THE SURVEY OF INCOME AND
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MULTIPLE PROGRAM USE IN A DYNAMIC CONTEXT: DATA FROM THE SIPP

No. 173

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I. Introduction

Much of the research analyzing the use of public assistance is limited in two ways. First, most of it focuses only on one public assistance program, typically Aid to Families with Dependent Children (AFDC).[1] Second, most of it analyses AFDC usage with point-in-time cross sectional data, although in the last several years more studies of the dynamics of welfare participation have been undertaken. The result has been an extensive amount of work on who receives welfare and the co-terminously measured effect of this participation on related behaviors, such as labor market participation. While a selected group of studies have broken down one or the other of these limitations, few studies have looked at multiple program participation in a dynamic context, and as a result we know little about the interactions between eligibility and recipiency across a variety of assistance programs.

This report uses the Survey of Income and Program Participation (SIPP) to investigate overlaps both at a point in time and across time in a range of public assistance programs. The four major programs that we are most concerned with are AFDC, food stamps, medicaid, and housing assistance (both public housing and rent subsidies). There are four questions with regard to these programs on which this report focuses:

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[1]Major studies focusing on AFDC include Bane and Ellwood (1983), Plotnick (1983), O'Neill et al. (1984, 1987), Ellwood (1986), Blank (1989a), Long (1990), and Fitzgerald (1991, 1992). Several other studies (e.g. Lubitz and Carr (1985), Burstein and Visher (1989), Trippe and Beebout (1988), Ross (1988), Doyle (1990) and Allin and Martini (1991)) have examined Food Stamp Program participation. A few studies (Williams and Ruggles (1987), Lamas and McNeil (1988), Long (1991)) have considered both AFDC and Food Stamps, but of these only the last considers the impacts of interactions between the programs.

(1) What are the dynamics of program use within each of these programs? This is the first study to look not only at AFDC spells and their duration, but to investigate food stamp, medicaid, and housing assistance spells simultaneously.

(2) How does the use of these programs overlap? How many spells of one program are co-terminous with another program?

(3) How do the openings and closings of spells in one program overlap with the openings and closings of spells in another program?

(4) How do spells of program use overlap with spells of eligibility within the AFDC and Food Stamp Program?

The next section of this report briefly reviews the relevant literature and the following section describes the data. Section IV presents information on spells of AFDC, food stamps, housing assistance, and medicaid and recipient characteristics in those spells. Section V estimates duration models of the determinants of spell length for each of these programs. Section VI looks at post-program spells--periods of non-recipiency following an exit from AFDC or from the Food Stamp Program--and investigates the correlates of program recidivism. Section VII tabulates multiple program use over the length of any particular program spell, and investigates the extent to which programs spells open and close concurrently. The last data section estimates eligibility for AFDC and food stamps and explores the overlap between spells of eligibility and spells of recipiency. The final section, section IX, concludes by summarizing the main findings of the report.

II. Existing Literature

The existing literature on program use and its effects has recently been reviewed in Moffitt (1992). This section will focus only on the literature that provides particular background to multiple-program analysis and to the analysis of the use of public assistance over time.

A growing literature has studied AFDC in a longitudinal context. Bane and Ellwood (1983) and Ellwood (1986) tabulate welfare spells using 12 years of annual data from the PSID. O'Neill, Bassi, and Hannan (1984) perform a similar analysis with the NLS Young Women's panel over an 11 year period. Blank (1989a) used monthly data to analyze welfare spells, using 6 years (72 months) of data from the control groups of the negative income tax experiments in Seattle and Denver. Giannarelli (1992), Fitzgerald (1991), Long (1991), Ruggles (1989), Doyle and Long (1988) and Lamas and McNeil (1988) look at AFDC use in the first (1984) panel of the SIPP, which contains 32 months of information. While all papers do tabulations as well as some estimates of the determinants of spell duration, Blank, Fitzgerald and Long use more complex econometric techniques to estimate not only the determinants of spell length, but also the difference in these determinants for different types of spell endings.

Across these studies, a number of conclusions emerge. First, the studies using annual data find much longer spell lengths. This implies that there may be quite a bit of recidivism in AFDC use, as those who leave a spell (measured across months) return sometime in the next calendar year, creating two monthly spells but only one ongoing annual spell. We have little direct evidence on recidivism, however, from this research. This is largely due to the limited

longitudinal data available, in which it is difficult to observe multiple spells of AFDC usage, particularly on a monthly basis.[2]

Second, the papers find relatively similar determinants of spell length. Younger women with less education and more children as well as African-American women tend to have longer welfare spells. Both Blank and Fitzgerald indicate that longer AFDC spells among black women are due to their lower propensity to end welfare through marriage, with little racial difference in the propensity to leave welfare through other means.

Third, those studies that use national data all seem to indicate that the availability of higher AFDC benefits in some states has a positive effect on spell duration. Similarly, higher unemployment rates also lead to longer welfare spells, indicating that the economic and institutional environment affects welfare usage.

This work on AFDC has substantially increased our knowledge about the dynamics of AFDC usage, but it has not been repeated in detail for any other public assistance program. Long (1991) does examine children's spell exits in AFDC and the Food Stamp program together, using data from the 1984 SIPP, and generally finds similar factors at work in explaining exits and re-entries for both programs. Aside from the fairly preliminary findings reported in her study, however, and a brief examination of food stamp spell durations reported in Trippe et al. (1990), we know relatively little about spells of food stamp,

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[2] The annual data, because it smooths across shorter spells of welfare use, finds longer average spells; even with 12 years of annual data there are few multiple spells observed. The 1984 SIPP data, with only 32 months of data, is too short to observe many multiple spells. Blank's (1989a) six years of monthly data from the SIME/DIME experiments should provide better information on recidivism. It showed only limited numbers of multiple spells among the same individuals. But because these data comes from only two cities, it is not clear that they represent national trends.

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different from AFDC spells.

The work available on multiple program participation has largel
on point-in-time analysis of a limited set of questions. Weinberg (
1987) used 1979 and 1984 data to look at how many families received
combination of cash welfare, food stamps, medical assistance and soc
security at a point in time. The focus of these articles, however,
investigate the effect of different programs on the poverty rates of
population subgroups, and they contain little analysis of multiple
participation issues among program users. The results do indicate t
participants in these programs participate in more than one program
time. More recently, the Census Bureau has published some tabulatio
the SIPP on the incidence and duration of recipiency under a variety
programs, including the four examined in this paper (U.S. Bureau of
(1992b)).

Other research on multiple program participation includes a few
of overlapping program participation on labor supply. This includes
and Moffitt (1988), who estimate a joint model of food stamp partici
AFDC participation and labor force participation, and Blank (1989b)
Winkler (1991), who look at the effects of AFDC and medicaid on labo
participation. None of this work particularly focuses on the questi
participation in one program influences participation in another pro
other than to show that there is substantial correlation in program
participation, with similar variables showing quite similar signs in
determination of program receipt.

individually to double check that this seemed a sensible procedure, and in virtually all cases the amounts reported simply could not be GA or WIC payments. We suspect that many women, when asked, mistakenly think that "general assistance" is the same as "public assistance," which is a common reference for AFDC.[9]

Third, it is worth noting that there is a substantial "seam bias" problem in the SIPP data. Although the data are monthly, they are collected in waves on an every-four-month basis and there is a tendency for people to report events over the wave as occurring concurrently with the beginning of the ending of the four-month period. For instance, there is a strong tendency in the data for AFDC and other program spells to start at the beginning of a wave of data rather than during the later months in the wave. Similarly, the number of AFDC spells that ostensibly end in the fourth month of a spell on AFDC is greater than those that end in all of the first three months combined. This is not just a problem in the first four months, but occurs for all spell lengths, so that the vast majority of spells are reported to end in the fourth, eighth, twelfth, sixteenth or twentieth month, rather than the in-between months.

This seam bias problem between waves makes interpreting the numbers from the monthly data problematic. The best dynamic information in the data is clearly four-month (wave) information and not monthly information, since the monthly pattern is so strongly affected by reporting problems over the wave. For this reason, in many of the tables in this report, we will report four-

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[9] The extent of these problems suggests that the Census Bureau should seriously consider cleaning the SIPP data as a matter of course in a similar manner, so that these impossibly large reports of GA and WIC income no longer remain in the data.

month spell patterns rather than monthly patterns. Similarly, in our duration estimates, we estimate four-month rather than monthly time parameters.

In addition to using the data from the regular SIPP panel interviews, we have also supplemented these data with information from three of the SIPP special topical modules. In the third wave of the 1986 SIPP panel and in the sixth wave of the 1987 SIPP panel, interviewees were asked a number of in-depth questions about their own health status, the health status of their children, and their involvement in caring for other persons with health problems. These supplemental data provide substantially better information on the extent and nature of health problems within families. We include information from this supplement when tabulating the characteristics of different population groups within our sample.

In addition to the topical module on special health problems, the regular (core) SIPP questionnaire also asked respondents whether they have a "physical, mental, or other health condition" that limits the kind of work they can do. Table 1 tabulates the responses to this question in row 1. Single mothers report a work disability in 15 percent of all observed spells.[10]

Additional information on health problems in families from the special topical module is shown in the remainder of Table 1. Note that not all women in our sample have information from this topical module. If they were not single mothers at the time the topical module was administered, or if they

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[10] Table 1 presents the percent of single female parents who report various health problems. Because there is only one time when these questions are asked, there is no variance across the months. With regard to row 1, which is asked every month and could vary over time, we tabulate the first month of a woman's spell. The vast majority of women who report a work disability report it in every month of their spell.

aggregate spell analysis indicates that food stamp and AFDC spells are virtually identical in their characteristics. This may not seem initially surprising since AFDC recipients are categorically eligible for food stamps. Yet, as we will see below (and as Table 3 has already indicated) there is substantial non-overlap between food stamp and AFDC spells. In this sense, the similarity between food stamp and AFDC spells in Tables 2 and 4 may be somewhat unexpected. Even though these spells are not necessarily co-terminous, these findings imply that the general length and shape of these spells are similar.

The characteristics of food stamps recipients are given in Table 5. In general, food stamp recipients are somewhat less disadvantaged than are AFDC recipients. They tend to have somewhat more and older children, they are more likely to be working, and less likely to be never married. Food stamp users in short spells are quite different from those in longer spells. Short-term food stamp recipients are much more likely to be white, to have been married in the past, to work and to be better educated. They have fewer children and are less likely to face health problems.

Among all food stamp spells, food stamp users receive no AFDC one-third (31 percent) of the time, further indicating that a substantial number of food stamp spells are not co-terminous with AFDC spells. Short-term food stamp use is not co-terminous with AFDC 55 percent of the time. Since the food stamp program generally has broader eligibility criteria and it is possible in all states to be eligible for food stamps without being eligible for AFDC, this is perhaps not surprising. Among long-term food stamp spells, AFDC recipiency is much more common.

With regard to housing assistance, food stamp users look a great deal like AFDC users. Short-term food stamp recipients are quite unlikely to get housing assistance, while over one-third of long-term food stamp recipients receive it.

C. Medicaid Spells

Table 6 presents data on spells of medicaid usage among single mothers. There are 1445 such spells in our population, of which 62 percent are left-censored. 24 percent are both left- and right-censored and last for the entire SIPP panel.

Among the 548 spells that are not left-censored and whose beginning is observed in the data, 43 percent are completed and the rest are right-censored. Although there are about 200 more medicaid spells than AFDC spells, the spell characteristics of these two programs are very similar. This is not surprising since, as noted above, everyone on AFDC is automatically coded as being on medicaid as well, and therefore all AFDC spells are necessarily medicaid spells. A medicaid spell could start before an AFDC spell, however, or end later. In fact, AFDC recipients who leave the program because they get a job typically remain eligible for medicaid for up to 12 months. Medicaid can also be received by those not receiving AFDC. Other eligibles include those receiving Supplemental Security Income (SSI) for the Aged, Blind and Disabled and individuals who are categorized as "medically needy" in states that offer this option. Eligibility for young children in families with incomes below 133 percent of the poverty line is also in the process of being phased-in nationally.

Table 7 provides information on medicaid recipients among our sample of single mothers and their families. The characteristics of medicaid recipients in this sample are quite similar to those of AFDC recipients, and Table 7 looks a great deal like Table 3. The exceptions are that medicaid recipients are more likely to report family health problems and they are less likely to be working. Twenty-five percent of the time spent in short spells of medicaid receipt is not co-terminous with AFDC receipt, but long medicaid spells experienced by these single mothers also involve AFDC receipt 90 percent of the time.

D. Housing Assistance Spells

Table 8 presents information on spells of housing assistance, including both public housing residence and rent subsidies. There are only 599 such spells, of which 65 percent are left-censored. 26 percent are both left- and right-censored and last the entire SIPP panel.

Among the 207 non-left-censored spells that are observed to start within the panel, 38 percent are completed and the rest are right-censored. Simple Kaplan-Meier estimates indicate that the majority of spells appear to end within two quarters, but this is based on a very small sample.

There are relatively few second spells of housing assistance observed in the data, and no higher spells. This is either because first spells last long enough that there are few opportunities for second spells, or because it is more difficult to get onto the "housing assistance rolls" in most locations. We suspect both explanations are valid.

In general, Table 8 indicates that housing assistance spells are more infrequent than spells of AFDC or food stamps (not surprising, given that such

assistance is much less broadly available), and that they tend to last longer. There are more long-term housing spells, the mean length of housing spells is longer, and more housing spells are right-censored. In short, fewer people receive housing assistance, but those who do get it for a longer period of time than do recipients of AFDC or food stamps.

Table 9 presents information on recipient characteristics for housing assistance users. Note that the number of short housing assistance spells is quite small and the data are therefore less reliable for these spells. The data in Table 9 indicate that housing assistance recipients are quite different from AFDC or food stamp users in general. They are more likely to be black and never married. They also have fewer children. Perhaps surprisingly, a substantial minority of persons who receive housing assistance do not report receiving AFDC or food stamps.

Summarizing our findings from Tables 2 through 9, there appear to be strong similarities between the spells and the recipient characteristics of those on AFDC, food stamps, and medicaid, although food stamps has a somewhat larger and less disadvantaged population, particularly among those in short food stamp spells. While there is evidence of substantial overlap between these programs, there are also significant periods of non-overlap, particularly in shorter spells of each program. Housing assistance appears to be different along a number of dimensions: it is less commonly received, its spells are longer and there is less evidence of multiple short spells.

V. Duration Models of Program Spells

This section will estimate duration models of spells of AFDC, food stamps, medicaid and housing assistance. The empirical techniques used are commonly employed throughout the research literature in estimating the determinants of duration and will not be described here.[20] Like most analysts, we eliminate left-censored spells because we do not know how far into the spell a person is when she is first observed, so total spell length cannot be estimated. Thus, we estimate duration models only on those spells that are observed to start in the SIPP panel. Some of our control variables may vary with each month in the spell (so-called "time-varying covariates") while others, such as race or age at start of spell, are invariant over the spell.

We ignore the fact that some of our spells are second or third observed spells. Specifications which used a variable to control for spell number were tried at an earlier stage and this variable was not significant in any of the models. Since we do not have complete history on any of these women, it is likely that many of our observed "first spells" in the data are actually second or higher spells in any case. Thus, we have no real reason to separate spells by observed spell number.

We supplement the data available in the SIPP with two additional variables. First, we collected unemployment rates by state and by month for all months of the SIPP data, so we have a control for local labor market

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[20] For a description of the theory and techniques involved in estimating duration equations, see Kalbfleish and Prentice (1980) or Heckman and Singer (1984).

conditions.[21] Second, we include state welfare benefit maximums for a family of equivalent size as the observed family.[22] This controls for differences in the generosity of welfare benefits across states. We include this variable in the equations even when estimating food stamp, medicaid and housing assistance durations.

We do this for two reasons. First, since both food stamp and medicaid eligibility ares partly tied to AFDC, it seems an important variable in those regressions. Second, states that provide more generous AFDC benefits are typically states that are more generous on other dimensions of public assistance as well. Thus, this variable may act as a proxy for the willingness of the state to solicit and certify applicants for other programs.

We control for other sources of family income with a variable called "other" family income, which is the total reported cash income of the family or subfamily, minus their earnings and their AFDC income.

A major question in duration analysis involves the characterization of the time parameters. Controlling for all the other included variables, the time parameters estimate the remaining time-dependent pattern in the data. While many authors pick explicit functional forms for these parameters[23], the

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[21] Monthly state unemployment rates are collected from various volumes of Employment and Earnings, published by the Bureau of Labor Statistics.

[22] These change occasionally over time as state legislative changes are enacted. As far as possible, when there was a change in welfare benefit levels we tried to ascertain the month in which changes were implemented, but this information was not always available and then we assumed the state changed its welfare benefits when the calendar year changed. Welfare benefit maximums are indexed to inflation in the same way as other income data, using the monthly aggregate consumer price index.

[23] See Blank (1989a) for a review of a number of common parametric forms.

preferred method is to allow these parameters to vary freely with each time period, i.e., to include a separate dummy variable for each month in a spell.

While we can do this with our data, such monthly time parameters are not very meaningful because of the seam bias problem in the SIPP data, mentioned above. Spells are disproportionately likely to start at the beginning of a wave and end in the fourth month, and as a result there are extremely large exit rates for all programs in every fourth month across spell lengths. These spikes every fourth month probably have little to do with actual behavior and merely reflect reporting seam bias in the SIPP. In order to smooth over this problem, we estimate a set of time parameters in each model that are constant over each four month period. Thus, we have four-month rather than monthly time parameters, with a different dummy variable included for each four month period in the spell. Because of the small number of non-left-censored spells that last over 20 months, we include only six four-month time parameters, and allow the last parameter to measure the effect for all spells observed to last at least six four-month periods (21 months or longer).

A. AFDC Duration Models

As noted in section II of this report, AFDC is the only program for which several researchers have estimated duration models using SIPP data. Using our data, we estimate a set of models very similar to those in the literature. Table 10 reports the results of these estimates.

The coefficients in Table 10 indicate the effect of a variable on the probability that the spell ends in each period. Thus the negative coefficient on race indicates that nonwhite AFDC recipients are less likely in any given month to end their spell of welfare than are white recipients, implying that,

all else held constant, black or Hispanic recipients have longer welfare spells. Conversely, the positive coefficient on education implies that women with higher education levels are more likely to leave AFDC in any month and have shorter AFDC spells.

Column 1 of Table 10 presents a standard duration model of the length of AFDC spells. The results indicate that more educated women with higher amounts of "other" family income leave AFDC sooner. Nonwhite women, women who have never married, women with family health problems, women with more young children, women in states with higher unemployment rates, and women in states with higher welfare benefit maximums are likely to stay on AFDC longer. These results are consistent with those in the literature in terms of their signs.

Only a few of these variables have much significance in the equation, however. Unlike the duration results reported in Blank (1989a) and Fitzgerald (1991), race, number of children, and education are not significant in this regression. The coefficients on education and number of children are particularly small. It is not clear how to interpret the fact that these variables seem unimportant in the 1986 and 1987 SIPP. This may indicate the changing composition of those on AFDC during these years in the late 1980s.

The coefficient on race is relatively large, but poorly determined. The insignificance of this coefficient is almost surely due to the inclusion of a dummy variable for never married in the model. (This variable is not included in the AFDC duration estimates published in earlier research.) Column 2 indicates that, if the never-married variable is omitted, the race variable grows in size and become significant. The multicollinearity problem between these two variables will recur throughout the duration analysis seen in this report. Thus, when lack of significance on race effects occurs in the

following tables, this can almost always be altered by the exclusion of the never-married variable.

Column 3 in Table 10 includes dummy variables for whether a household receives food stamps or housing assistance in each month. Since AFDC households are categorically eligible for food stamps, the food stamp variable is a measure of whether the household chooses to take up food stamps. Interestingly, the coefficient is large, positive, and significant, implying that AFDC households that receive food stamps are more likely to end their spell of AFDC. This might seem puzzling, since those who are most disadvantaged and expecting to use welfare the longest might be expected to be those most likely to take up food stamps.

We suggest one possible alternative hypothesis that is consistent with results we report below: many food stamp spells start before an AFDC spell when a low income woman is working at a low-paying job. People who are food stamp users may be more likely to go on AFDC when they become eligible because they already have contact with the public assistance office, even if that eligibility lasts only for a short period of time. Thus, food stamp use may be correlated with short spells of AFDC because low income working women are more likely to seek AFDC when their work is temporarily disrupted if they already have contact with the public assistance bureaucracy through food stamp recipiency.

As expected, people who receive housing assistance are likely to have longer AFDC spells. Given the nature of the population that receives public housing in particular, this is not surprising, since this is a selectively more disadvantaged group.

The last two columns of Table 10 estimate a more complex model. Similar to Blank (1989a), the last two columns present a competing risk model of AFDC spells, in which a spell is assumed to be simultaneously at risk of ending in one of two different ways. A spell can end either by a woman getting married (and thereby losing her status as a single mother) or it can end in other ways -- most commonly, a family's earnings or other income can increase, although in a few cases a child becomes older and the woman's eligibility ceases. The competing risk model assumes that these two types of exits are differently determined and estimates a separate set of coefficients and time parameters for the probability of each type of exit. Column 4 shows the estimated coefficients determining the probably of leaving AFDC through "other" (predominantly earnings or income increases) ways and column 5 shows the estimated coefficients determining the probability of leaving AFDC through marriage.

The differences in the coefficients between columns 4 and 5 are striking. Most notably, consistent with the results in Blank, black women and/or never-married women are much less likely to leave AFDC through marriage, but these variables have no significant effect on their likelihood of leaving AFDC by other routes. This is consistent with the hypothesis that the "marriage market" for low income black women is substantially worse than it is for white women (Wilson, 1987). The number of young children also significantly decreases a woman's probability of marrying her way off AFDC, but has no effect on other exits.

Welfare benefit maximums have a negative effect on both types of exits. With regard to exits through marriage, this is consistent with the hypothesis that higher benefit levels might create incentives for women to remain

unmarried, while the impact on other exits may indicate lower incentives to find a job. Larger amounts of "other" family income increase the probability that a woman will leave AFDC for other reasons, but have no effect on her marriage probabilities.

Thus, the competing risk model indicates that different routes off AFDC are quite differently determined. Certain types of women are much more likely to leave AFDC through marriage, others are more likely to leave in other ways. Aggregate duration estimates that confound these affects are difficult to interpret. For duration analysis of AFDC spells, the competing risk model is a preferable specification.

The hazard rates that are estimated from the above models are presented in Figures 1 and 2. Figure 1 shows the hazard rate of leaving an AFDC spell in each month, estimated for a divorced white woman with 11 years of education, two children, one under age 6, with $100 per month in other family income, and in a state with a $350 per month AFDC benefit maximum and 6.5 percent unemployment rate.[24] None of these characteristics is assumed to vary over the spell. The plot in Figure 1 shows the expected probability of this woman leaving AFDC (her "hazard" of exit) in each sequential month of the spell. As described above, this probability varies only every four months because only four-month time parameters are included in the model.

In her first four months on AFDC, this woman has close to a 10 percent probability of leaving AFDC. Over her spell, this declines to about half, and

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[24] All of the figures presented in this report will use this woman as the "base case." While the shape of the hazard rates are not affected by these characteristics, the actual level of the probability of leaving welfare is affected. Thus, if we had chosen a less disadvantaged woman, exit probabilities would be higher in the figures. If we had chosen a never married black woman, exit probabilities would be lower.

is around 5 percent after 21 months on AFDC. The fourth four month period appears to have a particularly small probability of AFDC exit. In general, Figure 1 indicates that this woman's probability of leaving AFDC declines somewhat over the spell, but remains relatively high even after almost two years on AFDC.

In contrast, Figure 2 plots the two hazard rates that result from the competing risk model shown in the last two columns of table 10. Both exits to marriage as well as other exits have very similar hazard probabilities over the first 16 months of the spell. After 16 months, however, the probability of exiting AFDC through marriage remains at about the same level it was at in the first few months -- around 5 percent per month. The probability of other exits declines to about half of its initial probability, and remains slightly over two percent per month. This is consistent with the idea that the "risk" of marriage is unaffected by time on welfare, but earnings and income exits are likely to be made relatively quickly if they are possible, and become less likely the longer a woman is on AFDC.

B. Food Stamp Duration Models

We turn from AFDC duration models to food stamp duration models, where there are few previously published estimates.[25] We are interested in the question of what determines the length of food stamp spells for single-mother

[25] Because our sample consists only of single-mother units, our estimates are not representative of the food stamp-recipient population as a whole. They are comparable to unpublished estimates from the 1984 panel that were prepared by Long and Doyle (1989). Long (1991) also includes some estimates of duration of food stamp spells for families with children. These two sets of estimates are discussed briefly below.

units, and how the determinants of food stamp spells differ from the determinants of AFDC spells.

Table 11 presents estimates of the determinants of food stamp duration for this population. While there are some similarities between Tables 10 and 11, the differences are more striking. Food stamp spell lengths seem to be determined quite differently than are AFDC spell lengths. Column 1 presents a basic set of duration parameters. As with AFDC, race (and being never married) has a significant negative effect on the probability that a woman will terminate a food stamp spell. Other coefficients vary, however. More educated women are more likely to leave food stamp spells sooner, although the effect of education on AFDC spells was insignificant. More children and more younger children increase the length of a food stamp spell, although both these variables were insignificant for AFDC spells. And state welfare maximums and "other" family income have no effects on food stamp spells, although both were significant for at least some AFDC exits.

Column 2 of Table 11 includes dummies for the receipt of AFDC and of housing assistance in each month of a food stamp spell. Including an AFDC dummy variable is particularly problematic in a food stamp duration equation. Because AFDC receipt <u>creates</u> automatic food stamp eligibility, it is difficult to interpret the causality of the AFDC dummy. Thus, column 2 in Table 11 is included to provide a comparison with Table 10, but should be viewed with more caution. AFDC receipt is strongly negatively correlated with food stamp spell exits. Housing assistance has a similar effect. While one cannot interpret these coefficients as implying anything causal, they indicate at a minimum that multiple program receipt is correlated with long spells of food stamp usage.

The final two columns of Table 11 estimate a competing risk model of food stamp usage, similar to the one estimated for AFDC. The determinants of spell lengths among women whose food stamp spell closes because of marriage are estimated separately from other food stamp exits. This is a less compelling model for food stamps than it was for AFDC, since women on AFDC who marry are usually ineligible for AFDC in their new household, but may remain eligible for food stamps. In fact many married couple families also receive food stamps. Thus, the termination of a woman's food stamp spell due to her marriage may not necessarily signal an end to her receipt of food stamps, if her newly formed household applies for and is accepted into the food stamp program.

Because our sample is limited to single-mother families and our data collection for any given woman ends with her marriage, we have no information on food stamp receipt in her new household. Future work on food stamps should look at the use of food stamps across household demographic changes, to determine if food stamp receipt as a single mother influences the probability of food stamp receipt of the new household after the mother marries.

The determinants of "other" food stamp exits -- like AFDC, these are primarily increases in earnings and other income sources -- reiterate the effects discussed above, except that the race and never-married coefficients become insignificant. Education significantly increases the probability of such exits, and more and younger children decrease the probability. As with AFDC spells, the effect of race and past marital status is operating almost entirely through spells that end in marriage. Food stamp spells that end via marriage are much less likely among non-white or never-married women.

Leaving food stamps through marriage is also less likely in states with high AFDC benefit maximums.

Figures 3 and 4 present hazard rate estimates for the monthly probability that a woman will end a food stamp spell. Figure 3 shows the hazard rates that result from the estimates in column 1 of table 11. In the first four months, this woman has about a six and a half percent probability of leaving food stamps in each month. As with AFDC, this declines by about half over 20 months, to around 3 percent per month. The probabilities of ending a food stamp spell in any month are generally lower than those of ending an AFDC spell for this woman.

Figure 4 plots the two hazard rates that emerge from the competing risk model in columns 3 and 4 of table 11. There is slightly greater than a 5 percent probability that a woman will leave food stamps through "other" (earnings or income) reasons. This declines steadily to slightly below 2 percent after 20 months. The probability of exiting food stamps via marriage, however, is extremely low in all months and shows little variance over time. Very few women in our sample leave food stamps through marriage.

In summary, food stamp spell durations are differently determined than AFDC spell durations in that they are more affected by education and by family composition, and they are less affected by other family income and by welfare benefit maximums than are AFDC spells. They are similar to AFDC spells in that they are longer among black and never-married women; this effect occurs because black and never-married women are less likely to marry their way off food stamps, not because they are less likely to leave by other means. Leaving food stamps via marriage is much less common, however, than leaving AFDC through marriage. Most food stamps spells end in other ways.

C. Medicaid Duration Models

Columns 3 and 4 of Table 12 investigate the determinants of the length of medicaid spells. We do not estimate competing risk models for medicaid, because it is less clear how to interpret such a model for this program. Many medicaid spells end via marriage because marriage means the end of a woman's AFDC eligibility. Thus medicaid spell endings through marriage are highly correlated with AFDC eligibility changes and are difficult to interpret in ways specific to the medicaid program.

Column 3 of Table 12 estimates a basic model of medicaid eligibility. The coefficients in this column are very similar to those in column 1 of Table 10, which show the determinants of AFDC spells. Non-white or never-married women, women with more children, women with more "other" family income, and women in higher benefit states are likely to stay on medicaid longer. Both the magnitude and significance of the determinants of medicaid spells are very similar to those of AFDC spells. This is hardly surprising, given that the primary way by which a single mother can receive medicaid is through categorical eligibility from AFDC recipiency.

Column 4 includes dummy variables for receipt of AFDC and of housing assistance. As with food stamps, the AFDC dummy variable coefficient can only be interpreted with caution since the causality runs the wrong direction. In fact, the problem is even stronger in Table 12 than it was in Table 11, because in 1986 through 1989 (the years covered by these data) it was typically difficult to qualify for medicaid when off AFDC, while it is quite

common to quality for food stamps without AFDC eligibility.[26] There is clearly a strong negative correlation between the probability of exit from a medicaid spell and the presence of an ongoing AFDC spell. Interestingly, there appears to be no correlation at all between food stamp recipiency and medical assistance. Families that receive food stamps are not more likely to receive medicaid.

Figure 5 plots the probability of a medicaid spell ending in each month, using the estimates from column 3 of table 12. Figure 5 looks a great deal like Figure 1, which showed AFDC hazard probabilities. The probability of a medicaid spell ending declines to about half of its starting probability over a 20 month spell, from over 6 percent to slightly over 3 percent.

The results in Table 12 confirm the effects of the institutional rules under which medicaid operates. As would be expected given the close tie between AFDC and medicaid eligibility, spell lengths in the two programs appear to be determined in a very similar manner.

D. Housing Assistance Duration Models

Columns 1 and 2 of Table 12 present duration models for spells of housing assistance. As with medicaid, we do not estimate competing risk models for housing assistance because of the difficulty in interpreting their results.

The determinants of housing assistance recipiency look very different from the results seen in any of the programs we have looked at above. In large part, housing assistance does not appear to be substantially affected by

[26]Eligibility for children in families with incomes below 133 percent of the poverty line is in the process of being phased-in, but few families would have been affected by this change during the time period covered in our data.

most of the variables in our model. Neither age, family size, welfare benefits, or "other" family income seem to affect the length of housing assistance spells.

As with the other programs, non-white women and never-married women are more likely to receive housing assistance, but the magnitude of this effect is much stronger for housing assistance than it is for other programs. In part, this almost surely reflects the population characteristics in those cities where public housing and rent subsidies are most readily available. Also, as with food stamps, women with more education are more likely to end a spell of housing assistance.

Column 2 adds food stamp and AFDC usage to the equation. Interestingly, there is little correlation between housing assistance spells and AFDC usage. Food stamp usage, however, is strongly negatively correlated with the probability that housing assistance will end.

Figure 6 plots the hazard probabilities of leaving a housing assistance spell, using the estimates in column 1 of Table 12. The probability of leaving housing assistance is somewhat higher for this woman in all months than it is for other programs. There is a 10 to 11 percent probability of leaving housing assistance in the early months of a spell. This declines to 8 percent after 20 months. There is less change over time in the hazard rates of housing assistance spells than of other program spells.

In general, receipt of housing assistance is not as affected by the variables in our model as are the other programs. This is perhaps not surprising, given the huge variability in the availability of housing assistance in different cities and parts of the country. We have no good control variables for housing benefit generosity or availability in our model,

and we suspect that if such variables could be collected they would be far more important than other variables currently included in the model. This again confirms the impression that housing assistance spells are quite different from AFDC, food stamp, or medicaid spells.

VI. Recidivism in Program Use

The above sections have analyzed spells of program use. This section analyzes spells of non-program use following exit from a program, which we refer to as "post-program spells". We will focus on what happens to women after they leave AFDC or food stamps and how long their post-program spell lasts. We are particularly interested in those post-program spells that end through recidivism or re-entry into the program.

A. Post-Program Spells of AFDC and Food Stamps

We create post-AFDC spells by taking all observed AFDC spell endings in our data and following the women in the months after exiting from the program. Such a post-program spell can end in four possible ways: It can end if a woman returns to AFDC, it can end if a woman marries and leaves our sample, it can end if a woman's children age enough so that the woman leaves our sample because she is no longer the mother of a minor child, or it can end because the data is censored. In other words, women who remain in the sample and do not return to AFDC can only end a post-program spell by censoring -- they stay off AFDC until the SIPP stops collecting data or they become ineligible for our sub-sample. Post-program spells are calculated analogously for food stamp recipients, and they can end in the same four ways.

Table 13 presents descriptive information on these post-program spells for ex-AFDC and food stamp users. Part A of table 13 shows that there are 473 observed post-AFDC spells. 50 percent of these are still ongoing when the data collection stops for our sample and are thus right censored. 50 percent are completed (non-right-censored) within the sample; this is the group that either returns to AFDC, marries, or loses their minor children. The overall

mean observed length of all post-AFDC spells is 9 months, while the mean length of post-program spells that are observed to end is 6.5 months.

Part B of Table 13 shows equivalent estimates for post-food stamp spells. Of the 549 food stamp spell closings that we observe in the data, 52 percent of these post-program spells are right censored, while 48 percent terminate within the sample.

Table 14 looks at the time patterns of post-AFDC spells in more depth. For each month after leaving AFDC, it shows the number of observed post-program spells in column 2. Column 3 shows the share who return to AFDC in each month after an AFDC termination. Column 4 shows the share of spells that end through marriage. Column 5 shows the share of post-program spells in each month that end because there are no longer eligible children in the household. Finally, column 6 indicates the number of spells that are right censored in each month. Note that the number of observed post-program spells in each month is identically equal to the number in the previous month minus all spells that are terminated or censored in the previous month.

Overall, 20 percent of all post-AFDC spells end with a return to AFDC, a one-fifth recidivism rate within the observed sample period. Virtually all of these returns occur within nine months.[27] There is little evidence of recidivism among women who leave AFDC and remain off it for 10 months or longer.

Similarly, most women who leave a post-program spell through marriage do so immediately. This is not surprising -- these are the women who marry their

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[27] Recall that we cleaned the data to eliminate most short AFDC exits of one or two months. This should lessen the amount of immediate recidivism. Even with this data cleaning, however, most AFDC returns occur very soon after a case closing.

way off AFDC. Thus, row 1 in Table 14 indicates that 12 percent of our observed AFDC spell closings occur because a woman moves immediately into marriage.

Twelve percent of the observed spell closings occur because the woman no longer has eligible children in the household. Seven percent of these occur immediately, and the others occur in a scattered pattern over time.

Ultimately, 50 percent of the AFDC post-program spells end because they are right censored, 30 percent end because of marriage or the loss of eligible children, and 20 percent end due to recidivism. This is not a terribly high rate of recidivism and implies that a substantial number of these spell endings may be permanent. Because of the length of our data, we have no information on recidivism that might occur two or more years after a spell closes. But there is little evidence here to suggest that such long-term recidivism is likely.

Table 15 presents equivalent information for post-program spells following an exit from food stamps. The overall recidivism rate for food stamps is 20 percent, similar to AFDC. The timing of recidivism among post-food stamp spells is a little more scattered than among post-AFDC spells. There is evidence of on-going low levels of recidivism throughout the first year after a food stamp spell ending. There is little evidence of substantial recidivism after one year, however.

The propensity to leave a post-program spell through marriage or through the loss of children's eligibility is a less clear concept for the Food Stamp Program than for AFDC. Although these women may no longer head their own families or have minor children, they can continue food stamp recipiency in their new household. We follow them in our sample only as long as they are

single mothers, however. Thus not all of those in columns 4 or 5 who terminate a post-program spell are actually terminating their risk of food stamp recidivism. These people should perhaps be considered right censored, and grouped with the last column.

Overall, Table 15 indicates that the propensity to recidivism is about the same in food stamps as in AFDC within our sample, although the possibility of recidivism among ex-food stamp users appears last for a slightly longer period of time. If ex-food stamp users are going to return to food stamps, they are likely to do it during their first year off the program.

Table 16 shows the characteristics of persons in post-program spells of AFDC and food stamps. Column 1 shows characteristics among all persons in AFDC post-program spells, while columns 2 and 3 separate persons in post-program spells that end in AFDC recidivism from those in all other post-program spells. AFDC recidivists are somewhat more like to be black, to be never-married, and to continue to use food stamps after they terminate AFDC. But on most other characteristics the recidivists and the non-recidivists look quite similar. There are few differences in work behavior, education, or family size. Recidivists are less likely to report health problems.

The characteristics of persons in food stamp post-program spells are given in columns 4 through 6. Again, column 4 shows the characteristics among all persons, while columns 5 and 6 separate those persons in post-program spells that end in food stamp recidivism from all others. Like AFDC recidivists, food stamp recidivists are somewhat more likely to be black. They are also more likely to remain on AFDC after they exit food stamps. But most other characteristics are similar across both groups.

There is little evidence in Table 16 that recidivists for AFDC or food stamps can be readily identified in terms of their personal characteristics when they terminate a spell of program use. Thus, there is little support for the idea that persons with high recidivism probabilities can be easily targeted. During their post-program spell, recidivists look a great deal like non-recidivists, except for their propensity to use other programs. We return to this issue again below.

B. Duration Models of Post-Program AFDC and Food Stamp Spells

Using the post-program spell data described above, we estimate duration models for post-program spells. Because of the probability of recidivism, only competing risk models seem to make a great deal of sense. These assume that, upon ending a spell of AFDC, a person is at risk of two things happening. Either she will return to AFDC or her spell of potential eligibility for AFDC will end another way. (If we had a long enough observation period, all post-program spells would have to end one way or the other because all single mothers at some point have their children age past the point where they are eligible for AFDC.)

For the sake of simplicity, we refer to these two exit types as recidivist exits and demographic exits. Demographic exits include not only exits related to the loss of minor children, but those resulting from other changes in family composition such as marriage, which take the women out of our sample of single-mother families. For many women, of course, a demographic exit may be a long way off. We expect to see a relatively low but ongoing probability of demographic exit after the first few months. We are most concerned, however, with the determinants of post-program spells that end

in recidivism, and the competing risk model allows us to separate these endings from other endings.

The time parameters in these competing risk models are based on four month periods, as before. Because of the extremely small number of recidivist exits observed in the data after the first 8 months, we were unable to estimate separate time parameters for recidivism for any spell lengths of 9 months or longer. Thus, there are only three time parameters included in the determinants of post-program recidivism (one for the first four months of a spell, one for the second four months, and one for all remaining months). Because there are more on-ongoing demographic spell endings, we were able to include 5 four-month time parameters when estimating the probability of a demographic exit.

Table 17 presents the estimated competing risk determinants of post-program spells of AFDC and food stamp usage. Columns 1 and 2 show the estimated determinants of ending a post-AFDC spell through demographic change or through recidivism. Black women are less likely to end a post-AFDC spell through demographic change and are more likely to return to AFDC. Older women and women with more young children have a higher probability of a demographic exit. Women with more total children are less likely to leave a post-program spell through either demographic change or recidivism. Higher state welfare maximums have no effect on the probability of a demographic change once a woman is off AFDC, but they do increase the probability of recidivism.

Figure 7 plots the hazard rates that result from the estimates in columns 1 and 2 of Table 17. The probability of recidivism is slightly over 1 percent a month in the first 8 months, and then falls to virtually zero after 9

months, as expected. The hazard of a demographic change is initially quite high, but falls to a steady rate of about 1 percent a month after 16 months.

The determinant of food stamp post-program spells are given in columns 3 and 4 of table 17. These patterns are very similar to those seen for the determinants of post-AFDC spells. The same set of variables that increase the probability of recidivism in AFDC also affect the probability of food stamp recidivism. Thus, black women in states with higher AFDC benefits are more likely to return to food stamps. "Other" income has a negative effect on the probability of recidivism for post-food stamp spells. Other variables seem to have little effect on food stamp recidivism. The total number of children, which had a strong effect on AFDC recidivism, is insignificant for food stamps. Demographic exits from post-food stamp spells are more common among older women, but less common among black women or women with larger families.

Figure 8 shows the estimated hazard rates for the probability of a food stamp post-program spell ending in recidivism or via demographic change. The probability of recidivism from food stamps starts at about 2 percent per month (slightly higher than for AFDC) and falls to virtually zero after 9 months. The probability of exiting a food stamp post-program spell in other ways is virtually zero throughout the period of the data.

The duration estimates of post-program spells presented in this section reiterate the results in the previous section. If recidivism occurs, it tends to occur fairly soon after a post-program spell starts (i.e., immediately after the first program exit.) This is true for post-program spells of both AFDC and food stamps. Black women are at higher risk of recidivism, as are women in states with higher AFDC welfare benefits. Women with larger families are less likely to return to AFDC.

VII. Dynamic Data on Overlapping Program Use

One of the main concerns of this report is to look at the overlap in the use of various public assistance programs. We are particularly interested in the dynamic pattern of overlapping program participation. Do people who enter AFDC become increasingly likely to use food stamps or receive housing assistance as their AFDC spell lengthens? Do women who leave AFDC also leave food stamps? If not, do they become increasingly likely to leave food stamps as their post-program spells lengthens? This section focuses on questions such as these.

A. The Use of Multiple Programs over the Duration of AFDC Spells

This sections tabulates the use of other programs over the duration of AFDC, food stamp, medicaid, and housing assistance spells. Table 18 shows these results for AFDC spells. The second column of Table 18 shows the number of on-going AFDC spells in each month. This table includes only non-left censored spells whose openings can be observed within our data. Columns 3 through 6 indicate how many women in AFDC spells in each month also report usage of other programs.

In the first month of all observed AFDC spells, 66 percent of AFDC recipients also report receiving food stamps, 18 percent report receiving housing assistance, and 100 percent receive medicaid insurance. As AFDC spells continue, an increasing share of these families utilize food stamps. Between month 1 and month 12, food stamp recipiency rises from 66 to 80 percent. After a year, however, there are no further increases in food stamp usage within the AFDC population.

Thus, even among relatively long-term AFDC recipients, around 20 percent of the families do not receive food stamps. Because these families are categorically eligible for this program, this is presumably a matter of personal choice, not eligibility. Although it is possible that a few of these families are not informed about their food stamp eligibility, this should be relatively rare since most public assistance offices have consolidated their administration of these two programs. Some families may fail to report food stamps actually received to the SIPP interviewer, but it is hard to understand why families that are already reporting AFDC recipiency should balk at reporting food stamps.

Our guess is that this lower take-up rate may reflect stigma effects related to food stamps. Because of the visibility of food stamp users in grocery store check-out lines, some number of eligible women may simply choose not to use the program. Additionally, while all AFDC recipients are categorically eligible for the Food Stamp Program, some may be eligible only for very small benefits, and may feel that participation in this second program is therefore not worthwhile.[28]

The over-time correlation between AFDC and housing assistance recipiency is not nearly so strong. Eighteen percent of AFDC cases receive housing assistance in their first month, and while this number rises to 20 or 21 percent within 6 months, it remains at the 20 percent level throughout the rest of the AFDC spell. Thus, use of housing assistance appears to be largely uncorrelated with time spent on AFDC. All AFDC recipients have medicaid

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[28] In an earlier study of categorical eligibility in the Food Stamp program, Ruggles and Nightingale (1987) found that almost all eligible AFDC recipients who did not receive food stamps would have been eligible for very small benefits.

insurance throughout their spell, so there is no change in the 100 percent coverage shown in column 5.

Among all months of AFDC usage observed in non-left-censored spells, 74 percent of the months include food stamp recipiency and 20 percent include housing assistance. It is interesting to compare these probabilities, based on all months in non-left-censored spells, to the probabilities of multiple program use in long-term AFDC spells, i.e., those that last the entire SIPP panel and that are both left- and right- censored.

The last row of Table 18 indicates that among all women in these long-term AFDC spells, 86 percent on average also receive food stamps, with 38 percent of these women receiving housing assistance as well. These estimates are well above those for women in shorter-term AFDC spells. This difference indicates that multiple program recipiency in long-term AFDC spells may look quite different from the pattern of recipiency in the relatively short spells that most AFDC recipients experience. The evidence in this table indicates, however, that this is not because long term users take up these programs at an increasing rate as their AFDC spell continues. Rather, these women are likely to participate in multiple programs from the very beginning.

Table 19 shows the recipient characteristics in AFDC spells that do and don't include other programs. Column 1 is identical to column 1 in Table 3, showing the recipient characteristics in all spells. Column 2 shows the characteristics of persons in AFDC spells where food stamps are received in all months of the spell. Column 3 shows the characteristics of persons in spells where both food stamps and public housing are received in every month of the spell. Column 4 shows the characteristics of persons who never receive

either food stamps or public housing at any time during their AFDC spell. These calculations include both left censored and non-left censored spells.

Spells where no other program assistance is received (column 4) are clearly shorter spells, and involve younger women with smaller families who are more likely to work. Persons in spells where both food stamps and housing assistance are received continuously through the spell are clearly more disadvantaged, much more likely to be black, never married, with more children. These are also longer spells of AFDC.

In general, the results of Tables 18 and 19 lead to at least four conclusions. First, as an AFDC spell progresses, women are more likely to take up food stamps over the first year of the spell. There is little evidence of correlation between take-up and time on AFDC for housing assistance, however. Second, even among quite long spells, between 15 and 20 percent of AFDC recipients do not take up food stamps. The reasons for this may be worth further exploration in future studies. Third, women in very long spells of AFDC are more likely to use other programs, and are more likely to receive housing assistance in particular, but their probability of doing so does not appear to rise as their AFDC spells continue. Fourth, the propensity to use other programs while on AFDC is correlated with differences in recipient characteristics.

B. The Use of Multiple Programs over the Duration of Food Stamp Spells

Table 20 shows the propensity of single-mother families who are food stamp users to participate in other programs as the length of a food stamp spell grows. In the first month of a food stamp spell, 56 percent of these

food stamp recipients also receive AFDC, 20 percent receive housing assistance, and 69 percent receive medicaid.

As food stamp spells lengthen, there is a clear tendency over the first year to go onto AFDC. By month 12, 72 percent of food stamp recipients are receiving AFDC, up from 56 percent in month one. As with AFDC, however, after a year on food stamps there is little evidence of further increases in AFDC participation. In longer spells, participation appears to remain at around the 70 percent level. As AFDC participation increases, medicaid participation must necessarily increase, thus medicaid participation rises with food stamp spell length in a pattern similar to that seen for AFDC.

There is some sign that the probability of housing assistance increases over a food stamp spell, from about 20 percent in month one to nearly 30 percent after 15 months. This is in contrast to AFDC spells, where time on AFDC had little correlation with housing assistance.

Overall, among all months of food stamp use in non-left censored spells, 67 percent receive AFDC and 24 percent receive housing assistance. This implies that over one-third of all single-mother families using food stamps at any point in time will not receive AFDC, indicating the extent to which this program is utilized more widely than AFDC. Among long-term food stamp spells, where the spell lasts for the entire SIPP panel and is both left and right censored, 82 percent report getting AFDC, 38 percent get housing assistance and 91 percent receive medicaid. Again, the long-term users are much more likely to make use of multiple programs, although again they appear to do so at a constant rate rather than increasing their probability of multiple program participation as their spells continue.

Table 21 shows the characteristics of food stamp recipients in spells that include AFDC in all months, that include AFDC and housing assistance in all months, and that include no other programs in any month. Single mothers in food stamp spells who don't use any other programs are generally older, much more likely to be working, with smaller families. Their food stamps spells are also typically quite short. Women who use all three programs throughout their food stamp spells are a very different group. They are younger, more likely to be black and never married, with more children.

The conclusions for food stamps are quite similar to those for AFDC. As time on food stamps expands, the probability of AFDC and medicaid usage increases. For food stamps, this is also true of housing assistance. The probability of receiving AFDC and housing assistance reaches a peak within the first 15 months (and increases only a small amount after the first 8 months), but the probability of receiving Medicaid continues to rise. Long-term food stamp users are much more likely to use multiple programs and multiple program users are much more likely to be more disadvantaged and to be in longer food stamp spells.

C. The Use of Multiple Programs Over the Duration of Medicaid Spells

Table 22 shows how program utilization changes as medicaid spells lengthen. In the first month of a medicaid spell, only 56 percent of the recipients also receive AFDC. This indicates that a substantial number of women can qualify for medicaid without qualifying for AFDC. It is difficult to stay on medicaid very long, however, without AFDC eligibility. As medicaid spells become longer, the probability of AFDC receipt rises substantially, from 56 percent in the first month to around 85 percent after 12 months. In

the data, this is not because women are going onto AFDC as their medicaid spell lengthens, as much as it is because short medicaid spells don't include AFDC.

As medicaid spells lengthen, the probability of food stamp receipt also increases, from 50 percent in month 1 to around 75 percent after month 12. Housing assistance, in contrast, stays at about 20 percent throughout medicaid spells, and seems relatively uncorrelated with the length of a medicaid spell.

Overall, in the non-left censored spells, 70 percent of the months on medicaid also include AFDC recipiency, and 62 of the months on medicaid also include food stamp recipiency. Within long-term spells, which run the length of the SIPP panel and are both left and right censored, 90 percent of the medicaid recipiency months are also AFDC recipiency months, in 84 percent of the months food stamps are also received, and in 35 percent of the months housing assistance is received. As before, the long-term medicaid users make much more use of multiple programs, although there is little evidence that this is due to continuous increases in program usage as spells lengthen, as much as it is due to the fact that those spells that become long-term start with high multiple-program usage.

D. The Use of Multiple Programs over the Duration of Housing Assistance Spells

Table 23 shows the usage of other programs as housing assistance spells lengthen. In the first month of housing assistance, 42 percent of the women also receive AFDC. This percentage increases slightly as housing spells lengthen. After 8 months, it remains around 50 percent. Medicaid shows a similar pattern, with slightly higher usage numbers.

In the first month of housing assistance, 41 percent of the women also receive food stamps. This increases to about 60 percent after 8 months, and remains at that level throughout longer spell lengths. In short, while there is some evidence of correlation between AFDC and food stamp participation and the length of housing spells, it is not a very strong correlation. As mentioned above, the lack of connection between housing assistance eligibility rules and AFDC or food stamp eligibility, along with the simple unavailability of housing assistance in many areas of the country, means that time on housing assistance is not very related to the use of other programs.

There is also not nearly as much difference in multiple program usage among long-term users of housing assistance and those in shorter non-left censored spells. While long-term users are more likely to receive AFDC, food stamps, and medicaid, as the bottom two rows of table 23 indicates, the numbers are only slightly higher than those who are observed in the twelfth month of their housing assistance spell. This again underscores the fact that all housing assistance recipients are somewhat differently selected than other program recipients.

E. The Use of Multiple Programs After the Close of an AFDC Spell

In the section above, we looked at exits off AFDC and food stamps, and at the question of recidivism. In this section, we focus on post-program spells following an AFDC exit, and look at the use of other programs after a family leaves AFDC.

Table 24 shows the number of on-going spells of single motherhood by month following an exit from AFDC[29]. Of the 385 spells of AFDC which close and where a woman remains a single mother, in the first month 36 percent of these women receive food stamps. Thus, for over a third of the families, exiting AFDC does not mean exiting the food stamp program. This share declines in the second or third month off AFDC to around 30 percent, but remains near 30 percent throughout longer post-program spells. Thus, there is little evidence that the longer a woman stays off AFDC, the less likely she is to use food stamps. Even after a year and a half off AFDC, one third of all ex-AFDC recipients still receive food stamps.

In the first month after leaving AFDC, 46 percent of these single mothers continue to qualify for medicaid. This number drops to around 20 percent after 6 months, and remains at 20 percent throughout the rest of a post-program spell. This pattern meshes nicely with the institutional fact that a number of states provide ongoing medicaid eligibility to some AFDC leavers for about 6 months. In the long term, only about 20 percent of these households are able to maintain their medicaid eligibility, although this number might seem surprisingly high, given the difficulty of getting medicaid eligibility without AFDC eligibility.

Housing assistance shows little correlation with time off of AFDC, and remains at about 20 percent throughout the post-program spell. The decline in housing assistance in the longer spells off AFDC is largely due to the small number of observations in these long spells.

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[29] Thus, table 24 drops post-program spells when a women returns to AFDC or leaves the sample because she gets married or her eligible children become too old.

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Concurrent Program C

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on will look at how
26 presents this i

Those who leave AFDC and then return to the AFDC rolls are a par
interesting group. The bottom part of table 24 investigates the rela
between time off AFDC and multiple program use only among those persc
ultimately are observed returning to AFDC in our data. As we know fr
earlier discussion, most people who return to AFDC do so within 6 to
of leaving. As a result, almost all of these observations are among
who have very short post-program spells.

Among people who are ultimately recidivists, there is much highe
stamp and medicaid usage in their post-program spells, and it does nc
very rapidly. For instance, close to 50 percent of those who will be
recidivists continue to use food stamps after they leave AFDC. Whil
in table 16, above, that the characteristics of AFDC recidivists were
different from non-recidivists, their higher on-going use of other p
assistance programs after leaving AFDC is clearly a sign of potentia
problems.

F. The Use of Multiple Programs After the Close of a Food Stamp Spe

Table 25 provides equivalent information about post-program spe
following the closure of a food stamp spell. In the first month aft
single-mother family stops using food stamps, 19 percent continue to
AFDC, 19 percent still receive housing assistance, and 38 percent st
receive medicaid. AFDC use declines to 10 percent or lower after a
food stamps, and medicaid usage falls as AFDC usage declines, althou
fall in medicaid usage is greater than can be explained by the decli
eligibility alone. Very few people exit food stamps and remain on A
many months afterwards.

The top of table 26 presents data for all AFDC spell openings in which one month of data prior to the spell opening is also observed.[30] All data in part 1 of the table are based upon this set of AFDC spell openings. For food stamps, housing assistance, and medicaid, rows 1a through 1d indicate the pattern of usage in these other programs as an AFDC spell opens. Thus, row 1a indicates that in 36 percent of observed AFDC spell openings, food stamps were received both before and after the AFDC spell opened. Row 1b indicates in only 1 percent of the cases did a food stamp spell close when the AFDC spell opened. Row 1c indicates that in 31 percent of the cases a food stamp spell opened concurrently with the AFDC spell, and row 1d indicates that in 32 percent of the cases, there was no food stamp receipt either before or after the AFDC spell opened.

This clearly indicates the extent to which food stamp spells are <u>not</u> concurrent with AFDC spells. Only about one-third of AFDC spells start concurrently with food stamps, one-third open in the midst of an ongoing food stamp spell, and one-third open with without food stamp receipt immediately before or after. It is clear, as noted above, that food stamp recipiency and AFDC recipiency are only very partially correlated.

Consistent with the evidence above, housing assistance is unaffected by an AFDC case opening. Women are either on or off housing assistance when their AFDC spell opens, and the opening of the spell has no effect on the immediate receipt of housing assistance.

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[30] We have duplicated tables 26 and 27 using two month comparisons before and after spell openings and closing. While some of the numbers differ in magnitude, the general conclusions are identical.

Medicaid spells are either on-going when AFDC opens (in 45 percent of the cases), or they open concurrently with AFDC. Because of categorical eligibility, it is impossible to be on AFDC and not receive medicaid insurance.

Part 2 of table 26 shows a similar analysis for all food stamp spells that are observed to open in the data. In 45 percent of all food stamp openings, there is no AFDC use immediately before or afterwards. In 25 percent of the cases, food stamp openings occur along with an AFDC opening, and in 28 percent of the cases, AFDC receipt precedes a food stamp opening. In short, there is no immediate correlation between AFDC and food stamp openings in three-fourths of food stamp openings.

As with AFDC, housing assistance is not affected by food stamp openings. Women are either receiving it or not, both before and after the start of their food stamp spell. There is also little evidence of a link between medicaid openings and food stamp openings. In 22 percent of food stamp openings, a medicaid spell starts as well, but these are virtually all spells where an AFDC spell opens concurrently with a food stamp spell, automatically opening a medicaid spell as well.

Part 3 of table 26 further verifies the lack of connection between housing assistance spells and other program changes. When housing assistance spells start, there is almost no immediate opening of AFDC or medicaid spells. In only 7 percent of the cases, a food stamp spell starts along with the housing assistance spell.

Part 4 of table 26 investigates the openings of medicaid spells. About 52 percent of medicaid spell openings occur concurrently with an AFDC opening, while 48 percent open on their own. The relationship between medicaid

openings and food stamp openings is weaker -- in only about 25 percent of the cases does a food stamp spell start with a medicaid spell. The relationship between housing assistance openings and medicaid openings is non-existent.

The results of table 26 can be summarized as follows: A substantial minority of AFDC and food stamp spells open concurrently. But in many cases AFDC and food stamp receipt are not immediately linked. About half of AFDC spells open concurrently with medicaid spells, and vice versa. There is virtually no relationship between housing assistance openings and other program openings.

H. Concurrent Program Closings

Table 27 provides equivalent information to table 26, except that it focuses on the question of concurrent program closings rather than openings. Part 1 looks at all observed closings of AFDC spells, in which data is observed for at least 1 month following the receipt of AFDC. The first column indicates that 42 percent of the time when an AFDC spell closes, a food stamp spell closes as well. In 35 percent of the AFDC closings, a food stamp spell continues, and in 22 percent of the AFDC closings, there was no food stamp recipiency prior to closing.

In 54 percent of the AFDC case closings there is also a medicaid spell closing, but in 46 percent of AFDC closings, medicaid continues immediately afterward. As before, housing assistance does not vary as AFDC cases close. Either women continue to receive it, or they continue to not receive it.

Part 2 looks at food stamp closings. In 36 percent of food stamp closings, an AFDC spell closes at the same time. In 45 percent of the time, AFDC was not received immediately before or after the food stamp closing. As

before, most medicaid closings that are concurrent with food stamps are the result of AFDC closings. There is little relationship between housing assistance receipt and food stamp closings.

Part 3 of table 27 again indicates that housing assistance closings, like their openings, have almost no correlation to the closing of other programs. Part 4 indicates that, like medicaid openings, about half of all medicaid closings occur simultaneously with an AFDC closing, and the rest occur with no immediate AFDC receipt before or after.

One lesson from table 27 is that there is little difference between the concurrence of program openings and the concurrence of their closings. Table 27 provides almost identical numbers to table 26, indicating that those programs that are linked in their openings, are about equally linked in their closings. Those programs that are not linked in their openings are not linked in their closings.

I. Summary of Findings on Spell Openings and Closings

One overall message of this entire section of the report is that usage of these programs is surprisingly separate. Even medicaid and AFDC spells, which are closely linked in terms of eligibility, do not open and close together in more than half of the cases. In only a third of the cases are food stamp and AFDC spell openings and closings linked. And public housing is not linked to any of the other programs.

A second message is that there is little evidence here of strong "attraction" effects towards other programs as one enters and remains on one program. While there is evidence in most cases that as one stays on any one of these programs there is greater use of other programs, this increase in

usage is typically not large. And after about 12 months on any program, there is little evidence of further increases in other program usage over the remainder of the spell. Women who take up food stamps and AFDC together tend to do so from the beginning. Women who will leave food stamps when they leave AFDC tend to do so almost immediately at the end of their AFDC spell. This pattern holds for all programs that have any linkage in their openings and closings.

VIII. Eligibility Spells for AFDC and Food Stamps and the Overlap Between Eligibility and Recipiency

Our calculations so far have focused entirely on spells of reported program recipiency. For both AFDC and food stamps, however, we can also calculate program eligibility in each month, allowing us to compute spells of program eligibility and compare these to spells of program usage.

A. Eligibility Calculations

Program eligibility is determined on the basis of three items for AFDC and two items for food stamps.[31] For AFDC, eligibility depends first upon being a parent of a minor child, often a single parent. Everyone in our sample passes this eligibility screen.

Second, AFDC eligibility depends on a cash income calculation that is affected by state and federal AFDC benefit rules. This calculation varies from state to state, as different states set different maximum grant amounts for different sized families. As a woman's earnings increase, she gets to keep $30 in earnings each month. All earnings above $30 are taxed. The federal government sets a uniform tax rate of 67 percent on earnings in the first four months of work and 100 percent in all months thereafter. The majority of work by AFDC women occurs in the first four months of the program. For simplicity, we apply a 67 percent tax rate on all earnings over $30. Even in cases where the 100 percent tax rate applies, many states allow employment

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[31] Details of program eligibility for AFDC and an outline of issues in simulating AFDC eligibility can be found in Giannarelli (1992). Ruggles et al. (1992) also discuss problems in using SIPP to simulate AFDC eligibility. Food Stamp Program eligibility rules and the problems of simulating them in SIPP are outlined in Doyle (1990).

cost deductions that lower the actual tax rate below 100 percent. (We have no information in our SIPP subsample on the extent to which these deductions are available, so we cannot explicitly take them into account.) Thus, a less-than-100 percent tax rate is probably the appropriate assumption even for long-term work spells on AFDC.

Third, AFDC eligibility is determined by an assets test. A woman must have less than $1000 in assets (excluding the value of a home). If she owns a car, the equity value of that car (resale value less any remaining debt) must be less than $1500. Using the special SIPP modules on wealth, we are able to calculate the total asset holdings of each family in our sample. Three of these waves also have information on the equity value of cars, although we suspect that this information may not be entirely reliable.

In contrast to AFDC, the Food Stamp Progam has no household composition test, but it does have a cash income test and an assets test. To be eligible for food stamps, one must apply information on a family's earnings and other income against a national formula of benefits and standard deductions. The assets test in the Food Stamp Program requires that food stamp households have less than $2000 in wealth holdings[32] and that the resale value of their car must be less than $4500.

As noted above, we have wealth information from special topical modules administered in wave 4 and wave 7 of each SIPP panel. Each of these topical modules provides information that allows us to calculate the total value of countable assets for each household, which we can apply against the relevant

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[32] In the early part of our sample, the asset level was $1500. The level is also higher for units with elderly heads, but since few of our subsample are affected by this we did not simulate a separate asset-eligibility test for the elderly.

asset cutoffs. We use information from the wave 4 module to estimate asset eligibility for months that are part of waves 1 through 5, and information from the wave 7 module to estimate eligibility for months from waves 6 and 7. We can also use information on car value and car equity, when available, to calculate whether a woman passes the car assets test. We are more hesitant about the accuracy of the car information, however, and it is not available in precisely the right form in all waves. Additionally, both programs exempt cars from the test in certain circumstances--if they must be used to commute to work, for example. Thus, we will calculate eligibility with and without the car assets test included.

Overall, we calculate eligibility by three different definitions for both AFDC and food stamps. Table 28 shows these definitions. Definition 1 estimates eligibility based only on current cash income calculations. It is the eligibility calculation that has been available in most previous research, particularly that using CPS-based simulation models. Definition 2 estimates eligibility based on current cash income and the assets test on total (liquid) wealth. Definition 3 also includes the car assets test in its eligibility calculations.

Table 28 provides information on the extent to which our three eligibility calculations mesh with reported AFDC and food stamp receipt. The top of table 28 looks at AFDC eligibility. Row 1 shows that in 54 percent of the months in the data where we report no eligibility using definition 1, the woman reports no AFDC receipt. Row 2 is the best measure of error in our calculations, showing the share of cases where we impute no eligibility, but where the woman reports AFDC receipt. Row 3 reports the share of cases where we impute eligibility, but the woman reports no AFDC receipt. In some number

of these cases, our eligibility calculations might be in error, but in most of these cases (we hope) these women are simply choosing not to participate in the program. Row 4 shows the share of cases where we both report eligibility and the woman reports receipt. Row 5 calculates the share of all cases we estimate to be eligible in our data, and row 6 estimates a take-up rate.

All of these definitions do a relatively good job of estimating eligibility. Even under definition 3, less than 7 percent of our eligibility calculations are obviously in error. As our definition of eligibility becomes successively more stringent, the share of eligibles drops and the take-up rate rises. In the absence of other information, it is hard to tell whether the use of the SIPP wealth data provides a better measure of overall eligibility. On the one hand, the share of errors in row 2 rises, but the measure of eligibility and ineligibility in rows 1 and 3 change also and should improve, if the wealth information is at all accurate.[33]

Our estimated AFDC take-up rates range from 60 percent using definition 1 to 72 percent using definition 3. The first definition is similar to those calculated by others, but the number of eligibles found in the SIPP is substantially greater than in the CPS, and as a result SIPP-based participation rate estimates tend to be lower than those based on CPS data. For example, Giannerelli and Clark (1992) estimate CPS-based participation

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[33] Because the wealth information available in the different topical modules is not identical, we were worried that our estimates for some sets of data might be better than for others. To test this, we looked separately at the error rates for the data to which each topical module was applied. There is virtually no difference in the errors or the overall eligibility imputations made with wave 4--1986 panel, wave 7--1986 panel, wave 4--1987 panel, or wave 7--1987 panel. Our overall error rate is slightly lower than that found in Ruggles et al. (1992).

rates ranging from 77 percent to 84 percent over the 1985 through 1989 period covered by our data.

Food stamp eligibility calculations are shown in the bottom of table 28. Obvious error rates in our food stamp eligibility calculations are lower than in the AFDC calculations. The share of months where we estimate someone is ineligible but they report receiving food stamps (row 2 of part II) never rises over 4.3 percent.

We estimate higher eligibility for food stamps than for AFDC, which should occur since the cash income and the assets tests are both less stringent. Our eligibility estimates imply that there is a lower take-up rate for food stamps than for AFDC, consistent with reports from other research in this area. We estimate food stamp take-up rates that range from 56 percent of all eligibles to 65 percent. This compares, for example, to a household take-up rate of about 60 percent overall (and about 75 percent for single-parent families with children) estimated by Doyle (1990) using Food Stamp Program data and the SIPP. Using SIPP data alone, Ross (1988) calculated a lower household participation rate of about 41 percent in the 1984 panel.

For the remainder of this section, we will use definition 2 to estimate AFDC and food stamp eligibility. We do this because we believe that the additional wealth data in SIPP provides useful information for these eligibility calculations. We avoid using definition 3 because we are unsure about the data used for the car assets test, particular for AFDC, where we have to estimate equity value. In any case, definitions 2 and 3 are relatively similar to each other, and may be expected to produce virtually identical results in the analysis below.

Our actual eligibility estimation in each month combines definition 2 and reported receipt. Someone is considered eligible in every month for which we estimate eligibility, based on definition 2, and/or for every month in which she reports receiving the program.

B. Eligibility Spells for AFDC and Food Stamps

Table 29 provides information on AFDC spells of eligibility. We estimate that there are 2242 such spells. (Recall from table 2 that there were 1224 spells of AFDC receipt.) 52 percent of these are left censored. Of the 1071 non-left censored spells, 62 percent are observed to end within the data (are not right censored.) This is a higher share of completed spells than we observed with AFDC receipt and indicates that there are more short eligibility spells than there are short receipt spells. This is underscored by the mean length of these completed eligibility spells -- 3.3 months. This compares to a mean length of 5.6 months among completed spells of AFDC receipt. Fully 79 percent of these completed spells end within 4 months.

Table 31 provides information on the characteristics of persons in spells of AFDC eligibility. Column 1 presents the characteristics of all persons in AFDC eligibility spells. Column 2 presents the characteristics of all persons in eligibility spells who never receive AFDC during this spell. Column 3 presents the characteristics of all persons in eligibility spells who receive AFDC in every month of the spell.

Not surprisingly, the characteristics of those who are eligible and receiving in all months (column 3) are very close to the overall characteristics of persons in AFDC spells, shown in table 3. The interesting comparison is between columns 2 and 3 in table 31. Persons who are eligible

but do not receive AFDC at any point in their eligibility spell are older, more likely to be non-white, and have fewer children. They are much more likely to be working -- 61 percent are working compared with 12 percent of the AFDC recipients. They are much less likely to make use of other transfer programs. In short, eligible non-recipients are a much less disadvantaged group who appear much more attached to the labor market. Their mean eligibility spells are also much shorter, only 5 months rather than 15 months.

Table 30 shows food stamp eligibility spell data. We estimate that there are 2696 spells of food stamp eligibility in our data, compared to 1340 spells of food stamp receipt. These spells are left censored 49 percent of the time. Among the 1374 non-left censored spells, 61 percent are completed within the data and are not right censored. As with AFDC eligibility spells, this is a substantially higher share of completed spells than is observed among food stamp recipients. In particular, there are more short completed spells of food stamp eligibility, so that 75 percent of these spells end within 4 months, compared to only 58 percent of completed food stamp receipt spells.

The characteristics of persons in food stamp eligibility spells are shown in columns 4 through 6 of table 31. As with AFDC, those who are eligible and receive food stamps in all months of their eligibility spell look almost identical to food stamp recipients in general (shown in table 5.) Those who are eligible for food stamps but never receive them during their eligibility spell are far less disadvantaged. They are older, more likely to have been married, less likely to be black, with fewer children and more education. Many more of them are working and they are much less likely to receive other forms of public assistance.

D. Eligibility and Program Usage Over Time

The availability of longitudinal data on both eligibility and program receipt makes it possible to look at the pattern of program use over spells of eligibility. This section does this first for AFDC and then for food stamps.

Table 32 investigates the sequential use of AFDC over AFDC eligibility spells. Column 2 shows the number of AFDC eligibility spells that do not include AFDC receipt in each sequential month. Column 3 shows the share of these spells in which AFDC receipt begins. Column 4 shows the share of spells that are right censored because the data ends. Column 5 shows the share of these spells that close at the end of each month. Thus, the total number of on-going eligibility spells without AFDC receipt in month 2 is identically equal to the number of eligibility spells in month 1 minus those that enter AFDC in the first month, minus those that are censored after one month, and minus those whose eligibility ends after one month.

Table 32 indicates that 24 percent of the eligibility spells start with a concurrent spell of AFDC receipt in their first month. This implies that fully three-fourths of the women who are initially eligible for AFDC do not take it up--although of course many of these spells of eligibility are very brief. Five percent of eligibility spells are right censored after one month. 21 percent of eligibility spells close a month after opening.

The data in table 32 indicate that 50 percent of eligibility spells open and close without AFDC receipt. Most of these are very short spells. Twenty-one percent of spells close within 1 month, another 24 percent of the remaining spells close within 2 months, another 14 percent of the remaining spells close within 3 months, etc. This implies that there are a lot of women "at risk" for AFDC who never make use of it. For a full year after an

eligibility spell opens, over 10 percent of the remaining sample of eligible spells each month close without ever using AFDC.

Most strikingly, only 31 percent of those women who experience an eligibility spell will ever take up AFDC. This is much lower than the overall take-up rate of 68 percent indicated in table 28. This is because table 28 was a calculation of the number of months of eligibility where AFDC was received. Table 32 provides a calculation of the number of spells of AFDC eligibility where AFDC is ever received. Once women start receiving AFDC, they may receive it for many months, thus the majority of months of eligibility are also take-up months. But the majority of spells of AFDC eligibility close or are censored before take-up occurs.

Among those spells that do take up AFDC, 76 percent start immediately when eligibility begins (23.6 divided by 31.2.) Thus, of those women who will use AFDC, most open their AFDC case immediately. The remainder start very soon after the beginning of the eligibility spell. Six months after an eligibility spell begins, virtually all of the women who will ultimately take up AFDC during their spell have begun receipt.

Table 33 makes identical calculations for food stamp eligibility spells among single-mother units. The data patterns here are very similar to those in AFDC. Among all food stamp eligibility spells observed to start in the data, only 23 percent ultimately result in food stamp receipt. Of these, 74 percent (16.8 divided by 22.6) begin their food stamp spell in the same month that the eligibility spell begins. Within 6 months after eligibility opens, almost all women who are going to take up the program have already begun to do so.

Over half, 53 percent, of food stamp eligibility spells for these single-mother units are observed to close within the data, without food stamp take-up. 20 percent of the eligibility spells that open close within 1 month. Of the remainder, another 19 percent close after two months. As with AFDC, there are a large number of relatively short food stamp eligibility spells that close without food stamp receipt.

D. Duration Models of AFDC and Food Stamp Eligibility

Using the data presented in tables 32 and 33 on AFDC and food stamp eligibility spells that continue until either program usage begins or until the spell ends, we can calculate competing risk duration models of the determinants of these spells.[34] For AFDC spells, this is equivalent to allowing AFDC eligibility spells to be at risk of two types of endings: They can end when AFDC receipt begins, or they can end when the eligibility spell is over (without ever resulting in AFDC receipt). The determinants of each of these type of spell endings is separately estimated, with separate time parameters.

Table 34 presents the competing risk duration estimates for AFDC eligibility spells in columns 1 and 2. Column 1 gives the determinants of spell length among AFDC eligibility spells that end without AFDC receipt beginning. Column 2 gives the determinants of spell length among AFDC eligibility spells that end in AFDC receipt. These are clearly two very different sets of coefficient estimates.

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[34] Note that the estimates in table 34 necessarily omit those observations where program use starts immediately when the eligibility spell opens. The "spell length" of eligibility in this case is zero.

Women who are older and better educated are more likely to quickly end a spell of AFDC eligibility without taking up AFDC. Women who are disabled[35], who have more small children, who live in states with higher unemployment rates and higher welfare maximums, are more likely to end a spell of AFDC eligibility by taking up AFDC.

Figure 9 plots the hazard rates for these two different types of eligibility spell endings. The probability of an eligibility spell ending in the first few months without receipt is over 25 percent. This falls steadily to around 8 percent after 16 months. Note that this is still quite a high probability, since it implies that even after an eligibility spell has lasted more than a year, women are quite likely to leave eligibility without taking up AFDC. The probability of the eligibility spell resulting in AFDC take-up starts at about 7 percent and falls to 2 percent after 8 months. Figure 9 reiterates the message of the previous few tables: AFDC eligibility does not lead inevitably to AFDC receipt. In fact, eligibility spells are quite likely to close without receipt; women who enter AFDC typically do so in the early months of eligibility.

Columns 3 and 4 of table 34 provide estimates of a competing risk model of food stamp eligibility spells among our sample of single-mother units. Column 3 shows the determinants of the length of food stamp eligibility spells that end without program receipt. Column 4 shows the determinants of the length of food stamp eligibility spells that end in food stamp receipt. The comparisons here are similar to those in the AFDC estimates.

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[35] Note that the disability variable in table 32 is for women with a work disability only and is not the broader "health problems" variable used in other estimates.

Women who are older, who are white, who have been married before, who are not disabled, who have fewer smaller children and fewer total children, and who live in states with lower unemployment rates are more likely to end a food stamp eligibility spell without ever taking up the program. Women who have a work disability, who have more young children, and who live in a state with a higher AFDC welfare maximum are more likely to move from an eligibility spell into food stamp receipt.

Figure 10 plots the hazard rates from this competing risk model of food stamp eligibility spells. As before eligible women are very likely to leave without food stamp usage in the early months; the hazard rate is initially over 30 percent. This falls rapidly to about the same level as AFDC (8 percent per month) after 16 months. Those who exit eligibility to take up food stamps start in the early months, but there is clearly a much lower probability of this occurring for most women than for the eligibility spell to end without the use of food stamps.

The overall lesson from this section is that the determinants of those eligibility spells that result in program receipt are very different from the determinants of eligibility spells that close without program receipt. Women who are less disadvantaged across a range of variables are much more likely to leave an eligibility spell without moving onto the program. There is evidence here that state unemployment levels and AFDC maximum benefit levels affect the take-up rates of women in these states, and increase the probability that an eligibility spell will result in program receipt.

E. AFDC and Food Stamp Spell Closings and Ongoing Eligibility

Up to this point, this section has focused on spells of program eligibility and the extent to which they are related to the opening of a public assistance spell. This last section focuses instead on the period after an AFDC or food stamp spell closes and looks at the frequency of ongoing eligibility over a post-program spell.

Table 35 tabulates the extent of eligibility in consecutive months following an AFDC spell ending. Following an AFDC spell closing, where data are observed in the month after the spell closes, 48 percent of the women are still eligible for AFDC in the first post-program month. This implies that over half of all AFDC spell endings occur simultaneously with an eligibility spell ending. But a substantial number of spell endings occur even in the face of ongoing eligibility. As a post-program spell lengthens, the percent of women who are still eligible for AFDC declines rapidly, from 48 percent to around 30 percent 12 months after the spell closing. But the number remaining eligible continues between 20 and 30 percent even in post-program spells that last longer than a year. It is possible that table 35 may in part reflect inaccuracies in our eligibility imputations. Our eligibility imputations are more stringent than most, however, because they include an assets test in addition to the cash income test. The results shown in table 35 imply that a number of women leave AFDC who could technically stay on the program, but choose to leave for other reasons.

Table 36 presents similar evidence for food stamp post-program spells. Of the 451 spell closings where data is observed in the following month, fully 57 percent of these women are still eligible for food stamps in their first month after leaving the program. Less than half of food stamp spell closures

occur simultaneously with an eligibility spell closing. This number declines only slightly over time, from 57 percent eligible one month after leaving food stamps, to around 45 or 50 percent eligible 12 months after leaving food stamps. There is evidence here that a substantial number of women continue to remain eligible for food stamps throughout their post-program spell.

While we have not calculated simulated benefit amounts for those who remain eligible for AFDC and food stamps following a case closing, we suspect that these women are probably eligible for relatively small benefits on these programs. Yet, given the low overall incomes of these families, it is still striking that so many women choose to leave public assistance when they still might be able to receive small amounts of assistance. This is a finding that deserves further study.

IX. Conclusions

This report has covered a large number of topics. First, it has given an overview of the characteristics of participants in the AFDC, Food Stamp, medicaid and housing assistance programs, and has discussed in descriptive terms the ways in which participation in the different programs overlap. Next, the determinants of the duration of spells of program participation were discussed for each program separately, and competing risk models of duration were estimated for ADFC and food stamps. The probability and determinants of returns to a program after an exit were examined next.

The following section explored the dynamics of overlapping recipiency across the four programs--for example, the extent to which openings and closings are or are not contemporaneous across the programs, and the impacts of the duration of participation in one program on the odds of starting another. Finally, the last section of the paper examined spells of eligibility for the AFDC and Food Stamp Programs, and has considered take-up rates within each program and the timing of participation relative to the onset and/or ending of eligibility.

A paper covering such a large number of topics and presenting so much data will necessarily reach a rather large number of conclusions. This final section attempts to summarize the main conclusions within each section, and then comments briefly on the primary findings of the paper as a whole.

A. Descriptive Findings on Spells of Program Use

Overall, the spells and recipient characteristics of those on AFDC, food stamps and medicaid were quite similar, although food stamp recipients were somewhat less disadvantaged on average. Substantial overlap in participation

occured among these programs, but there were also significant periods of non-overlap, especially in shorter spells. Housing assistance spells are much less common than are spells of the other three types, and are likely to last much longer when they do occur.

Specific findings include:

- AFDC Spells:
  - About half of all observed AFDC spells close within one year.
  - Age, education, and a broad measure of health status all appear to differ little across short and long spells.
  - Women in shorter spells are more likely to be white, and to be working. They are less likely to be never-married, have fewer children and are less likely to use food stamps or housing assistance.
  - 28 percent of AFDC recipients in short spells indicate that they don't receive food stamps, and only 16 percent of short-term AFDC recipients receive housing assistance. About 85 percent of long term AFDC recipients do get food stamps, and about one-third receive housing aid.
- Food Stamp Spells:
  - The distribution of food stamp spells is very similar to that for AFDC spells, and again about half of all spells can be expected to end within one year.
  - Food stamp users have somewhat more and older children than AFDC recipients, on average, are more likely to be working, and are less likely to be never-married.

- Food stamp users in short spells, like those in short spells of AFDC usage, are more likely to be white, to have been married, to have fewer children, and to be working. Education and the absence of health problems are more highly associated with short Food Stamp spells than they are for AFDC.
- Among all food stamp spells, food stamp users receive no AFDC 31 percent of the time. Short-term food stamp use is not co-terminous with AFDC 55 percent of the time. Short-term food stamp users rarely receive housing assistance, but over one-third of long term food stamp users get such assistance.

- <u>Medicaid Spells:</u>
  - Spell characteristics for medicaid recipients are very similar to those for AFDC. The exceptions are that medicaid recipients are more likely to report family health problems and are less likely to be working.
  - 25 percent of the time spent in short spells of medicaid is in spells that are not co-terminous with AFDC usage, but long medicaid spells experienced by these single mothers include AFDC receipt 90 percent of the time.

- <u>Housing Assistance Spells:</u>
  - Housing assistance spells are less frequent than spells of AFDC or food stamps, and they tend to last longer.
  - Housing assistance recipients are more likely than AFDC or food stamp recipients to be black and to be never-married. They have fewer children on average. A substantial minority do not receive either AFDC or food stamps.

B. Duration Models of Program Spells

In general, findings on the determinants of spell durations are consistent with the literature on AFDC spell durations, although only a few variables appear to have much significance in our AFDC models. Many of the same variables affect durations in other programs, although there is some fairly substantial variation in the size and significance of coefficients across the programs. Estimation of competing risk models of spells of AFDC and food stamps found that exits through marriage and other types of exits are quite differently determined. Being black, being never-married and having more young children all decrease the probability of a marriage-related exit, but have little impact on other exits.

Findings on the determinants of spell duration in specific programs include:

- AFDC Durations:
  - Non-white women, never-married women, those with family health problems, those with more young children, those in states with higher unemployment rates, and those in states with higher AFDC benefits are all likely to stay on AFDC longer, although the coefficients for race, number of children and education are not statistically significant.
  - Marriage-related exits are affected primarily by race (and/or never-married status) and the number of young children. Higher welfare benefits also decrease these exits. Other exits are affected by welfare benefit levels and the presence of other family income.
- Food Stamp Durations:

- Being black and/or never-married decreases the probability of a food stamp exit, as for it does an AFDC exit. Other variables that are significant for food stamp duration but not for AFDC include education and the number and age of children in the family. State welfare maximums and the presence of "other" family income have no measurable effect on food stamp spell durations, although both were significant for at least some AFDC exits.
- As with AFDC spells, the effects of race and past marital status are felt almost exclusively among spells that end in marriage.

- Medicaid Durations:
  - Both the magnitude and the significance of the determinants of medicaid spell duration are very similar to those for AFDC spells.
  - There is a strong negative correlation between the probability of an exit from medicaid and the presence of a continuing AFDC spell, but there appears to be no correlation between medicaid spell length and recipiency of food stamps or medical assistance.

- Housing Assistance Durations:
  - Housing assistance does not appear to be substantially affected by most of the variables in our model. Age, family size, welfare benefit levels, and "other" family income are all negligible in their effects.
  - Non-white and never-married women are more likely to receive housing assistance. Women with more education are more likely to end a spell of housing assistance.
  - There is little correlation between housing assistance spells and AFDC usage. Food stamp usage is strongly negatively correlated

with the probability that a housing assistance spell will end, however.

C. Returns to Program Usage After an Exit

Most returns to assistance programs after an exit appear to occur quickly. After the first two or three quarters off of a program, the probability of a return seems to decline significantly. Those who return to AFDC and food stamps differ little, in terms of personal characteristics, from those who do not return.

Specific findings include:

- Overall, 20 percent of all post-AFDC spells end with a return to AFDC. Virtually all of these returns occur within nine months. Although we have a relatively short observation period, our data do not support the idea that long-term recidivism is likely.
- The overall recidivism rate for food stamps is also 20 percent, although the timing of returns is a bit more scattered than for AFDC. There is little evidence of recidivism more than one year after leaving the Food Stamp Program, however.
- Black women are at higher risk of recidivism in both AFDC and food stamp post-program spells, as are women in states with higher AFDC benefits. Women with larger families are less likely to return to AFDC.

D. Overlapping Program Use

As spells of program use progress, there is typically an increasing likelihood of participating in other assistance programs, especially during

the first year of a spell. A surprising number of longer-term recipients do not participate in two or more programs, however. Long term recipients are more likely, overall, to have overlapping participation, but rates of overlap are higher for these recipients from the beginning of their spells and do not rise significantly over time. In general, more disadvantaged recipients are also more likely to participate in more than one program.

Among women who ultimately return to an assistance program after an exit, there are much higher rates of multiple program usage at the point of exit, and participation in other programs does not decline rapidly. This is consistent with the findings on post-program spells reported above.

Program-specific findings on overlapping participation include:

- As an AFDC spell progresses, women are more likely to take up food stamps over the first year of the spell, although even among long-term AFDC recipients 15 to 20 percent do not take up food stamps. Housing assistance take up does not appear to increase with time on AFDC, however.
- As time on food stamps increases, the probability of AFDC and medicaid usage also increases, as does the probability of receiving housing assistance. The probability of receiving AFDC and housing assistance increases very little after the first 8 months of food stamp recipiency, however, although medicaid usage continues to rise. Long-term food stamp users are much more likely to use many programs, and multiple program users are much more likely to be more disadvantaged and to be in longer food stamp spells.
- As spells of medicaid lengthen, the probability of receiving AFDC and food stamps also rises from about 50 percent in the first month

to about 85 percent for AFDC and 75 percent for food stamps after one year. The probability of receiving housing assistance stays fairly constant over time for medicaid recipients, at about 20 percent.

- About 41 percent of housing assistance recipients receive AFDC in the first month of their spell, and about 42 percent receive food stamps. After 8 months about 50 percent receive AFDC and about 60 percent receive food stamps, with little further increase as housing assistance spells continue. In general, housing assistance recipients appear to be somewhat differently selected than are other program users.

In addition to overlapping participation, this section also considered concurrence in program openings and closings. Surprisingly few openings and closings actually occur simultaneously, even where there is substantial overlap in program participation.

- Only a minority of AFDC and food stamp spells--overall, about one-third--open or close concurrently.
- Even medicaid and AFDC spells, which are closely linked in terms of eligibility, do not open and close together in more than half the cases.
- There is almost no relationship between housing assistance openings and closings and openings and closings in other programs.

E. Spells of Eligibility and Participation for AFDC and Food Stamps

This section estimated the incidence and onset of eligibility for the AFDC and Food Stamp Programs, and compared the onset of recipiency with the

onset of eligibility. Overall, we estimated participation rates in AFDC of 60 to 72 percent, depending on the eligibility estimate used. Food stamp participation rates were somewhat lower, ranging from 56 percent of eligibles to 65 percent. Although, as these figures indicate, the majority of those eligible for either of the two programs at any point in time do participate in them, most women who ever become eligible do not choose to participate. (In many cases, of course, these spells of eligibility are very short.) Details of the major findings include:

- Women who were eligible for but did not participate in these programs tended to be older, were more likely to be white, and had fewer children and more education. They were much more likely to be working, and were much less likely to participate in other programs.
- Only 31 percent of those women who experience a spell of AFDC eligibility ever take up AFDC. Of those who do, 76 percent start participating in the program immediately when eligibility begins.
- Only 23 percent of the single mothers ever eligible for food stamps take up the benefits. Of those who do, 74 percent begin participating in the first month of eligibility.
- Six months after onset of eligibility, virtually all of those who will ever participate in either program are doing so.
- Among women who do not take up participation at eligibility, those who are disabled, who have more young children, and who live in states with higher welfare benefits and unemployment rates are more likely to become program participants at a later date.
- A substantial proportion of those leaving assistance programs remain eligible to participate, but apparently choose not to do so. For

AFDC, 48 percent of those leaving the program are still eligible for it at the time of exit, and eligibility declines to around 30 percent after 12 months. The Food Stamp Program results are even more striking--57 percent of exiters are still eligible at the time of exit, and 45 to 50 percent are still eligible 12 months later.

F. Major Conclusions

Overall, this study has important and surprising implications in a number of areas. Our work generally confirms previous SIPP-based estimates of the duration of AFDC and food stamp spells, and indicates that spells of housing assistance are both less likely to occur and more likely to endure than other program spells. For AFDC, food stamps, and medicaid, more disadvantaged recipients are generally likely to stay on the program longer, and both higher state benefit levels and higher unemployment rates tend to be associated with longer spell lengths. Race, never-married status, and the number of young children particularly affects the probability of leaving AFDC or food stamps by marriage. Although more disadvantaged women are also more likely to be housing assistance recipients, the duration of housing assistance is not highly correlated with most of our observed variables or with AFDC recipiency.

Among those who do leave assistance programs, about 20 percent are observed to return, and most returns to the program occur fairly quickly. After nine months off AFDC and/or a year off food stamps the probability of return seems to decline substantially. Those who do return differ little, in terms of personal characteristics, from those who do not, but recidivists do have much higher rates of on-going participation in other assistance programs.

Although eligibility rules for many of these programs overlap, the decision to participate appears to be made fairly independently across programs. Only a minority of assistance spells open and/or close concurrently, even among highly linked programs. The probability of participating in an additional program does rise over the first year of a spell, but remains fairly level thereafter. Long-term recipients are more likely to participate in several programs, but they typically do so from the onset of participation--their probability of participating in additional programs does not appear to increase significantly over time. More severely disadvantaged women are also the most likely to participate in more than one program.

Overall, we estimate that 60 to 70 percent of those eligible for AFDC at a given point in time will be participating in the program, and that 56 to 65 percent of food stamp eligibles participate at a given point in time. Many more people experience a spell of eligibility, however, and overall fewer than one-third of those who become eligible ever take up benefits. Of those who do choose to participate in either AFDC or food stamps, about three fourths decide to do so in the first month in which they are eligible, and virtually all of those who will ever participate are doing so within six months of becoming eligible.

Less disadvantaged women--those who were older and had fewer children and more education--are the most likely to choose not to participate even when they are eligible. Eligible non-participants are also much more likely to be working and much less likely to participate in other assistance programs. Even among those who do not take up benefits immediately, eventual participation is more likely among those who are more disadvantaged--the

disabled and those with young children--and those who live in states with high benefits and high unemployment rates.

Surprisingly, about half of those exiting from AFDC or food stamps appear to remain eligible for the program at the time of exit. AFDC eligibility declines to about 30 percent a year after exit, but food stamp eligibility remains high. These findings are yet another indication that participation decisions may be much more complex than we have generally believed. At the same time, our findings tend to confirm the hypothesis that most of the adjustments to changes in eligibility and participation that will occur are likely to occur near the beginning of a program (or post-program) spell.

As the first study to investigate a number of these issues, we realize that in many cases we have opened up more questions than we have answered. Further research on the determinants, duration and timing of multiple public assistance recipency is seriously needed.

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Table 1

HEALTH MEASURES FROM THE SIPP

Data for Single Mothers and Their Families

From the core SIPP questionnaire			
1.	Percent of Single Mothers with Work Disability		15.6
From the special topical module[1]			
2.	Percent with Disabled Child (physical or emotional disability)		7.0
3.	Self-Reported Health Condition		
	a) Percent "Excellent" or "Very Good"		50.8
	b) Percent "Good" or "Fair"		44.9
	c) Percent "Poor"		4.3
4.	Percent with Significant Medical Usage in Past Year		30.2
5.	Percent Needing Physical Assistance		6.9
6.	a) Percent Giving Care to Another Adult		9.5
	Of those giving care:		
	b) # of Days Giving Care	1-5	62.9
	c)	6-10	18.3
	d)	11-20	10.0
	e)	21-31	8.8
7.	Percent with Health Problems: Those who respond yes to either row 1, 2, 4 or 6		
	a) Among those included in topical module		52.4
	b) Among entire sample		38.8

See text for more complete definitions of these variables.

[1] 74 percent of all persons in our sample have this data available. Rows 2 through 7a reported only for this subset of the data.

Table 2

AFDC SPELLS IN THE 1986 AND 1987 SIPP

	Left Censored Spells	Non-Left Censored Spells		
		Total	Right Censored	Non-Right Censored
Total Spells = 1224				
Number	758	466	275	191
Percent of total	61.9	38.1	22.5	15.6
Mean length (months)	15.7	8.1	9.9	5.6
Percent lasting entire SIPP panel[1]	22.1	--	--	--
First Spells = 1073				
Number	720	353	205	148
Percent of total	67.1	32.9	19.1	13.8
Mean length (months)	16.0	8.4	10.2	5.8
Second & Higher Spells = 151[2]				
Number	38	113	70	43
Percent of total	25.2	74.8	46.4	28.5
Mean length (months)	10.3	7.4	9.1	4.7
Spell Distribution				
1-4 months	21.2	45.5	37.5	57.1
5-8 months	17.4	20.0	17.5	23.6
9-12 months	9.2	12.0	12.0	12.0
13-16 months	7.4	7.5	12.0	1.0
17-20 months	6.5	8.6	11.3	4.7
21-24 months	7.9	4.5	6.6	1.6
25-28 months	30.3	1.9	3.3	0.0

Kaplan-Meier Estimated Survival Rate for Non-Left Censored First Observed Spells	
1-4 months	.752
5-8 months	.614
9-12 months	.492
13-16 months	.345
17-20 months	.194
21-24 months	.066

Median Survival Time = 12 months

Includes all AFDC spells among single women with children age 18 or younger.

[1] Includes all spells that are both right and left censored that last the entire SIPP panel (24 months or 28 months, depending on rotation group.)

[2] Includes 137 second spells, 12 third spells, and 2 fourth spells.

Table 3

RECIPIENT CHARACTERISTICS IN AFDC SPELLS

	All Spells	Spells ≤ 6 Months[1]	Spells > 12 Months[2]	Long-term Spells[3]
Race (1=nonwhite)	42.2	30.9	45.0	54.4
Age	29.9	29.4	30.5	30.5
Never married	45.2	37.5	48.4	54.4
# Children Under 6	0.89	0.83	0.90	0.92
# Children Under 19	1.95	1.69	2.15	2.33
Percent w/ Health Problems[4]	34.0	34.6	36.4	35.1
Percent Working	16.1	33.4	10.5	7.3
Years of Education	10.7	11.1	10.7	10.6
Percent w/ Food Stamps	78.0	71.9	83.5	85.7
Percent w/ Housing Assistance	24.1	16.4	31.7	37.8
Mean Spell Length	12.8	3.2	23.2	27.4
Number of Persons	1224	136	500	259

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[1] Includes all non-left and non-right censored spells of six months or less.

[2] Includes all non-left censored spells of longer than 12 months.

[3] Includes all spells lasting entire SIPP wave, that are both left and right censored.

[4] See table 1 for definition.

Table 4

FOOD STAMP SPELLS IN THE 1986 AND 1987 SIPP

	Left Censored Spells	Non-Left Censored Spells		
		Total	Right Censored	Non-Right Censored
Total Spells = 1340				
Number	797	543	294	249
Percent of total	59.5	40.5	21.9	18.6
Mean length (months)	15.7	7.8	9.8	5.5
Percent lasting entire SIPP panel[1]	21.9	--	--	--
First Spells = 1175				
Number	754	421	217	204
Percent of total	64.2	35.8	18.5	17.4
Mean length (months)	16.0	7.9	10.1	5.6
Second & Higher Spells = 165[2]				
Number	43	122	77	45
Percent of total	26.1	73.9	46.7	27.3
Mean length (months)	9.6	7.5	9.0	4.8
Spell Distribution				
1-4 months	23.3	47.9	39.1	58.2
5-8 months	16.7	18.0	14.3	22.5
9-12 months	7.3	12.3	14.3	10.0
13-16 months	7.4	9.2	13.6	4.0
17-20 months	6.3	6.8	9.5	3.6
21-24 months	8.3	4.2	6.5	1.6
25-28 months	30.7	1.5	2.7	0.0

Kaplan-Meier Estimated Survival Rate for Non-Left Censored First Observed Spells	
1-4 months	.758
5-8 months	.646
9-12 months	.501
13-16 months	.349
17-20 months	.205
21-24 months	.069

Median Survival Time = 13 months

Includes all food stamp spells among single women with children age 18 or younger.

[1] Includes all spells that are both right and left censored that last the entire SIPP panel (24 months or 28 months, depending on rotation group.)

[2] Includes 152 second spells, and 13 third spells.

Table 5

RECIPIENT CHARACTERISTICS IN FOOD STAMP SPELLS

	All Spells	Spells ≤ 6 Months[1]	Spells > 12 Months[2]	Long-term Spells[3]
Race (1=nonwhite)	41.3	32.6	45.5	50.9
Age	31.6	30.9	32.1	32.3
Never married	36.7	30.3	40.5	47.0
# Children Under 6	.80	.66	.83	.82
# Children Under 19	2.01	1.63	2.29	2.47
Percent w/ Health Problems[4]	36.0	32.0	39.4	39.6
Percent Working	24.9	38.7	19.5	14.1
Years of Education	10.7	11.3	10.7	10.6
Percent w/ AFDC	69.0	44.8	78.3	82.1
Percent w/ Housing Assistance	25.6	16.8	34.2	38.3
Mean Spell Length	12.5	3.1	23.2	27.4
Number of Persons	1340	178	538	283

[1] Includes all non-left and non-right censored spells of six months or less.

[2] Includes all non-left censored spells of longer than 12 months.

[3] Includes all spells lasting entire SIPP wave, that are both left and right censored.

[4] See table 1 for definition.

Table 6

MEDICAID SPELLS IN THE 1986 AND 1987 SIPP

	Left Censored Spells	Non-Left Censored Spells		
		Total	Right Censored	Non-Right Censored
Total Spells = 1445				
Number	897	548	313	235
Percent of total	62.1	37.9	21.7	16.3
Mean length (months)	16.2	7.9	9.4	5.7
Percent lasting entire SIPP panel[1]	24.1	--	--	--
First Spells = 1272				
Number	851	421	230	191
Percent of total	66.9	33.1	18.1	15.1
Mean length (months)	16.6	8.1	10.0	5.9
Second & Higher Spells = 173[2]				
Number	46	127	83	44
Percent of total	26.9	73.4	48.0	25.4
Mean length (months)	9.9	7.0	8.0	5.2
Spell Distribution				
1-4 months	21.3	47.1	41.2	54.9
5-8 months	15.8	19.7	15.3	25.5
9-12 months	8.9	13.1	14.1	11.9
13-16 months	7.7	7.1	9.9	3.4
17-20 months	5.0	7.7	11.2	3.0
21-24 months	8.6	4.4	6.7	1.3
25-28 months	32.7	0.9	1.6	0.0

Kaplan-Meier Estimated Survival Rate for Non-Left Censored First Observed Spells	
1-4 months	.765
5-8 months	.640
9-12 months	.475
13-16 months	.352
17-20 months	.175
21-24 months	.039

Median Survival Time = 12 months

Includes all Medicaid spells among single women with children age 18 or younger.

[1] Includes all spells that are both right and left censored that last the entire SIPP panel (24 months or 28 months, depending on rotation group.)

[2] Includes 156 second spells, 15 third spells, and 2 fourth spells.

Table 7

RECIPIENT CHARACTERISTICS IN MEDICAID SPELLS

	All Spells	Spells ≤ 6 Months[1]	Spells > 12 Months[2]	Long-term Spells[3]
Race (1=nonwhite)	42.1	38.9	45.3	52.4
Age	30.6	31.2	30.9	31.5
Never married	43.5	36.4	46.6	50.3
# Children Under 6	.84	.75	.85	.84
# Children Under 19	1.92	1.67	2.11	2.25
Percent w/ Health Problems[4]	35.8	34.6	39.2	38.0
Percent Working	19.8	29.8	14.2	10.5
Years of Education	10.6	11.0	10.7	10.6
Percent w/ AFDC	75.1	46.6	87.6	90.4
Percent w/ Food Stamps	68.9	50.8	80.0	83.8
Mean Spell Length	13.1	3.3	23.5	27.4
Number of Persons	1445	162	594	332

[1] Includes all non-left and non-right censored spells of six months or less.

[2] Includes all non-left censored spells of longer than 12 months.

[3] Includes all spells lasting entire SIPP wave, that are both left and right censored.

[4] See table 1 for definition.

Table 8

HOUSING ASSISTANCE SPELLS IN THE 1986 AND 1987 SIPP

	Left Censored Spells	Non-Left Censored Spells		
		Total	Right Censored	Non-Right Censored
Total Spells = 599				
Number	392	207	128	79
Percent of total	65.4	34.6	21.4	13.2
Mean length (months)	17.4	8.0	9.1	6.1
Percent lasting entire SIPP panel[1]	26.3	--	--	--
First Spells = 565				
Number	379	186	111	75
Percent of total	67.1	32.9	19.6	13.3
Mean length (months)	17.7	7.9	9.0	6.2
Second & Higher Spells = 34[2]				
Number	13	21	17	4
Percent of total	38.2	61.8	50.0	11.8
Mean length (months)	9.9	8.8	9.7	4.7
Spell Distribution				
1-4 months	14.8	38.6	32.0	49.4
5-8 months	13.8	28.0	27.3	29.1
9-12 months	11.0	12.6	14.8	8.9
13-16 months	8.4	12.1	14.1	8.9
17-20 months	7.6	6.3	7.8	3.8
21-24 months	10.7	2.4	3.9	0.0
25-28 months	33.7	0.0	0.0	0.0

Kaplan-Meier Estimated Survival Rate for Non-Left Censored First Observed Spells	
1-4 months	.784
5-8 months	.543
9-12 months	.392
13-16 months	.230
17-20 months	.101
21-24 months	.000

Median Survival Time = 11 months

Includes all housing assistance spells among single women with children age 18 or younger.

[1] Includes all spells that are both right and left censored that last the entire SIPP panel (24 months or 28 months, depending on rotation group.)

[2] Includes 34 second spells.

Table 9

RECIPIENT CHARACTERISTICS IN HOUSING ASSISTANCE SPELLS

	All Spells	Spells ≤ 6 Months[1]	Spells > 12 Months[2]	Long-term Spells[3]
Race (1=nonwhite)	52.2	29.1	58.2	63.5
Age	31.5	32.5	31.6	32.0
Never married	41.4	25.4	45.4	49.4
# Children Under 6	.71	.68	.69	.70
# Children Under 19	1.90	1.76	2.03	2.16
Percent w/ Health Problems[4]	33.2	25.4	37.9	38.5
Percent Working	36.0	45.9	33.5	34.7
Years of Education	10.9	11.4	10.8	10.9
Percent w/ AFDC	49.3	35.9	56.5	60.8
Percent w/ Food Stamps	56.1	39.1	66.1	68.9
Mean spell length	14.2	3.7	23.2	27.2
Number of persons	599	55	280	156

[1] Includes all non-left and non-right censored spells of six months or less.

[2] Includes all non-left censored spells of longer than 12 months.

[3] Includes all spells lasting entire SIPP wave, that are both left and right censored.

[4] See table 1 for definition.

Table 10

DURATION MODELS OF AFDC SPELLS

	Col 1	Col 2	Col 3	Competing Risk Model: Other Spell Endings	Competing Risk Model: Spells Ending w/ Marriage
Race (1=nonwhite)	-.175	-.265*	-.156	-.109	-.711
	(.189)	(.180)	(.190)	(.204)	(.760)
Age (yrs)	-.010	-.003	-.011	.002	-.101*
	(.011)	(.009)	(.011)	(.011)	(.053)
Never Married? (1=yes)	-.286*	--	-.258*	-.011	-1.958**
	(.193)		(.194)	(.215)	(.709)
Education (yrs)	.031	.036	.031	.046	-.039
	(.034)	(.034)	(.034)	(.038)	(.117)
Health Problems?[1] (1=yes)	-.050	-.015	-.074	-.045	-.114
	(.179)	(.177)	(.181)	(.198)	(.469)
Number of children < age 6	-.020	-.014	-.025	.036	-.599*
	(.122)	(.123)	(.122)	(.139)	(.369)
Number of children < age 19	.017	.047	.008	.027	.108
	(.095)	(.095)	(.095)	(.102)	(.354)
State monthly unemploymt rate	-.002	-.002	-.002	.001	-.018
	(.005)	(.005)	(.005)	(.006)	(.015)
State maximum welfare benefit	-.169**	-.177**	-.172**	-.164**	-.213*
	(.053)	(.053)	(.053)	(.060)	(.143)
"Other" family income[2]	.024**	.025**	.027**	.028**	-.166
	(.009)	(.010)	(.009)	(.009)	(.223)
Receive Food Stamps? (1=yes)	--	--	.250*	--	--
			(.186)		
Receive Hsg Assist? (1=yes)	--	--	-.224	--	--
			(.220)		
Number of four-month time parameters	6	6	6	6	6
Number of observatns	466	466	466	466	
Likelihood value	-730	-732	-729	-795	

[1] See table 1 for definition.

[2] Income of mother's family or subfamily, minus AFDC and earnings.

* Significant at the 10% level; ** Significant at the 1% level.

Table 11

DURATION MODELS OF FOOD STAMP SPELLS

	Col 1	Col 2	Competing Risk Model: Other Spell Endings	Competing Risk Model: Spells Ending w/ Marriage
Race (1=nonwhite)	-.261* (.154)	-.192 (.156)	-.129 (.166)	-1.308* (.717)
Age (yrs)	.00004 (.009)	-.005 (.009)	.011 (.010)	-.087* (.045)
Never Married? (1=yes)	-.206 (.172)	-.177 (.174)	.008 (.189)	-1.339* (.626)
Education (yrs)	.058* (.028)	.057* (.029)	.071* (.031)	.004 (.116)
Health Problems?[1] (1=yes)	-.125 (.149)	-.045 (.151)	-.153 (.162)	.106 (.429)
Number of children < age 6	-.192* (.111)	-.139 (.114)	-.240* (.121)	-.153 (.314)
Number of children < age 19	-.184* (.098)	-.257** (.102)	-.180* (.107)	-.081 (.326)
State monthly unemploymt rate	.003 (.005)	.003 (.005)	.003 (.005)	.008 (.014)
State maximum welfare benefit	-.029 (.046)	.040 (.049)	-.001 (.051)	-.188* (.127)
"Other" family income[2]	.018 (.018)	.015 (.020)	.020 (.018)	-.015 (.081)
Receive AFDC? (1=yes)	--	-.586** (.158)	--	--
Receive Hsg Assist? (1=yes)	--	-.427* (.184)	--	--
Number of four-month time parameters	6	6	6	6
Number of observatns	543	543	543	
Likelihood value	-921	-909	1005	

[1] See table 1 for definition.

[2] Income of mother's family or subfamily, minus AFDC and earnings.

* Significant at the 10% level; ** Significant at the 1% level.

Table 12

DURATION MODELS OF HOUSING ASSISTANCE AND MEDICAID SPELLS

	Housing Assistance		Medicaid	
	Col 1	Col 2	Col 3	Col 4
Race (1=nonwhite)	-.682**	-.712**	-.065	-.097
	(.285)	(.288)	(.160)	(.163)
Age (yrs)	.009	.007	.002	.0002
	(.019)	(.019)	(.008)	(.009)
Never Married? (1=yes)	-.525*	-.523*	-.244*	-.225
	(.320)	(.340)	(.178)	(.181)
Education (yrs)	.089*	.072	.034	.042*
	(.059)	(.063)	(.030)	(.031)
Health problems?[1] (1=yes)	-.279	-.136	-.052	-.037
	(.315)	(.329)	(.158)	(.158)
Number of children < age 6	.180	.233	-.067	.028
	(.194)	(.213)	(.118)	(.122)
Number of children < age 19	.007	.061	-.106*	-.107*
	(.160)	(.017)	(.078)	(.080)
State monthly unemploymt rate	-.002	-.005	.002	.002
	(.009)	(.009)	(.005)	(.004)
State maximum welfare benefit	-.063	-.063	-.095*	-.081*
	(.088)	(.091)	(.047)	(.050)
"Other" family income[2]	.019	.006	.022**	.020**
	(.041)	(.042)	(.006)	(.006)
Receive AFDC? (1=yes)	--	.034	--	-.861**
		(.422)		(.141)
Receive Food Stamps? (1=yes)	--	-.613*	--	.032
		(.382)		(.147)
Number of four-month time parameters	5	5	5	5
Number of observatns	207	207	548	548
Likelihood value	-307	-305	-890	-870

[1] See table 1 for definition.

[2] Income of mother's family or subfamily, minus AFDC and earnings.

* Significant at the 10% level; ** Significant at the 1% level.

Table 13

AFDC AND FOOD STAMP POST-PROGRAM SPELL DATA

A. AFDC POST-PROGRAM SPELLS
(All spells are non-left-censored since they follow an observed spell of AFDC receipt)

	Total Spells	Right Censored Spells	Non-Right Censored Spells
Number	473	238	235
Percent of total	100.0	50.3	49.7
Mean length (months)	9.1	10.8	6.5

B. FOOD STAMP POST-PROGRAM SPELLS
(All spells are non-left-censored since they follow an observed spell of food stamp receipt)

	Total Spells	Right Censored Spells	Non-Right Censored Spells
Number	549	284	265
Percent of total	100.0	51.7	48.3
Mean length (months)	8.8	10.3	6.3

Table 14

RECIDIVISM AND OTHER SPELL ENDINGS IN AN AFDC POST-PROGRAM SPELLS

Months after AFDC spell ends	Number of post-progrm spells	Percent returning to AFDC	Percent Married	Percent w/o elig children	Percent right censored
1	473	0.0	11.6	7.0	0.0
2	385	2.6	0.8	0.8	4.9
3	350	3.1	0.6	1.4	4.0
4	318	6.0	1.2	0.9	4.1
5	279	8.6	1.8	0.4	16.1
6	204	3.4	0.5	0.0	2.4
7	191	3.1	0.5	0.5	3.1
8	177	4.5	1.1	0.6	4.5
9	158	3.2	0.6	0.6	15.8
10	126	0.0	0.0	0.0	1.6
11	124	0.8	1.6	1.6	1.6
12	117	0.8	0.8	1.7	3.4
13	109	2.7	0.0	1.8	22.9
14	79	0.0	0.0	2.5	1.3
15	76	0.0	1.3	0.0	5.3
16	71	0.0	0.0	1.4	5.6
17	66	3.0	0.0	3.0	13.6
18	53	0.0	0.0	0.0	5.7
19	50	0.0	0.0	2.0	10.0
20	44	0.0	0.0	0.0	2.3
Avg of all spells	473	20.5	16.5	12.7	50.3
Mean length	9.1	5.5	6.1	8.6	10.9

Table 15

RECIDIVISM AND OTHER SPELL ENDINGS IN FOOD STAMP POST-PROGRAM SPELLS

Months after Fd Stp spell ends	Number of post-progrm spells	Percent returning to FS	Percent Married	Percent w/o elig children	Percent right censored
1	549	0.0	10.7	7.1	0.0
2	451	0.0	1.3	0.4	5.8
3	417	2.2	1.2	1.2	6.0
4	373	8.3	0.8	1.1	3.7
5	321	7.8	1.5	0.9	16.8
6	234	3.0	1.3	0.4	3.0
7	216	2.3	0.9	0.9	5.1
8	196	3.6	1.5	1.0	3.6
9	177	5.1	0.6	0.0	14.1
10	142	2.1	0.7	0.0	2.1
11	135	2.2	1.5	0.7	2.2
12	126	2.4	0.0	1.6	4.8
13	115	0.9	0.9	1.7	22.6
14	85	1.2	1.2	0.0	3.5
15	80	0.0	0.0	0.0	5.0
16	76	0.0	0.0	1.3	3.9
17	72	1.4	1.4	0.0	19.4
18	56	0.0	0.0	1.8	7.1
19	51	2.0	0.0	0.0	2.0
20	49	0.0	0.0	0.0	2.0
Avg of all spells	549	19.5	16.8	12.0	51.7
Mean length	8.8	6.3	5.8	7.2	10.3

Table 16

RECIPIENT CHARACTERISTICS IN AFDC & FOOD STAMP POST-PROGRAM SPELLS

	AFDC EXITS			FOOD STAMP EXITS		
	All Post-Progrm Spells	Recid-ivist Spells	Non-Recid-ivist Spells	All Post-Progrm Spells	Recid-ivist Spells	Non-Recid-ivist Spells
Race (1=nonwhite)	39.2	42.3	38.2	37.2	45.8	34.6
Age	31.0	29.8	31.4	33.0	33.3	32.8
Never married	42.6	46.4	41.3	30.6	29.9	30.8
# Children Under 6	.75	.80	.73	.62	.53	.65
# Children Under 19	1.79	1.74	1.81	1.79	1.83	1.78
Percent w/ Health Problems[1]	33.5	29.9	34.7	35.5	33.6	36.0
Percent Working	62.9	63.0	62.8	60.4	63.8	59.4
Years of Education	11.0	11.4	10.8	10.8	11.1	10.7
Percent w/ AFDC	0.0	0.0	0.0	18.0	23.3	16.4
Percent w/ food stamps	33.1	49.1	27.7	0.0	0.0	0.0
Mean spell length	8.1	4.5	9.3	7.8	5.3	8.6
Number of persons	385	97	288	451	107	344

[1] See table 1 for definition.

Table 17

COMPETING RISK DURATION MODELS OF AFDC AND FOOD STAMP POST-PROGRAM SPELLS

	Post-program spell following an AFDC exit		Post-program spell following a food stamp exit	
	Demo-graphic ending	End w/ return to AFDC	Demo-graphic ending	End w/ return to food stamps
Race (1=nonwhite)	-.443* (.285)	.534* (.301)	-.577* (.371)	.518* (.228)
Age (yrs)	.029* (.017)	-.014 (.021)	.024* (.016)	.006 (.014)
Never Married? (1=yes)	.040 (.290)	-.287 (.334)	.425 (.348)	-.044 (.280)
Education (yrs)	-.029 (.060)	.078 (.078)	-.046 (.056)	.006 (.046)
Health Problems?[1] (1=yes)	-.099 (.325)	.127 (.298)	.091 (.300)	-.102 (.231)
Number of children < age 6	.400* (.272)	.171 (.220)	-.022 (.265)	-.075 (.162)
Number of children < age 19	-.724** (.225)	-.222* (.164)	-.453* (.241)	.067 (.146)
State monthly unemploymt rate	-.009 (.008)	.009 (.010)	.016* (.010)	.006 (.007)
State maximum welfare benefit	-.048 (.095)	.286** (.094)	-.064 (.099)	.100* (.070)
"Other" family income[2]	-.042 (.040)	-.043 (.040)	-.038 (.047)	-.049* (.025)
Number of four-month time parameters	5	3	5	3
Number of observations	385		451	
Likelihood value	-649		-752	

[1] See table 1 for definition.

[2] Income of mother's family or subfamily, minus AFDC and earnings.

* Significant at the 10% level; ** Significant at the 1% level.

Table 18

USE OF OTHER PROGRAMS OVER THE DURATION OF AFDC SPELLS

Month of spell (Includes only non-left censored spells)	Number of on-going AFDC spells	Percent of spells reporting use of		
		Food Stamps	Hsg Assist	Medi-caid
1	466	65.9	18.4	100.0
2	425	68.9	18.3	100.0
3	380	70.0	17.1	100.0
4	338	70.1	17.2	100.0
5	254	73.2	18.9	100.0
6	230	74.3	19.6	100.0
7	210	74.3	20.5	100.0
8	194	73.7	20.6	100.0
9	161	78.9	19.9	100.0
10	152	80.3	20.4	100.0
11	135	78.5	20.0	100.0
12	126	80.2	21.4	100.0
13	105	82.9	20.9	100.0
14	103	81.6	21.4	100.0
15	96	80.2	20.8	100.0
16	88	79.6	21.6	100.0
17	70	75.7	20.0	100.0
18	56	73.2	25.0	100.0
19	49	75.5	22.4	100.0
20	43	74.4	20.9	100.0
Avg of all months	3790 months	73.5	19.5	100.0
Average of all months in long-term spells[1]		85.7	37.8	100.0

[1] All spells that are both left and right censored and last the entire length of the SIPP panel.

Table 19

RECIPIENT CHARACTERISTICS IN AFDC SPELLS

	All Spells	Spells Where All Months Also Include: Food Stamps	FS & Hsg Assist	Spells Where no months include FS or Hsg Assist
Race (1=nonwhite)	42.2	41.3	58.1	44.9
Age	29.9	30.9	30.4	27.5
Never married	45.2	41.0	49.7	60.1
# Children .88 Under 6	0.89	.87	.85	
# Children Under 19	1.95	2.06	2.16	1.57
Percent w/ Health Problems[1]	34.0	37.2	34.5	19.1
Percent Working	16.1	14.3	14.1	24.7
Years of Education	10.7	10.7	11.1	10.9
Percent w/ food stamps	78.0	100.0	100.0	0.0
Percent w/ hsg assistance	24.1	27.3	100.0	0.0
Mean spell length	12.8	13.1	15.3	9.2
Number of persons	1224	857	191	178

[1] See table 1 for definition.

Table 20

USE OF OTHER PROGRAMS OVER THE DURATION OF FOOD STAMP SPELLS

Month of spell (Includes only non-left censored spells)	Number of on-going food stamp spells	Percent of spells reporting use of		
		AFDC	Hsg Assist	Medi-caid
1	543	55.8	19.9	68.7
2	490	60.0	20.0	70.4
3	432	63.4	20.6	73.4
4	386	63.7	21.2	74.6
5	283	67.8	22.6	77.4
6	254	69.7	23.6	79.9
7	233	70.0	24.5	81.1
8	218	71.1	26.1	80.7
9	185	68.6	24.9	78.9
10	166	72.3	23.5	81.9
11	154	73.4	24.7	82.5
12	145	72.4	26.2	82.8
13	118	74.6	27.1	83.0
14	109	75.2	28.4	82.6
15	100	75.0	30.0	83.0
16	89	69.7	31.5	84.3
17	68	69.1	30.9	86.8
18	60	68.3	31.7	86.7
19	56	69.6	30.4	87.5
20	48	68.8	35.4	89.6
Avg of all months	4251 months	66.5	24.1	77.5
Average of all months in long-term spells[1]		82.1	38.2	90.8

[1] All spells that are both left and right censored and last the entire length of the SIPP panel.

Table 21

RECIPIENT CHARACTERISTICS IN FOOD STAMP SPELLS

	All Spells	Spells Where All Months Also Include: AFDC	AFDC & Hsg Asst	Spells Where no months include AFDC or Hsg Assist
Race (1=nonwhite)	41.3	41.4	61.2	38.9
Age	31.6	30.2	29.9	35.1
Never married	36.7	43.5	52.8	21.7
# Children Under 6	0.80	.93	.84	.55
# Children Under 19	2.01	2.05	2.11	1.93
Percent w/ Health Problems[1]	36.0	35.5	36.0	30.0
Percent Working	24.9	11.1	10.5	52.4
Years of Education	10.7	10.6	10.7	10.9
Percent w/ food stamps	69.0	100.0	100.0	0.0
Percent w/ hsg assistance	25.6	27.3	100.0	0.0
Mean spell length	12.5	13.4	15.6	7.3
Number of persons	1340	811	178	267

[1] See table 1 for definition.

Table 22

USE OF OTHER PROGRAMS OVER THE DURATION OF MEDICAID SPELLS

Month of spell (Includes only non-left censored spells)	Number of on-going Medicaid spells	Percent of spells reporting use of		
		AFDC	Food Stamps	Hsg Assist
1	548	55.7	49.6	20.3
2	500	63.8	54.2	19.4
3	451	64.7	55.2	18.2
4	409	65.5	56.7	18.3
5	290	70.7	62.1	20.0
6	264	71.2	61.7	20.8
7	239	69.9	63.2	21.3
8	223	70.4	64.6	21.1
9	182	75.3	70.3	21.4
10	172	75.0	70.3	21.5
11	159	73.0	69.2	20.1
12	148	74.3	68.9	20.3
13	110	84.5	76.4	19.1
14	106	84.0	76.4	17.9
15	94	87.2	75.5	18.1
16	87	86.2	75.9	19.5
17	71	84.5	73.2	26.8
18	59	81.4	69.5	27.1
19	51	76.5	70.6	27.4
20	44	84.1	68.2	27.3
Avg of all months	4307 months	69.6	61.7	20.3
Average of all months in long-term spells[1]		90.4	83.8	35.2

[1] All spells that are both left and right censored and last the entire length of the SIPP panel.

Table 23

USE OF OTHER PROGRAMS OVER THE DURATION OF HOUSING ASSISTANCE SPELLS

Month of spell (Includes only non-left censored spells)	Number of on-going hsg assist spells	Percent of spells reporting use of		
		AFDC	Food Stamps	Medi-caid
1	207	42.0	50.7	54.1
2	196	42.3	49.0	53.6
3	180	40.6	47.8	51.7
4	162	44.4	51.2	53.1
5	127	45.7	54.3	60.6
6	114	44.7	52.6	62.3
7	99	47.5	53.5	63.6
8	87	51.7	56.3	67.8
9	69	50.7	60.9	65.2
10	68	48.5	58.8	66.2
11	63	47.6	57.1	65.1
12	57	50.9	57.9	64.9
13	43	51.2	58.1	69.8
14	35	54.3	57.1	71.4
15	33	54.5	57.6	72.7
16	30	50.0	56.7	70.0
17	18	55.6	55.6	72.2
18	16	62.5	62.5	81.2
19	16	68.7	62.5	87.5
20	15	66.7	66.7	80.0
Avg of all months	1652 months	46.7	53.6	60.6
Average of all months in long-term spells[1]		60.8	68.9	68.0

[1] All spells that are both left and right censored and last the entire length of the SIPP panel.

Table 24

USE OF OTHER PROGRAMS AFTER THE END OF AN AFDC SPELL

A. ALL AFDC POST-PROGRAM SPELLS

Months after spell ends	Number of post-program spells	Percent of spells reporting use of: Food Stamps	Hsg Assist	Medi-caid
1	385	36.1	19.7	46.0
2	350	32.3	20.9	41.4
3	318	30.8	21.4	37.1
4	279	30.8	21.1	33.7
5	204	30.4	21.6	28.9
6	191	29.3	19.9	24.6
7	177	31.6	21.5	24.9
8	158	27.2	19.6	21.5
9	126	27.8	19.8	19.0
10	124	28.2	21.0	19.3
11	117	26.5	17.9	17.9
12	109	30.3	17.4	17.4
13	79	31.6	13.9	16.5
14	76	28.9	13.2	14.5
15	71	31.0	14.1	18.3
16	66	30.3	12.1	16.7
17	53	35.8	9.4	20.7
18	50	34.0	6.0	20.0
19	44	27.3	2.3	20.4
20	43	27.9	2.3	20.9
Avg of all months	3113 months	31.0	18.4	29.2

B. AFDC POST-PROGRAM SPELLS ENDING IN RECIDIVISM ONLY

Months after spell ends	Number of recidivist post-program spells	Percent of spells reporting use of: Food Stamps	Hsg Assist	Medi-caid
1	97	50.5	22.7	63.9
2	87	46.0	24.1	59.8
3	76	44.7	23.7	52.6
4	57	43.9	22.8	49.1
5	33	42.4	27.3	39.4
6	26	42.3	23.1	30.8
7	20	50.0	25.0	45.0
8	12	25.0	16.7	33.3
9	7	28.6	14.3	14.3
10	7	28.6	14.3	14.3
11	6	16.7	0.0	0.0
12	5	20.0	0.0	0.0
Avg of all months	441 months	43.5	22.2	49.4

Table 25

USE OF OTHER PROGRAMS AFTER THE END OF A FOOD STAMP SPELL

A. ALL FOOD STAMP POST-PROGRAM SPELLS

Months after spell ends	Number of post-program spells	Percent of spells reporting use of		
		AFDC	Hsg Assist	Medi-caid
1	451	18.8	19.3	37.5
2	417	18.7	19.4	35.5
3	373	18.2	20.1	33.0
4	321	18.1	19.9	30.8
5	234	12.0	17.9	24.8
6	216	12.5	18.1	22.2
7	196	13.8	17.9	24.0
8	177	13.0	16.9	22.6
9	142	10.6	17.6	19.7
10	135	9.6	17.8	20.0
11	126	10.3	17.5	20.6
12	115	10.4	16.5	20.0
13	85	8.2	11.8	18.8
14	80	7.5	10.0	18.7
15	76	6.6	10.5	18.4
16	72	6.9	12.5	19.4
17	56	7.1	14.3	17.9
18	51	5.9	7.8	15.7
19	49	6.1	8.2	16.3
20	48	6.2	8.3	16.7
Avg of all months	3528 months	14.0	17.4	26.9

B. FOOD STAMP POST-PROGRAM SPELLS ENDING IN RECIDIVISM ONLY

Months after spell ends	Number of recidivist post-program spells	Percent of spells reporting use of		
		AFDC	Hsg Assist	Medi-caid
1	107	25.2	27.1	48.6
2	107	24.3	27.1	47.7
3	98	23.5	28.6	44.9
4	67	22.4	28.4	41.8
5	42	11.9	21.4	26.2
6	35	14.3	22.8	22.9
7	30	20.0	23.3	26.7
8	23	13.0	17.4	17.4
9	14	14.3	7.1	14.3
10	11	0.0	9.1	0.0
11	8			
12	5			
Avg of all months	566 months	19.8	24.0	36.8

Table 26

PROGRAM OPENINGS AND PARTICIPATION IN OTHER PROGRAMS

1. AFDC spell opens in period t

Other program participation:	Food Stamps	Hsg Assist	Medi-caid
a. On in t-1, on in t	35.9	18.1	44.8
b. On in t-1, off in t	1.1	0.3	0.0
c. Off in t-1, on in t	30.6	0.8	55.2
d. Off in t-1, off in t	32.3	80.8	0.0

2. Food stamp spell opens in period t

Other program participation:	AFDC	Hsg Assist	Medi-caid
a. On in t-1, on in t	28.5	18.5	45.2
b. On in t-1, off in t	0.9	0.0	0.4
c. Off in t-1, on in t	25.1	2.3	21.5
d. Off in t-1, off in t	45.4	79.2	32.9

3. Housing assistance spell opens in period t

Other program participation:	AFDC	Food Stamps	Medi-caid
a. On in t-1, on in t	45.2	53.4	52.7
b. On in t-1, off in t	1.4	2.7	0.7
c. Off in t-1, on in t	2.0	6.8	2.7
d. Off in t-1, off in t	51.4	37.0	43.8

4. Medicaid spell opens in period t

Other program participation:	AFDC	Food Stamps	Hsg Assist
a. On in t-1, on in t	0.0	25.3	19.8
b. On in t-1, off in t	0.0	1.6	0.3
c. Off in t-1, on in t	51.7	24.5	1.0
d. Off in t-1, off in t	48.3	48.6	78.9

Table 27

PROGRAM CLOSINGS AND PARTICIPATION IN OTHER PROGRAMS

1. AFDC spell closes in period t

Other program participation:	Food Stamps	Hsg Assist	Medi-caid
a. On in t-1, on in t	35.1	19.2	46.0
b. On in t-1, off in t	42.3	0.8	54.0
c. Off in t-1, on in t	1.0	0.5	0.0
d. Off in t-1, off in t	21.6	79.5	0.0

2. Food stamp spell closes in period t

Other program participation:	AFDC	Hsg Assist	Medi-caid
a. On in t-1, on in t	18.0	18.4	36.1
b. On in t-1, off in t	36.1	1.6	30.6
c. Off in t-1, on in t	0.9	0.9	1.3
d. Off in t-1, off in t	45.0	79.2	31.9

3. Housing assistance spell closes in period t

Other program participation:	AFDC	Food Stamps	Medi-caid
a. On in t-1, on in t	50.0	51.5	56.8
b. On in t-1, off in t	2.3	5.3	0.8
c. Off in t-1, on in t	0.8	0.0	0.8
d. Off in t-1, off in t	47.0	43.2	41.7

4. Medicaid spell closes in period t

Other program participation:	AFDC	Food Stamps	Hsg Assist
a. On in t-1, on in t	0.0	23.3	19.7
b. On in t-1, off in t	53.2	35.3	0.3
c. Off in t-1, on in t	0.0	0.5	0.3
d. Off in t-1, off in t	46.8	40.9	79.8

Table 28

ELIGIBILITY CALCULATIONS

I. AFDC eligibility

	Definition 1	Definition 2	Definition 3
1. Ineligible, no reported receipt	53.5	59.5	61.3
2. Ineligible, reported receipt	3.2	5.3	6.9
3. Eligible, no reported receipt	18.8	12.8	11.0
4. Eligible, reported receipt	24.5	22.4	20.8
5. Eligible &/or receiving (2 + 3 + 4)	46.5	40.5	38.7
6. Estimated take up rate ((2 + 4) ÷ 5)	59.6	68.4	71.6

II. Food Stamp eligibility

	Definition 1	Definition 2	Definition 3
1. Ineligible, no reported receipt	47.2	52.1	54.1
2. Ineligible, reported receipt	2.6	3.6	4.3
3. Eligible, no reported receipt	23.3	18.4	16.3
4. Eligible, reported receipt	26.9	25.9	25.3
5. Eligible &/or receiving (2 + 3 + 4)	52.8	47.9	45.9
6. Estimated take up rate ((2 + 4) ÷ 5)	55.9	61.6	64.5

Definition 1: Eligibility calculated only on the basis of current cash income.

Definition 2: Eligibility calculated based on cash income and aggregate wealth holdings, excluding wealth test on car value.

Definition 3: Eligibility calculated based on cash income and aggregate wealth holding, including wealth test on car value.

Table 29

AFDC ELIGIBILITY SPELLS IN THE 1986 AND 1987 SIPP

	Left Censored Spells	Non-Left Censored Spells		
		Total	Right Censored	Non-Right Censored
Total Spells = 2242				
Number	1171	1071	405	666
Percent of total	52.2	47.8	18.1	29.7
Mean length	14.4	5.0	7.7	3.3
Percent lasting entire SIPP panel[1]	16.3	--	--	--
Spell Distribution				
1-4 months	26.6	67.0	47.9	78.7
5-8 months	17.3	15.9	19.5	13.7
9-12 months	9.4	7.5	11.1	5.3
13-16 months	7.5	4.0	8.2	1.5
17-20 months	5.1	3.6	8.2	0.9
21-24 months	7.6	1.6	4.2	0.0
24-28 months	26.4	0.4	1.0	0.0

Includes all AFDC eligibility spells among single women with children age 18 or younger.

[1] Includes all spells that are both right and left censored that last the entire SIPP panel (24 months or 28 months, depending on rotation group.)

Table 30

FOOD STAMP ELIGIBILITY SPELLS IN THE 1986 AND 1987 SIPP

	Left Censored Spells	Non-Left Censored Spells		
		Total	Right Censored	Non-Right Censored
Total Spells = 2696				
Number	1322	1374	531	843
Percent of total	49.0	51.0	19.7	31.3
Mean length	14.4	5.2	7.8	3.5
Percent lasting entire SIPP panel[1]	15.3	--	--	--
Spell Distribution				
1-4 months	27.8	63.3	44.6	75.1
5-8 months	16.9	18.6	21.7	16.7
9-12 months	8.4	7.4	10.9	5.2
13-16 months	7.5	5.1	10.6	1.7
17-20 months	5.8	3.6	7.5	1.1
21-24 months	6.7	1.9	4.5	0.2
24-28 months	26.9	0.1	0.2	0.0

Includes all food stamp eligibility spells among single women with children age 18 or younger.

[1] Includes all spells that are both right and left censored that last the entire SIPP panel (24 months or 28 months, depending on rotation group.)

Table 31

RECIPIENT CHARACTERISTICS IN AFDC & FOOD STAMP ELIGIBILITY SPELLS

	AFDC ELIG SPELLS			FOOD STAMP ELIG SPELLS		
	All spells	No AFDC receipt in spell	AFDC Receipt in all months	All spells	No Fd Stamp Receipt in spell	Fd Stamp Receipt in all months
Race (1=nonwhite)	39.6	36.2	44.5	37.4	34.0	42.3
Age	30.7	31.5	30.5	32.2	32.9	31.6
Never married	38.1	30.3	45.3	31.7	26.9	39.9
# Children Under 6	.76	.61	.90	.67	.54	.82
# Children Under 19	1.84	1.71	1.99	1.85	1.70	2.04
Percent w/ Health Problems[1]	36.9	36.5	37.2	36.8	36.2	36.9
Percent Working	37.9	61.1	12.5	43.5	60.2	20.6
Years of Education	10.9	11.2	10.6	10.9	11.1	10.6
Percent w/ AFDC	47.7	0.0	100.0	35.8	8.2	74.8
Percent w/ food stamps	45.9	14.5	78.2	41.8	0.0	100.0
Percent w/ hsg assistance	20.4	16.0	25.1	19.3	13.7	26.2
Mean spell length	9.9	4.6	14.3	9.7	5.0	14.5
Number of persons	2242	1062	869	2696	1407	872

[1] See table 1 for definition.

Table 32

USE OF PROGRAMS OVER THE DURATION OF AFDC ELIGIBILITY SPELLS

Duration of AFDC eligibility spell (Includes only non-left censored spells)	Number of on-going AFDC eligibility spells w/out AFDC receipt	AFDC receipt begins	Spell is right censored	Spell ends w/out AFDC receipt
1 month	1071	23.6	4.6	20.7
2	547	5.8	4.7	24.5
3	355	4.5	4.5	13.5
4	275	4.4	13.1	17.8
5	178	5.1	4.5	14.0
6	136	2.9	9.6	11.0
7	104	1.0	1.9	13.5
8	87	3.4	16.1	12.6
9	59	3.4	3.4	8.5
10	50	0.0	6.0	10.0
11	42	0.0	7.1	9.5
12	35	0.0	22.8	11.4
13	23	0.0	13.0	4.3
14	19	5.2	15.8	10.5
15	13	0.0	7.7	0.0
Among all spells	1071	31.2	18.3	50.5

Table 33

USE OF PROGRAMS OVER THE DURATION OF FOOD STAMP ELIGIBILITY SPELLS

Duration of FS eligibility spell (Includes only non-left censored spells)	Number of on-going FS eligibility spells w/out FS receipt	Food stamp receipt begins	Spell is right censored	Spell ends w/out FS receipt
1	1374	16.8	3.4	20.4
2	816	3.4	5.5	18.9
3	589	3.1	5.4	11.0
4	474	1.7	12.0	14.8
5	339	2.4	9.1	12.7
6	257	1.2	6.2	10.5
7	211	0.5	2.8	9.5
8	184	1.6	13.0	11.4
9	136	2.9	5.9	6.6
10	115	0.0	7.8	9.6
11	95	3.2	5.3	2.1
12	85	0.0	8.2	14.1
13	66	1.5	13.6	4.5
14	53	1.9	9.4	5.7
15	44	0.0	6.8	6.8
Among all spells	1374	22.6	24.3	53.1

Table 34

COMPETING RISK DURATION MODELS OF AFDC AND FOOD STAMP ELIGIBILITY SPELLS THAT START WITHOUT AFDC RECEIPT IN THE FIRST MONTH

	Spell of AFDC eligibility		Spell of food stamp eligibility	
	Ending in other ways	Ending in AFDC receipt	Ending in other ways	Ending in food stamp receipt
Race (1=nonwhite)	-.052	.048	-.178*	-.047
	(.110)	(.267)	(.093)	(.238)
Age (yrs)	.022**	-.002	.012*	-.016
	(.007)	(.018)	(.005)	(.016)
Never Married? (1=yes)	.015	.003	-.194*	-.176
	(.127)	(.333)	(.116)	(.280)
Education (yrs)	.084**	.006	.021	.045
	(.021)	(.063)	(.017)	(.059)
Disability?[1] (1=yes)	-.101	.973**	-.221*	.717**
	(.137)	(.308)	(.126)	(.279)
Number of children < age 6	-.053	.406*	-.200**	.318*
	(.093)	(.207)	(.081)	(.164)
Number of children < age 19	-.034	.113	-.088*	-.105
	(.065)	(.152)	(.060)	(.154)
State monthly unemploymt rate	-.004	-.010*	-.006*	-.011
	(.003)	(.008)	(.003)	(.700)
State maximum welfare benefit	-.030	-.213*	.021	.093*
	(.037)	(.102)	(.028)	(.072)
"Other" family income[2]	.051	.061	-.033*	-.032
	(.040)	(.011)	(.015)	(.047)
Number of four-month time parameters	5	3	5	3
Number of observations	818		1119	
Likelihood value	-1709		-2370	

[1] Work disability reported.

[2] Income of mother's family or subfamily, minus AFDC and earnings.

* Significant at the 10% level; ** Significant at the 1% level.

Table 35

AFDC POST-PROGRAM SPELLS AND ONGOING ELIGIBILITY

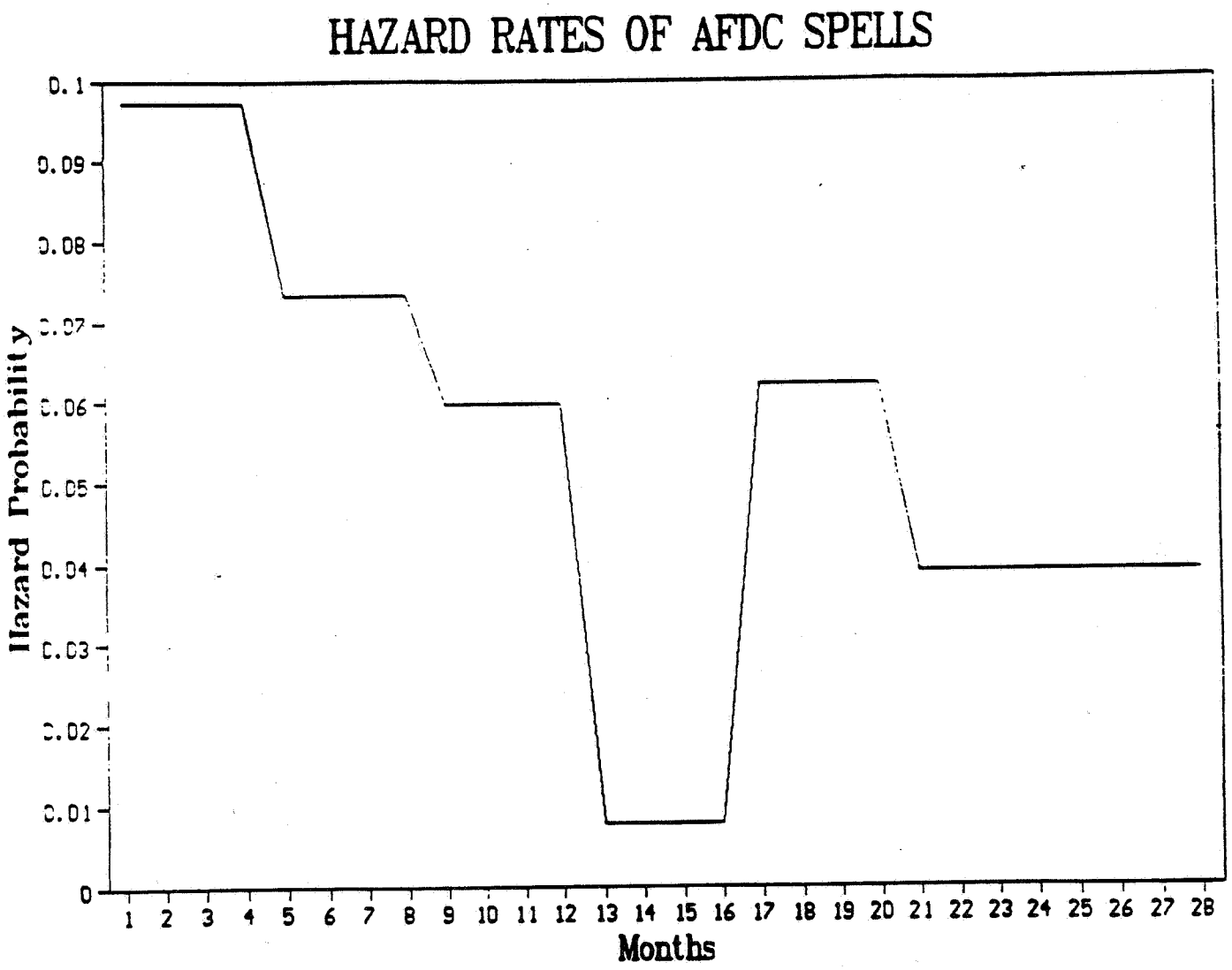
Months after AFDC spell ends	Number of post-program spells	Percent still eligible
1	385	47.5
2	350	44.0
3	318	43.1
4	279	41.6
5	204	37.2
6	191	36.1
7	177	33.9
8	158	32.9
9	126	34.9
10	124	33.9
11	117	39.3
12	109	35.8
13	79	27.8
14	76	26.3
15	71	25.3
16	66	31.8
17	53	28.3
18	50	26.0
19	44	22.7
20	43	23.3
Avg of all months	3113	37.5

Table 36

FOOD STAMP POST-PROGRAM SPELLS AND ONGOING ELIGIBILITY

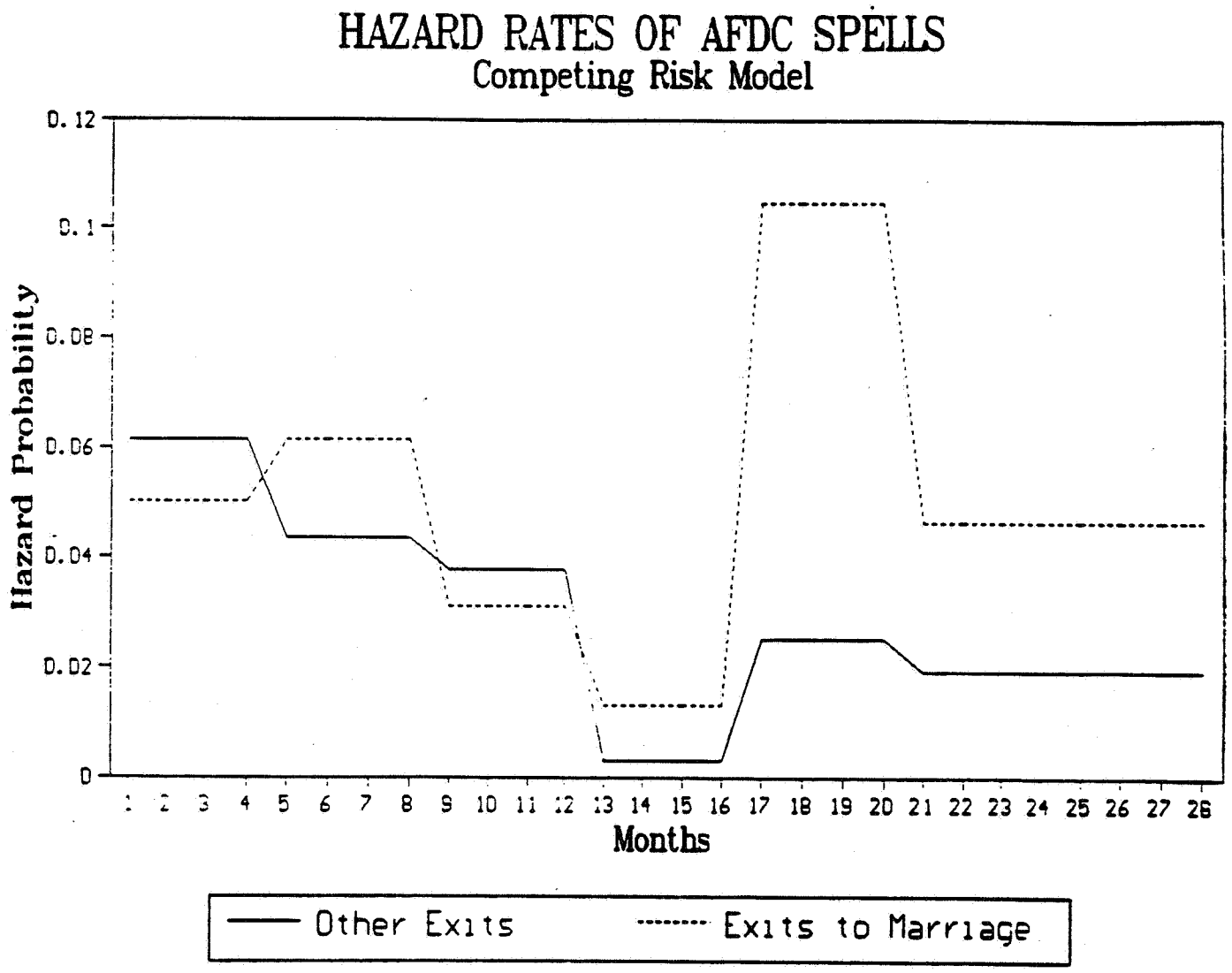
Months after food stamp spell ends	Number of post-program spells	Percent still eligible
1	451	57.4
2	417	54.9
3	373	52.8
4	321	49.5
5	234	46.1
6	216	47.2
7	196	47.4
8	177	45.8
9	142	50.7
10	135	51.8
11	126	53.2
12	115	51.3
13	85	43.5
14	80	37.5
15	76	43.4
16	72	41.7
17	56	30.4
18	51	31.4
19	49	26.5
20	48	29.2
Avg of all months	3528	48.4

Figure 1



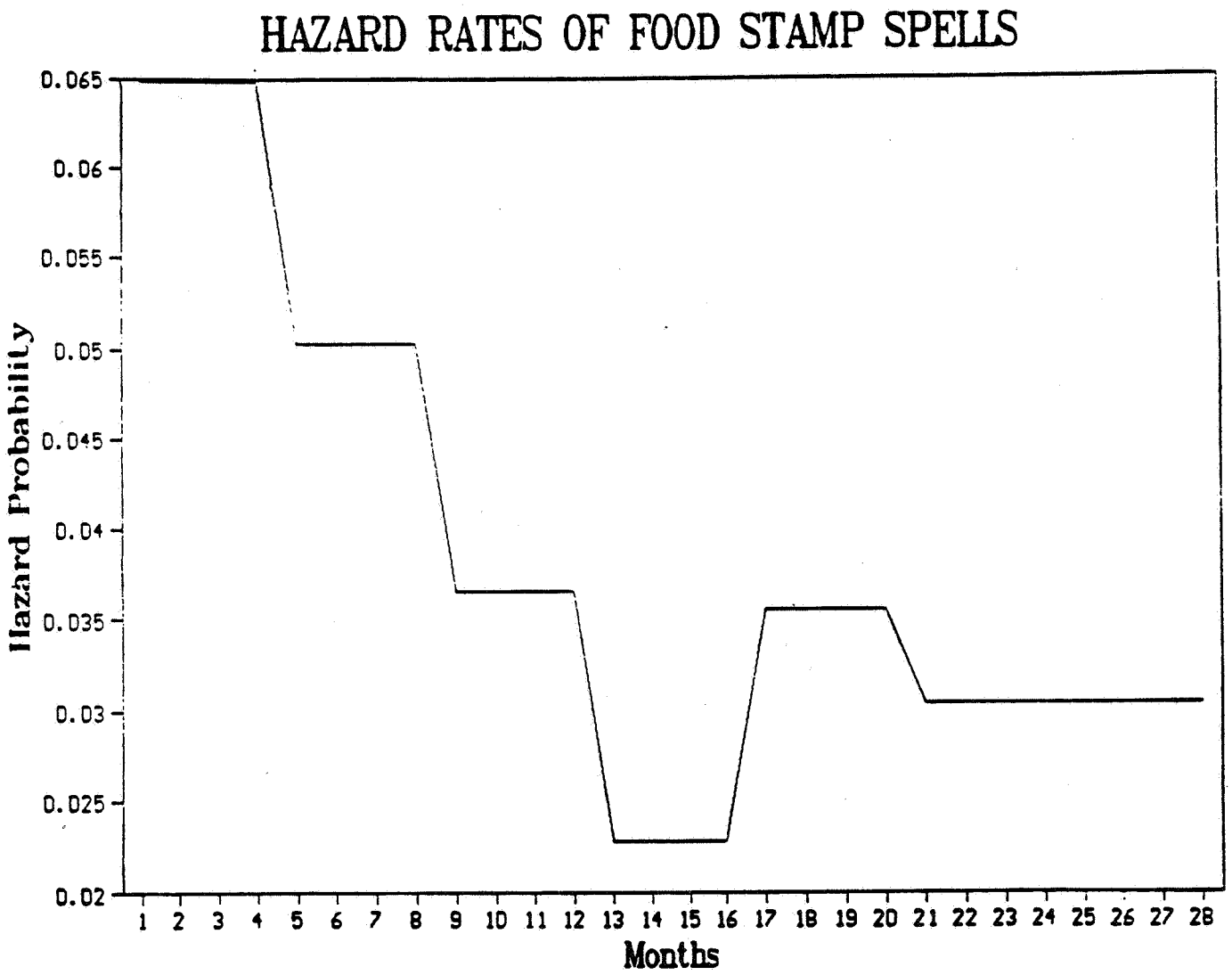
Hazard rates are estimated for a divorced white women with two children, one under age 6, with 11 years of school and $100 in "other" family income. Her state pays a maximum of $350 in AFDC benefits and has an unemployment rate of 6.5 percent.

Figure 2



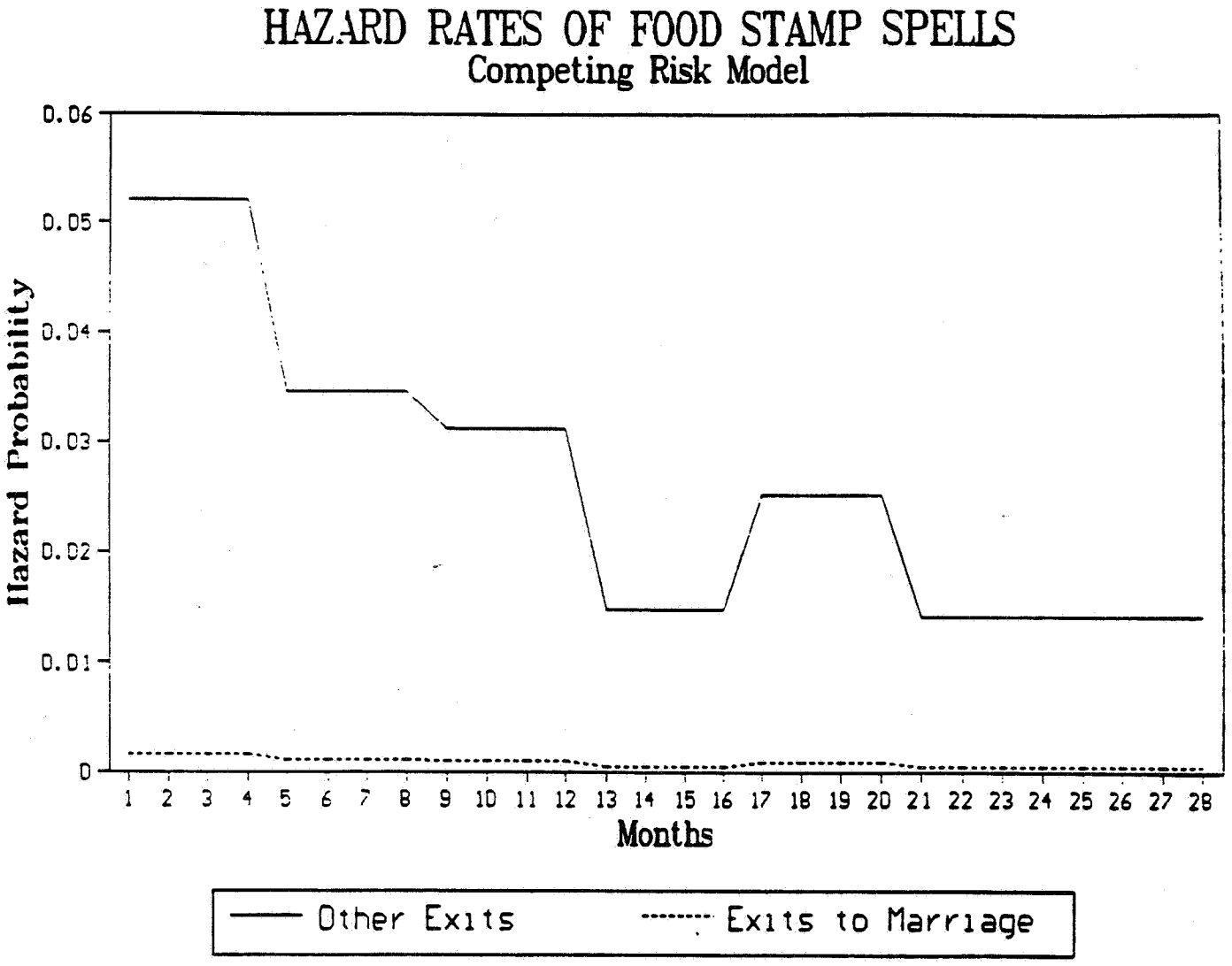
See figure 1 for the characteristics of the individual whose hazard rates are estimated here.

Figure 3



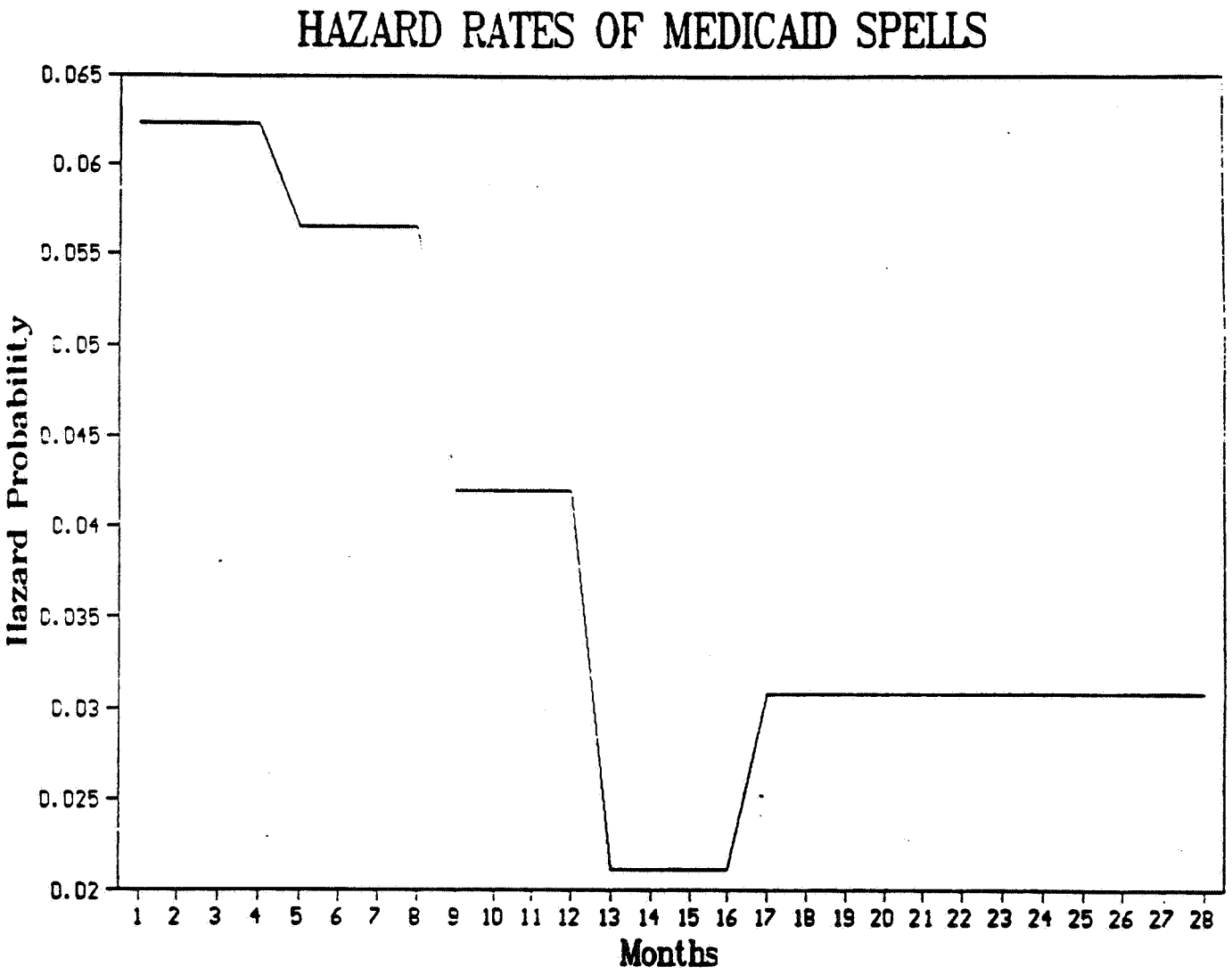
See figure 1 for the characteristics of the individual whose hazard rates are estimated here.

Figure 4



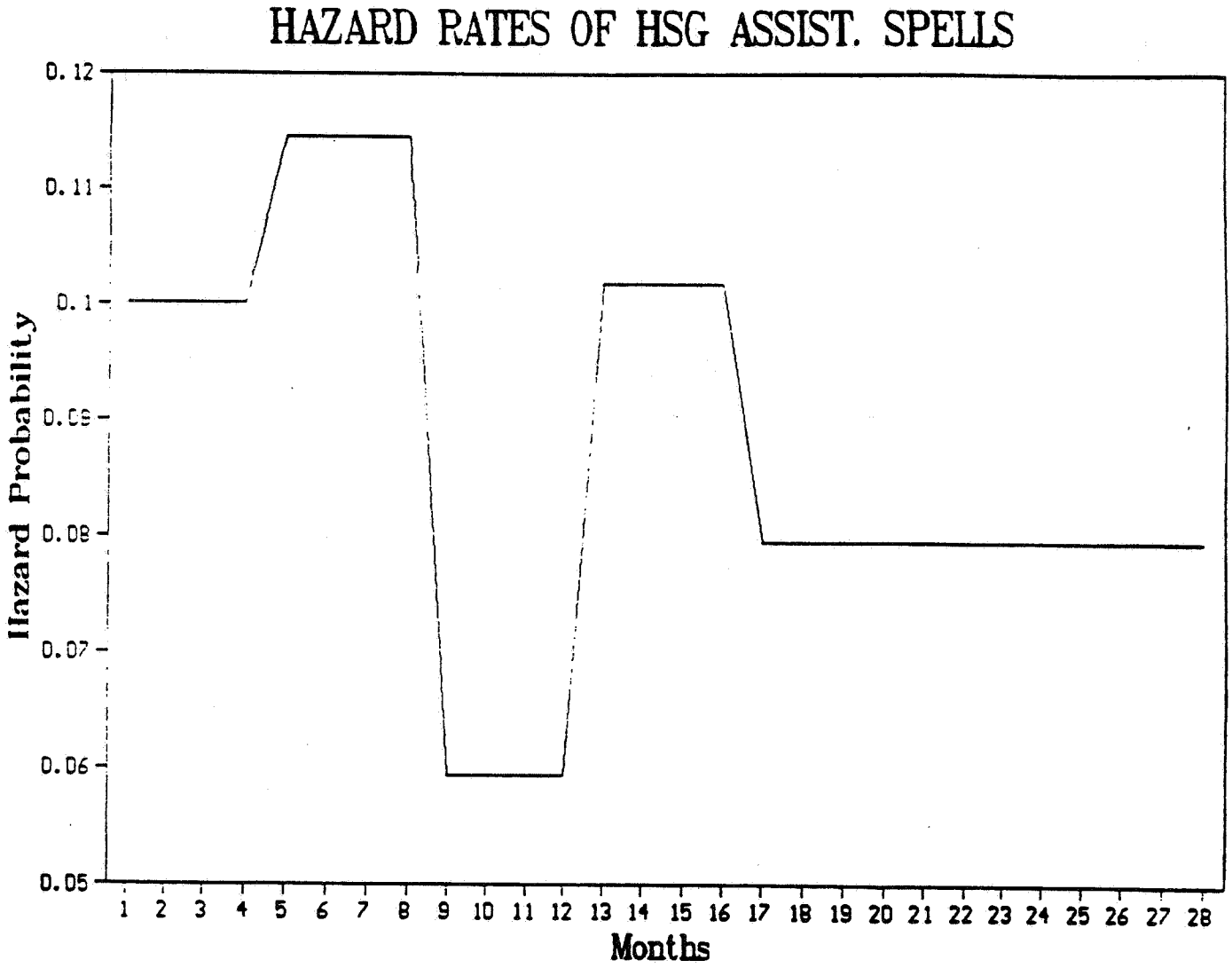
See figure 1 for the characteristics of the individual whose hazard rates are estimated here.

Figure 5



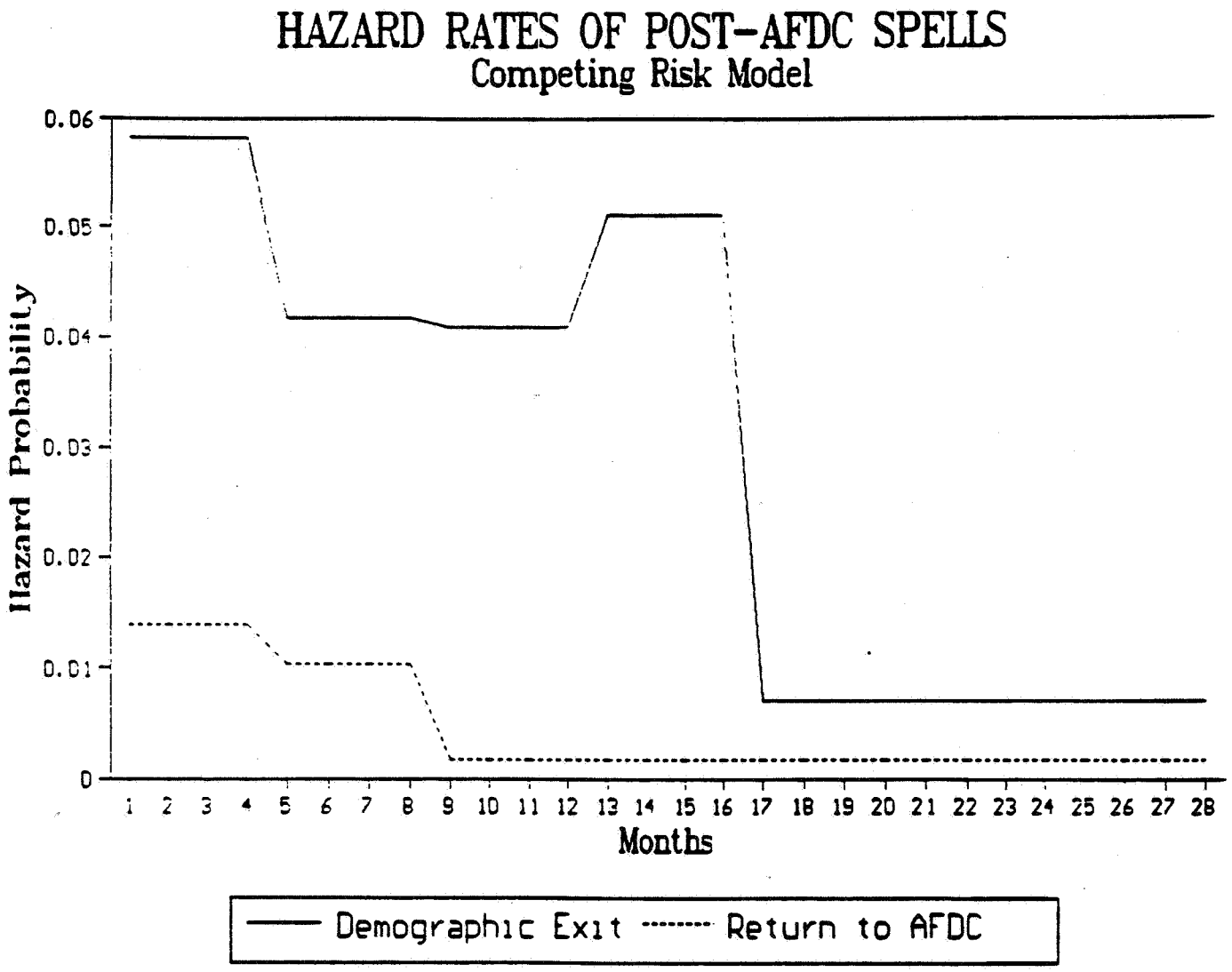
See figure 1 for the characteristics of the individual whose hazard rates are estimated here.

Figure 6



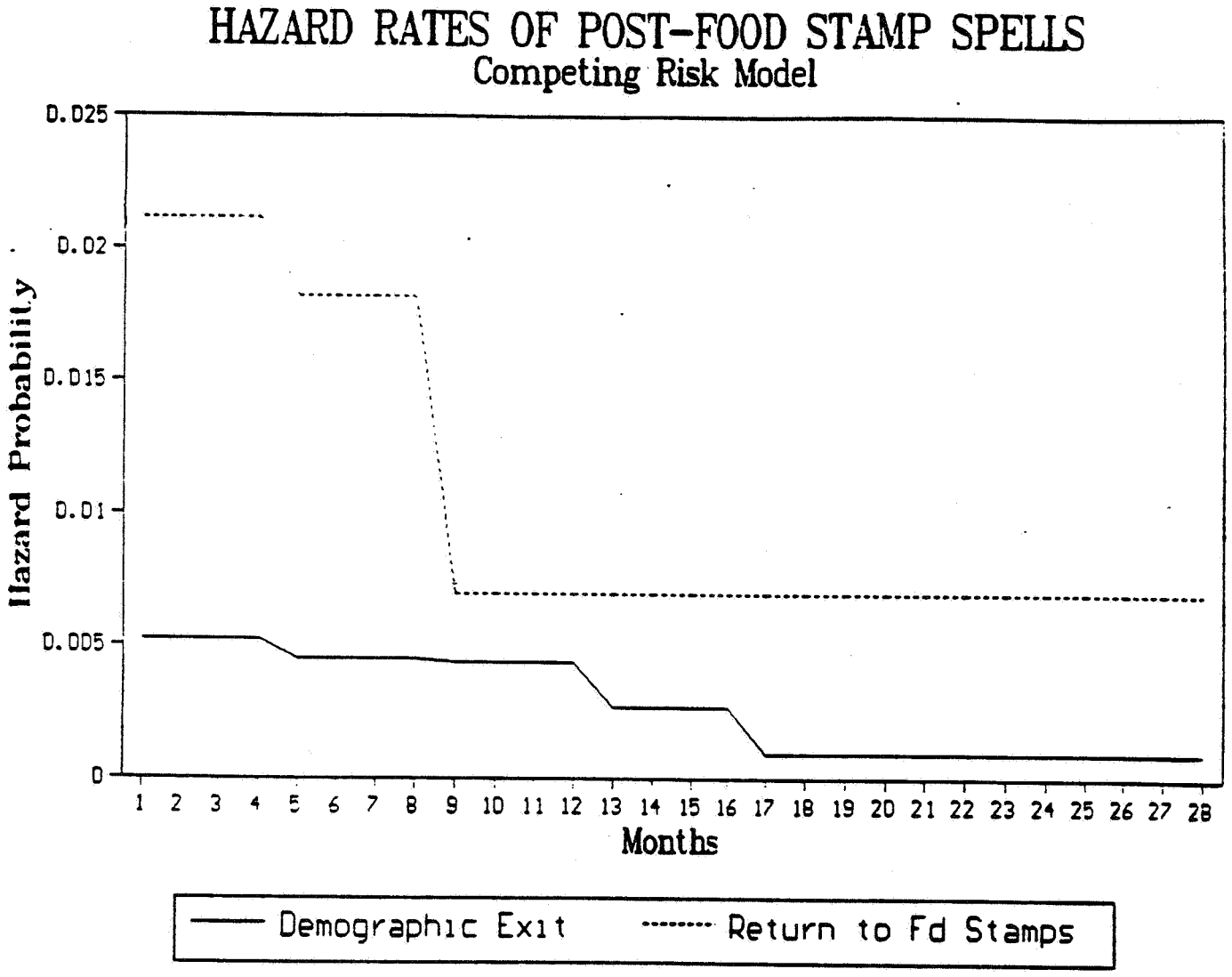
See figure 1 for the characteristics of the individual whose hazard rates are estimated here.

Figure 7



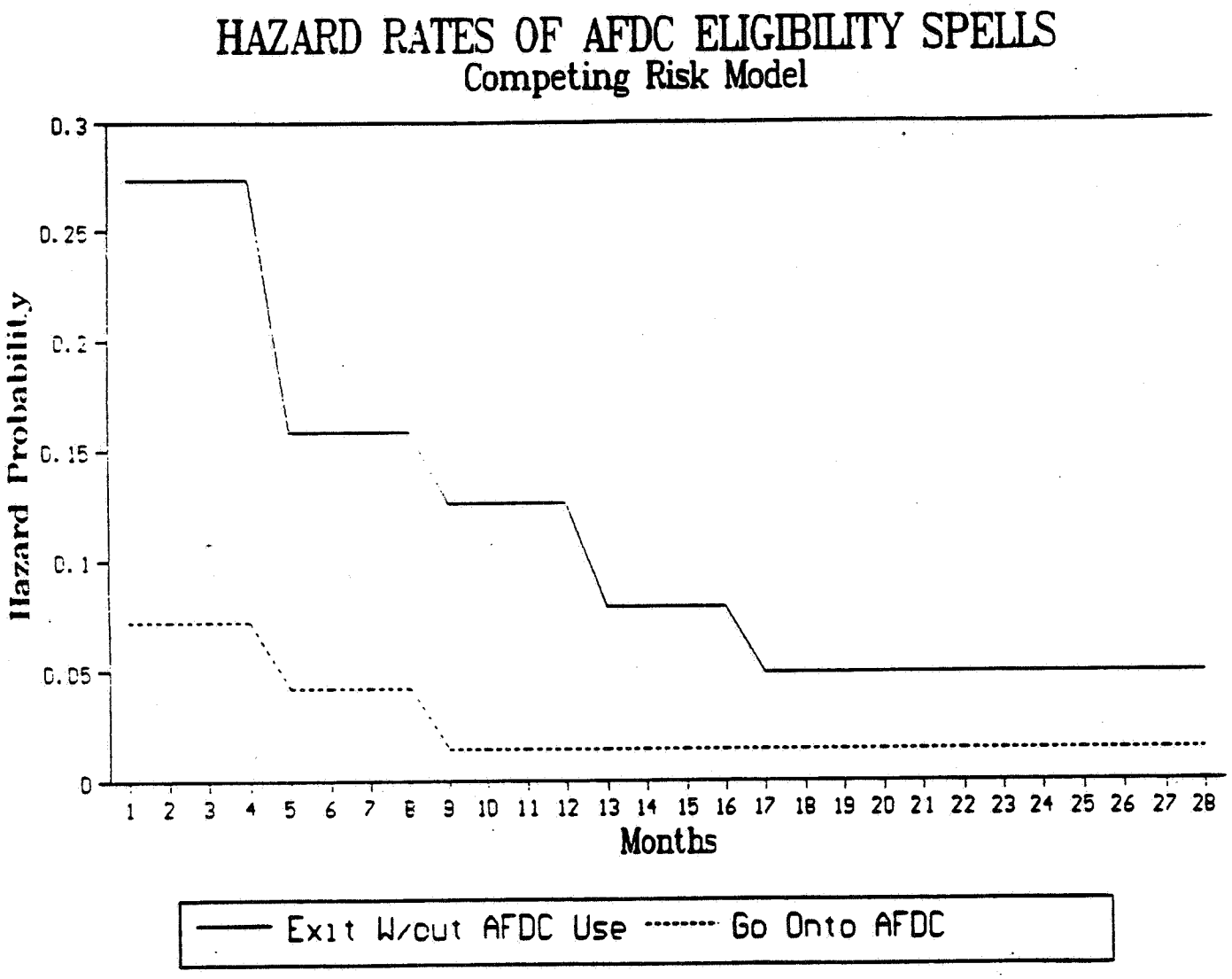
See figure 1 for the characteristics of the individual whose hazard rates are estimated here.

Figure 8



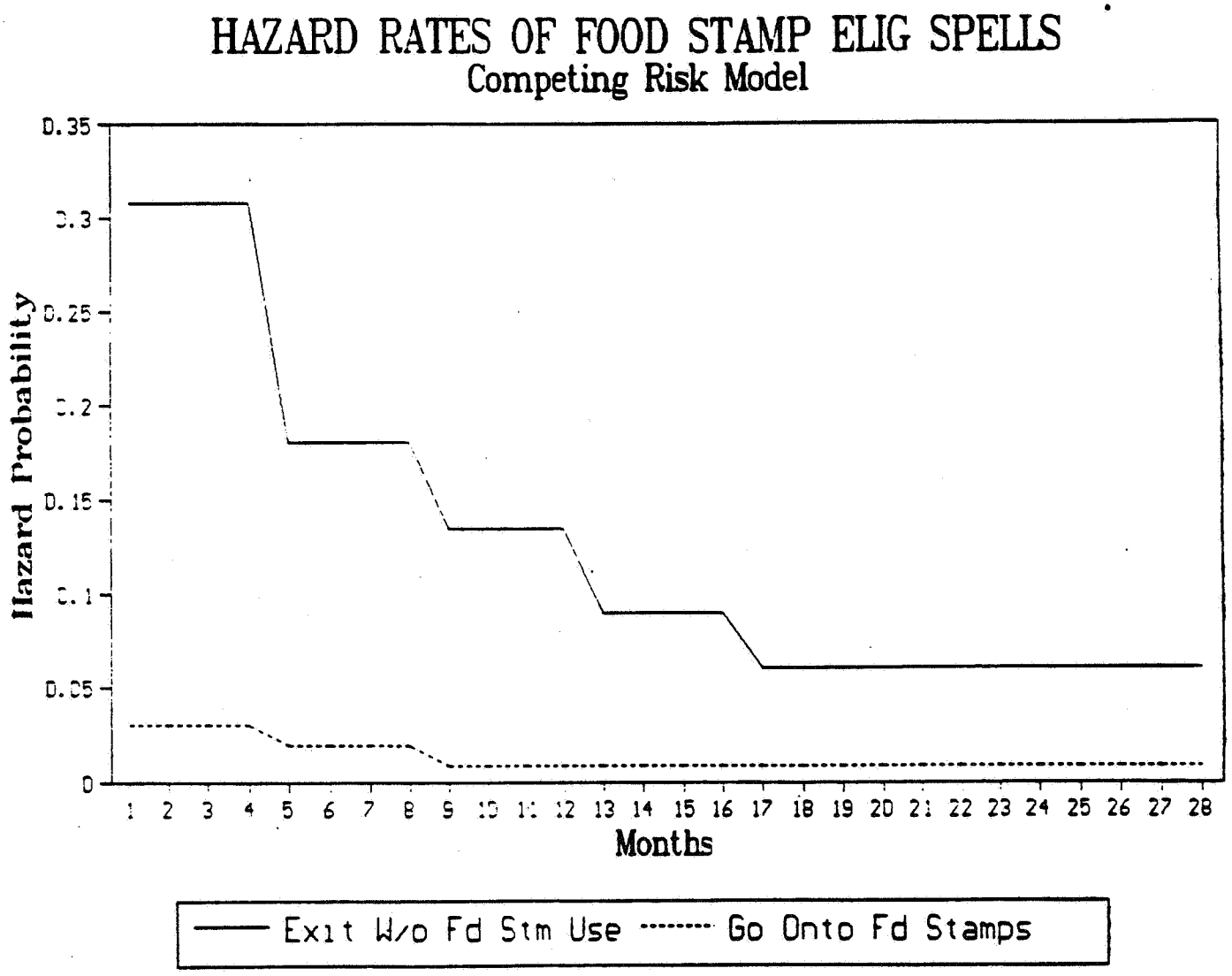
See figure 1 for the characteristics of the individual whose hazard rates are estimated here.

Figure 9



See figure 1 for the characteristics of the individual whose hazard rates are estimated here.

Figure 10



See figure 1 for the characteristics of the individual whose hazard rates are estimated here.