This article examines the interaction between the Supplemental Security Income (SSI) and Aid to Families with Dependent Children (AFDC) programs in the period before welfare reform (1990 to 1996). It also discusses the potential impact of welfare reform on the interaction between SSI and the Temporary Assistance for Needy Families program, which replaced AFDC.

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Transitions from AFDC to SSI Before Welfare Reform

by David C. Stapleton, David C. Wittenburg, Michael E. Fishman, and Gina A. Livermore*

Summary

The Supplemental Security Income (SSI) and Aid to Families with Dependent Children (AFDC) programs serve populations with similar characteristics. SSI serves adults and children with disabilities who are in low-income families, and AFDC serves low-income families with children. Because of that overlap, policy changes in one program can affect the other.

In 1996, Congress enacted the Personal Responsibility and Work Opportunity Reconciliation Act, which transformed AFDC into the Temporary Assistance for Needy Families (TANF) program. Many people have expected that implementing that welfare reform legislation would eventually increase SSI participation, for two reasons. First, TANF includes new work requirements and time limits that induce more AFDC/TANF recipients with disabilities to obtain SSI benefits. Second, the change in the funding mechanism—from open-ended funding on a matching basis for AFDC to cash assistance block grants for TANF—gives states a stronger incentive to shift welfare recipients to SSI.

This article examines the interaction between the SSI and AFDC programs in the prereform period (1990 to 1996) and discusses the potential implications of welfare reform on that interaction. Using matched data from the Survey of Income and Program Participation and Social Security Administration (SSA) records, our analysis focuses on how the interaction of those programs affects young women (aged 18 to 40) and children (aged 0 to 17).

We find a very strong link between AFDC and SSI for young women and children. Significant portions of young female and child SSI beneficiaries in the 1990-1993 period were in AFDC families or had received AFDC in the past. In addition, a substantial share of young women and children who received AFDC during that period eventually entered SSI. Because the SSI program is now serving a much larger population of families with young women and children than in the past, SSA might need to develop policies to better serve that group. The findings also suggest that the prereform period is a poor baseline against which to measure the impact of TANF, primarily because of the instability in programs and policies.

Introduction

The Supplemental Security Income (SSI) and Aid to Families with Dependent Children (AFDC) programs serve overlapping target groups. SSI serves adults and children with disabilities from

low-income families, and AFDC serves low-income families with children. Consequently, policy changes in one program can affect the other.

Many people have anticipated that the implementation of welfare reform legislation in August 1996, which transformed AFDC into the Temporary Assistance for Needy Families (TANF) program, would eventually increase SSI participation, for two reasons. First, the new TANF work requirements and time limits could induce more AFDC/TANF recipients with disabilities to obtain SSI benefits. Second, the change from open-ended funding on a matching basis for AFDC to cash assistance block grants for TANF creates a stronger incentive for states to shift welfare recipients to SSI. Furthermore, legislative initiatives in 1996 and 1997 that tightened SSI eligibility for children and eliminated benefits for adults whose drug abuse or alcoholism was material to disability could induce some potential SSI applicants to participate in TANF.

Although it has long been known that the SSI and AFDC programs interact, an analysis of the interactions is rare, and little data has been available on persons targeted by both programs. Previous studies provide evidence of substantial transitions of children from AFDC to SSI during the 1990-1996 period because of expanded eligibility for children, but the studies are limited by data constraints (Garrett and Glied 2000; Kubik 1998). Specifically, those studies could not directly observe individual transitions from AFDC to SSI. In addition, they did not examine transitions by young mothers from AFDC to SSI.

Our primary purpose is to examine transitions from AFDC to SSI during the prereform period (1990 to 1996) using restricted data from the Survey of Income and Program Participation that have been matched to the Social Security Administration's administrative records (SIPP/SSA data). Those data provide a unique opportunity to examine multiyear transitions onto SSA programs by various demographic groups; they also provide detailed family, demographic, health, and income information on SSI recipients that was previously unavailable.

We use the SIPP/SSA data to assess the changing composition of the SSI population, which grew rapidly over the 1990-1996 period. We focus specifically on transitions onto SSI by children and young mothers who lived in AFDC families at the time of the SIPP interview. We also examine whether the linkage between AFDC and SSI grew over this period and what, if anything, the changing linkages imply about future linkages between TANF and SSI. This information is important in assessing whether the prereform period could be considered a baseline period for purposes of measuring the impact of TANF and other contemporaneous welfare reforms for future evaluations.

Our findings represent a summary from a larger report to SSA in which we developed options for future evaluation of the impact of welfare reforms on SSA programs (Stapleton and others 1999). That report presents findings from site visits to five states in which we gathered information about the potential impact of welfare reforms. It also includes a pooled time-series analysis of state-level SSI applications during the prereform period. We refer to some of the findings from those activities in this article, especially in the final section.

This article:

- Provides background information on the AFDC and SSI programs and their interactions;

- Reviews research on the overlap between AFDC and SSI;

- Describes the SIPP/SSA data and summarizes our empirical findings;

- Presents several descriptive statistics on the interactions between AFDC and SSI during the prereform period and then presents a more complex multivariate (hazard) analysis of transitions to SSI, focusing on individual characteristics that might be predictive of transitions; and

- Summarizes our findings and their potential implications for policy and research.

Program Descriptions and Interactions

Supplemental Security Income (SSI)

The federal SSI program provides means-tested transfer benefits for adults and children with disabilities.[1] To be eligible under current rules, applicants must meet a family income and asset test and satisfy SSA's definition of disability; those criteria differ depending on whether the applicant is considered a child or an adult.[2] Most adult and child SSI recipients are also eligible for other public support programs, such as Food Stamps and Medicaid.

The SSI program differs in important ways from other cash transfer programs, such as AFDC and General Assistance (GA). Because eligibility for SSI requires that a person have a permanent disability, the number of people who cycle on and off benefits is relatively small compared with other programs. For example, Rupp and Scott (1998) estimate that the average duration on SSI for recipients aged 18 to 34 is 19.9 years. In contrast, Bane and Ellwood (1983, 1985) find that durations of most welfare recipients are relatively short, though some small portions of the AFDC caseloads remain eligible for benefits for several years. SSI benefits are also generally larger than those from other cash transfer programs. In 1996, the maximum federal SSI payment for a single

person was $470 per month, and many states provided a state supplement to the federal payment, ranging from a few dollars to approximately $150.

Relatively few policy changes directly affected eligibility for adult SSI benefits during the prereform period. The most notable change was the series of legislative initiatives started in 1994 that eventually discontinued SSI benefits for individuals whose drug addiction or alcoholism was material to the finding of disability.

In contrast, several policy changes significantly expanded the disability and income definitions to qualify for child SSI benefits over the same period. First, in February 1990, the U.S. Supreme Court, in *Sullivan v. Zebley,* ruled against SSA's policy of holding children to a stricter definition of disability than adults. In keeping with that decision, SSA effectively expanded eligibility by instituting regulations in February 1991 requiring children who did not meet or equal SSA's medical eligibility requirements to undergo a second evaluation, called an individualized functional assessment (IFA). Second, SSA released new regulations in December 1990 that ex-panded the mental impairment listings for children to include additional developmental, behavioral, and emo-tional disorders, such as severe attention deficit disorder. The regulations also revised determination procedures that define how SSA considers mental impairments in children and the evidence that a claimant can use to demonstrate such an impairment. Finally, in 1992, SSA changed the deeming rules for parental earnings as income for children in a way that in many cases reduced the amount of family income deemed available to support the child. The effect was to expand nonmedical eligibility criteria and increase the value of the benefit for some families.[3] However, the welfare reform legislation in 1996 significantly reversed the eligibility expansion for child SSI applicants by eliminating the IFA as a mecha-nism for evaluating child disability.

In addition to these policy changes, SSA, disability advocates, and other government agencies conducted outreach efforts to identify individuals who might be eligible for SSI benefits, particularly children. Those efforts significantly increased the amount of information available to key stakeholders about the availability of disability benefits (Rupp and Stapleton 1998).

The number of young female and child SSI recipients rose substantially during this period. The number of female recipients aged 18 to 40 increased by 56 percent from 1990 to 1997, from 456,000 to 712,000 (SSA 1991, 1998). Over approximately the same period, the number of child recipients increased by more than 250 percent, from 265,000 to 955,000 (SSA 1997). Earlier research indicates that much of the growth for both groups was due to eligibility expansions, the recession in the early

nineties, local SSA outreach efforts, and other factors related to state and local welfare programs (described below), but the relative importance of each of these factors is not known (see Stapleton and others 1998, 1999; Rupp and Stapleton 1998).

Aid to Families with Dependent Children (AFDC)/ Temporary Assistance for Needy Families (TANF)

Before the 1996 reforms, the AFDC program provided cash welfare benefits to needy families with children when a parent was absent from the home, incapacitated, deceased, or unemployed. Each state determined the eligibility requirements (within federal guidelines) and benefit levels. Most states provided a benefit, ranging from $120 (Mississippi) to $597 (Vermont) per month for a family of three in 1996.[4] State and federal funds were used to finance the program, with federal funds covering between 50 percent and 80 percent of benefit costs and 50 percent of administrative costs. In all states, AFDC recipients were automatically eligible for Medicaid insurance coverage.

From 1990 to 1996, several states made experimental changes to their AFDC program by obtaining federal waivers under section 1115 of the Social Security Act.[5] The 1115 waivers allowed states to make changes to certain federal requirements if those changes furthered the goals of the AFDC system. A number of states implemented changes that were eventually mandated by the welfare reforms in 1996, such as work requirements and time-limited benefits.

In 1996, Congress enacted the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), which transformed AFDC into TANF. Those changes eliminated the open-ended entitlement and replaced it with a state block grant program. Although states still have flexibility to determine eligibility requirements and benefit levels under TANF, those benefits are subject to federal time limits and work requirements. The federal time limit is 5 years; however, states can choose a shorter limit, and 20 states have done so (Hobbie, Wittenburg, and Fishman 1999). States are permitted to exempt up to 20 percent of their caseload from that limit. The TANF work requirements are relatively complex, but, in general, states must place adult TANF recipients in work no later than their 24th month of assistance. TANF recipients who do not satisfy the work require-ments may have their benefits either reduced or termi-nated. States that do not meet certain participation requirements are subject to financial penalties (see Stapleton and others (1998) for more details).

Program Interactions

SSI interacts with AFDC because individuals with severe disabilities who live in AFDC families can qualify for

either program. Although an individual cannot receive benefits from both programs at the same time, a family can. In cases in which an SSI recipient is present in an AFDC-eligible household, the SSI recipient is excluded in calculating the AFDC benefit level. In general, the income of an AFDC family increases when a member of the family starts receiving SSI—that is, the new SSI payments more than offset the reduction in AFDC. Hence, the net increase in family income rises with the size of the AFDC unit, because the marginal AFDC payment for a family member decreases with the number of persons in the AFDC unit, whereas the SSI benefit is independent of family size. For example, in 1996, an AFDC family in New Hampshire with two children could have gained $428 by moving a child from AFDC to SSI. By comparison, an AFDC family with just one child could have gained only $16.[6]

Some people have argued that only a small number of AFDC recipients met SSA's disability criteria, mostly individuals who were seeking SSI benefits. Others have pointed out that SSA's lengthy and difficult disability determination process might have deterred significant numbers of qualified individuals, including AFDC recipients, from applying for SSI. Further, although the gain in family income from the transition of one member to SSI was quite large in some instances, it could also be very small, depending on the state and on family characteristics that determine residual AFDC income (for example, households with only one child).

The potential for TANF to increase transitions to SSI depends critically on the extent to which individuals who qualified for both programs in the past obtained AFDC benefits and not SSI benefits. The increase in states' incentives to shift welfare recipients to SSI under TANF is one reason to expect TANF to increase SSI participation, because SSI is a federally funded program whereas TANF is a federal/state block grant program.[7] States that have shifted recipients aggressively in the past might not be able to increase shifting to SSI appreciably, but others might have substantial success. States could encourage shifting through outreach, by providing assistance to SSI applicants, and through strict application of work requirements and time limits to recipients who have disabilities. Because states have recently had huge surpluses in their TANF grants, their incentive to shift recipients to SSI might have actually fallen under TANF. Hence, the impact of the change in funding might not be felt unless state TANF budgets become stressed for funding.

The TANF work requirement and time-limit provisions are also likely to encourage some recipients to apply for SSI, even if relatively few applicants receive allowances. Such applicants might include people who are having difficulties fulfilling the work require-ments and those who have exhausted their TANF time limit.

Previous Literature

Multiple studies have attempted to analyze program interactions between SSI and AFDC using pooled state-level data in the early nineties. Stapleton and others (1995b) estimated a series of SSI application and award equations that included maximum AFDC benefit amounts in each state. They estimated that a 10 percent reduction in the value of AFDC benefits was associated with an increase of 2 percent to 3 percent in SSI applications. Although the analysis had some important limitations, the results provide some support for the view that changes in the AFDC program might have a substantial impact on SSI.

Garrett and Glied (2000) estimated the effect of changes in AFDC and SSI program parameters on child participation rates in those programs from 1987 to 1994.[8] They found that SSI child participation rates following the major child SSI changes increased at a faster rate in states in which the income gained from shifting an AFDC family member to SSI was relatively large. They also found that children living in states that paid a higher share of AFDC program costs were more likely to participate in SSI, providing evidence that state financial incentives do have an impact on the shifting of AFDC recipients to SSI.

Kubik (1998) analyzed state incentives for transferring children from AFDC to SSI using state budgetary parameters. He estimated the effects of "unexpected" budget deficits or surpluses in a fiscal year on the ratio of child SSI recipients to child AFDC recipients.[9] The hypothesis was that an unexpected increase in the budget deficit would provide a fiscal incentive for states, particularly following the expansions in the child SSI program in the early nineties (1990-1992), to shift costs from AFDC to SSI. He found that unexpected deficit shocks significantly increased the ratio of child SSI recipients to child AFDC recipients. In contrast, he found marginal effects before 1990, when it was more difficult for states to transfer cases. He concluded that those results provided some indication of state efforts to shift AFDC recipients to SSI in the early nineties.

A major limitation of these state-level studies is that transitions from AFDC to SSI are not directly observed in the data used. The models rely on state variations in SSI and AFDC caseloads and program parameters to approximate how many AFDC recipients are actually moving onto SSI. Because each study has substantial limitations, the estimates may be biased—that is, they may understate or overstate the number of transitions from AFDC to SSI because of these changes.

Two studies have used data in which individual transitions from AFDC to SSI are observed. Brady, Meyers, and Luks (1998) combined state and county data with survey data on welfare recipients in four California counties to estimate hazard rates for moving from AFDC, with specific estimates for transitions from AFDC to SSI. They found that a person with a disability had a significantly higher probability of leaving AFDC for SSI. They also found, however, that almost 40 percent of the AFDC households had some member with a disability, a significant portion of whom had a severe disability and did not receive SSI. They noted that this last finding could have significant implications as states try to enforce their work requirements.

The General Accounting Office (1997) presented findings on former AFDC/TANF recipients in Iowa, Massachusetts, and Wisconsin who lost their eligibility under the new state TANF laws and moved onto SSI. They obtained state administrative data on cases that were terminated in May and June 1996 and then matched those data to SSA administrative data. They found that approximately 12 percent of households in each state that lost their AFDC benefits subsequently began receiving SSI.

Although these two studies present detailed information on caseload flows from AFDC, they provide limited information regarding flows onto SSI. They lack, for example, information on transitions onto SSI by other demographic or program groups for comparison. Hence, it is not possible to determine the effect that those flows had on the SSI program. Further, both analyses provide information on flows in only a small number of states that might not be nationally representative.

Data Description

Survey of Income and Program Participation (SIPP)

We pool data from the 1990, 1991, 1992, and 1993 SIPP panels for the empirical analysis. Those data represent the most recent, completed SIPP panels available at the time we conducted the analysis. Each panel includes longitudinal information on households, families, and individuals over at least a 32-month period.[10] The panels also contain detailed monthly demographic, program, employment, and health characteristics for a nationally representative sample of the noninstitutionalized resident population of the United States.[11]

During each SIPP interview wave, interviewers pose core questions to adults aged 15 or older. Interviewers also gather information on children from the parent or guardian. The core questions include demographic, program participation, and employment information pertaining to the previous 4-month period. The number of interviews in each SIPP panel varies, but each panel has at least eight waves of interviews.

In addition to the core questions, the SIPP also includes topical modules on special subjects. For example, we used the Recipiency History module to obtain information on past participation in AFDC and the Functional Limitations and Disability module to construct various measures of disability and health status. In some cases, topical information is missing because a core SIPP panel member attrited before the topical module interview.

SIPP/SSA Records

SSA and the Census Bureau created restricted research files by matching SSA records with the 1990, 1991, 1992, and 1993 SIPP panels. SSA matched administrative data on SSI participation from its Supplemental Security Record (SSR) to SIPP respondents using Social Security numbers (SSNs).[12] The SSR contains detailed program information on SSI applicants and recipients, as well as on ineligible family members whose income might be deemed available for support of the applicant or recipient. All of the core information on SSI applicants (such as race, sex, and birth date), as well as some records that might change over time (for example, the application date for persons who filed multiple times), was taken from the earliest record on file. Information from the most recent SSR files was used to construct current payment variables. Those variables include information on the individual's monthly eligibility status and payment amounts and are available in the matched files from 1974 (the first year of SSI) to 1998.

Advantages and Limitations

The primary advantage of the matched data is that they provide information on the entire history of SSI participation for nationally representative samples. Hence, we can use those data to observe detailed transitions of SIPP respondents before, during, and after their SIPP interviews. Although transitions onto SSI can be observed using SSA administrative data alone, the combination of survey and administrative data allows us to construct detailed characteristics of SSI applicants and recipients that are unavailable in administrative data. Those characteristics include family, health, labor market participation, and information about participation in other programs (such as AFDC).

The data, however, have important limitations. First, detailed characteristics from SIPP interviews are only available over the life of the panel. For example, attempts to characterize 1996 SSI recipients using information from, say, the 1990 panel, are problematic because some characteristics, such as health, income, and family status, are likely to change as a person ages. Thus, the fact that an AFDC recipient observed in SIPP in 1990 moves onto

SSI in 1996 does not mean that the individual was eligible for SSI in 1990. Second, there is significant attrition bias in later interviews of SIPP panels. To minimize attrition bias, we report information only from the first wave of each panel unless the information is unavailable in that wave.[13] Finally, there is some evidence that AFDC participation is underreported in the SIPP relative to administrative records, though AFDC participation rates in the SIPP are consistent with those of other major surveys, such as the Current Population Survey (U.S. Department of Commerce 2000). Hence, to the degree that participation is underreported, our estimates will probably understate the overlap between AFDC and SSI.[14]

Descriptive Analysis

Using the pooled samples of SIPP/SSA data from 1990-1993, we examine the overlap between AFDC and SSI.[15] Our target samples include SIPP respondents who were interviewed in the first wave of the 1990, 1991, 1992, or 1993 SIPP panel. We identify SSI recipients based on indicators of payment status in the SSA administrative records (that is, SSA records show that this person was scheduled to receive a payment). Our SSI sample includes individuals who were SSI recipients according to SSA records in January of the calendar year. We also use the administrative records to identify SSI applicants using the first date of application that appears on the SSA records. We identify AFDC recipients using SIPP information on self-reported AFDC participation. Similar to our SSI sample, our AFDC sample includes individuals who lived in families that received an AFDC payment during January of the panel year. The pooled samples of SSI recipients include approximately 350 observations each for young women and children, and the pooled AFDC sample includes 2,352 young women and 5,943 children.

Characteristics of AFDC and SSI Recipients

Our descriptive comparisons illustrate a large potential for overlap between the AFDC and SSI programs for young women (aged 18 to 40) in the 1990-1993 period (see Table 1). Over 20 percent of AFDC recipients had a disability, including 15 percent with a severe disability, and approximately 89 percent lived in a family whose income was below 150 percent of the federal poverty line. Not surprisingly, almost all SSI recipients reported a disability (although a significant number of values were missing because of noninterviews), and most lived in a family whose income was below the poverty line. In addition, almost half of both young female AFDC and young female SSI recipients did not finish high school. Hence, it is possible that a significant portion of AFDC

Table 1.

Mean characteristics of 1990-1993 young adult (aged 18 to 40) female SSI and AFDC recipients (in percent)

Characteristic	SSI	AFDC
Estimated mean annual (weighted) population (thousands)	470	2,940
Married	13.3	15.7
White	59.9	41.1
Less than high school education	48.1	46.0
Disability status		
None	6.0	64.4
Any [a]	80.0	20.2
Severe [b]	72.9	15.0
Missing information	14.0	15.4
Family composition		
With at least one adult in the family (other than the respondent)	64.1	42.1
With own children	35.7	96.9
Family income [c] less than 150% of poverty	69.5	89.1
Program participation [d]		
SSI	100.0	3.3
AFDC family	20.6	100.0

NOTE: Includes individuals who were interviewed in the first wave of the 1990, 1991, 1992, or 1993 SIPP panels. An SSI recipient is defined as an individual who is "in payment status"—that is, SSA records show that this person was scheduled to receive a payment. Our SSI sample includes individuals who were recipients according to SSA records in January of the calendar year. Our AFDC sample includes individuals who lived in families that received an AFDC payment during January of that year.

a. Includes respondents who report a limitation in the kind or amount of work or housework that they can do; have difficulty with any of the functional activities or activities of daily living (ADLs); use a wheelchair; have used a cane, crutches, or walker for more than 6 months; or have a disabling mental or emotional condition.

b. Includes respondents who use a wheelchair; have used a cane, crutches, or walker for more than 6 months; are unable to do a functional activity; need assistance with an ADL; report being prevented from doing work or housework; or have mental retardation, Alzheimer's, senility, dementia, or a developmental disability such as autism or cerebral palsy.

c. Based on monthly family income as a percentage of the family's poverty line in January of the SIPP interview year.

d. AFDC participation is based on family participation. SSI participation is based on individual participation.

recipients in this period could also have met the SSI eligibility requirements.[16] The overlap has important implications for growth of the SSI caseload, given that the AFDC program provides benefits to young women at a rate that is six times higher than SSI (2.9 million AFDC recipients versus 470,000 SSI recipients).

We find similar trends for children (see Table 2). Approximately 5 percent of AFDC children had a reported disability.[17] Although that percentage is relatively small, it represents 345,000 AFDC children with a disability, compared with an SSI caseload estimated at 443,000 children. Unfortunately, the very limited information in SIPP about child disability does not permit a meaningful assessment of severity. For example, the SIPP respondent in the SSI child's household reported that the child had a disability in just 56 percent of cases, with information missing in 14.3 percent of cases.[18] We assume that almost all SSI children had some form of disability and that the 29.7 percent reported to have no disability reflects very significant underreporting of child disability in SIPP. Similar to AFDC children, SSI children lived predominately in low-income, mother-only families. In fact, a substantial portion (29.4 percent) of children receiving SSI during the 1990-1993 period already lived in an AFDC family.

Transitions from AFDC to SSI

A significant portion of young women and children who were AFDC recipients during their first SIPP interview between 1990 and 1993 applied for SSI during the prereform period (see Chart 1). We estimate that 9.2 percent of young female AFDC recipients (270,000 cases) filed a first SSI application after 1990, compared with 5.7 percent (167,000 cases) who did so before 1990. Similarly, we estimate that 9.0 percent of child AFDC recipients (621,000 cases) filed a first SSI application after 1990, compared with only 1.6 percent (110,000 cases) who did so before 1990.

Not surprisingly, the proportions of these AFDC groups actually receiving SSI benefits also increased substantially after 1990 (see Chart 2). From 1988-1989 to 1996-1997, the percentage of young female AFDC recipients who received an SSI payment in the 2-year period more than tripled, from 2.3 percent to 7.5 percent (68,000 to 220,000 cases).[19] Over the same period, the percentage of child AFDC recipients who received SSI increased from 1.0 percent to 5.1 percent (69,000 to 352,000 cases).

The estimated transitions from AFDC to SSI by young women and children is impressive when compared with the size of the SSI caseload in the respective demographic group. The 220,000 young female AFDC recipients in our 1990-1993 sample who had moved onto SSI by 1997 represent 48 percent of the 1990 SSI

Table 2.

Mean characteristics of 1990-1993 child (aged 0 to 17) SSI and AFDC recipients (in percent)

Characteristic	SSI	AFDC
Estimated mean annual (weighted) population (thousands)	443	6,905
Male	65.2	50.5
Under 6 years old	20.1	44.6
White	36.1	34.5
Disability status [a]		
None	29.7	78.7
Any	56.0	5.0
Missing information	14.3	16.3
At least one other child in family [b]	81.1	87.2
Parents in the family [c]		
Mother only	52.2	79.9
Both parents present	41.1	17.8
Family income less than 150% of poverty [d]	75.7	91.8
Program participation		
SSI	100.0	1.9
AFDC family [e]	29.4	100.0

NOTE: Includes children whose families were interviewed in the first wave of the 1990, 1991, 1992, or 1993 SIPP panels. An SSI recipient is defined as an individual who is "in payment status" —that is, SSA records show that this person was scheduled to receive a payment. Our SSI sample includes individuals who were recipients according to SSA records in January of the calendar year. Our AFDC sample includes individuals who lived in families that received an AFDC payment during January of that year. First wave weights were used to produce estimates of the mean population for each year. Values reported are unweighted means of the annual estimates.

a. There are two definitions of disabilities used based on the age of the child. For those under age 6, disability is defined as a child (as reported in the SIPP by the parent) who has a physical, learning, or mental health condition that limits him or her in the usual kind of activities of most children their age. For those aged 6 or older, disability is defined as a child (as reported in the SIPP by the parent) who has a physical, learning, or mental health condition that limits his or her ability to do regular school work.
b. Children include individuals under age 18.
c. A small number of children in the SIPP do not have a parent present either because they live on their own or there is no parent present.
d. Based on monthly income for January.
e. One or more family members received benefits in January of year indicated.

caseload of 456,000 young female SSI recipients (SSA 1991). That estimate also represents 86 percent of the growth in the young female SSI caseload from 1990 to 1997, which increased by 256,000 cases (SSA 1991, 1998). Similarly, the 352,000 AFDC children in our 1990-

1993 sample is 133 percent of the 1990 SSI child caseload of 265,000 (SSA 1991), and 52 percent of the 690,000 increase in that caseload from 1990 to 1997 (SSA 1991, 1998).

It is also interesting to compare our transition estimates with our original estimates for the samples of AFDC recipients who had disabilities in 1990-1993. Because the definition of disability for adults is more reliable than that for children, we make comparisons only for our sample of young women. From Table 1, we estimate that 594,000 young female AFDC recipients had some disability, and 441,000 of them had a severe disability. Although we cannot judge the severity of disability adequately from the SIPP data, it certainly is possible that many others would have obtained SSI benefits had they applied, given that only 270,000 had applied for benefits by 1997.

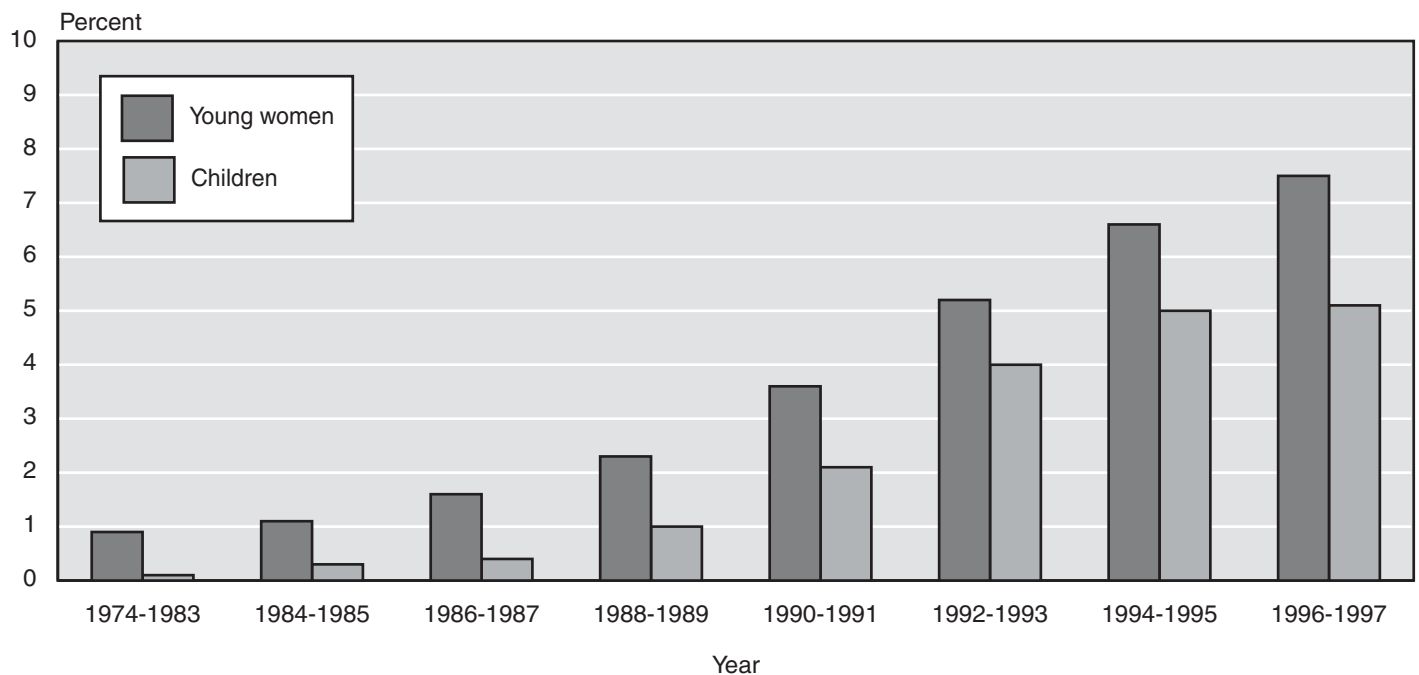## Comparison of SSI Recipients at First Interview with Post-SIPP SSI Recipients

To examine compositional changes in the characteristics of preform SSI recipients, we create samples of post-

Chart 1.
Estimated percentage of 1990-1993 AFDC recipients who applied for or received SSI
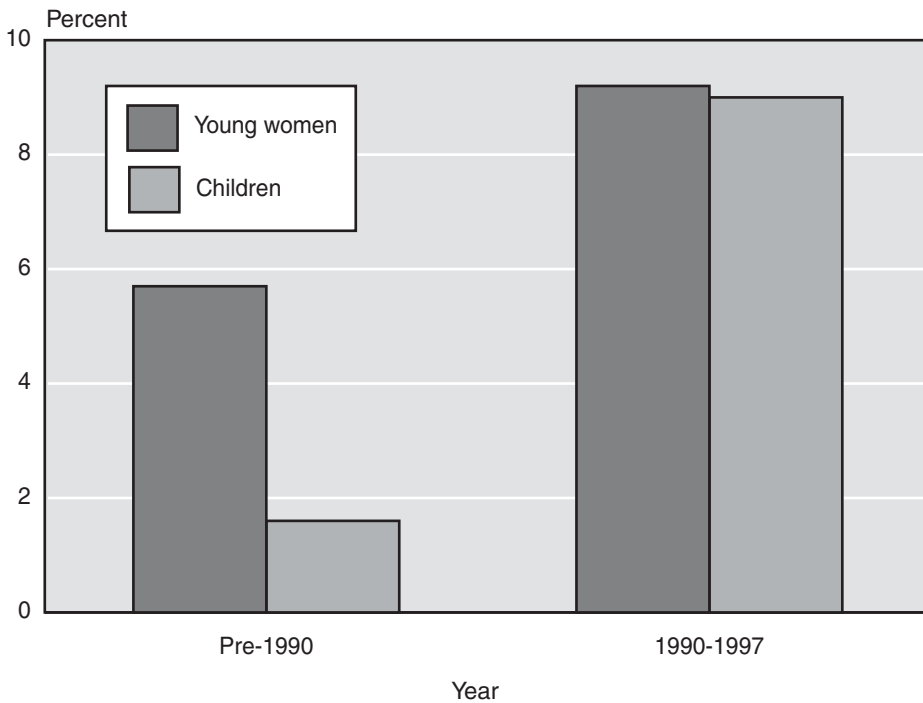
Chart 2.
Estimated percentage of 1990-1993 AFDC recipients who received SSI, 1974-1997

SIPP SSI recipients—SIPP respondents who became new recipients in the 5 years following their first SIPP interview (see Table 3).[20] We find that the composition of "existing" SSI recipients (those who were SSI recipients at their first interview) is very different from that of the post-SIPP SSI recipients. In comparison with existing young female SSI recipients, post-SIPP recipients were more likely to be married (34.4 percent vs. 13.3 percent), to have had children (67.5 percent vs. 35.7 percent), and to have participated in AFDC (29.4 percent vs. 20.6 percent). We find similar patterns for comparisons among children. In comparison with child SSI recipients at first interview, post-SIPP recipients were more likely to participate in AFDC (37.5 percent vs. 29.4 percent) and were less likely to have reported a disability (20.2 percent vs. 56.0 percent).

Differences between past AFDC participation rates for existing and post-SIPP SSI recipients suggest that SSI awards to children and young women from AFDC families represent a larger share of awards during this period than they did in earlier periods.[21] That is, growth in awards from AFDC recipients exceeded growth in awards to members of the corresponding demographic group from non-AFDC families.[22]

Econometric Analysis

Although our descriptive analysis illustrates a strong overlap between AFDC and SSI, other factors might be associated with the strong SSI caseload growth for young women and children. For example, past research has illustrated the importance of several individual characteristics, such as disability status, education, and race, on the decision to apply for benefits (Hu and others 1997). The extent to which these other factors are correlated to AFDC participation will influence our descriptive estimates.

To assess the impact of multiple factors on the decision to apply for SSI benefits, we develop a multivariate analysis using a discrete time logit model represented by the following equation:[23]

$$\ln [P_{id}/(1-P_{id})] = \alpha_d + \beta'X_i + \delta'Z_{id}$$

where:

- $ln[.]$ is the natural log operator and P_{id} represents the conditional probability that individual i applies for SSI in period d after he or she is first observed in SIPP, given that he or she has not applied before period d (that is, the hazard rate). The left-hand side of the equation is sometimes referred to as the log-odds ratio or the logit of the hazard rate. The odds-ratio itself is $P_{id}/(1-P_{id})$.

- α_d is the duration effect at duration d. This set of parameters allows for a shift in the hazard at each duration. Each α_d can be thought of as a duration-specific intercept.

- X_i is a (column) vector of explanatory variables that do not vary with duration. In this application, they represent characteristics of the individual when first observed in SIPP.

- β is a vector of coefficients for the Xs.

- Z_{id} is a vector of variables that vary with duration. In this application, they can be specific to the individual or the individual's state of residence when observed.

- δ is a vector of coefficients for the Zs.

We estimate separate equations for young women and children. The sample for each model includes SIPP respondents who had never applied for SSI before their first SIPP interview and whose family income was below 400 percent of poverty in the month they were first

Table 3.
Comparison of SSI recipients at their first SIPP interview and post-SIPP recipients (in percent)

Demographic group	Married	With own children	Children in mother-only families	Low family income [a]	AFDC participation	Disability status
Young women (aged 18 to 40)						
SSI recipients at first interview	13.3	35.7	n.a.	67.5	20.6	80.0
Post-SIPP SSI recipients	34.4	67.5	n.a.	68.4	29.4	50.5
Children (aged 0 to 17)						
SSI recipients at first interview	n.a.	n.a.	52.2	75.7	29.4	56.0
Post-SIPP SSI recipients	n.a.	n.a.	53.2	69.3	37.5	20.2

a. Includes individuals who lived in families whose income in January of the first SIPP interview was 150 percent of poverty or less.

observed.[24] The dependent variable is assigned a value of zero in each year from the first observation in SIPP through the year of first SSI application, at which point it is assigned a value of one. For young women, we include controls for duration, state fixed effects, individual characteristics during the first SIPP interview (such as, age, race, education, disability status, marital status, and AFDC participation), and changes in state economic and policy variables (such as the unemployment rate, AFDC generosity parameters, and SSI benefit amount). For children, we include similar controls and add controls for parental characteristics (mother and father's age, disability status, race, and education). In all of the models, we also include controls for state fixed effects and changes in state economic and policy factors.[25] A summary of these variables appears in Appendix Table 1.

Major Findings

In this section, we summarize our major findings. The summary also references comparison estimates for young

Table 4.
Summary of selected coefficients from hazard model estimates for first applications by young women (base specifications)

Explanatory variable	Coefficient (t ratio)	Odds ratio	Explanatory variable	Coefficient (t ratio)	Odds ratio
Age as of January 1993	0.02* (2.50)	1.02	Divorced or widowed	0.22* (1.76)	1.24
Hispanic	-0.25* (-1.77)	0.78	Children in the family	-0.62* (-4.77)	0.54
Black	0.10 (0.85)	1.10	Age of youngest child	-0.23 (-0.75)	0.79
No high school diploma	0.83* (3.37)	2.30	Other adult in the family	-0.04 (-0.34)	0.96
High school diploma only	0.58* (2.42)	1.78	Receives AFDC	-0.23 (-1.38)	0.79
Some college	0.54* (2.16)	1.71	Received AFDC in previous periods	0.86* (5.66)	2.36
Student	-0.35* (-2.32)	0.70	Receives Food Stamps	0.53* (2.88)	1.69
Has a severe disability	0.94* (7.07)	2.57	Received Food Stamps in previous periods	-0.04 (-0.24)	0.96
Has a disability	0.67* (3.81)	1.95	Family income as a percentage of poverty	-0.17* (-2.66)	0.85
Missing information on disability	0.90* (6.38)	2.45	Personal earnings (thousands)	-0.10 (-0.53)	0.90
Reports to be in good health	0.53* (4.27)	1.71	Personal income (thousands)	-0.30 (-1.58)	0.74
Reports to be in fair health	0.98* (6.41)	2.66	State fixed effects	Yes	n.a.
Reports to be in poor health	1.09* (5.05)	2.98	Duration and panel controls	Yes	n.a.
Married	-0.05 (-0.34)	0.95	State program and economic variables	Yes	n.a.

NOTES: See Appendix Table 2 for the full set of estimates. Values in parentheses are t-statistics. An asterisk (*) indicates significance at the 10 percent level or better, using a two-tailed test. Most are also significant at the 5 percent level. We used the lower standard because of the exploratory nature of the analysis.

n.a. = not applicable.

men that we presented in Stapleton and others (1999). We report our complete set of results from each of our major specifications in Appendix Tables 1-4.[26]

Estimates for Young Women

Our base specifications for young women indicate a strong association between AFDC and SSI during the prereform period (see Table 4). Note, however, that the estimates represent associations between the explanatory variable and the application hazard, holding the other explanatory variables constant.[27] We find a large, positive, and significant coefficient on the variable for past AFDC recipiency. The odds of applying for past AFDC recipients are 2.4 times those for others, holding other variables constant.

These results are consistent with the patterns observed in the descriptive analysis for transitions from AFDC to SSI. In interpreting the results, remember that several other variables that are correlated with AFDC participation in this population are being held constant (for example, children in family, receipt of Food Stamps, and family income as a percentage of poverty). Thus, after holding those correlates of AFDC participation constant, there are unobserved characteristics of past AFDC recipients that make them more likely to apply for SSI. The coefficient of the variable for current AFDC recipiency is not statistically significant, but since all current AFDC recipients are also past recipients, by definition, that coefficient is picking up any difference between the effect of past and current recipiency, which appears to be small.

In general, most of the remaining coefficients in our specifications for young women have the expected sign. Not surprisingly, the most substantial point estimates in our model for young women are the coefficients on the variables for disability and health status. For a person with a severe disability, the odds of applying are 2.6 times higher than those for a person without a severe disability, holding other things constant (including any disability and health). For a person who reported a severe disability and poor health, the odds of applying are 15 times higher than those for a person who reports no disability and very good or excellent health.[28] Those odds represent an increase in the overall probability of application from 0.4 percent to 5.8 percent. Note that the coefficient on the missing disability variable is also positive and significant, indicating that attrition from SIPP is greater for SSI applicants than for nonapplicants, holding other things constant.

We estimated additional specifications that included the same controls as in our base specification but allowed for temporal shifts in the hazards for "high probability" AFDC participants and families with children (see Appendix Table 2).[29] Specifically, we interacted our variables for AFDC probability (and for families with children) with year dummies to examine whether there was a shift upward in the probability of applying for benefits among those likely to be eligible for AFDC (and among families with children). We found that the coefficients on our AFDC probability interactions were all positive but not statistically significant. Despite the insignificance of individual coefficients (as well as the set of coefficients), the pattern of the coefficients—along with what we know from our previous analyses using administrative data from Stapleton and others (1999)—suggests that the coefficients reflect something beyond sampling error.[30] We also found a similar pattern for families with interaction specification for children.[31] Finally, when we compare these interactions to similar specifications for young men with children (see Appendix Table 3), we find that the coefficients themselves are very similar to those for young women.

This evidence supports the conclusion that a variety of factors caused a shift in participation from AFDC to SSI, suggesting that the shift among young adults had as much to do with whether they were living with their children as it did with AFDC participation. Changes in SSI eligibility for children seem a likely explanation for the shift in allowances among children. In addition, those changes might have spilled over to young adults, but administrative changes to the program, various outreach efforts, and the economy might also have had more of an impact on applications. Unfortunately, it is not possible to disentangle the effects of these factors in our analysis.

Estimates for Children

Although we do not find a significant association between the variable for AFDC recipiency and the probability of applying for SSI benefits for children, the relationship between SSI application and children living in mother-only families is very strong (see Table 5). Hazard rates for children who lived in a mother-only family are 3.3 times those for children who lived with only their father and 4.5 times the rate for those who lived with both parents.[32]

One variable that has a particularly strong association with SSI application is the presence of another child in the family. The odds ratio for children who lived with another child in the family is almost 17 times that for children who had no siblings living with them. Those odds represent an increase in the overall probability of application from 0.5 percent to 8.0 percent, holding other factors constant at their means. A possible explanation is that the potential gain in family income from a child moving onto SSI is much larger for AFDC families with more than one child.

As in our specifications for young women, we find that most of the remaining coefficients have the expected

sign. The coefficients on the variables for female, age, family income as a percentage of poverty, and living with mother and father are negative and significant. The coefficients for any disability, missing disability information, other child in the family, current Food Stamp recipient, and living with mother only are positive and significant. The coefficient of child disability is also large

(the odds of a child with a disability applying were 4.9 times those for a child without a disability). Similar to adults, the coefficient on the missing disability variable is also positive and significant, indicating that attrition from SIPP is greater for child SSI applicants than for nonapplicants, holding other factors constant.

Table 5.
Summary of selected coefficients from hazard model estimates for first applications from children (base specifications)

Explanatory variable	Coefficient (t ratio)	Odds ratio	Explanatory variable	Coefficient (t ratio)	Odds ratio
Female	-0.47* (-7.83)	0.63	Father has a disability	0.20 (1.05)	1.22
Age as of January 1993	-0.02* (-2.23)	0.98	Father's disability information is missing	-0.11 (-0.75)	0.89
Receives AFDC	0.07 (0.78)	1.07	Mother's age	-0.01* (-1.00)	0.99
Receives Food Stamps	0.40* (4.44)	1.50	Mother is black	0.34* (3.40)	1.41
Family income as a percentage of poverty	-0.22* (-4.40)	0.80	Mother is Hispanic	0.09 (0.75)	1.10
Other child in the family	2.82* (25.64)	16.82	Mother has no high school diploma	0.55* (2.75)	1.74
Has a disability	1.59* (19.88)	4.92	Mother has high school diploma only	0.29 (1.53)	1.33
Missing information on disability	0.30* (2.31)	1.34	Mother has some college education	0.23 (1.15)	1.26
Father's age	0.01* (2.08)	1.01	Mother has a severe disability	0.50* (5.56)	1.65
Father is black	0.38* (2.71)	1.46	Mother has a disability	0.03 (0.28)	1.03
Father is Hispanic	0.00 (0.01)	1.00	Mother's disability information is missing	0.12 (0.80)	1.12
Father has no high school diploma	0.56* (2.67)	1.74	Lives with mother only	1.21* (2.28)	3.34
Father has high school diploma only	0.49* (2.45)	1.63	Lives with mother and father	-0.30 (-0.91)	0.74
Father has some college education	0.19 (0.83)	1.21	State fixed effects	Yes	n.a.
			Duration and panel controls	Yes	n.a.
Father has a severe disability	0.13 (0.93)	1.14	State program and economic variables	Yes	n.a.

NOTES: See Appendix Table 4 for the full set of estimates. Values in parentheses are t-statistics. An asterisk (*) indicates significance at the 10 percent level or better, using a two-tailed test. Most are also significant at the 5 percent level. We used the lower standard because of the exploratory nature of the analysis.

n.a. = not applicable.

Findings and Their Potential Implications for Policy Research

Our findings indicate a substantial overlap between SSI and AFDC for young women. Although we cannot produce a precise estimate, the data clearly indicate that a very large share of the rapidly growing number of young women who entered SSI from 1990 through 1996 were current or past members of AFDC families. Our multivariate analysis suggests that growth in awards to young women had as much to do with whether they were living with their children as it did with whether they were AFDC participants. Although that finding points to non-AFDC factors such as SSI eligibility expansions, increased awareness of the programs, and the economy, we do not believe the evidence is definitive. Based on our previous analysis (Stapleton and others 1999), we believe there are several possible explanations for growth, including:

- Growth in AFDC participation rates of young women before 1990,

- Economic recession in the early nineties,

- Relatively high prevalence of disabilities affected by SSA eligibility expansions in the AFDC population (for example, mental illness),

- State and local efforts to encourage welfare recipients to participate in SSI,

- Increased awareness of SSI among AFDC mothers and welfare workers because of eligibility expansions that made many AFDC children eligible for SSI, and

- Early welfare reform efforts.

Unfortunately, the SIPP/SSA data do not permit us to discriminate further among these explanations.

We also find significant overlap between AFDC and SSI for children. Over half of all SSI children in the 1990-1993 period lived with just one parent, and a large share lived in an AFDC family. The share living in an AFDC family when first observed in SIPP is even higher among post-SIPP applicants and recipients. Although the data do not permit us to produce exact statistics for the 1990-1996 period, the share of SSI child awardees who came from AFDC families was clearly higher than in earlier periods. Possible explanations mirror those discussed above for young women. For children, we know from prior research that eligibility expansions played a central role in explaining SSI growth before 1996. From the work of Garret and Glied (2000) and Kubik (1998), we also know that the amount of growth in a state was strongly related to the size of the impact of a child's transition from AFDC to SSI on the AFDC family's income. If non-AFDC factors contributed substantially to growth in awards to young AFDC women, as they did for children, replication of their analysis for young women should yield similar results.

A major question that remains unanswered is whether there is significant potential for even larger numbers of young mothers and children to enter SSI because of TANF. Our analysis of the SIPP/SSA data indicates that despite the large number of women who moved from AFDC to SSI during the pre-TANF period, there were AFDC recipients with disabilities who did not apply for SSI. The potential for growth is also likely to vary significantly by state because states that have not made significant efforts to move AFDC recipients to SSI in the past will probably have more potential for growth than those who were shifting recipients to SSI in the prereform period.

In Stapleton and others (1999), we found almost no evidence of early effects of TANF on transitions to SSI during our site visits to five states (California, Connecticut, Florida, Michigan, and Wisconsin). The one exception was Connecticut, where interviewees indicated that the recent reforms (time limits and strict work requirements) might have resulted in a small increase in transitions to SSI but that such an increase might be difficult to perceive empirically because of the myriad of other recent SSA and non-SSA program changes affecting SSI participation in the state. Interviewees in the other four states acknowledged both the now increased incentive for recipients with disabilities to apply for SSI given the stricter work requirements of their TANF programs and the increased incentives for states to help them obtain SSI, but they did not perceive an actual migration to SSI following the most recent reforms.

The number of TANF recipients who move to SSI may decline from pre-TANF levels even if TANF has a positive impact on such transitions. The reason is that some of the possible forces behind the apparent growth of such transitions in the pre-TANF period have subsided. SSA has substantially tightened standards for child eligibility, partially reversing the expansions of the early 1990s. For adults, benefits have been eliminated for those who would not meet medical eligibility tests if it was not for their drug or alcohol abuse. Finally, the strong economy may well be reducing the number of women and children with disabilities who are moving onto the TANF rolls in the first place. Because we do not have a better understanding of the importance of the various forces behind the large number of transitions in the pre-TANF period, it is, unfortunately, a poor baseline against which to measure the impact of TANF on such transitions.

Furthermore, the impact of TANF on awards to parents might go significantly beyond effects that increase transitions from TANF to SSI. That is because of

the efforts that states are making to divert families from entering TANF in the first place. One diversionary tactic is to help family members with disabilities obtain SSI benefits. Future analyses that focus only on transitions from TANF to SSI will understate the effect of TANF on SSI if large numbers of parents or children with disabilities are being diverted.

Given the recent welfare reforms, the SSI program will probably continue to serve a large portion of families who receive TANF, are former AFDC/TANF recipients, or are diverted from TANF. Because the SSI program is now serving a much larger population of families with young women and children than in the past, SSA may need to develop policies to better serve that group. If a parent's disabilities are so severe that she (or he) qualifies for SSI, with its very stringent inability-to-work standard, then the parent must also face enormous challenges in raising a child, especially without help from a partner. Although such a parent would probably obtain support from TANF for the child or children, that income combined with SSI income is not likely to be enough to pay for more than necessities. It will not help the parent perform tasks that a parent without disabilities would be expected to perform routinely. Many SSI parents probably receive assistance from other sources in raising their children, but other children may be at high risk of poverty because of their parent's disabilities and lack of other support. Perhaps SSA needs to consider the potential role it could play in helping to connect such parents to other resources they might need, just as it currently engages in significant efforts to help its beneficiaries return to work.

Notes

[1] The SSI program also provides means-tested benefits to those aged 65 or older who meet certain income and asset tests.

[2] Adults may qualify if they have a physical or mental impairment that keeps them from performing any "substantial" work and is expected to last at least 12 months or result in death. Children may qualify if they are under age 18 (or under age 22 and a full-time student), unmarried, and have "a medically determinable physical or mental impairment which results in marked and severe functional limitations, and which

can be expected to result in death or which has lasted or can be expected to last for a continuous period of not less than 12 months" (SSA 1999). As will be discussed in more detail below, this particular child definition has been in place since 1996.

[3] Hannsgen and Sandell (1996) found that this more generous treatment of income significantly increased the amount of payments and the number of children on SSI.

[4] Benefit levels were actually higher in Alaska ($923) and Hawaii ($712).

[5] By 1996, more than 30 states chose to continue their waiver programs while implementing their state TANF program (Hobbie, Wittenburg, and Fishman 1999).

[6] In New Hampshire, an AFDC family with two children could have gained $497 in SSI benefits ($470 federal SSI benefit + $27 state SSI supplement) and lost only $69 in AFDC benefits for a net gain in family income of $428. An AFDC family with only one child could have gained $497 in SSI benefits and lost $481 in AFDC benefits for a net gain of $16.

[7] An important aspect of the interactions between TANF and SSI is the source of funding for the two programs. The federal government pays for the bulk of SSI benefits (100 percent in some states), and states pay for TANF benefits. While the federal government finances a large share of TANF benefits through block grants to the states, the size of the block grant is not dependent on the number of TANF recipients. Hence, states have a significant financial incentive to encourage TANF recipients who might be eligible for SSI to apply—that is, to shift the burden of their support to SSI. That incentive was smaller under AFDC because states retained 50 percent or less of the AFDC benefit savings.

The major expansions in eligibility for SSI children during the early nineties provided additional incentive for children in AFDC/TANF families to apply for SSI benefits. That expansion also probably increased state efforts to shift AFDC recipients to SSI, particularly following the major changes for children. During site visits to five states (California, Florida, Michigan, New York, and Texas), Stapleton and others (1995a) found evidence of state and local attempts to shift welfare expenditures to SSI through outreach efforts. Stapleton and others (1999) also found that several state officials noted increased efforts to identify children with disabilities in state welfare programs after these changes.

[8] Their explanatory variables included state fixed effects; a dummy variable for the period following the *Zebley* decision; the state's AFDC maximum grant; the state's AFDC maximum grant interacted with the *Zebley* dummy; the maximum SSI state supplement; the maximum SSI state supplement interacted with the *Zebley* dummy; the state's share of AFDC costs; the state's share of AFDC costs interacted with the *Zebley* dummy; the state's unemployment rate; and the state's poverty rate. They also tested an alternative specification using state-specific year dummies and the adult SSI participation rate.

[9] He constructed a panel data set of state child AFDC and SSI caseloads that he combined with information from the National Association of State Budget Officers on each state government's actual and projected revenues and expenditures from 1986 to 1995. The dependent variable was the ratio of the

SSI child caseload to the AFDC family caseload (the welfare assistance ratio). The key explanatory variable was the difference between the state expenditure shock (measured as actual state expenditures minus forecasted state expenditures) and the state revenue shock (measured as actual state revenues minus forecasted state revenues). Other explanatory variables included state and year fixed effects, the state's unemployment rate, and the state's per capita income.

[10] The 1992 and 1993 SIPP panels include longitudinal information over a 40- and 36- month period, respectively.

[11] The population for the SIPP interviews includes persons living in group quarters, such as dormitories, rooming houses, and dwellings run by religious groups. Persons excluded from the SIPP population include crew members of merchant vessels, armed forces personnel living in military barracks, institutionalized persons such as inmates of correctional facilities, residents of long-term care facilities, and citizens residing abroad. Foreign visitors who work or attend school in this country and their families are eligible for interviews.

[12] The Census Bureau collects information on SSNs during SIPP interviews. As part of the ongoing SIPP program, the Census Bureau and SSA validate SSNs for SIPP sample members in the course of normal survey operations. The two agencies also try to locate SSNs for persons for whom an SSN is not reported in the survey (except for persons refusing to provide their SSN). According to Hu and others (1997), in the 1990 panel that process resulted in a "validated" SSN for approximately 90 percent of original sample members aged 18 or older and for about 80 percent of persons under 18.

[13] For instance, we report income statistics for the first month of the respondent's panel rather than the first year. In Stapleton and others (1999), we found no noteworthy differences between the distribution of first-month income and the distribution of mean monthly income for the year.

[14] According to the U.S. Department of Commerce, AFDC participation rates are approximately 20 percent lower in the SIPP relative to the administrative records.

[15] The 1990-1993 statistics reported are the unweighted means of unbiased estimates of population means for each of the 4 years. We use SIPP sample weights from each panel to weight the characteristics to be nationally representative. Unless otherwise noted, our reported estimates represent population means over the 4-year period from 1990 to 1993.

[16] The percentage with disabilities might overstate or understate the number of people who meet SSI eligibility criteria. Some respondents who report a disability do not have a disability that is sufficiently severe to meet SSI disability criteria. At the same time, however, we suspect that some respondents fail to report disabilities in SIPP, particularly mental illness or mental retardation. Note that 6 percent of young female SSI recipients report no disability in SIPP.

[17] This percentage is slightly higher because it includes 16.3 percent of cases with missing values.

[18] Two definitions of disabilities are used depending on the age of the child. For those under age 6, disability is defined as a child (as reported in the SIPP by the parent) who has a physical, learning, or mental heath condition that limits his or her ability to perform activities typical of most children their age. For those aged 6 or older, disability is defined as a child (as reported in the SIPP by the parent) who has a physical, learning, or mental heath condition that limits his or her ability to do regular school work. The actual percentage of children reporting a disability is larger than 56 percent because some cases had missing values.

[19] The trends from the pooled data understate the extent of the transitions after 1990 for those who were in the 1990 AFDC caseload because the 1991, 1992, and 1993 SIPP samples of AFDC cases exclude those who moved from AFDC to SSI between 1990 and the relevant interview date for the later panel. When we disaggregated our results by panel (see Stapleton and others 1999), we found that 10.4 percent of the 1990 AFDC population filed a first SSI application from 1990 to 1997, including 3.7 percent in 1992-1993.

[20] When interpreting these statistics, note that some important characteristics might have changed between the SIPP observation date and SSI allowance. The post-SIPP samples include those who became a new SSI recipient between February 1990 and January 1995 in the 1990 SIPP; February 1991 and January 1996 in the 1991 SIPP; February 1992 and January 1997 in the 1992 SIPP; and February 1993 and January 1998 in the 1993 SIPP. In Stapleton and others (1999), we also generated statistics on "post-SIPP" SSI applicants. In general, the characteristics of the "post-SIPP" applicants were similar to those of "post-SIPP" recipients.

[21] In Stapleton and others (1999), we also presented descriptive statistics on the changing composition of SSI recipients from 1990 through 1993 within our pooled sample. Even within that small period, we found that a significant portion of SSI recipients were former AFDC recipients. We also compared young female SSI recipients with other SSI recipients. We found large differences in AFDC participation across younger and older women, which might reflect more frequent transitions of young women from AFDC to SSI in recent years or a decline in the age at which former AFDC recipients move to SSI.

[22] The other possible explanation for this result is that SSI recipients from AFDC families have shorter SSI stays than others. Given the magnitude of the differences and the generally very low rates of exit from SSI, shorter stays probably do not account for much of the difference.

[23] We also estimated separate models for SSI allowance, as well as application and allowance models for young men that we compared with young women in Stapleton and others (1999). In general, the results from the application models were similar to those from our application specifications.

[24] We chose the 400 percent of poverty threshold because most post-SIPP SSI applicants and recipients had income below that level. We excluded respondents in certain states in our models, for two reasons. First, some smaller states are grouped together in the SIPP, making it impossible for us to assign state-level variables to respondents from those states.

Because those states are small, very few respondents who filed their first application or received their first allowance during the observation period are dropped. Second, a few additional states had no SIPP respondents who filed a first application or received a first allowance during the observation period. We excluded all respondents from those states because we included state dummy variables in the explanatory variables; estimates of the dummy coefficients for states with no applicants or allowances are unbounded.

[25] Specifically, we included controls for General Assistance program cuts per capita, SSI benefit level, maximum monthly AFDC benefit amount, AFDC benefit reduction rates, the unemployment rate, and dummies for state waiver changes in California, Massachusetts, Michigan, and Wisconsin.

[26] A full description of these results is available in Stapleton and others (1999). In general, our econometric estimates provide important information about the effects of individual-level factors on applications for all groups (young women, young men, and children). We were limited, however, in estimating effects of state economic and policy factors (such as changes in state AFDC programs), probably because of the relatively small sample sizes of SSI applicants in each state. For a more detailed discussion of the state-level policy variables, state fixed effects, duration effects, and panel effects, see Stapleton and others (1999). Reported t-statistics probably have some upward bias because they are based on an assumption of independence across observations for the same individual in different periods.

[27] Thus, for instance, the negative coefficient on the "children in family" variable represents the association between having a child in the family and the application hazard, holding constant AFDC participation.

[28] The combined odds were calculated exponentiating the sum of the coefficients from each of these variables (0.94 + 0.67 +1.09).

[29] We estimated a linear probability model to predict the probability of AFDC participation among SIPP respondents. We used that model to assign AFDC probabilities to SIPP respondents. We also considered, but did not estimate, a third model of that sort—with interactions between an AFDC dummy variable and each of the year dummies for 1991 to 1996. We decided that we preferred the probabilistic AFDC specification to that deterministic one because we suspected that many respondents were candidates for AFDC participation but did not happen to be participating in AFDC at the time we observed them in SIPP. Further, an important feature of the implementation of TANF in many states is a vigorous effort to divert families from entering TANF. Presumably, many of the families who would be diverted were near the margin of participating in AFDC when we observed them in SIPP but were not participating. The probabilistic specification explicitly recognizes that we cannot cleanly divide the population into AFDC and non-AFDC groups based on a single monthly observation.

[30] The coefficients gradually increase through 1994 and then decline through 1996. The point estimate implies that the odds ratio for a respondent with an AFDC probability of 1.0 divided by the odds ratio for a respondent with an AFDC probability of zero was 4.6 times larger in 1994 than in 1990, holding other things constant. Thus, the finding is consistent with the hypothesis that, for young women, there was a shift in participation of "likely" AFDC participants from AFDC to SSI during the 1990-1996 period, after holding the characteristics observed in SIPP constant.

[31] All of the coefficients are positive, but only one (for 1992) is statistically significant (at the 10 percent level only), and the likelihood ratio test cannot reject the null hypothesis that all are zero. Again, a more restrictive specification might have yielded statistically significant evidence of shifts in the relative hazard for young women with children. The 1992 coefficient is the largest coefficient. The associated relative odds ratio is 2.1. That point estimate is interpreted as follows: in 1992, the odds ratio for applications from young mothers relative to the odds ratio for other young women was 2.1 times as large as it was in 1990.

[32] The odds ratio comparison between mother-only and two-parent families was calculated by taking the exponentiated difference between the coefficients of the variables for the mother-only and two-parent families.

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Appendix Table 1.
Description of explanatory variables for econometric analysis

	Duration and panel variables
Duration intercepts	Seven dummy variables, one for each year of duration after the first SIPP interview.
1990-1992 SIPP panel indicators	Dummy variables, each equaling one for individuals who are members of the specified SIPP panel; zero otherwise.
	(The omitted category is the 1993 panel.)

	SIPP variables for adult models
Age	Age is adjusted in every panel to reflect the person's age as of January 1990. [a]
Race/ethnicity	
Hispanic	A dummy variable equaling one for an individual whose ethnicity is Hispanic; zero otherwise.
Black	A dummy variable equaling one for an individual whose race is black (non-Hispanic); zero otherwise.
	(The omitted category is white.)
Education	
No high school diploma	A dummy variable equaling one for an individual with no high school diploma; zero otherwise.
High school diploma only	A dummy variable equaling one for an individual with only a high school diploma; zero otherwise.
Some college	A dummy variable equaling one for an individual with some college education; zero otherwise.
Student	A dummy variable equaling one if an individual is a student; zero otherwise.
	(The omitted category includes those who have received at least a college diploma.)
Children in the family	A dummy variable equaling one if there are children under the age of 18 in the family; zero otherwise.
Age of youngest child	A dummy variable that indicates the youngest child in the family is under the age of 18. Unlike the other SIPP variables, this variable is updated over time.
Other adult in the family	A dummy variable equaling one for an individual who lives in a family with another adult; zero otherwise.
Marital status	
Married	A dummy variable equaling one if an individual is married; zero otherwise.
Divorced or widowed	A dummy variable equaling one if an individual is divorced or widowed; zero otherwise.
	(The omitted category is never married.)
Disability status	
Severe	A dummy variable equaling one if the person has a severe disability; zero otherwise.
Any	A dummy variable equaling one if the person is disabled, but not severely so; zero otherwise. [b]
Missing information	A dummy variable equaling one if the individual is missing disability information because of sample attrition; zero otherwise.
	(The omitted category is no reported disability.)

Continued

Health status	
Poor	A dummy variable equaling one if the person's self-reported health status is poor; zero otherwise.
Fair	A dummy variable equaling one if the person's self-reported health status is fair; zero otherwise.
Good	A dummy variable equaling one if the person's self reported health status is good; zero otherwise;
	(The omitted category is very good or excellent health status.)
AFDC	A dummy variable equaling one for an individual who lives in a family that received AFDC benefits at the first SIPP interview; zero otherwise.
AFDC history	A dummy variable equaling one for an individual who lives in a family that received AFDC benefits at the first SIPP interview or in prior years; zero otherwise.
Food Stamps	A dummy variable equaling one for an individual who receives Food Stamps; zero otherwise.
Food Stamp history	A dummy variable equaling one for an individual who has received Food Stamps at the first interview or in prior years; zero otherwise.
Family income	Equal to the family's January income of the panel year as a percentage of poverty.
Personal earnings	Equal to the individual's earnings in January of the panel year.
Personal income	Equal to the individual's income in January of the panel year.
State fixed effects	A dummy variable equaling one if the individual resides in that state; zero otherwise. [c]
Female	A dummy variable equaling one if the child is female; zero otherwise.
Age	Age is adjusted in every panel to reflect the child's age as of January 1990.
Disability status	
Child has a disability	A dummy variable equaling one if the child is reported to have a disability; zero otherwise. [d]
Child's disability information is missing	A dummy variable equaling one if the child is missing information on disability; zero otherwise.
Family type	
Child lives with mother only	A dummy variable equaling one if the child lives with mother only; zero otherwise.
Child lives with both parents	A dummy variable equaling one if the child lives with mother and father; zero
AFDC Participation	A dummy variable equaling one if the child is from a family that receives AFDC benefits; zero otherwise.
Food Stamp participation	A dummy variable equaling one if the child is from a family that receives Food Stamps; zero otherwise.
Other children in the family	A dummy variable equaling one if there is another child in the family; zero otherwise.
Mother's/father's age	Age is adjusted in every panel to reflect the respective parent's age as of January 1990. The respective variable is defined as zero for children living in a family without their mother or father.
Parent's race/ethnicity	
Mother/father is Hispanic	A dummy variable equaling one for a child whose mother/father reports Hispanic ethnicity; zero otherwise.
Mother/father is black	A dummy variable equaling one for a child whose mother/father is black (non-Hispanic); zero otherwise.
	(The omitted category is white.)

Continued

Parent's education

    Mother/father has no high school diploma — A dummy variable equaling one for a child whose mother/father has no high school diploma; zero otherwise.

    Mother/father has high school diploma only — A dummy variable equaling one for a child whose mother/father has only a high school diploma; zero otherwise.

    Mother/father has some college education — A dummy variable equaling one for an individual with some college education; zero otherwise.

    (The omitted category includes those who have received at least a college diploma.)

Parent's disability status

    Mother/father has a severe disability — A dummy variable equaling one for a child whose mother/father is severely disabled; zero otherwise.

    Mother/father has a disability — A dummy variable equaling one for a child whose mother/father is disabled but not severely so; zero otherwise.

    Mother's/father's disability information is missing — A dummy variable equaling one for a child whose mother/father is missing disability information because of sample attrition; zero otherwise.

    (The omitted disability status category includes children whose mother/father reported that they had no disability.)

State program and economic variables

General Assistance (GA) variables

    GA cuts per capita — When a GA cut or increase occurs in a state because of a major program or policy change, we measure the size of the cut per capita as the difference between the average monthly GA caseload in the 3 months following the quarter in which the change occurred and in the 3 months preceding that quarter, divided by the state's population.

    Lag of GA cuts per capita — The first lag of the GA cuts described above.

SSI benefit amount — The annual maximum SSI benefit amount in the respondent's state for an individual including any supplement (1990 dollars).

Maximum monthly AFDC benefit — MMB is the typical maximum AFDC benefit for a three-person family during the first quarter plus the value of Food Stamps for a family receiving that benefit, deflated by the regional CPI-U.[e] If a state changes its nominal AFDC payment rate during the quarter, we use the average rate applicable over the 3 months.[f] This annual variable is set equal to the value from the first quarter of each year (1990 dollars).

Average tax and benefit reduction rate — The average tax and benefit reduction rate (ATBRR) is the average rate at which disposable income is reduced per dollar of income, earned or unearned, between zero earnings and the AFDC "earnings cutoff"—the highest level of gross earnings that a family of three can have and still receive some benefit. Formally: $ATBRR = 1 - (Y - MMB)/E$, where Y is disposable income at the earnings cutoff and E is the AFDC earnings cutoff. We define disposable income as the sum of earnings, the earned income tax credit (EITC), AFDC benefits, and Food Stamp benefits, less FICA, where the AFDC benefit is calculated using the earnings disregard for a family that has received AFDC benefits for more than 12 months. ATBRR is an annual variable equal to the value from the first quarter of each year in each state (1990 dollars).

Continued

Unemployment rate	
Unemployment rate	The annual rate of unemployment in each state.
Lag of unemployment rate	The 1-year lag of the unemployment rate in each state.
Second lag of unemployment rate	The 2-year lag of the unemployment rate in each state.
State waiver variables	
California waiver	This variable is one in 1994, 1995, and 1996 for sample members who live in California; zero otherwise.
Massachusetts waiver	This variable is one in 1996 for sample members who live in Massachusetts; zero otherwise.
Michigan waiver	This variable is one in 1995 and 1996 for sample members who live in Michigan; zero otherwise.
Wisconsin waiver	This variable is one in 1994, 1995, and 1996 for sample members who live in Wisconsin; zero otherwise.

a. Age is the same for all persons in a birth cohort. If we measured age at time of observation in SIPP, respondents in the same birth cohort but different SIPP panels would have different ages. The effect would be to shift the panel dummy coefficients. There would be no effect on the age coefficient.

b. Includes individuals who report a limitation in the kind or amount of work or housework they can do; have difficulty with any of the functional activities or ADLs; use a wheelchair; have used a cane, crutches, or walker for more than 6 months; or have a disabling mental or emotional condition.

c. The omitted state is West Virginia. Also, additional states were omitted from certain models because of zero cell sizes or because they were not identified by an individual in the SIPP.

d. There are two definitions of disabilities used based on the age of the child. For those under age 6, disability is defined as a child (as reported in the SIPP by the parent) who has a physical, learning, or mental health condition that limits him or her in the usual kind of activities of most children their age. For those aged 6 or older, disability is defined as a child (as reported in the SIPP by the parent) who has a physical, learning, or mental health condition that limits his or her ability to do regular school work.

e. A given family's maximum AFDC benefit may differ from the state's "typical" benefit as calculated by the Administration for Children and Families (ACF) because of factors such as locality, housing arrangements, family composition, or special needs.

f. We use several data types and sources to create the MMB variable. For years before 1995, we use ACF-provided state-level typical maximum monthly payment (MAXPAY) data for a family of three. We obtained maximum monthly Food Stamp benefit and standard deduction data by quarter from the Program Reports and Analysis Branch, U.S. Department of Agriculture. The Food Stamp benefit for a three-person family receiving the typical maximum AFDC benefit is equal to the maximum Food Stamp benefit for a three-person family less 30 percent of the difference between MAXPAY and the Food Stamp standard deduction.

Appendix Table 2.
Hazard model estimates for first applications from young women

Explanatory variable	Model 1 (base specification)		Model 2 (base specification)		Model 3 (base specification)	
	Coefficient (t ratio)	Odds ratio	Coefficient (t ratio)	Odds ratio	Coefficient (t ratio)	Odds ratio
Duration and panel variables						
Duration hazards						
Period 1	-9.60	0.49	-7.57	0.46	-6.71	0.50
Period 2	-9.34	0.64	-7.36	0.57	-6.49	0.62
Period 3	-9.30	0.66	-7.33	0.59	-6.53	0.60
Period 4	-9.15	0.77	-7.15	0.71	-6.31	0.74
Period 5	-9.02	0.87	-7.05	0.78	-6.22	0.82
Period 6	-8.83	1.07	-6.83	0.97	-6.07	0.95
Period 7	-8.89	0.00	-6.80	0	-6.02	0
1990 SIPP panel member	-0.11 (-0.38)	0.89	-0.12 (-0.38)	0.89	-0.08 (-0.24)	0.93
1991 SIPP panel member	-0.42* (-1.79)	0.66	-0.42* (-1.67)	0.66	-0.40 (-1.56)	0.67
1992 SIPP panel member	-0.21 (-1.26)	0.81	-0.20 (-1.16)	0.82	-0.22 (-1.26)	0.80
SIPP variables						
Age as of January 1993	0.02* (2.50)	1.02	0.02* (2.22)	1.02	0.02* (2.50)	1.02
Hispanic	-0.25* (-1.77)	0.78	-0.27* (-1.88)	0.76	-0.25* (-1.77)	0.78
Black	0.10 (0.85)	1.10	0.03 (0.21)	1.03	0.10 (0.85)	1.10
No high school diploma	0.83* (3.37)	2.30	0.75* (2.80)	2.13	0.83* (3.37)	2.30
High school diploma only	0.58* (2.42)	1.78	0.56* (2.32)	1.76	0.57* (2.38)	1.78
Some college	0.54* (2.16)	1.71	0.54* (2.16)	1.72	0.54* (2.16)	1.71
Student	-0.35* (-2.32)	0.70	-0.35* (-2.32)	0.71	-0.35* (-2.32)	0.70
Has a severe disability	0.94* (7.07)	2.57	0.91* (6.50)	2.49	0.94* (7.07)	2.57
Has a disability	0.67* (3.81)	1.95	0.66* (3.73)	1.94	0.67* (3.81)	1.95
Missing information on disability	0.90* (6.38)	2.45	0.91* (6.45)	2.48	0.90* (6.38)	2.45
Reports to be in good health	0.53* (4.27)	1.71	0.54* (4.35)	1.71	0.54* (4.35)	1.71
Reports to be in fair health	0.98* (6.41)	2.66	0.98* (6.41)	2.66	0.98* (6.41)	2.66

Continued

Explanatory variable	Model 1 (base specification)		Model 2 (base specification)		Model 3 (base specification)	
	Coefficient (t ratio)	Odds ratio	Coefficient (t ratio)	Odds ratio	Coefficient (t ratio)	Odds ratio
Reports to be in poor health	1.09* (5.05)	2.98	1.09* (5.05)	2.97	1.10* (5.09)	3.00
Married	-0.05 (-0.34)	0.95	0.03 (0.17)	1.03	-0.05 (-0.34)	0.95
Divorced or widow	0.22* (1.76)	1.24	0.21* (1.68)	1.24	0.21* (1.68)	1.24
Children in the family	-0.62* (-4.77)	0.54	-0.74* (-3.66)	0.48	-1.09* (-3.04)	0.34
Age of youngest child	-0.23 (-0.75)	0.79	-0.28 (-0.89)	0.76	-0.23 (-0.75)	0.79
Other adult in the family	-0.04 (-0.34)	0.96	0.02 (0.14)	1.02	-0.04 (-0.34)	0.96
Receives AFDC	-0.23 (-1.38)	0.79	-0.23 (-1.38)	0.79	-0.23 (-1.38)	0.79
Received AFDC in previous periods	0.86* (5.66)	2.36	0.86* (5.66)	2.37	0.86* (5.66)	2.36
Receives Food Stamps	0.53* (2.88)	1.69	0.52* (2.83)	1.68	0.53* (2.88)	1.69
Received Food Stamps in previous periods	-0.04 (-0.24)	0.96	-0.04 (-0.24)	0.96	-0.04 (-0.24)	0.96
Family income as a percentage of poverty	-0.17* (-2.66)	0.85	-0.17* (-2.66)	0.85	-0.17* (-2.66)	0.85
Personal earnings (thousands)	-0.10 (-0.53)	0.90	-0.10 (-0.53)	0.91	-0.10 (-0.53)	0.90
Personal income (thousands)	-0.30 (-1.58)	0.74	-0.30 (-1.58)	0.74	-0.29 (-1.53)	0.75
State fixed effects	Y		Y		Y	
State program and economic variables						
GA cuts per capita	0.00 (0.00)	1.00	0.00 (0.00)	1.00	0.02 (0.59)	1.02
Lag of GA cuts per capita	-0.02 (-0.67)	0.98	-0.02 (-0.65)	0.98	-0.03 (-0.97)	0.97
SSI benefit amount	0.00 (0.00)	1.00	0.00 (0.00)	1.00	-0.01 (-0.91)	0.99
Maximum monthly AFDC benefit	0.00 (0.00)	1.00	0.00 (0.00)	1.00	0.00 (0.00)	1.00
Average tax and benefit reduction rate	1.81 (1.10)	6.14	2.10 (1.16)	8.18	2.86 (1.57)	17.38

Appendix Table 2.
Continued

Explanatory variable	Model 1 (base specification)		Model 2 (base specification)		Model 3 (base specification)	
	Coefficient (t ratio)	Odds ratio	Coefficient (t ratio)	Odds ratio	Coefficient (t ratio)	Odds ratio
Unemployment rate	-0.02 (-0.23)	0.98	-0.03 (-0.32)	0.97	-0.09 (-0.94)	0.92
Lag of unemployment rate	0.08 (0.96)	1.08	0.04 (0.45)	1.04	0.04 (0.45)	1.04
Second lag of unemployment rate	0.04 (0.55)	1.04	-0.01 (-0.13)	0.99	0.02 (0.25)	1.02
California welfare reform (1994,1995,1996)	-0.54 (-1.15)	0.58	-0.52 (-1.10)	0.59	-0.60 (-1.26)	0.55
Massachusetts welfare reform (1995,1996)	0.89 (1.55)	2.43	0.86 (1.49)	2.36	0.80 (1.38)	2.22
Michigan welfare reform (1995,1996)	-0.16 (-0.30)	0.86	-0.30 (-0.56)	0.74	-0.37 (-0.69)	0.69
Wisconsin welfare reform (1994,1995,1996)	-0.38 (-0.41)	0.68	-0.48 (-0.52)	0.62	-0.45 (-0.49)	0.64
Year interactions						
Probability of AFDC receipt * 1991	n.a.	n.a.	0.54 (0.44)	1.71	n.a.	n.a.
Probability of AFDC receipt * 1992	n.a.	n.a.	0.97 (0.78)	2.64	n.a.	n.a.
Probability of AFDC receipt * 1993	n.a.	n.a.	1.01 (0.84)	2.74	n.a.	n.a.
Probability of AFDC receipt * 1994	n.a.	n.a.	1.52 (1.28)	4.59	n.a.	n.a.
Probability of AFDC receipt * 1995	n.a.	n.a.	0.83 (0.68)	2.30	n.a.	n.a.
Probability of AFDC receipt * 1996	n.a.	n.a.	-0.45 (-0.33)	0.64	n.a.	n.a.
Children in family * 1991	n.a.	n.a.	n.a.	n.a.	0.26 (0.70)	1.29
Children in family * 1992	n.a.	n.a.	n.a.	n.a.	0.74* (1.94)	2.10
Children in family * 1993	n.a.	n.a.	n.a.	n.a.	0.42 (1.10)	1.52
Children in family * 1994	n.a.	n.a.	n.a.	n.a.	0.59 (1.55)	1.80
Children in family * 1995	n.a.	n.a.	n.a.	n.a.	0.60 (1.56)	1.83
Children in family * 1996	n.a.	n.a.	n.a.	n.a.	0.29 (0.76)	1.33

Continued

Appendix Table 2.
Continued

Explanatory variable	Model 1 (base specification)		Model 2 (base specification)		Model 3 (base specification)	
	Coefficient (t ratio)	Odds ratio	Coefficient (t ratio)	Odds ratio	Coefficient (t ratio)	Odds ratio
Memorandum						
N	134,971		134,971		134,971	
Applications	545		545		545	
Log likelihood	-3,146.30		-3,143.66		-3,142.37	
Likelihood ratio test statistic [a] (vs. Model 1)			5.34		7.86	
Degrees of freedom			6		6	

NOTE: Values in parentheses are t-statistics. An asterisk (*) indicates significance at the 10 percent level or better, using a two-tailed test. Most values are also significant at the 5 percent level. We used the lower standard because of the exploratory nature of the analysis.

n.a. = not applicable.

a. The 5 percent critical value for this statistic, which has a chi-square distribution with six degrees of freedom if all the year interaction coefficients are zero for the population, is 12.6.

Appendix Table 3.
Hazard model estimates for first applications from young men

Explanatory variable	Model 1 (base specification)		Model 3 (base specification)	
	Coefficient (t ratio)	Odds ratio	Coefficient (t ratio)	Odds ratio
	Duration and panel variables			
Duration hazards				
Period 1	-8.72	0.56	-7.83	0.55
Period 2	-8.42	0.76	-7.55	0.73
Period 3	-8.44	0.75	-7.60	0.70
Period 4	-8.57	0.65	-7.72	0.62
Period 5	-8.42	0.76	-7.57	0.72
Period 6	-8.38	0.80	-7.55	0.74
Period 7	-8.15	0	-7.24	0
1990 SIPP panel member	-0.03 (-0.09)	0.97	-0.01 (-0.03)	0.99
1991 SIPP panel member	0.00 (0.00)	1.00	0.02 (0.08)	1.02
1992 SIPP panel member	0.00 (0.00)	1.00	0.01 (0.05)	1.01
	SIPP variables			
Age as of January 1993	0.02* (2.22)	1.02	0.02* (2.22)	1.02
Hispanic	0.04 (0.26)	1.04	0.04 (0.26)	1.04
Black	0.36* (2.81)	1.43	0.36* (2.81)	1.43
No high school diploma	0.86* (3.26)	2.36	0.86* (3.26)	2.36
High school diploma only	0.82* (3.17)	2.27	0.82* (3.17)	2.27
Some college	0.68* (2.48)	1.97	0.68* (2.48)	1.97
Student	-0.50* (-2.82)	0.60	-0.50* (-2.82)	0.60
Has a severe disability	1.02* (6.18)	2.78	1.02* (6.18)	2.78
Has a disability	0.95* (5.40)	2.59	0.95* (5.40)	2.58
Missing information on disability	1.08* (7.71)	2.94	1.08* (7.71)	2.94
Reports to be in good health	0.61* (4.49)	1.83	0.61* (4.49)	1.83
Reports to be in fair health	0.76* (3.98)	2.14	0.76* (3.96)	2.15

Continued

Appendix Table 3.
Continued

Explanatory variable	Model 1 (base specification)		Model 3 (base specification)	
	Coefficient (t ratio)	Odds ratio	Coefficient (t ratio)	Odds ratio
Reports to be in poor health	1.02* (4.13)	2.76	1.02* (4.13)	2.76
Married	-0.36* (-1.90)	0.70	-0.36* (-1.90)	0.70
Divorced or widowed	0.40* (2.68)	1.49	0.40* (2.68)	1.49
Children in the family	-0.05 (-0.28)	0.95	-0.54 (-0.97)	0.58
Age of youngest child	-0.82* (-1.73)	0.44	-0.85* (-1.79)	0.43
Other adult in the family	0.01 (0.07)	1.01	0.01 (0.07)	1.01
Receives AFDC	19.82 (0.00)	--	19.81 (0.00)	--
Received AFDC in previous periods	-20.19 (0.00)	--	-20.18 (0.00)	--
Receives Food Stamps	0.13 (0.62)	1.14	0.13 (0.62)	1.14
Received Food Stamps in previous periods	0.34* (2.10)	1.41	0.34* (2.10)	1.40
Family Income as a percentage of poverty	-0.02 (-0.32)	0.98	-0.02 (-0.32)	0.98
Personal earnings (thousands)	0.15 (0.89)	1.16	0.15 (0.89)	1.16
Personal income (thousands)	-0.67* (-3.64)	0.51	-0.66* (-3.59)	0.51
State fixed effects	Y		Y	
State program and economic variables				
GA cuts per capita	-0.04 (-1.14)	0.96	-0.03 (-0.83)	0.97
Lag of GA cuts per capita	0.07* (2.19)	1.07	0.06* (1.82)	1.07
SSI benefit amount	0.01 (1.00)	1.01	0.01 (0.91)	1.01
Maximum monthly AFDC benefit	-0.01 (-1.25)	0.99	-0.01 (-1.25)	0.99
Average tax and benefit reduction rate	3.00 (1.58)	20.01	3.36* (1.70)	28.74
Unemployment rate	-0.01 (-0.10)	0.99	-0.02 (-0.20)	0.98

Continued

Appendix Table 3.
Continued

Explanatory variable	Model 1 (base specification)		Model 3 (base specification)	
	Coefficient (t ratio)	Odds ratio	Coefficient (t ratio)	Odds ratio
Lag of unemployment rate	0.05 (0.52)	1.06	0.04 (0.41)	1.04
Second lag of unemployment rate	0.07 (0.86)	1.07	0.05 (0.60)	1.05
California welfare reform (1994,1995,1996)	-0.24 (-0.49)	0.78	-0.25 (-0.51)	0.78
Massachusetts welfare reform (1995,1996)	0.20 (0.25)	1.22	0.19 (0.23)	1.21
Michigan welfare reform (1995,1996)	-0.20 (-0.28)	0.82	-0.28 (-0.39)	0.76
Wisconsin welfare reform (1994,1995,1996)	-0.39 (-0.66)	0.67	-0.42 (-0.71)	0.66
Year interactions				
Children in family * 1991	n.a.	n.a.	0.18 (0.29)	1.20
Children in family * 1992	n.a.	n.a.	0.52 (0.88)	1.68
Children in family * 1993	n.a.	n.a.	0.45 (0.78)	1.58
Children in family * 1994	n.a.	n.a.	0.65 (1.13)	1.91
Children in family * 1995	n.a.	n.a.	0.76 (1.31)	2.14
Children in family * 1996	n.a.	n.a.	0.27 (0.44)	1.32
Memorandum				
N	120,214		120,214	
Applications	440		440	
Log likelihood	-2,635.18		-2,632.99	
Likelihood ratio test statistic [a] (vs. Model 1)			4.38	
Degrees of freedom			6	

NOTE: Values in parentheses are t-statistics. An asterisk (*) indicates significance at the 10 percent level or better, using a two-tailed test. Most values are also significant at the 5 percent level. We used the lower standard because of the exploratory nature of the analysis.

n.a. = not applicable.

a. The 5 percent critical value for this statistic, which has a chi-square distribution with six degrees of freedom if all the year interaction coefficients are zero for the population, is 12.6.

Appendix Table 4.
Hazard model estimates for first applications from children

Explanatory variable	Model 1 (base specification)		Model 2 (base specification)	
	Coefficient (t ratio)	Odds ratio	Coefficient (t ratio)	Odds ratio
	Duration and panel variables			
Duration hazards				
Period 1	-16.93	0.24	-13.64	0.23
Period 2	-16.56	0.35	-13.32	0.31
Period 3	-16.34	0.44	-13.17	0.36
Period 4	-16.25	0.48	-13.06	0.41
Period 5	-15.86	0.71	-12.70	0.58
Period 6	-15.34	1.19	-12.21	0.95
Period 7	-15.51	0.00	-12.16	0.00
1990 SIPP panel member	1.15*	3.17	1.25*	3.48
	(5.23)		(4.81)	
1991 SIPP panel member	-0.45*	0.64	-0.36*	0.69
	(-2.65)		(-1.89)	
1992 SIPP panel member	-0.29*	0.75	-0.24*	0.78
	(-2.64)		(-2.00)	
	SIPP variables			
Female	-0.47*	0.63	-0.47*	0.63
	(-7.83)		(-7.83)	
Age as of January 1993	-0.02*	0.98	-0.01	0.99
	(-2.23)		(-1.45)	
Receives AFDC	0.07	1.07	0.07	1.07
	(0.78)		(0.78)	
Receives Food Stamps	0.40*	1.50	0.40*	1.50
	(4.44)		(4.44)	
Family income as a percentage of poverty	-0.22*	0.80	-0.22*	0.80
	(-4.40)		(-4.40)	
Other child in the family	2.82*	16.82	2.84*	17.17
	(25.64)		(25.82)	
Has a disability	1.59*	4.92	1.58*	4.87
	(19.88)		(19.75)	
Missing information on disability	0.30*	1.34	0.30*	1.35
	(2.31)		(2.31)	
Father's age	0.01*	1.01	0.01*	1.01
	(2.08)		(2.06)	
Father is black	0.38*	1.46	0.45*	1.57
	(2.71)		(2.81)	
Father is Hispanic	0.00	1.00	0.14	1.15
	(0.01)		(0.64)	
Father has no high school diploma	0.56*	1.74	0.58*	1.78
	(2.67)		(2.76)	
Father has high school diploma only	0.49*	1.63	0.51*	1.66
	(2.45)		(2.55)	

Appendix Table 4.
Continued

Explanatory variable	Model 1 (base specification)		Model 2 (base specification)	
	Coefficient (t ratio)	Odds ratio	Coefficient (t ratio)	Odds ratio
Father has some college education	0.19 (0.83)	1.21	0.21 (0.91)	1.23
Father has a severe disability	0.13 (0.93)	1.14	0.08 (0.53)	1.08
Father has a disability	0.20 (1.05)	1.22	0.19 (1.00)	1.21
Father's disability information is missing	-0.11 (-0.75)	0.89	-0.12 (-0.89)	0.89
Mother's age	-0.01* (-1.00)	0.99	-0.01* (-1.00)	0.99
Mother is black	0.34* (3.40)	1.41	0.23* (1.64)	1.26
Mother is Hispanic	0.09 (0.75)	1.10	-0.03 (-0.19)	0.97
Mother has no high school diploma	0.55* (2.75)	1.74	0.43* (1.87)	1.53
Mother has high school diploma only	0.29 (1.53)	1.33	0.24 (1.20)	1.27
Mother has some college education	0.23 (1.15)	1.26	0.21 (1.05)	1.23
Mother has a severe disability	0.50* (5.56)	1.65	0.44* (4.40)	1.56
Mother has a disability	0.03 (0.28)	1.03	0.01 (0.07)	1.01
Mother's disability information is missing	0.12 (0.80)	1.12	0.11 (0.73)	1.11
Lives with mother only	1.21* (2.28)	3.34	1.18* (2.23)	3.24
Lives with mother and father	-0.30 (-0.91)	0.74	-0.19 (-0.54)	0.83
State fixed effects	Y		Y	
State program and economic variables				
Maximum monthly AFDC benefit	0.01 (1.00)	1.01	0.00 (0.00)	1.00
GA cuts per capita	-0.01 (-0.33)	0.99	0.00 (0.00)	1.00
Lag of GA cuts per capita	-0.05* (-2.50)	0.96	-0.04* (-2.00)	0.96
SSI benefit amount	0.00 (0.00)	1.00	0.00 (0.00)	1.00

Continued

Appendix Table 4.
Continued

Explanatory variable	Model 1 (base specification)		Model 2 (base specification)	
	Coefficient (t ratio)	Odds ratio	Coefficient (t ratio)	Odds ratio
Average tax and benefit reduction rate	3.72* (3.10)	41.12	3.64* (2.66)	38.13
Unemployment rate	-0.01 (-0.17)	0.99	-0.01 (-0.14)	0.99
Lag of unemployment rate	0.14* (2.33)	1.15	0.08 (1.33)	1.08
Second lag of unemployment rate	0.19* (3.80)	1.21	0.12* (2.40)	1.12
California welfare reform (1994,1995,1996)	-0.22 (-0.58)	0.80	-0.22 (-0.58)	0.80
Massachusetts welfare reform (1995,1996)	-18.91 (0.00)	0.00	-18.92 (0.00)	0.00
Michigan welfare reform (1995,1996)	-0.01 (-0.03)	0.99	-0.26 (-0.68)	0.77
Wisconsin welfare reform (1994,1995,1996)	-0.07 (-0.14)	0.93	-0.20 (-0.40)	0.82
Alternative specifications				
Probability of AFDC receipt * 1991	n.a.	n.a.	-0.07 (-0.10)	0.93
Probability of AFDC receipt * 1992	n.a.	n.a.	0.66 (0.92)	1.94
Probability of AFDC receipt * 1993	n.a.	n.a.	1.05 (1.46)	2.86
Probability of AFDC receipt * 1994	n.a.	n.a.	1.20* (1.64)	3.33
Probability of AFDC receipt * 1995	n.a.	n.a.	1.08 (1.46)	2.93
Probability of AFDC receipt * 1996	n.a.	n.a.	-0.77 (-0.92)	0.46
Memorandum				
N	231,908		231,908	
Applications	1,103		1,103	
Log likelihood	-5,726.53		-5,713.67	
Likelihood ratio test statistic [a] (vs. Model 1)			25.72	
Degrees of freedom			6	

NOTE: Values in parentheses are t-statistics. An asterisk (*) indicates significance at the 10 percent level or better, using a two-tailed test. Most values are also significant at the 5 percent level. We used the lower standard because of the exploratory nature of the analysis.

n.a. = not applicable.

a. The 5 percent critical value for this statistic, which has a chi-square distribution with six degrees of freedom if all the year interaction coefficients are zero for the population, is 12.6.