, AFDC is the real payment to a family of four with no additional income, Earnings is real earnings per capita, X is a vector of additional demographic and economic controls, \( \delta \) is a vector of state indicator variables and \( \gamma \) is a vector of year indicator variables. The state indicators control for any time-invariant differences across states while the year indicators control for any common time trends. Additional economic controls include sector

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10 Robert Moffitt made part of this data available to us in electronic form.
specific earnings for manufacturing, services and government. Additional demographic controls include the fraction of the population that is under the age of 20, the fraction of the population that is black, and the fraction of the population that is 65 or over. In Table 1, we report the means of our dependent and our explanatory variables for the years 1975 and 1990.

The state indicators purge the data of all state differences in the mean levels of the dependent and independent variables. The year indicators purge the data of all common time trends in the dependent and independent variables. Identification of the impact of the AFDC on SSI payments, therefore, rests on variations from the state means that are uncorrelated with contemporaneous deviations other states from their own state means. As we emphasize in Black, McKinnish, and Sanders (1998), the use of state and year fixed effects removes about 95 percent of the variation in the AFDC series and about 93 percent of the variation in the per capita earnings series.

IV. Results

Table 2 reports the results of our four basic regressions. In all regressions, the dependent variable is log of the SSI disabled participation rate. In addition, we report Huber-White standard errors to correct for heteroskedasticity. In the first column, we report the results of the regression of SSI on logarithm of AFDC benefits and logarithm of earnings per capita and year indicators, but the regression does not include state indicators. The coefficient on AFDC benefits is negative and significant. The coefficient indicates that a 10% cut in AFDC should be associated with about a 6% increase in SSI disabled participation. The coefficient on per capita earnings is positive and significant, indicating that higher earnings are associated with greater SSI expenditures. This suggests that we need to control for unobserved state differences. In the second column, we add state fixed effects to the regression model we estimated in column (1). The coefficient on AFDC benefits has decreased in magnitude, from –0.61

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11 These data are from the BEA’s REIS data.
12 Inter-census estimates obtained through ICPSR. State-level population counts by demographic group for the years 1970-94 are available at http://www.stat.cmu.edu/~terram.
13 We report the robust standard errors rather than use population weights to correct for the heteroskedasticity. This way, the larger states do not dominate the regression results.
to -0.28, but remains significant at well below the one-percent level. With the addition of the state fixed effects, the coefficient on earnings has become negative and significant.\textsuperscript{14}

In the next two columns, we add additional state-level economic and demographic controls to the model. In column (3), we have added sector-specific earnings for manufacturing, services and government. The coefficient estimate for AFDC benefits remains essentially unchanged from column 2. We see that service sector earnings are negatively associated with SSI expenditures, and government sector earnings are positively associated with SSI expenditures. In column (4), we add demographic controls for the fraction of the population that is under 20 years old, the fraction of the population that is black, and the fraction of the population that is elderly (65 or older). With these control variables added to the model, the coefficient on AFDC benefits drops somewhat in magnitude, to -0.25, but remains significant at below the one-percent level. The coefficient indicates that a 10% reduction in benefits should be associated with a 2.5% increase in SSI disabled participation. In addition, the fraction of children in the population has a significant negative coefficient, while the fraction of elderly persons in the population and the fraction black have significant positive coefficients.

In Table 3, we report the results of a few additional regressions as robustness checks. In columns (1) and (2), we report regression results from models that were estimated with only half of the years in our data, to see if the tendency for families to substitute between the two programs has changed over time. We see from the results reported in columns (1) and (2) that even though the coefficient for the pre-1983 data is smaller than the post-1983 data (-0.11 versus -0.26), coefficients are still highly significant in both cases. It does look as if the rate of substitution between the two programs has increased over time.

In columns (3) and (4) we add additional controls for characteristics of the SSI and AFDC programs. These additional controls are the average SSI benefit, the average Medicaid benefit to SSI

\textsuperscript{14} Using variation in growth rates from the coal boom and bust, Black, Daniel, and Sanders (1997) demonstrate that SSI expenditures are quite sensitive to earnings growth. They find that a 10 percent increase in a county’s earnings will result in about a 6 percent decline in SSI expenditures.
disability recipients, and the average Medicaid benefit to AFDC recipients. We add these 3 variables because they would all seem to reasonably affect SSI participation. In fact, Yelowitz (1996) found that Medicaid generosity was an important factor in SSI participation and a major cause of the increase in the adult disabled caseload in the late 1980’s and early 1990’s. On the other hand, the first two of these control variables are clearly flawed because the SSI or SSI disabled caseload is in the denominator of the variable. Since the SSI disabled participation rate is on the lefthand side of the equation, these are both endogenous right-hand side variables. Having given this disclaimer, we include these variables for comparability with other research in this area. We do feel, however, that the flawed nature of these variables has been under appreciated in the SSI literature.

In column (3) we add the average SSI benefit to the regression. The coefficient drops to -.17, but remains significant. The coefficient on SSI benefits is .789 and significant at the .01 level. Once again, we must interpret these coefficients with caution. In column (4) we add the two Medicaid variables. These variables are not available prior to 1981, and therefore this regression is estimated only using observations from years 1981-90. The coefficient on AFDC benefits is -.21, but we must remember that the coefficient on AFDC is larger for the later years of the time period. The coefficient on SSI benefits has dropped to .4294. The coefficient on Medicaid benefits for SSI recipients is positive but insignificant. The coefficient on Medicaid benefits for AFDC recipients is negative and significant. This again suggest that a decrease in the value of AFDC participation will increase SSI participation.

In Table 4, we re-estimate the eight specifications reported in Tables 2 and 3, this time using the log of the child SSI participation rate as the dependent variable. We only report the coefficient on logged AFDC benefits. One might expect for the elasticity of substitution between AFDC and SSI to be larger for children than for adults. In Table 4, we see that the coefficient on AFDC benefits is in fact

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15 If we run the specification from column (3) on the restricted sample used in column (4), which just drops the Medicaid variables from the regression, we obtain a coefficient of -.2203 on the AFDC variable.

16 The variable is constructed by dividing the total child disabled caseload by the population age 19 and under. All children 18 and under on SSI are categorized as children. In addition, 19 and 20 year olds can qualify as children if they are students.
larger and somewhat more robust to the inclusion of addition control variables. The results suggest an elasticity of roughly -.3, so that a 10 percent increase in AFDC benefits should be associated with roughly a 3 percent decrease in child SSI participation.

Black, McKinnish, and Sanders (1998) argue that fixed-effects models often understate the impact of economic and policy variables on program participation. Fixed-effects models like those we are estimating look for relationships in the short-term changes in the dependent and independent variables; people, however, might respond to longer-term trends in the independent variables. Using a measurement error framework, they show that if permanent changes in the independent variable are more important than temporary ones, then the coefficient from a first-differences model will generally be smaller in magnitude than that obtained with fixed effects. Furthermore, by taking longer differences, the magnitude of the coefficient will increase above those obtained using first differences. This is because long differences tend to capture more permanent changes than first differences.

In this analysis, we are using short-term changes in AFDC benefits to make inferences about the effect of the much more permanent change in AFDC generosity that resulted from the 1996 welfare reform measures. Therefore, in Table 4 we estimate a number of models to see if we might be underestimating the effect of more permanent changes in AFDC generosity. The first row repeats the basic fixed-effects coefficient from column (2) of Table 2. In the second row, we report the coefficient from the first differences model. While the fixed-effects coefficient is -.28, the first differences coefficient is only -.06. In the next two rows, we report the results of 3-year and 5-year long differences. They are -.17 and -.25, respectively. The small size of the coefficient on the first differences and the larger size of the coefficient on the longer differences indicate that longer-term changes in AFDC generosity affect SSI participation more than short-term changes. Therefore, our fixed-effects estimate could potentially underestimate the relationship between SSI participation and long-term changes in AFDC generosity.

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17 Because the inclusion of additional economic and demographic controls in columns (3) and (4) of Table 2 did not change the coefficient on AFDC very much, we do not use those additional controls in the analysis in Table 4.
To better capture the effect of more permanent changes in AFDC generosity, we compute a moving average of AFDC benefits and use this as the independent variable in the fixed-effects model.\(^\text{18}\) The coefficient on the moving average is -.37, which is substantially larger than the fixed-effects estimate. This estimate indicates that a sustained 10% decrease in welfare generosity would be associated with roughly a 3.7% increase in SSI participation. One problem with the moving average is that if SSI participation in the current year could somehow affect AFDC benefit levels in future years, the leading terms in the moving average would be endogenous. Therefore, in the last row of Table 4, we use a lagged, rather than centered moving average. The coefficient on the lagged average is only -.29, which is almost the same as our fixed-effects estimate. Therefore, the moving average results can only be seen as suggestive. Based on the small coefficient estimated with the first-differences model, it does appear to be the case that short-term year-to-year changes in AFDC benefits have a fairly negligible effect on SSI participation, but longer-term changes captured by long-differences, fixed-effects, or the moving average do appear to create economically meaningful substitution.

In addition, our results must be interpreted with caution, since our estimates most likely suffer from some form of omitted variable bias. This problem with interpretation is typical of studies on the incentive effects of AFDC generosity, since it is very difficult to find an appropriate exogenous instrument for state-level welfare policies. We have tried to demonstrate that our coefficient estimates are fairly robust to the inclusion of various control variables, so that we might feel comfortable saying that the omitted variable bias is probably not too large relative to the size of the coefficient.

V. Related Work

Currently, there is only one other paper that attempts to measure the substitution effects between the AFDC and SSI programs. In Garrett and Glied (1998), the authors examine the relationship between AFDC benefits and child SSI participation for the years 1987-94, omitting 1990-91. They analyze this

\(^{18}\) For a more detailed discussion of using the moving average to capture permanent changes, see Black, McKinnish and Sanders (1998) and McKinnish (1998)
time period because they are interested in using the variation created by the *Sullivan versus Zebley* ruling. Their specification is of the form:

\[
ChildSSI_{it} = \alpha_0 + \alpha_1 Zebley_{it} + \alpha_2 (AFDC_{it} \times Zebley_{it}) + \alpha_3 AFDC_{it} + \alpha_4 X_{it} + \delta_t + \gamma + \epsilon_{it}
\]

where *ChildSSI* is the child SSI participation rate, *Zebley* is an indicator variable for the years 1992-94, *AFDC* is AFDC benefit level, and *X* is a vector of control variables including adult SSI participation. State and year effects are included in the model.\(^{19}\)

Because *Zebley* made it easier for children to become eligible for SSI, we would expect \(\alpha_1\) to be positive. Furthermore, if there were substitution between AFDC and SSI, we would expect *Zebley* to have had a larger effect on SSI participation in states with low AFDC benefits. Therefore, \(\alpha_2\) should be negative. Garrett and Glied (1998) in fact estimate a significant positive coefficient on the *Zebley* indicator and a significant negative coefficient on the interaction term. Thus, they find that states with higher AFDC benefits had significantly lower rates of growth in their child SSI caseloads, which is consistent with our notion that AFDC and SSI are substitutes.

The authors interpret \(\alpha_2\), the coefficient on the interaction term, as their point estimate of the effect of AFDC benefits on SSI participation. This strategy makes use of the differential response to the *Zebley* ruling across states with differing levels of AFDC benefits. Since *Zebley* made some children eligible for SSI who were previously ineligible for the program, we can write the following equation:

\[
ChildSSI_{,A} = ChildSSI_{,B} + ChildSSI_{,Z}
\]

where *ChildSSI*\(_B\) is the participation rate prior to the *Zebley* ruling, *ChildSSI*\(_A\) is the participation rate after the *Zebley* ruling and *ChildSSI*\(_Z\) captures the increase in the participation rate between the two periods. For now, we can think of *ChildSSI*\(_Z\) as the fraction of the child population that participates in SSI because they became eligible under the *Zebley* ruling.

If we use equation (2) to calculate the expected value of *ChildSSI*\(_Z\), we obtain:

\(^{19}\) Both the 1989 and 1992 year indicators are dropped so that the coefficient on the *Zebley* indicator is identified.
\begin{equation}
E[\text{ChildSSI}_Z] = E[\text{ChildSSI}_x - \text{ChildSSI}_y] = \alpha_1 + \alpha_2 AFDC.
\end{equation}

Now, differentiating with respect to AFDC, we obtain:
\begin{equation}
\frac{\partial E[\text{ChildSSI}_Z]}{\partial AFDC} = \alpha_2.
\end{equation}

which we convert to an elasticity by multiplying by AFDC and dividing by \( \text{ChildSSI}_Z \). The difference between the average post-Zebley participation rate and the pre-Zebley participation rate is 0.470. Using average post-Zebley AFDC benefits as our measure of AFDC, we obtain an elasticity of 0.497. \( ^{20} \)

The estimated elasticity from our analysis is substantially smaller in magnitude than that implied by Garrett and Glied’s analysis. We estimate \( \frac{\partial E[\text{ChildSSI}_B]}{\partial AFDC} \frac{AFDC}{\text{ChildSSI}_B} \), which is the elasticity of substitution for all potential child SSI recipients prior to Zebley. In contrast, Garrett and Glied estimate the substitution rate \textit{just for those children who become eligible during the Zebley-era}. It is possible that the Zebley-era was one in which substitution possibilities between the AFDC and SSI programs were heightened. This may have occurred because it is only during the Zebley-era that subjective judgement on childhood disability was allowed. If this is the case, then the larger Zebley-era elasticities should be interpreted in light of the fact that individual assessment for children have since been discontinued. It is also possible that our elasticities differ because omitted variables affect the pre-Zebley eligibles differently than those who became eligible during the Zebley era. It is unclear, however, which group is subject to the greater omitted variable bias.

It is important to point out that the Zebley ruling is not being used as an instrument in the specification used by Garrett and Glied. The Zebley decision is a shock to the dependent variable: it increased the set of people eligible for SSI. It is not an exogenous shock to AFDC benefits. It is also not the case that \( \alpha_2 \) is a “differences-in-differences estimator.” This would only be true if the pre-Zebley
eligibles were a control group in which there was no true substitution effect of AFDC benefits. In reality, the Zebley variable is just an indicator for the years 1992-94. As the Zebley ruling is an aggregate nation shock, it is contaminated with all of the other changes that occurred at the national level at the same time. In particular, it is most likely contaminated with the economic recession that took place during the same period.\(^{21}\) Therefore, ChildSSI\(_2\) captures more than just the participation rate for those made eligible by the Zebley ruling. It also captures changes in participation due to the worsening economy.\(^{22}\) This contamination is likely to be sizeable, and therefore it is unlikely that the Garrett and Gled estimator is less biased than our own.\(^{23}\)

It is also interesting to compare Garrett and Gled’s pre-Zebley coefficient estimate on AFDC benefits to that which we obtain in our analysis. Although their coefficient is estimated using only 3 years of data, 1987-89, it still should be relatively similar in magnitude to the estimate that we obtain using the years 1974-90. Instead, they obtain a coefficient estimate that implies an elasticity of -1.14 which again is a large elasticity for this sort of behavioral effect.\(^{24}\) However, we stress that while our estimated elasticity of substitution is substantially smaller in magnitude than Garrett and Gled, both studies suggest substantial substitution possibilities between the AFDC and SSI programs.

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\(^{20}\) This is almost twice as big as the elasticity of -0.25 reported by Garrett and Gled, who divide by ChildSSI\(_4\) rather than by ChildSSI\(_2\). In our view, it is incorrect to divide by total child SSI participation after Zebley, because this calculation does not produce an actual elasticity and is difficult to interpret.

\(^{21}\) In fact, because they include year fixed-effects for 1993 and 1994, the Zebley indicator is just a dummy variable for 1992, the crux of the recession.

\(^{22}\) If the Zebley variation was purely exogenous, we could obtain an unbiased estimate of the elasticity of substitution using a 2SLS model. The dependent variable would be AFDC participation and the endogenous right-hand side variable would be SSI participation. We could then use the Zebley indicator and its interaction with AFDC benefits as instruments.

\(^{23}\) We find evidence that the Zebley variation is contaminated in some additional results reported by Garrett and Gled (1998). The authors also estimate their model with AFDC participation as the dependent variable: If the Zebley indicator is just capturing the shock to SSI participation, we would expect the coefficient on AFDC to be negative. This is because the increased SSI participation should create substitution out of AFDC. Garrett and Gled (1998) report a significant positive coefficient on the Zebley indicator, which undoubtedly reflects the worsening economic conditions of the early 1990’s that increased both AFDC and SSI participation.

\(^{24}\) Through communication with the authors, we have run the same baseline specification on both our data sets and found that the coefficient estimates are similar. Therefore, the difference in our coefficient estimates seems to result from additional control variables in their specification. It appears that the inclusion of their state supplementation accounts for this difference. This suggests our estimates may understate the degree of substitution between the two programs.
VI. Conclusions

The findings we have reported in this paper indicate that there exists a significant negative relationship between SSI participation and AFDC benefits. Furthermore, this finding is fairly robust to the inclusion or exclusion of state fixed-effects, economic and demographic control variables. We do find, however, that the effect of AFDC benefits on SSI participation appears to have grown larger over time. Our coefficient estimates indicate that a 10% reduction in AFDC benefits is associated with roughly a 2.5% increase in SSI expenditures.

Our findings are consistent with the theory that some low-income families will attempt to substitute SSI benefits for AFDC benefits when the AFDC program becomes less generous. If this behavior continues, then we might expect to see SSI participation substantially increase as welfare reform measures increasingly restrict access to AFDC benefits. We mentioned in Section 2 that Congress had passed several legislative initiatives to restrict access to SSI at the same time that it passed the 1996 welfare reform legislation. In particular, alcohol and drug addiction are no longer qualifying conditions for disabled status, and it is harder for children to qualify for the program now that the individual assessments have been discontinued. This legislation could potentially hinder the extent to which AFDC families can cross over into the SSI program. Notice, however, that we obtained our estimates on a period in which children were not allowed to have the individual assessments, and still found meaningful substitution during that time.

It appears that the SSI program has in some sense acted as a “safety-valve” for the AFDC program, providing an alternative source of income when AFDC benefits became less generous. If Congress is successful at severely restricting access to the SSI program, the effect of welfare reform on low-income families could be more detrimental than previously anticipated.
References


Table 1: Variable Means for 1975 and 1990

<table>
<thead>
<tr>
<th></th>
<th>1975 Mean</th>
<th>1990 Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSI-Disabled Caseload</td>
<td>37,893 (54,120)</td>
<td>64,294 (85,998)</td>
</tr>
<tr>
<td>SSI-Disabled Participation Rate</td>
<td>.0080 (.0037)</td>
<td>.0122 (.0052)</td>
</tr>
<tr>
<td>Real Monthly AFDC Benefit to a Family of Four with no Additional Income</td>
<td>512.4 (178.0)</td>
<td>347.4 (132.1)</td>
</tr>
<tr>
<td>Average Real Annual SSI Payment to Disabled Recipients</td>
<td>1,392 (251.8)</td>
<td>3,334 (428.1)</td>
</tr>
<tr>
<td>Average Medicaid Payment to SSI-Disabled Recipients</td>
<td>---</td>
<td>5,154 (2,259)</td>
</tr>
<tr>
<td>Average Medicaid Payment to AFDC Recipients</td>
<td>---</td>
<td>1,803 (521.3)</td>
</tr>
<tr>
<td>Sample Size</td>
<td>51</td>
<td>51</td>
</tr>
</tbody>
</table>

Standard deviations are reported in parentheses. All benefit and Medicaid variables are deflated using the July CPI-U, base year 83-84.
Table 2: Impact of AFDC Benefit Level on SSI Participation, 1974-90

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log of real AFDC Benefits</td>
<td>-.6137**</td>
<td>-.2832**</td>
<td>-.2793**</td>
<td>-.2475**</td>
</tr>
<tr>
<td></td>
<td>(.0391)</td>
<td>(.0312)</td>
<td>(.0298)</td>
<td>(.0324)</td>
</tr>
<tr>
<td>Log of real per capita Earnings</td>
<td>.1339</td>
<td>-.2022**</td>
<td>-.0781</td>
<td>-.1656</td>
</tr>
<tr>
<td></td>
<td>(.0881)</td>
<td>(.0517)</td>
<td>(.0971)</td>
<td>(.0922)</td>
</tr>
<tr>
<td>Log of real per capita Manufacturing Earnings</td>
<td>---</td>
<td>---</td>
<td>.0274</td>
<td>.0479</td>
</tr>
<tr>
<td></td>
<td>---</td>
<td>---</td>
<td>(.0506)</td>
<td>(.0491)</td>
</tr>
<tr>
<td>Log of real per capita Service Sector Earnings</td>
<td>---</td>
<td>---</td>
<td>-.2712**</td>
<td>-.3458**</td>
</tr>
<tr>
<td></td>
<td>---</td>
<td>---</td>
<td>(.0839)</td>
<td>(.0818)</td>
</tr>
<tr>
<td>Log of real per capita Government Sector Earnings</td>
<td>---</td>
<td>---</td>
<td>.4125**</td>
<td>.5801**</td>
</tr>
<tr>
<td></td>
<td>---</td>
<td>---</td>
<td>(.0874)</td>
<td>(.0932)</td>
</tr>
<tr>
<td>Log Fraction of Population that is Black</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>.1698**</td>
</tr>
<tr>
<td></td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>(.0459)</td>
</tr>
<tr>
<td>Log Fraction of Population that is under 20</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>-1.023**</td>
</tr>
<tr>
<td></td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>(.2614)</td>
</tr>
<tr>
<td>Log Fraction of Population that is 65 or Over</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>.5069**</td>
</tr>
<tr>
<td></td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>(.1159)</td>
</tr>
<tr>
<td>Year Effects?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>State Effects?</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>R²</td>
<td>.3245</td>
<td>.9765</td>
<td>.9777</td>
<td>.9823</td>
</tr>
</tbody>
</table>

Notes: Dependent variable is the logarithm of the state’s SSI-Disabled participation rate. Huber-White standard errors are given in parentheses. There are 867 observation in each regression.
*p-value < .05  **p-value < .01
### Table 3: Impact of AFDC Benefit Level on SSI Participation, 1974-90: Additional Regression Results

<table>
<thead>
<tr>
<th></th>
<th>(1) 1974-82</th>
<th>(2) 1983-90</th>
<th>(3) 1974-90</th>
<th>(4) 1981-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log of real AFDC Benefits</td>
<td>-.1067* (.0446)</td>
<td>-.2606** (.0474)</td>
<td>-.1748** (.0316)</td>
<td>-.2113** (.0365)</td>
</tr>
<tr>
<td>Log of Average real SSI Payment to SSI Disabled Recipients</td>
<td>---</td>
<td>---</td>
<td>.7890** (.0827)</td>
<td>.4294** (.1053)</td>
</tr>
<tr>
<td>Log of Average Medicaid Expenditure on SSI Disabled Recipients</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>.0062 (.0095)</td>
</tr>
<tr>
<td>Log of Average Medicaid Expenditure on AFDC Recipients</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>-.0581** (.0161)</td>
</tr>
<tr>
<td>Log of real per capita Earnings</td>
<td>.0790 (.1177)</td>
<td>-.0182 (.0997)</td>
<td>-.2288* (.0900)</td>
<td>-.1776 (.1093)</td>
</tr>
<tr>
<td>Log of real per capita Manufacturing Earnings</td>
<td>-.0370 (.0826)</td>
<td>.0963 (.0750)</td>
<td>-.0233 (.0483)</td>
<td>.1374* (.0639)</td>
</tr>
<tr>
<td>Log of real per capita Service Sector Earnings</td>
<td>-.2240 (.1242)</td>
<td>-.2880** (.1016)</td>
<td>-.2947** (.0763)</td>
<td>-.2905** (.0896)</td>
</tr>
<tr>
<td>Log of real per capita Government Sector Earnings</td>
<td>.5559** (.1461)</td>
<td>.6210** (.1588)</td>
<td>.4337** (.0830)</td>
<td>.7830** (.1316)</td>
</tr>
<tr>
<td>Log Fraction of Population that is Black</td>
<td>.1120 (.1266)</td>
<td>.2997** (.0666)</td>
<td>.2526** (.0450)</td>
<td>.2716** (.0569)</td>
</tr>
<tr>
<td>Log Fraction of Population that is under 20</td>
<td>-1.656** (.4540)</td>
<td>.6492* (.3040)</td>
<td>-1.336** (.2225)</td>
<td>.2749 (.2927)</td>
</tr>
<tr>
<td>Log Fraction of Population that is 65 or Over</td>
<td>.8324** (.2274)</td>
<td>1.208** (.2342)</td>
<td>.4698** (.1061)</td>
<td>1.150** (.1809)</td>
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<tr>
<td>N</td>
<td>459</td>
<td>408</td>
<td>867</td>
<td>450</td>
</tr>
<tr>
<td>R²</td>
<td>.9853</td>
<td>.9947</td>
<td>.9852</td>
<td>.9942</td>
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</tbody>
</table>

Notes: Dependent variable is the logarithm of the state’s SSI-Disabled participation rate. Huber-White standard errors are given in parentheses. All regressions include state and year effects. Regression in column 4 excludes 1983 and Arizona. *p-value < .05 **p-value < .01
Table 4: Regression Results for Child SSI Participation

<table>
<thead>
<tr>
<th>Regression Model</th>
<th>Coefficient on AFDC</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pooled Cross-Section</td>
<td>-.6680*** (.0383)</td>
<td>865</td>
</tr>
<tr>
<td>Add State Fixed Effects</td>
<td>-.3514*** (.0925)</td>
<td>865</td>
</tr>
<tr>
<td>Add Economic Controls</td>
<td>-.3353*** (.0881)</td>
<td>865</td>
</tr>
<tr>
<td>Add Demographic Controls</td>
<td>-.2992*** (.0882)</td>
<td>865</td>
</tr>
<tr>
<td>1974-82</td>
<td>-.0666 (.1261)</td>
<td>458</td>
</tr>
<tr>
<td>1983-90</td>
<td>-.4014*** (.0696)</td>
<td>407</td>
</tr>
<tr>
<td>Add SSI Benefit</td>
<td>-.3071*** (.0910)</td>
<td>865</td>
</tr>
<tr>
<td>Add Medicaid Expenditures</td>
<td>-.3579*** (.0709)</td>
<td>449</td>
</tr>
</tbody>
</table>

Notes: Dependent variable is the logarithm of the state’s child SSI-Disabled participation rate. Huber-White standard errors are given in parentheses. All regressions include state and year effects. Regression in column 4 excludes 1983 and Arizona. *p-value < .05  **p-value < .01 ***p-value<.001
Table 5: Regression Estimates using Long Differences and Moving Averages

<table>
<thead>
<tr>
<th>Estimation Strategy</th>
<th>Coefficient on AFDC variable</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Effects (Result From Table2, Column2)</td>
<td>-.2832** (.0312)</td>
<td>867</td>
</tr>
<tr>
<td>First Differences</td>
<td>-.0565* (.0222)</td>
<td>816</td>
</tr>
<tr>
<td>3-Year Long Differences</td>
<td>-.1701** (.0298)</td>
<td>714</td>
</tr>
<tr>
<td>5-Year Long Differences</td>
<td>-.2532** (.0356)</td>
<td>612</td>
</tr>
<tr>
<td>5-Year Centered Moving Average</td>
<td>-.3670** (.0352)</td>
<td>867</td>
</tr>
<tr>
<td>5-Year Lagged Moving Average</td>
<td>-.2865** (.0332)</td>
<td>867</td>
</tr>
</tbody>
</table>

Notes: Huber-White standard errors are reported in parentheses. The dependent variable is the log of the SSI-Disabled participation rate. All regressions include the log of real per capita earnings, state and year effects. *p<.05 ** p<.01
Figure 1

Average AFDC Benefits and SSI Participation in the U.S., 1974-90
Figure 2

Average AFDC Benefits and SSI Participation for Select States, 1974-92