THE SURVEY OF INCOME AND PROGRAM PARTICIPATION

Children and Welfare: Patterns of Multiple Program Participation

No. 130

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The Urban Institute

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SURVEY OF INCOME AND PROGRAM PARTICIPATION

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PREFACE

This paper uses data from the Survey of Income and Program Participation 1984 Full Panel Longitudinal Research File, which was released by the Census Bureau for research to improve the understanding and analysis of SIPP data. The data on the file are preliminary and should be analyzed and interpreted with caution. At the time the file was created, the Census Bureau was still exploring certain unresolved technical and methodological issues associated with the creation of this data set. The Census Bureau does not approve or endorse the use of these data for official estimates.

ACKNOWLEDGMENTS

I. INTRODUCTION AND SUMMARY

Much of the welfare reform debate focuses on alternative proposals to reduce the incidence and duration of reliance on public assistance programs. Designing effective policies depends on an understanding of the causes and nature of welfare recipiency. At present, there are two significant gaps in our understanding of welfare recipiency that limit the ability of policymakers to make the necessary choices in program design.

First, with few exceptions, previous work on welfare recipiency examines a single program in isolation from other programs in the income maintenance system.[1] Because the income maintenance system comprises a number of overlapping and interacting programs, the analysis of recipiency from a single program provides an incomplete picture of the broader dependency issue -- reliance on the comprehensive welfare system. Research is needed on the interactions in participation among the different assistance programs and the relationship between program participation and self-sufficiency.

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[1]For the most part, these studies have focused on participation in the Aid to Families with Dependent Children (AFDC) or Food Stamp (FSP) Programs. An exception to the tendency to focus on a single program is work by Kirlin and Merrill (1983), which examines participation in the FSP in conjunction with AFDC, general assistance, and Supplemental Security Income. A number of other studies (Coe, 1981; and Duncan et al., 1984) consider benefits from several programs in examining welfare recipiency, but the focus is on the total benefit package and not on the interactions in participation among the programs. Examples of studies focusing on participation in AFDC include Boskin and Nold (1975), Rein and Rainwater (1978), Hutchens (1981), Bane and Ellwood (1983), Plotnick (1983), O'Neill et al. (1984), Blank (1986), Ellwood (1986), and Fitzgerald (1988). Work that examines FSP participation includes Coe (1979), Carr, Doyle, and Lubitz (1984), Lubitz and Carr (1985), and Burstein and Visher (1989). Several other studies (Springs, 1977; Merck, 1980; Williams and Ruggles, 1987; and Lamas and McNeil, 1988) examine participation in each program separately. Thus, although they focus on more than one program, they do not provide insights into the interactions between participation in the two programs.

The second research gap concerns our understanding of the factors associated with welfare recidivism. Work by Bane and Ellwood (1983) and particularly Ellwood (1986) shows that although most spells of AFDC receipt are relatively short (less than two years), a large proportion of AFDC recipients experience subsequent spells of program participation. This finding is based on annual measures of program participation using the Panel Study of Income Dynamics (PSID). Studies using measures of monthly program participation (Blank, 1986; Doyle and Long, 1988; Fitzgerald, 1988; and Lamas and McNeil, 1988) suggest that the spells of program participation may be even shorter, with more frequent returns to participation. To the extent that short spells off the programs represent failed attempts at self-sufficiency, a better understanding of why individuals who try to leave the AFDC and Food Stamp programs fail should help in defining interventions that would encourage successful exits from program participation.

This study uses data from the Survey of Income and Program Participation (SIPP) to address these research gaps by analyzing the dynamics of participation and recidivism for two key components of the income maintenance system -- the Aid to Families with Dependent Children (AFDC) and Food Stamp (FSP) Programs. Specifically, we examine the factors associated with moves between participation in a single program and participation in both programs, as well as moves between program participation and periods of self-sufficiency.

Our analysis focuses on the patterns of welfare recipiency of children and their families and/or households. Children are of particular interest for two reasons:

- <u>Children continue to be the largest population group in poverty</u>. The poverty rate for children was above 14 percent from 1959 to 1981, and has been above 20 percent since 1982. Concern about the plight of low-income children and the effects of poverty on

their life prospects make the economic circumstances of children and the resources available to their families and households of particular policy interest.

- The mandate of the AFDC program is to provide assistance to needy children and the FSP serves large numbers of low-income households with children. AFDC provides cash assistance to children (and their caretakers) who lack support because at least one parent is dead, disabled, absent, or, in some states, unemployed.[2] The FSP supplements the food purchasing power of low-income individuals and households through the provision of coupons that can be redeemed for food. Although the FSP does not specially target children, households with children make up 61 percent of all households participating in that program (Food and Nutrition Service, 1988).

This chapter highlights the findings from our analysis and provides some suggestions for future studies of welfare recipiency. The subsequent chapters of the report describe our research methodology and findings. In particular, Chapter II discusses the data used for the study and our analysis sample, Chapter III provides a brief descriptive profile of the patterns of multiple program participation, and Chapter IV contains the multivariate analysis of the dynamics of participation in the AFDC and Food Stamp Programs.

A. OVERVIEW OF OUR FINDINGS

Perhaps the clearest finding from our study is the strong association between changes in the circumstances of a child's family and household and changes in program behavior. Family and household events that are likely to portend a worsening of economic conditions -- marital breakup and the loss of any workers in the household -- are positively associated with returns to program participation for those experiencing spells off of the programs. For those already participating in

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[2]Under the Family Support Act of 1988, all states are required to have an unemployed parent component of the AFDC program as of October 1, 1990.

one of the programs, such family and household events are associated with increased reliance on the welfare system. Similarly, family and household events that suggest improved economic conditions -- marriage and the employment of a member of the household -- or reduced barriers to employment -- the aging of the youngest child in the family to age 6 or greater -- are positively associated with reductions in the degree of reliance on the welfare system, including the increased probability of exiting from program participation entirely.

Our findings also highlight the importance of educational achievement and labor force attachment to exits from program participation and extended periods off the programs. Children residing in households in which the household head has attained at least a high school education and children in households with at least one worker present are more likely to exit to self-sufficiency and, for those in periods off the programs, less likely to return to program participation, all else equal. Since education and work experience are key factors in prolonged self-sufficiency, there would appear to be some payoff to policies targeted to household and family heads with limited school or work experience.

In general, education attainment, two-parent families, and employment appear to be the foundations to moves to self-sufficiency and to maintaining self-sufficiency once it has been attained. Family and labor market turbulence -- marital disruptions and job losses -- are strongly associated with increased program participation and an inability to sustain self-sufficiency. For households experiencing such stresses, it might be useful to provide family support services in addition to the financial support provided by the programs to help families cope more effectively

with instability. Such services might aid families in returning quickly to self-sufficiency and avoiding similar disruptions in the future.

B. SUGGESTIONS FOR FUTURE RESEARCH

This study is a first step in the analysis of the dynamics of welfare participation in a multiple-program context. We have identified four directions to pursue in future work within this framework:

1. <u>An improved definition of reliance on the welfare system</u>. The definition of reliance on the welfare system that we use is based solely on the number of assistance programs from which benefits are received. Alternative frameworks, perhaps based on the proportion of income from assistance programs, should provide additional insight into the dynamics of program participation and self-sufficiency.

2. <u>An improved measure of self-sufficiency</u>. We define self-sufficiency as not receiving benefits from either AFDC or the FSP. An alternative definition that captures the child's economic circumstances both on and off the program would provide additional insight into reliance on welfare programs and economic self-sufficiency. Since there may be policies that reduce welfare participation but do not increase the family's ability to function independently and, as a result, lead to increased poverty, it is important to consider the relationship between poverty and program participation and the factors that are associated with reductions in dependency <u>and</u> poverty.

3. <u>A more complete model of family and household transitions</u>. The empirical framework that we use examines the program participation decision in isolation from related decisions, particularly, the decision to work and decisions on family structure and living arrangements. A more complete model of program participation and recidivism would consider these important economic and social choices faced by the household and family.

4. <u>Refined measures of family and household events</u>. Although it is clear from our work that there is a strong association between changes in family and household composition and changes in program behavior, our findings also suggest that future research would benefit from distinguishing more fully among different types of changes in household composition, including movements in and out of households headed by persons within the immediate family, and the formation and dissolution of subfamilies. Research on

the dynamics of family circumstances should improve our understanding of how individuals and families adjust to personal and family misfortunes. Such research is needed to support the design of policies that are responsive to families attempting to cope with life changes.

II. THE DATA

The Survey of Income and Program Participation (SIPP) is a nationally representative longitudinal survey of adults that provides detailed information on intra-year fluctuations in household and individual income, program participation, and wealth. The sample of adults included in a SIPP panel is defined by persons aged 15 years and older who are residing in a cross-section sample of addresses as of the first interview.[3] Each round (or wave) of the survey collects information from the initial sample of adults and all other adults with whom those initial sample members are residing at the time of the interview. The information is collected on the individual and the individual's household (including information on children under age 15 years) for the four months preceding the interview. For the first SIPP panel, the 1984 panel, eight or nine waves of the survey were administered (covering a period of more than two and a half years).[4]

The longitudinal file for the 1984 panel covers eight rounds of interviews, providing 32 month period of data from summer 1983 to spring 1986.[5] Although the 32-month period is shorter than we would like for an analysis of the dynamics of program participation, the monthly

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[3]New samples of households (each sample is called a panel) are introduced periodically. Each panel is followed for approximately two and a half years.

[4]In the 1984 panel, two waves of the survey were "short waves," that is, they were administered to only three of the four rotation groups. Consequently, half of the panel was interviewed eight times and half nine times.

[5]The SIPP interviews are conducted on a four-month rotating basis, with one-fourth of the sample interviewed each month. Consequently, the reference periods for the data collected for the individuals in the sample are also staggered. The reference periods range from June 1983-January 1986 to September 1983-April 1986 for the 1984 Panel. An additional four months of data from the ninth interview is available for half of the 1984 panel. However, the Census Bureau judged that the advantages of four additional months of data for part of the sample were outweighed by the greater complexity introduced by including unequal follow-up periods in the file.

accounting period used in the SIPP supports more precise measures of the timing of entry into and exit from multiple programs than is available in databases with longer follow-up periods (e.g., the Panel Study of Income Dynamics).

The SIPP longitudinal sample (i.e., the sample for whom the Census Bureau constructed longitudinal weights) is restricted to those individuals who were interviewed in all 32 months of the reference period (or, for those who died or were institutionalized during the reference period, individuals with a complete set of interviews up until the time of death or institutionalization). From an initial sample of some 52,800 individuals, the 32-month longitudinal sample was reduced to about 32,400 for the full panel file.[6]

A. THE ANALYSIS SAMPLE

In this study we limit our analysis sample for the descriptive work to individuals present in the longitudinal sample in order to avoid the difficulties associated with differing follow-up periods (e.g., adjusting for observations that are only followed for short periods in constructing summary statistics). Because hazard models, our framework for the multivariate analysis, can incorporate differing follow-up periods, we include in the analysis sample for the multivariate work all persons who were present as of month one of the survey.

Our analysis sample for the descriptive work includes those persons who were residing in a household with at least one child less than age 19 at any point during the survey (hereafter referred

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[6]The reduction in sample size for the full panel stems from normal sample attrition and an intentional sample reduction due to funding cutbacks (U.S. Bureau of the Census, 1989).

to as individuals in households with children).[7] For the multivariate work, we constrain our sample to children less than age 19 (as of month one).[8] Individuals residing in group quarters at any point in the survey period are excluded from the analysis.

We attribute to each person the characteristics of his or her family and household. In particular, program participation for each person is defined on the basis of the program participation of the members of the individual's <u>family</u> for AFDC, and the members of the individual's <u>household</u> for the FSP.[9] We use the family unit as the base for measuring participation in AFDC because AFDC is targeted to families with dependent children. We use the household unit as the base for measuring participation in the FSP because that program is targeted primarily to low-income households. This analytical framework assumes that the needs and resources of the members of household are interrelated and program benefits are shared either within the entire household or within subgroups of the household (e.g., the family unit). The assumption seems a reasonable one because the interrelated needs, abilities, and resources of the household are important factors that determine the programs for which the household and its members are eligible, as well as the programs in which household members choose to participate.

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[7]Although eligibility for AFDC generally ends on a child's 18th birthday, some states have implemented an option that permits benefits to be continued until the child's 19th birthday. Consequently, we include persons of age 18 in our sample of children.

[8]An alternative approach to the individual as the unit of analysis would be to use the family or household. Such an approach complicates the analysis because the structure of the family and household changes over time -- through marriage, separation, divorce, births, deaths, and other events. Because of these changes, it is difficult to determine what constitutes the same unit from one month to the next.

[9]The family is a group of two or more persons related by birth, marriage, or adoption who reside together. The household includes all persons who reside together regardless of whether they are related, and may encompass more than one family.

Limiting our descriptive analysis to individuals present in the longitudinal sample raises questions about the impact on our findings of sample attrition over the 32 months of the survey. Work by Ernst and Gillman (1988) finds some small but statistically significant differences in selected demographic and economic characteristics as of the first interview month in the survey (referred to as month one) between individuals who were interviewed in all of the waves included in the study and individuals who were not interviewed in one or more waves. The longitudinal weights are found to compensate for some, but not all, of the differences that are observed. Examining a broader set of characteristics, Short and McArthur (1986), Dahman and McArthur (1987), and McArthur (1988) find a number of statistically significant differences between the month-one characteristics of fully interviewed individuals and individuals who were not interviewed in one or more waves. Although these studies do not examine the impact of using the longitudinal weights in the analysis on the differences that are observed, it is likely that the weights adjust for some, but not all, of the differences between those who remain in the sample and those who do not.

Because of the differences that are observed between those who exit from the survey and those who do not, the multivariate analysis is based on the full month-one sample. As discussed below, our estimation approach incorporates the information on those who leave the survey that is available up until the time they exit.

B. DEFINING PROGRAM PARTICIPATION

Two issues arise in defining program participation in the SIPP: the definition of monthly participation and the definition of AFDC participation.

1. Monthly Participation

In this study we use the monthly recipiency data in the SIPP to construct a measure of program participation based on the receipt of any benefits within the month. Thus, an individual who begins program participation in the middle of a month is counted as a participant for the entire month and an individual who receives a small monthly benefit (e.g., $10 per month) is treated the same as someone who receives a much larger monthly benefit (e.g., $500 per month). Treating program participation as a discrete monthly phenomenon no doubt introduces some bias into the length of spells since program entry does not always occur at the beginning of the month and program exit does not always occur at the end of the month. However, we would expect such bias to be relatively small since the time interval (i.e., the month) corresponds to the accounting period for the program.

An alternative framework that incorporates differences in the "degree" of program participation would define spells of recipiency on the basis of the extent to which the individual "depends" on the program. For example, one could define "participants" as those individuals who receive 50 percent or more of their total monthly income from the program. While an exploration of alternative definitions of dependency could be fruitful, the complexity of the issue that is the

primary focus of this study -- the dynamics of multiple program participation -- compelled us to proceed with the simpler definition of program participation.

2. AFDC Participation

One difficulty that arises in defining participation in AFDC using the SIPP concerns the underreporting of AFDC participation. A comparison of SIPP estimates of the number of AFDC participants to administrative data suggests that the survey underestimates the AFDC population. Evidence obtained from a Social Security Administration record check study and from a detailed review of raw data on a case-by-case basis at the Census Bureau indicates that the most common problem is the misreporting of AFDC payments as general assistance benefits (Coder and Ruggles, 1988). Because of this misreporting, we combine AFDC and general assistance participation into a single category in this study -- which we refer to as public assistance (PA).[10] By restricting our analyses to individuals residing in households with children or to children themselves, we should limit the extent to which we are capturing general assistance rather than AFDC participation in our public assistance measure.

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[10]An alternative approach is to attempt to identify the cases in which AFDC participation is misclassified, as is done by Coder and Ruggles (1988). Because the Coder and Ruggles edits are more severe than those which we would choose to apply, and because extensive case-by-case editing is beyond the scope of this study, we use the more general definition of assistance.

III. OVERVIEW OF MULTIPLE PROGRAM PARTICIPATION

Although research on program participation at a particular point in time finds a substantial amount of multiple program participation (McMillen, 1985; Falk and Richardson, 1985; Weinberg, 1985 and 1987; and Long, 1988), little is known about how participation is linked across the programs and how program participation is linked to periods of self-sufficiency. Earlier work on the patterns of multiple program participation (Doyle and Long, 1988) suggests that there are significant month-to-month changes in the combinations of programs from which individuals and households receive benefits. In this chapter we extend that work to explore the process by which individuals exit from participation in two programs to periods of self-sufficiency and, for those who return to program participation, the path back to recipiency. Since our analysis focuses on participation in PA and the FSP, we define "self-sufficiency" as a period in which the individual is not receiving benefits from either of those programs. As we discuss elsewhere, this is a narrow definition of self-sufficiency because it does not consider the individual's economic well-being when he or she is not participating in the programs.

We begin this chapter with an overview of the extent of multiple program participation and then examine the patterns of movements between program participation and self-sufficiency.

A. THE EXTENT OF PARTICIPATION

Program participation, defined as participation in either PA or the FSP, is relatively uncommon at a point in time for individuals in households with children, as shown in Table 1. Only about 13 percent of the sample are participating in PA only, FSP only, or both programs as

Table 1

Program Participation Status as of Month One
for Individuals in Households with Children
(weighted; N = 20,514)

Program Combination	Month-1 Participants		Percentage of Month-1 Program Participants
	Number (1,000s)	Percent	
No Program	125,179	87.1	
One or Both Programs	18,473	12.9	100.0
PA Only	2,067	1.4	10.9
FSP Only	7,322	5.1	39.8
Both Programs	9,083	6.3	49.2
Total	143,651	100.0	

SOURCE: 1984 SIPP Full-Panel Research File.

NOTE: Percentages may not add to 100 because of rounding.

of the first month of the survey (hereafter referred to as month one). Of those individuals who are program participants in month one, half are participating in a single program, generally the FSP, and half are participating in both PA and the FSP.

The extent of program participation increases by about 70 percent when we consider program participation over the course of the 32 months of the SIPP (Table 2). Although only 13 percent of the sample are program participants at a point in time, 22 percent participate in at least one program over the course of the 32 months of the survey.

Movement in participation in the program categories is best illustrated by the annual average turnover rate -- the number of persons participating in the program category in any month of the year divided by the average monthly participation level. As shown in Table 3, the annual turnover rates for participation in PA only and the FSP only are 1.95 and 1.89, respectively. These figures indicate that almost twice as many individuals pass through the PA-only and FSP-only program categories over the course of a year as are in those states in an average month.

In contrast, the turnover rate for joint participation in PA and the FSP is considerably lower, 1.30, indicating that participation over a year is only 30 percent higher than average monthly participation in that category. This turnover rate is much closer to the overall turnover rates for participation in PA (regardless of FSP participation status) and the FSP (regardless of PA participation status). Those rates are 1.29 and 1.39, respectively, for individuals in households with children.

The transitory nature of participation in the PA-only and FSP-only program categories is illustrated further in Table 4, which summarizes the frequency of transitions from the month-one

Table 2

Program Participation Status Over 32 Months
for Individuals in Households with Children
(weighted; N = 20,514)

| Program | Individuals Ever Participating | |
Combination	Number (1,000s) ·	Percent
No Program	132,159	92.0
One or Both Programs	31,702	22.1
PA Only	6,752	4.7
FSP Only	18,675	13.0
Both Programs	13,790	9.6
Total	143,651	100.0

SOURCE: 1984 SIPP Full-Panel Research File.

NOTE: Percentages may not add to 100 because of rounding.

Table 3

Average Annual Program Turnover Rate for
Individuals in Households with Children
(weighted; N = 20,514)

Program/ Program Combination	Annual Turnover Rate
No Program	1.03
Individual Program	
PA	1.29
FSP	1.39
Program Combination	
PA Only	1.95
FSP Only	1.89
Both Programs	1.30

SOURCE: 1984 SIPP Full-Panel Research File.

NOTE: The average annual program turnover rate is defined as the number of persons participating in the program category in any month of the year dividied by the average monthly participation level.

Table 4

Percentage Distribution of the Number of
Transitions in Program Participation Status Over 32 Months
for Individuals in Households with Children
(weighted; N = 20,514)

Month-1 Program Combination	Percent of Individuals by Number of Program Transitions				
	Total	No Transitions	One Transition	Two Transitions	Three or More Transitions
No Program	100.0	90.7	1.5	6.3	1.5
PA Only	100.0	25.4	36.8	15.2	22.7
FSP Only	100.0	18.5	32.6	15.5	33.4
Both Programs	100.0	51.5	16.8	16.2	15.5

SOURCE: 1984 SIPP Full-Panel Research File.

NOTE: Percentages may not add to 100 because of rounding.

program combinations for individuals in households with children. Only one-fourth of the individuals participating in PA only as of month one and one-fifth of the month-one FSP-only participants remain in their respective program states for the full 32 months.

Consistent with the lower turnover rate for joint program participation, the individuals participating in both programs as of month one are much less likely to change program participation status. Over half of the individuals participating in both programs in month one remain in that program status for the full 32 months.

It is evident that participation in PA only and the FSP only are temporary phenomenon for many individuals. Many more individuals pass through the PA-only and FSP-only program states over the course of a year than are found in those states at a point in time.

B. MOVES BETWEEN PROGRAM PARTICIPATION AND SELF-SUFFICIENCY

In this section we examine the interaction of participation in PA and the FSP as recipients move to and from periods off the programs. We are interested in determining whether moves into and out of multiple program participation are part of a gradual process involving sequential entry or exit from PA and the FSP, or whether entries to and exits from multiple program participation occur as abrupt transitions.

Throughout this analysis it is important to note that the changes or transitions in program participation that we observe over the 32-month follow-up period of the SIPP reflect the patterns of participation over a relatively short time period. Patterns of participation operating on a longer cycle cannot be observed in the SIPP and, consequently, are beyond the scope of this study.

1. Routes to Self-Sufficiency

Of those individuals who are observed to exit from participation in both programs, 72 percent exit to a single program (31 percent to PA only and 41 percent to the FSP only), while 28 percent exit immediately to nonparticipation, as shown in Table 5. In turn, 64 percent of those exiting from month-one spells of PA only and 76 percent of those exiting from the FSP only exit to nonparticipation. These figures suggest that many of the persons who leave joint participation in PA and the FSP tend to do so sequentially via participation in a single program category rather than exiting directly to a period of nonparticipation.

The profile of program participation for those who experience two or more transitions (Table 6) tends to confirm the sequential movement in program participation. Of those individuals initially participating in both programs, 15 percent pass through the PA-only category and 20 percent pass through the FSP-only category on their way to a period of nonparticipation.

In addition to the individuals moving off of participation in both programs via PA only or the FSP only, a substantial number of participants in both programs exit temporarily to the single program categories before returning to participation in both programs following the second transition. This cycling on and off of the programs is observed for each of the categories: 83 percent of month-one nonparticipants with two transitions return to self-sufficiency following their second transition; 73 percent of the month-one PA-only participants return to participation in PA only; and 83 percent of the month-one FSP-only participants return to that category. There

Table 5

Percentage Distribution of the Outcome of the
First Transition from Month-1 Program Status
for Individuals in Households with Children
(weighted; N = 3,337)

Program State A/ Program State B	Individuals Moving from State A to State B		Individuals Entering State A from State B	
	Number (1,000s)	Percent	Number (1,000s)	Percent
Neither Program/	13,227	100.0	6,765	100.0
PA Only	2,445	18.5	979	14.5
FSP Only	9,335	70.6	4,534	67.0
Both Programs	1,447	10.9	1,252	18.5
PA Only/	1,542	100.0	3,903	100.0
Neither Program	979	63.5	2,445	62.6
FSP Only	0	0	92	2.4
Both Programs	563	36.5	1,366	35.0
FSP Only/	5,970	100.0	11,119	100.0
Neither Program	4,534	75.9	9,335	84.0
PA Only	92	1.5	0	0
Both Programs	1,344	22.5	1,784	16.0
Both Programs/	4,402	100.0	3,354	100.0
Neither Program	1,252	28.4	1,447	43.1
PA Only	1,366	31.0	563	16.8
FSP Only	1,784	40.5	1,344	40.1

SOURCE: 1984 SIPP Full-Panel Research File.

NOTE: Percentages may not add to 100 because of rounding.

Table 6

Percentage Distribution of the
Outcome of the Second Transition from Month-1 Progam
Status for Individuals in Households with Children
(weighted; N = 3,337)

Month-1 Program Combination	Program Combination Following First Transition	Program Combination Following Second Transition				
		Neither Program	PA Only	FSP Only	Both Programs	Total
Neither Program	Total	83.1	2.7	2.3	11.8	100.0
	PA Only	13.8	0	0.4	3.7	17.9
	FSP Only	64.3	0.5	0	8.1	72.9
	Both Programs	5.0	2.2	1.9	0	9.1
PA Only	Total	8.6	73.0	10.8	7.7	100.0
	Neither Program	0	39.8	10.8	7.7	58.3
	FSP Only	0	0	0	0	0
	Both Programs	8.6	33.2	0	0	41.8
FSP Only	Total	5.2	5.6	83.3	5.8	100.0
	Neither Program	0	3.1	62.6	5.0	70.7
	PA Only	1.7	0	0	0.8	2.5
	Both Programs	3.5	2.5	20.7	0	26.7
Both Programs	Total	35.4	5.4	13.0	46.2	100.0
	Neither Program	0	4.2	13.0	7.4	24.6
	PA Only	15.2	0	0	16.1	31.3
	FSP Only	20.2	1.2	0	22.7	44.1

SOURCE: 1984 SIPP Full-Panel Research File.

NOTE: Percentages may not add to 100 because of rounding.

appears to be a great deal of instability in the-set of programs from which benefits are received, and movements off the programs seem to be temporary states for many people.[11]

2. Returns to Program Participation

In examining the patterns of returns to program participation, we focus on periods of nonparticipation observed for individuals who are initially program participants. Thus, we are interested in the outcome of periods of nonparticipation for individuals who move from participating in one of the program categories in month one to nonparticipation following their first transition. We observe this transition pattern for 37 percent of the month-one program participants, as shown in Table 7. We observe a second transition, back to program participation, for 3,695 of the 6,765 individuals observed to begin a period off the programs. That is, 55 percent of those exiting the programs return to program participation. And three-fourths of those who return to program participation return to their initial program state.

For the PA-only and FSP-only participants, in particular, there are frequent movements between participation and periods off of all programs. As shown in Table 5, the majority of persons exiting from those categories exit to nonparticipation and, as shown in Table 7, of those returning to participation from nonparticipation, the majority return to their initial state.

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[11]An additional analysis, which is beyond the scope of this study, would use administrative data to explore the extent to which the cycling that is observed is a true reflection of household experiences with the programs (and not simply reporting errors in the SIPP). Burstein and Visher (1989), in a study of FSP participation using administrative data for October 1980 to December 1983, find little evidence of the type of movements on and off the program that we observe in the SIPP. However, monthly reporting requirements were implemented in the states in late 1982. Since about five percent of monthly reporting recipients are terminated from the programs in a normal month (Hamilton, 1987), we would expect to observe more administrative churning in the time period subsequent to the Burstein and Visher study. As is discussed below, we undertake a rough adjustment of the data for the multivariate analysis to reduce short breaks in program participation.

Table 7

Summary of the Outcome of the
First and Second Transitions from Month-1 Program Status
for Individuals in Households with Children
(weighted; N = 3,337)

Month-1 Program Combination	Month 1 Participant	Individuals Observed to --			
		Exit Month-1 Program		Return to Participation From No Program	
		Total	Exit to No Program	Total	Return to Initial State
PA Only					
Number (1,000s)	2,067	1,542	979	455	311
Percent	100.0	74.6	47.4	22.0	15.1
FSP Only					
Number (1,000s)	7,322	5,970	4,534	2,533	2,242
Percent	100.0	81.5	61.9	34.6	30.6
Both Programs					
Number (1,000s)	9,083	4,402	1,252	707	212
Percent	100.0	48.5	13.8	7.8	2.3
Total					
Number (1,000s)	18,472	11,914	6,765	3,695	2,765
Percent	100.0	64.5	36.6	20.0	15.0

SOURCE: 1984 SIPP Full-Panel Research File.

NOTE: Percentages may not add to 100 because of rounding.

In the next section we use multivariate analysis to explore the factors associated with the movements between the participation categories. We focus on the social and economic factors associated with transitions in program participation, and distinguish between transitions that reflect direct moves to self-sufficiency and those that, while not a complete exit from program participation, imply a reduced reliance on the welfare system.

IV. MULTIVARIATE ANALYSIS OF MULTIPLE PROGRAM PARTICIPATION

In this chapter we examine the impact of family and household characteristics and the economic and program environment on the probability of exiting from spells of PA only, the FSP only, participation in both programs, and periods off the programs. The chapter begins with the presentation of the conceptual model that underlies our analysis. We then describe our analysis file, outline our estimation approach, present the model specification, and, finally describe the estimation results.

A. THE MODEL OF PROGRAM PARTICIPATION

The conceptual framework underlying our model describes the individual's choice at each moment to occupy one of four possible states: participation in PA only, participation in the FSP only, joint participation in PA and the FSP, and self-sufficiency (i.e., the individual is not participating in either PA or the FSP). We assume that individuals will choose the program state at each point in time that maximizes their expected utility. Over time individuals will exit from a program state if the expected utility from an alternative state exceeds the expected utility of remaining in the current state.

The focus of our analysis is the factors associated with the transitions from each program state. We estimate a reduced-form model using a competing-risks framework, where the occurrence of one event (e.g., an exit from participation in PA only to participation in both PA and the FSP) removes the individual from the risk of experiencing either of the alternative events (i.e.,

exiting to participation in the FSP only or to a period off both programs).[12] The competing-risks framework characterizes each route of exit from a particular state by a separate transition rate or hazard function and, consequently, allows the factors associated with different types of exits to vary.

The "type-specific" hazard function is defined as the conditional probability that a spell of participation in state i will end after t+Δt months by route j, given that the spell lasted at least t months. The hazard rate is defined as a function of both time and a set of explanatory variables, and can be written as:

(1) $h_{ij}(t, X) = \lim_{\Delta t \to 0} [P(t \leq T < t+\Delta, J = j \mid T \geq t, X) / \Delta t],$ $j = 1, 2, ..., m$

where i is the current state (i.e., participation in PA only, the FSP only, both programs, or neither program); j is the destination state following the transition or the "type" of exit; t is the number of months since the beginning of the spell; and X is a vector of socioeconomic and demographic characteristics of the individual and characteristics of the economic and program environment. The overall hazard function -- the probability of exiting from state i, regardless of type of exit -- is the sum of all of the type-specific hazard functions:[13]

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[12]The competing-risk model is described in Kalbfleisch and Prentice (1980) and has been applied in earlier studies examining exits from participation in a single program by marriage, work, and other routes (Bane and Ellwood, 1983; Ellwood, 1986; Blank, 1986; and O'Neill, Bassi, and Wolf, 1987), and in studies of the relationship between AFDC participation and work (Engberg, Gottschalk, and Wolf, 1990).

[13]Note that this framework assumes that the risks of the different types of exit are independent, which in turn requires that we assume that there is no unobservable heterogeneity. As techniques for dealing with unobservable heterogeneity within a competing-risks framework are not well-developed, we rely on the wealth of data in the SIPP to control for a greater number of observed characteristics than has heretofore been possible.

$$(2) \quad h_i = \quad h_{i1}(t, X) + h_{i2}(t, X) + ... + h_{ij}(t, X).$$

The primary advantages of the hazard model for studying the dynamics of program participation are that unlike traditional multivariate regression, the hazard model can incorporate information on right-censored spells (i.e., spells that are observed to begin but are not followed long enough to see how or when they end) and explanatory variables that change values over the course of the spell. Ignoring right-censored spells and time-varying explanatory variables can result in substantial bias in estimates of the probability of exiting from the spell and in the factors associated with exiting.

B. THE ANALYSIS FILE

The focus of our analysis is on children beginning a spell of program participation or a spell off the programs during the 32-month period of the longitudinal file.[14] We organize the data so that the spells in each state (i.e., participation in PA only, the FSP only, both programs, or neither program) are the units of observation.[15]

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[14]Since our analysis focuses on issues of welfare recipiency, we distinguish very short periods off the program that may be due to reporting errors in the SIPP or administrative "churning" (i.e., temporary exits from program participation that are due to administrative factors, including exits due to noncompliance with monthly reporting requirements) from those that appear to be true periods of self-sufficiency. Consequently, we edit the data to eliminate exits from program participation that last for only one month. That is, spells of PA that are separated by a single month of nonreceipt are recoded to form one continuous period of PA receipt. We perform a similar edit for spells of FSP participation. There are 68 households for whom such edits are performed for PA receipt and 166 households for whom food stamp receipt is edited. Similarly, short spells of participation in PA only or the FSP only that precede a spell of participation in both programs may reflect administrative delays, rather than the individual's participation decisions. Consequently, we eliminate such spells from our analysis.

[15]It is worth noting that, since each child enters the analysis as a separate observation, we are treating children from the same family as independent observations. By ignoring the interdependence between such children, our estimates may overestimate the true standard errors (since additional children from multiple-child families or households are not contributing much more information than the first child from that family or household) and, consequently, may overstate the levels of significance used in hypothesis testing. Because of this we use a relatively conservative test of significance -- significant at at least the 95 percent level.

We attach to each spell information on the length of the spell, whether it is completed, and, if so, the type of exit that is observed. Each child is included at most once for each type of spell, although the same child may appear in the sample for more than one type of spell. While multiple spells of a given type do exist for some children, we chose to ignore them in order to avoid the complicated statistical problems associated with the correlation of spells for individuals. Consequently, our estimates will be inefficient but consistent.[16] We chose the first observed spell of each type for each child in order to maximize the probability that we would observe the exit from that spell.

Our sample includes 312 spells of participation in PA only, 1,047 spells in the FSP only, 806 spells in both PA and the FSP, and 1,696 spells off the programs, as shown in Table 8. Not surprising, given the evidence of the transitory nature of PA-only and FSP-only receipt, we are more likely to observe exits for PA-only spells and FSP-only spells than for either spells of joint program participation or spells off the programs. This difference can be seen quite clearly in Figure 1, which illustrates the nonparametric Kaplan-Meier survivor estimator for each type of spell (the estimated survivor probabilities are reported in Table 9).[17] The survival probability for

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[16]In order to model multiple spells of program participation correctly, information on the individual's family and household welfare history prior to the first observed spell is needed.

[17]The survivor function is the probability that the spell will continue at least until time t and is written as:

$$S_i(t, X) = \exp [- \int_0^t h_i(u, X)du].$$

The hazard function and survivor functions are alternative methods of specifying the distribution of spell durations and have the following relationship:

$$h_{ij}(t, X) = f_{ij}(t, X)/S_{ij}(t, X).$$

See Kalbfleisch and Prentice (1980) for a discussion of the Kaplan-Meier survivor estimator.

Table 8

Characteristics of the Sample of First Observed Spells of Participation

Characteristic	PA Only	FSP Only	Both Programs	Neither Program
Number of Spells	312	1,047	806	1,696
Number of Months	1,692	6,026	6,374	17,614
Number of Exits	241	769	434	626

SOURCE: 1984 SIPP Full-Panel Research File.

Figure 1

Kaplan-Meier Survivor Function Estimates for First Observed Spells

SOURCE: 1984 SIPP Full-Panel Research File.
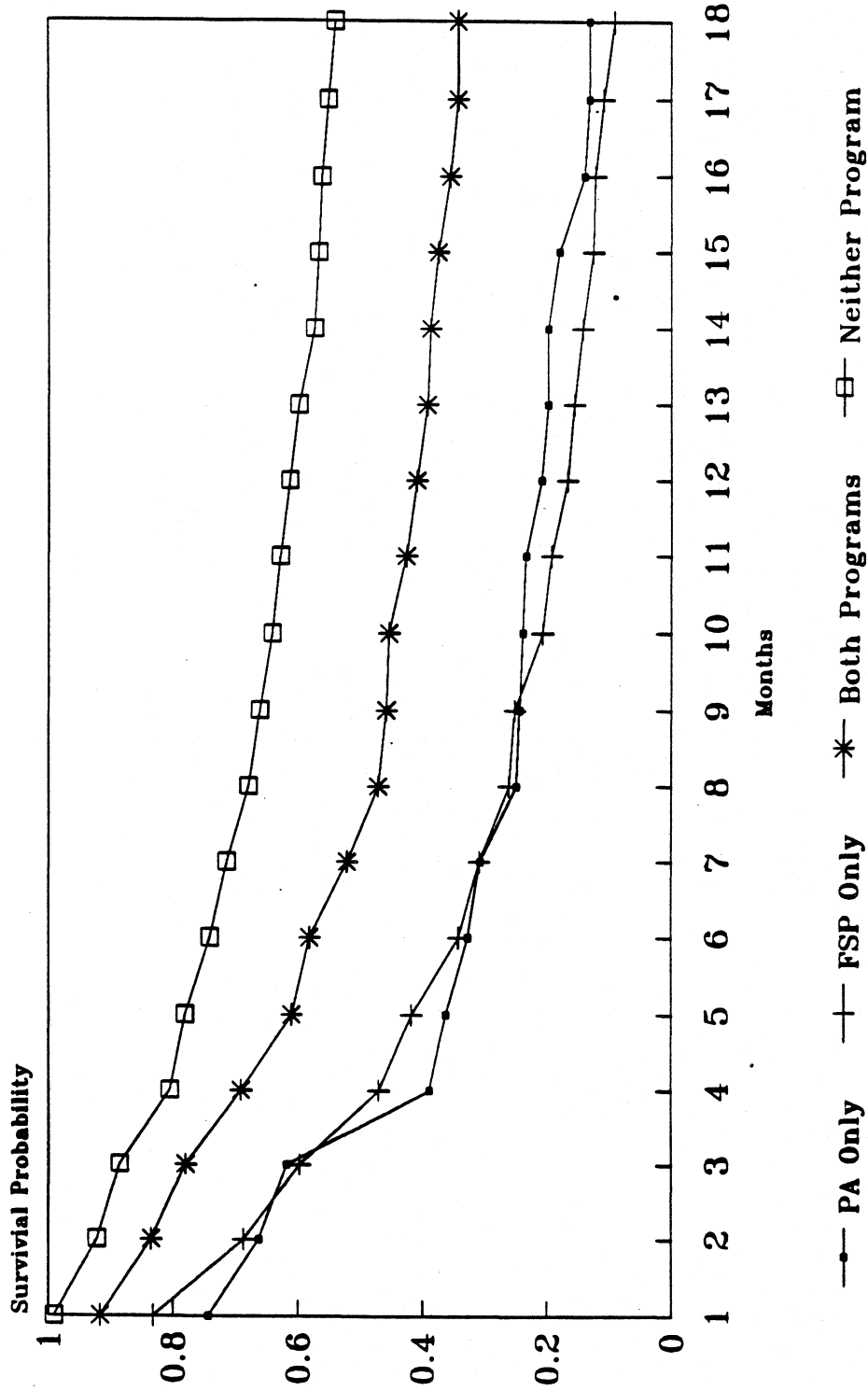
Table 9

Kaplan-Meier Survivor Function Estimates for
First Observed Spells of Participation

Month	PA Only	FSP Only	Both Programs	Neither Program
1	.744	.832	.917	.991
2	.663	.687	.835	.922
3	.618	.597	.780	.886
4	.389	.470	.691	.805
5	.363	.418	.610	.781
6	.327	.342	.581	.741
7	.308	.309	.521	.714
8	.249	.261	.471	.679
9	.244	.252	.458	.661
10	.239	.207	.454	.641
11	.234	.193	.426	.628
12	.209	.167	.409	.613
13	.198	.156	.392	.598
14	.198	.142	.387	.573
15	.180	.125	.374	.566
16	.139	.122	.355	.561
17	.131	.108	.342	.550
18	.131	.091	.342	.539

SOURCE: 1984 SIPP Full-Panel Research File.

spells off the programs and joint PA and FSP participation are significantly greater (indicating spells of longer duration) than for either PA-only or FSP-only spells. In fact, about half of the spells of PA only and FSP only end between three and four months, while over half of the spells of participation in both programs are still in progress at seven months, and over half of the spells off the programs are still in progress at the end of 18 months (as shown in Table 9). Clearly, most PA-only and FSP-only participants exit from those categories quickly, while most of those who exit the programs are able to sustain nonparticipation for a relatively long period.

C. THE ESTIMATION APPROACH

Because there are three routes of exit from each of the four program states, there are twelve type-specific hazard functions to be estimated. However, because of the rarity of exits from spells of PA only to the FSP only and, similarly, of exits from spells of FSP only to PA only (see Table 10), we do not estimate type-specific hazard models for those exits. Instead, we treat PA-only and FSP-only spells that end with such exits as if they were censored in the month prior to the observed exit (i.e., we drop the last month of data for those spells). The parameter estimates that are obtained for the type-specific hazard functions for the remaining exits from PA-only and FSP-only spells are consistent, but not fully efficient (Allison, 1984). The ten remaining type-specific hazard models that we do estimate are summarized below.

Table 10

Program Status in the Month Following the First Observed Spell

Program Status Following Spell	PA Only	FSP Only	Both Programs	Neither Program
Total	100.0	100.0	100.0	100.0
PA Only	--	0.5	11.0	6.0
FSP Only	1.0	--	23.5	26.1
Both Programs	30.8	10.8	--	4.8
Neither Program	45.2	62.2	18.6	--
Exit Not Observed	23.0	26.6	46.2	63.1

SOURCE: 1984 SIPP Full-Panel Research File.

NOTE: Percentages may not add to 100 because of rounding.

Initial State	Types of Exit
PA Only	Both programs
	Neither program
FSP Only	Both programs
	Neither program
Both Programs	PA only
	FSP only
	Neither program
Neither program	PA only
	FSP only
	Both programs

In addition to these type-specific hazard models, we estimate the overall hazard for each program state (i.e., for participation in PA only, the FSP only, both programs, and neither program).

We use a discrete-time framework to estimate each of the models. The primary advantages of the discrete-time model over the continuous-time model for the current analysis are: (1) the inherently discrete nature of the program participation process, (2) the greater ease of estimation, particularly when time-varying explanatory variables are included in the model, and (3) the need to make fewer a priori assumptions about the model's functional form.

Estimating the discrete-time hazard model requires a separate observation for each month that the individual is at risk, i.e., each month at risk is treated as a distinct observation, referred to as a spell-month. For each spell-month the dependent variable for the overall hazard model is coded 1 if the individual exits from the spell in that month, and 0 otherwise. For the type-specific

hazard model, where multiple types of exits are considered, the dependent variable is coded 1 or 2 (or where relevant, 1, 2, or 3) to reflect each type of exit, and 0 if there is no exit. In the final step the spell-month data are pooled, and logit (for the overall hazard equations) and multinomial logit (for the type-specific hazard equations) models are estimated using maximum likelihood procedures.

It is worth noting that the children whose time in a spell is censored, (that is, their exit from the spell is not observed because they left the sample prior to the end of the survey or had not exited from their spell by the end of the survey observation period) contribute exactly what is known about them to the analysis: that they had not exited from the spell up to the last observation period. This is important because 46 percent of the spells of participation in both programs and 63 percent of the spells off the programs are censored, as shown in Table 10.

D. MODEL SPECIFICATION

In specifying our empirical model of the factors affecting the probability of exiting from spells of multiple program participation and returning to participation following an exit, we draw on the existing empirical research on the dynamics of AFDC participation (particularly those studies summarized in Table 11) and FSP participation (Table 12), and the limited research on program recidivism (Table 13). In particular, we include four types of explanatory variables in our model:

1. Baseline characteristics -- Variables reflecting the baseline (month 1) characteristics of the child, including characteristics of the child's family and household.

Table 11

SUMMARY OF THE FINDINGS FOR SELECTED STUDIES OF THE PROBABILITY OF EXIT FROM SPELLS OF PARTICIPATION IN AFDC

Explanatory Variable	Ellwood (1986) 1968-84 Panel Study of Income Dynamics (Table A.2, First Spell)	Blank (1986) 1970-75 Seattle and 1971-76 Denver Income Maintenance Experiments (Table 4, Log-logistic Model)	O'Neill et al. (1987) 1968-82 National Longitudinal Survey (Table 3, Model 3)	Fitzgerald (1988) 1984 Panel of Survey of Income and Program Participation (Table 3, Model 1)	Ruggles (1988) 1984 Panel of Survey of Income and Program Participation (Table 2, Log-logistic Model)[1]
Unearned, non-AFDC income		+ (*)		+	+
Education Attainment	+ (*)	+ (*)	+ (*)	+ (*)	
Race is Black/Nonwhite	-	- (*)	- (*)	+[2]	- (*)
Age	-	+ (*)	-	+ (*)	
Number of Children	- (*)	- (*)	- (*)	-	- (*)
Presence of Young Children	-	-	- (*)		+
Recent Work Experience/Earning	+ (*)		+ (*)		+ (*)
Work/Health Disability	- (*)		-		
Never Married/Single	- (*)		- (*)		- (*)
Child Born at Age 18 or Less			+		[3]
Lived With Parents/Subfamily			- (*)		+
State Unemployment Rate		- (*)	+ (*)	-	
AFDC Maximum Benefit	- (*)	+ (*)	- (*)	- (*)	-
AFDC-UP State				+	

NOTES: A column entry of "+" indicates that the variable was estimated to have a positive effect on the probability of exit from AFDC, while the "-" entry indicates that the estimated effect was negative. The (*) indicates that the estimate was significant at or below the .05 level. The variables included in this table are a subset of all of the variables that were included in the studies.

1. The Ruggles study estimates the survival probability. We present her results as they apply to the exit probability.

2. In addition to the model specification that included race as an explanatory variable, Fitzgerald estimated the model separately for whites and blacks. His findings suggest that there are some differences in the factors affecting exits from AFDC for whites and blacks.

3. The teenage mother variable included in the Ruggles study refers to the presence of a teenaged mother in the family.

Table 12

Summary of the Findings for Selected Studies of the Probability of Exit from Spells of Participation in AFDC

Explanatory Variable	Ellwood (1986) 1968-84 Panel Study of Income Dynamics (Table A.2, First Spell)	Blank (1986) 1970-75 Seattle and 1971-76 Denver Income Maintenance Experiments (Table 4, Log-logistic Model)	O'Neill et al. (1987) 1968-82 National Longitudinal Survey (Table 3, Model 3)	Fitzgerald (1988) 1984 Panel of Survey of Income and Program Participation (Table 3, Model 1)	Ruggles (1988) 1984 Panel of Survey of Income and Program Participation (Table 2, Log-logistic Model)[1]
Unearned, non-AFDC income		+ (*)		+	+
Education Attainment	+ (*)	+ (*)	+ (*)	+ (*)	
Race is Black/Nonwhite	-	- (*)	- (*)	+[2]	- (*)
Age	-	+ (*)	-	+ (*)	
Number of Children	- (*)	- (*)	- (*)	-	- (*)
Presence of Young Children	-	-	- (*)	-	+
Recent Work Experience/Earning	+ (*)		+ (*)		+ (*)
Work/Health Disability	- (*)		-		
Never Married/Single	- (*)		- (*)		- (*)
Child Born at Age 18 or Less			+		3
Lived With Parents/Subfamily			- (*)		+
State Unemployment Rate		- (*)	+ (*)		
AFDC Maximum Benefit	- (*)	+ (*)	- (*)	- (*)	-
AFDC-UP State				+	-

NOTES: A column entry of "+" indicates that the variable was estimated to have a positive effect on the probability of exit from AFDC, while the "-" entry indicates that the estimated effect was negative. The (*) indicates that the estimate was significant at or below the .05 level. The variables included in this table are a subset of all of the variables that were included in the studies.

1. The Ruggles study estimates the survival probability. We present her results as they apply to the exit probability.

2. The model specification reported here included race and two race-specific marriage market variables. After controlling for the availability of marriage partners within racial groups, the residual impact of race was found to be insignificant. In addition to this model, Fitzgerald also estimated equations separately for whites and blacks. His findings suggest that there are some differences in the factors affecting exits from AFDC for whites and blacks.

3. The teenage mother variable included in the Ruggles study refers to the presence of a teenaged mother in the family.

Table 13

SUMMARY OF THE FINDINGS FOR SELECTED STUDIES OF THE PROBABILITY OF
RETURN TO PARTICIPATION IN AFDC OR THE FSP

Explanatory Variable	AFDC Ellwood (1986) 1968-84 Panel Study of Income Dynamics (Table A.2, Recidivism)	FSP Burstein and Visher (1989) 1980-83 OBRA Database[1] (Table 3.3, One Adult with Children)[2]
AFDC Maximum Benefit	+	
Transfer Income		+ (*)
Education Attainment	?[3]	
Race is Black/Nonwhite	+ (*)	
Young Adult	+	+ (*)
Older Adult	−	+ (*)
Number of Children	+ (*)	+ (*)
Presence of Young Children	+ (*)	+
Recent Work Experience/Earning	−	+
Work/Health Disability	+ (*)	
Never Married/Single	+	
State Unemployment Rate		+

NOTES: A column entry of "+" indicates that the variable was estimated to have a positive effect on the probability of exit from AFDC, while the "−" entry indicates that the estimated effect was negative. The (*) indicates that the estimate was significant at or below the .05 level. The variables included in this table are a subset of all of the variables that were included in the studies.

1. This database was initially prepared for the analysis of the impacts on the FSP of the Omnibus Budget Reconciliation Act (OBRA) of 1981.

2. In the Burstein and Visher analysis of recidivism the explanatory variables are measured as of the first month of the prior spell of program participation.

3. Ellwood includes two dummy variables indicating whether the woman has completed 8 years of education or completed 9 to 11 years of education. The estimated coefficients for the two variables are negative and positive, respectively, although neither is statistically significant.

2. <u>Changes over time in family and household circumstances</u> -- Variables reflecting important changes over time in the circumstances of the child's family and household.

3. <u>Program and economic environment</u> -- Variables reflecting the characteristics of the program, economic, and social environment that the child and his or her family and household face at each point in time.

4. <u>Length of spell</u> -- A series of dummy variables to control for the length of the spell.

In the remainder of this section, we discuss each of the types of variables.

1. Baseline Characteristics

A series of demographic and economic variables are included in the model to reflect the characteristics and circumstances of the child and his or her family and household as of the first month of the spell. Those variables are:

Child is White	A dummy variable indicating that the child is white (1=yes, 0=no).
Head is High School Graduate	A dummy variable indicating that the reference person of the child's household had graduated from high school by the first month of the spell (1=yes, 0=no).[18]
Single-Parent Family	A dummy variable indicating that the child's family was headed by a single parent in the first month of the spell (1=yes, 0=no).

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[18]In the SIPP, the household reference person or householder is the first person listed by the household respondents as the person or persons in whose name the home is owned or rented.

Multiple-Family Household	A dummy variable indicating that the child's household included more than one family in the first month of the spell (1=yes, 0=no). The presence of multiple families within the household suggests that the PA and FSP program units may differ. The existence of multiple families within the household also has implications for the child's environment since the other members of the household may provide child care or economic assistance to the child's family.
Child Less Than Age 6	A dummy variable indicating that there was a child less than age six in the child's family as of the first month of the spell (1=yes, 0=no).
Worker Present	A dummy variable indicating that there was a worker within the child's household as of the first month of the spell (1=yes, 0=no).

In describing the child's circumstances we include a mixture of family-level and household-level variables. Factors that are most relevant to AFDC eligibility (e.g., measures of household composition) are based on the child's family, while the remaining variables are defined at the household-level.

The means for the variables describing the child and his or her family and household as of month one are presented in Table 14. In comparing the characteristics of the children participating in the FSP only or in both programs to children who are receiving benefits from neither program, the general relationship is as we would expect. Children from single-parent families, from multiple-family households, and from families with young children are more likely to be program participants.

The characteristics of the children participating in PA only are consistent with AFDC quality control data, which suggest that the component of the AFDC caseload that does not receive

Table 14

Means for the Variables Describing the Characteristics of the
Child and His or Her Family and Household as of Month 1 of the Spell
(Standard deviation in parenthesis)

Variable	PA Only	FSP Only	Both Programs	Neither Program
Child is White	.64 (.48)	.71 (.45)	.58 (.49)	.69 (.46)
Head is High School Grad	.83 (.37)	.78 (.42)	.79 (.41)	.81 (.39)
Single-Parent Family	.54 (.50)	.39 (.49)	.69 (.46)	.45 (.50)
Multiple-Family Household	.33 (.47)	.22 (.41)	.28 (.45)	.20 (.40)
Child Less Than Age 6	.49 (.50)	.51 (.50)	.64 (.48)	.49 (.50)
Worker Present	.79 (.40)	.76 (.43)	.50 (.50)	.86 (.35)

SOURCE: 1984 SIPP Full-Panel Research File.

food stamps is frequently comprised of relatively small program units embedded in larger, more well-to-do households (which presumably are not eligible for the FSP). The PA-only children in our sample are more likely than other program participant children to be members of multiple-family households and households that include at least one worker.

2. Changes Over Time in Family and Household Circumstances

Two prior studies of the dynamics of program participation use monthly data to examine the association between changes in family and household circumstances or "events" (e.g., marriage, birth of a child, beginning a new job) and program entry and exit. Most recently, Williams and Ruggles (1987) use tabular analysis to examine the frequency with which the birth of a child, a marriage, the break-up of a marriage, and changes in the employment of a family member coincide with the month of a change in either AFDC or FSP participation status. While they find that demographic events are more likely than economic changes to be associated with program entry and exit, the occurrence of an event in and of itself is not found to be strongly associated with program entry and exit.

In an earlier study, Carr and Lubitz (1985) use both tabular and multivariate analyses to explore the relationship between the timing of the occurrence of an event and a change in the household's FSP participation status. The household events they examine include a change in household income, asset holdings, the number of earners in the household, or the receipt of benefits from Unemployment Insurance, and the marriage of the household head. Their multivariate work suggests that there is a significant association between the occurrence of an

event, particularly changes in the number of earners in the household, and a subsequent change in FSP participation status.

For this study, we expand the set demographic and economic of events that may trigger a change in program participation status. These events, intended to capture important changes over time in the circumstances of the child's family and household, are summarized below:

Birth of a Child	A dummy variable indicating that an infant entered the child's family between the prior month and the current month (1=yes, 0=no).
Youngest Child Turned 6	A dummy variable indicating that the youngest person in the child's family went from less than age six to at least age six between the prior month and the current month (1=yes, 0=no).
Occurrence of a Marriage	A dummy variable indicating that the reference person of the child's family married between the prior month and the current month (1=yes, 0=no).
Breakup of a Marriage	A dummy variable indicating that the marriage of the reference person of the child's family broke up between the prior month and the current month (1=yes, 0=no).[19]
Lost Last Worker	A dummy variable indicating that the child's household lost its last employed member(s) between the prior month and the current month (1=yes, 0=no).
Added First Worker	A dummy variable indicating that the child's household added its first employed member between the prior month and the current month (1=yes, 0=no).

These variables capture <u>each</u> change in the child's circumstances relative to the child's month-one characteristics. For example, if the head of the child's family divorces his or her

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[19]Any change from a status of "married, spouse present" is counted as evidence of a marital breakup.

spouse and then remarries over the course of the spell of program participation, the occurrence of both events -- the breakup of the marriage and the remarriage -- will be captured.

In this model, the occurrence of an event is hypothesized to increase or decrease the probability of exit from the particular spell. For example, we include the marriage of the head of the child's family and the breakup of that marriage as events that can raise or lower (but do not lower to zero) the hazard of program exits. This differs from earlier work, most notably, Bane and Ellwood (1983), in which events such as marriage and employment are treated as alternative states to which an individual exits from a spell of AFDC. Because marriage, marital breakups, and changes in employment status do not necessarily result in program exits or program entry, we believe our model provides a more appropriate framework for analyzing the impact of family and household events on program behavior.[20]

Over the course of the spells many more children experience one of the economic events than experience the changes in the composition of their household, as shown in Table 15. The most common event for children in each type of spell -- the loss of the last worker in the household -- is experienced by between 16 and 42 percent of the children. In contrast, the least frequent event -- the occurrence of a marriage in the child's family -- occurs for fewer than 5 percent of the children in each type of spell.

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[20]An alternative model would examine the impact of the child's status at each point in time on program participation by including time-varying variables in the model, such as a dummy variable indicating that the reference person of the child's family is married in the month. Unfortunately, constraints on the number of variables that could be included in the model prevented our estimating models that included variables reflecting the child's baseline characteristics, time-varying variables, and indicators of the occurrence of events in the child's family and household. Because we are most interested in the relationship between changes in family and household circumstances and program participation behavior, we focus on the "event" variables.

Table 15

Percentage of Children Experiencing the
Family or Household Event Over the Course of the Spell

Variable	PA Only	FSP Only	Both Programs	Neither Program
Birth of a Child	7.7	3.2	10.7	4.5
Youngest Child Turned 6	3.2	4.3	6.1	8.5
Occurrence of a Marriage	2.6	1.2	3.6	4.5
Breakup of a Marriage	3.5	5.0	8.2	4.8
Lost Last Worker	15.7	24.2	41.8	18.9
Added First Worker	4.5	22.7	36.9	16.9

SOURCE: 1984 SIPP Full-Panel Research File.

In addition to the measures of the occurrence of family and household events, we also include a measure of the availability of alternative sources of support that are independent of program participation and employment. That time-varying variable is:

Monthly Unearned Income   The level of unearned, non-PA income received by the child's household in the prior month ($100s).

As shown in Table 16, the children receiving PA only were members of households that received greater amounts of other income on average than did the households of the remaining children. This is consistent with the tendency, noted above, for AFDC-only program units to be subsumed within larger, more well-to-do households.

3. Program and Economic Environment

We expect that the characteristics of the program environment and the economic conditions in the area in which the child lives will have an impact on the family's program participation behavior. Consequently, we include two environmental measures in our model:[21]

Maximum AFDC Benefit   The maximum AFDC benefit payable to a family of four in the state where the child resides ($100s). This variable serves as a proxy for the generosity of the state's AFDC program.

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[21]Because the SIPP does not include such variables, we add these data to the file for each child for each month based on the child's state of residence. In the case of six states in which the survey sample is relatively small, two state groups were created by the Census Bureau to insure that individual survey respondents could not be identified. Those state groups are: (1) Mississippi and West Virginia, and (2) Idaho, New Mexico, South Dakota, and Wyoming.

Table 16

Mean Monthly Household Income for the Child
Over the Course of the Spell
(Standard deviation in parenthesis)

Variable	PA Only	FSP Only	Both Programs	Neither Program
Monthly Unearned Income ($100s)	3.58 (7.90)	2.47 (3.59)	1.43 (3.54)	2.24 (5.68)

SOURCE: 1984 SIPP Full-Panel Research File.

Unemployment Rate	The unemployment rate for the state in which the child resides. This variable serves as a proxy for the overall economic conditions faced by the child's family and household.

The means for the program and economic environment variables are reported in Table 17. Of particular interest is the fact that the children participating in PA only and in both PA and the FSP were residing in the states with the more generous AFDC programs.

4. Length of Spell

The final set of variables encompasses a series of dummy variables to control for the length of the spell. Those variables are:

Months 3 to 4	A dummy variable indicating that the observation (i.e., spell-month) is either the 3rd or 4th month of the spell (1=yes, 0=no).
Months 5 to 8	A dummy variable indicating that the observation is either the 5th, 6th, 7th, or 8th month of the spell (1=yes, 0=no).
Months 9 to 12	A dummy variable indicating that the observation is either the 9th, 10th, 11th, or 12th month of the spell (1=yes, 0=no).
Months 13 to 16	A dummy variable indicating that the observation is either the 13th, 14th, 15th, or 16th month of the spell (1=yes, 0=no).
Months 17 and Up	A dummy variable indicating that the observation is at least the 17th month of the spell (1=yes, 0=no).
Seam Month	A dummy variable indicating that the observation is the final month in a wave of the SIPP, i.e., it is a "seam" month between two rounds of interviews.

Table 17

Means for Program and Economic Environment Variables
for the Child Over the Course of the Spell
(Standard deviation in parenthesis)

Variable	PA Only	FSP Only	Both Programs	Neither Program
Maximum AFDC Benefit ($100s)	4.37 (1.50)	3.25 (1.42)	4.04 (1.56)	3.81 (1.52)
Unemployment Rate	7.56 (1.61)	7.88 (2.02)	7.81 (1.73)	7.61 (1.81)

SOURCE: 1984 SIPP Full-Panel Research File.

The grouping of the months variables is necessary because of a constraint on the number of explanatory variables that can be handled by the software package we use to estimate the model. The final variable (seam month) is intended to capture a well-documented problem in longitudinal surveys -- the bias of reported transitions toward the seam months of the survey (see Singh et al., 1988 for a discussion of this issue). This is only a rough correction for the tendency of transitions to be reported at the seam because it will not capture any existing correlation between the response errors that result in the bias toward the seam and the outcome variable or the other explanatory variables in the model.

Table 18 reports the means for the length-of-spell variables for our sample of spells.

E. RESULTS

We present our estimation results in two parts: the results obtained for models of the overall hazard for participation in PA only, the FSP only, both programs, and self-sufficiency (Table 19), and the results obtained for the ten type-specific hazard models (Table 20).[22] The tables are provided at the end of this section. Because our models are reduced-form equations, the estimates represent the net effects of variables on the probabilities of exiting from the program states and should not be interpreted as estimates of the parameters of the program participation decision function.

In comparing the estimation results across Tables 19 and 20, it is important to be aware that the overall significance levels for the coefficient estimates will decline as the number of exits of a

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[22]These tables do not include the standard errors for the coefficient estimates reported in the tables. That information, as well as complete information on the means of the explanatory variables, is provided in Appendix A.

Table 18

Means for Variables Reflecting the Length of the Child's Spell
(Standard deviation in parenthesis)

Variable	PA Only	FSP Only	Both Programs	Neither Program
Months 3 to 4	.23 (.42)	.23 (.42)	.18 (.39)	.16 (.37)
Months 5 to 8	.18 (.39)	.21 (.41)	.23 (.42)	.23 (.42)
Months 9 to 12	.11 (.32)	.10 (.30)	.14 (.35)	.16 (.37)
Months 13 to 16	.08 (.27)	.05 (.22)	.10 (.30)	.11 (.31)
Months 17 and Up	.07 (.25)	.05 (.22)	.10 (.31)	.15 (.36)
Seam Month	.21 (.41)	.24 (.43)	.23 (.42)	.22 (.41)

SOURCE: 1984 SIPP Full-Panel Research File.

particular type becomes a smaller proportion of the total sample size. In other words, we obtain

less precise parameter estimates for exit types that are less frequently observed, such as an exit

from participation in both programs to participation in PA only. This imprecision is most evident

for the relatively rare family events (the birth of a child, marriage, and marital disruption) for

which we sometimes obtain very large estimates of the coefficients and standard errors in the

competing-risk model (see Table 20 and Appendix Table A.3).

1. Overview of Welfare Recipiency and Recidivism

In general, variables that are likely to reflect greater earning capabilities (higher educational

attainment) and greater attachment to the labor force (the presence of a worker in the household)

are positively associated with exits from program participation and negatively associated with

exits from self-sufficiency, or recidivism.[23]   In other words, children from educated households

and from households with greater labor force attachment spend less time on the programs and are

less likely to return to the programs, all else equal. In contrast, factors that are likely to reflect, in

part, increased opportunity costs of working (the presence of children less than age 6 and being a

member of a single- rather than two-parent family) are negatively associated with program exits

and positively associated with program recidivism. Thus, children from single-parent families and

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[23]In looking at Table 19 it is clear that there are some apparent anomalies in our findings, e.g., the presence of a worker in the household reduces the probability of exiting from a spell of PA only. Several of these anomalies can be resolved by distinguishing between the different types of exits (as is done in Table 20). For example, the presence of a worker in the household reduces the probability of exiting from a spell of PA only to participation in both programs -- a plausible finding. We discuss several of the anomalies below. A likely explanation for many of the remaining anomalous findings is that they reflect imprecise parameter estimates.

from families with young children tend to remain on the programs for longer periods of time and, for those who do succeed in leaving the programs, spells off the programs tend to be shorter.

Somewhat surprisingly, we find a positive association between residing within a multiple-family household and program recidivism. Our expectation was that the child's family would benefit from the presence of additional adults to help with child care and from the potential financial gains a larger household could provide, as appears to be the case for exits from the FSP only. However, it may be that "doubling-up" with another family represents one method of coping with a stressful situation (job loss, marital disruption, or ill health) and that such families are more likely to turn to program participation as another means of coping.[24]

The strong association between socioeconomic factors and exits from and returns to program participation is illustrated further by the variables indicating the occurrence of family and household events over the course of the program spell. Events likely to reflect improvements in the economic circumstances of the child's family or household, such as the marriage of the head of the family and the addition of the first worker to the household, or reductions in barriers to employment such as the aging of the youngest child in the family to age six or greater, are positively associated with program exits, all else equal.[25] Conversely, exits from self-sufficiency

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[24]The negative relationship between residing in a multiple family and exits from PA only is likely to reflect the greater likelihood that the multiple-family household is not eligible for the FSP. Thus, children from multiple-family households are less likely to exit from participation in PA only to participation in both programs (Table 20).

[25]In addition to capturing any reduction in potential work-related child care costs as the children in the family age, the variable reflecting the aging of the youngest child is also likely to capture the effect of the 1984 AFDC program rules under which able-bodied recipients, including mothers whose youngest child is at least six years old, are required to register for work or job training.

are more likely for children in households that lose all of their workers, a change that is likely to indicate a worsening of economic conditions for the child.

Overall, these findings suggest that changes in family circumstances frequently precipitate transitions in welfare recipiency and welfare recidivism.

The coefficient estimates on the length of spell dummy variables suggest a negative duration dependence in the hazard estimates -- children are less likely to exit from a program category the longer they remain in that particular category. This finding should not be taken as evidence of program-induced welfare dependency, because a declining hazard rate may result in the absence of program dependence. In a study that developed and estimated a theoretical model of program dependency, Blank (1986) found little evidence of program-induced AFDC dependency.

Before discussing our findings for other variables in the model, we expand our discussion to include the competing-risks model of program exits presented in Table 20.

2. Reliance on the Broader Welfare System

What can we learn from examining multiple program participation that can not learn from examining each program in isolation? Assuming that an exit from a spell of PA only or the FSP only to participation in both programs represents an increased reliance on the social welfare system and, conversely, that a move from joint participation to a spell of PA only or FSP only is a move toward greater independence, we obtain a profile of patterns of multiple program participation and paths off the programs.

Of most interest is the impact of family and household events on the patterns of exits from the participation categories. Just as the loss of the last worker in the household is strongly associated with returns to program participation, so too is the loss of the last worker associated with increased reliance on the welfare system, as the children experiencing that event move from participation in a single program to receipt of benefits from both programs (Table 20). Similarly, the breakup of the marriage of the family head is associated with increased reliance on the welfare system, as the children experiencing that event move from participation in a single program to participation in both programs.

For those who have succeeded in exiting from the programs, both a breakup of the marriage and the birth of a child in the family are associated with moves to participation in both programs. While the breakup of a marriage implies a worsening of economic conditions for the family, the birth of a child introduces an additional barrier to employment for the family members.

In contrast, a lessening reliance on the welfare system -- either through a reduction in the number of programs from which benefits are received or in a direct move to nonparticipation -- is observed following the addition of the first worker in the household and following the marriage of the family head. Surprisingly, the marriage of the family head is also associated with exits to greater reliance on the welfare system for children who are initially in a spell of PA only. Since children who are initially participating in both programs are more likely to exit to self-sufficiency following a marriage, it is difficult to know what to make of this move from participation in one program to joint program participation.

A reduced reliance on the welfare system is also observed for children who reside in households with greater nonwelfare options, as measured by the receipt of income from sources other than earnings and welfare programs. The greater the alternative sources of income the less likely is the child to exit from a single program to both programs or to return to program participation from a period of self-sufficiency.

Finally, in looking at the impact of the program environment as measured by the generosity of the AFDC program in the state where the child resides, we find that that environment has a significant impact on the patterns of program participation. Exits from PA only and both programs are less likely and, for those off the programs, returns to participation in PA, whether alone or in conjunction with the FSP, are more likely the more generous the AFDC program in the child's state. Thus, our results suggest that reducing AFDC benefits would reduce AFDC participation and recidivism. However, this finding should not be taken as support for a reduction in AFDC benefits because our study does not consider the well-being of the child when he or she is off the programs. Policies that reduce welfare participation but do not increase the family's ability to function independently could result in greater levels of poverty.

Table 19

Coefficient Estimates for the Hazard Models for First Observed Spells of PA Only, FSP Only, Both Programs, and Neither Program

Variable	PA Only	FSP Only	Both Programs	Neither Program
Constant	-1.127	-2.826 **	-2.318 **	-3.102 **
Child is White	0.336	0.231 *	0.249 *	-0.067
Head is High School Grad	-0.316	0.141	0.402 **	-0.341 **
Multiple-Family Household	-0.703 **	0.231 *	-0.124	0.213 *
Single-Parent Family	0.129	-0.256 **	-0.300 *	0.333 **
Child Less Than Age 6	0.158	-0.091	-0.239 *	0.309 **
Worker Present	-0.845 **	0.220 *	0.728 **	-0.273 *
Monthly Unearned Income	-0.047 *	-0.010	0.047 **	-0.020
Birth of a Child	1.029	-0.482	-0.952	0.681
Youngest Child Turned 6	3.181 **	0.607	1.423 **	0.038
Occurrence of a Marriage	3.372 **	1.585 *	1.373 **	0.355
Breakup of a Marriage	0.995	0.934 **	0.018	0.037
Added First Worker	0.915	1.335 **	1.565 **	0.153
Lost Last Worker	0.349	-0.326	-0.496	1.024 **
Maximum AFDC Benefit	-0.124 *	0.121 **	-0.126 **	-0.064 *
Unemployment Rate	0.092	0.002	-0.072 *	0.002
Months 3 to 4	-0.509 *	-0.181	-0.399 **	0.273 *
Months 5 to 8	-1.022 **	-0.374 **	-0.188	-0.020
Months 9 to 12	-1.863 **	-0.560 **	-1.215 **	-0.452 **
Months 13 to 16	-1.074 **	-1.017 **	-1.057 **	-0.594 **
Months 17 and Up	-3.064 **	-0.763 **	-1.592 **	-1.058 **
Seam Month	2.069 **	1.406 **	1.467 **	1.141 **
Log-likelihood	308.66	458.87	504.59	407.28

SOURCE: 1984 SIPP Full-Panel Research File.

NOTE: Means for the explanatory variables and estimates of the standard errors are reported in Tables A.1 and A.2, respectively.

* (**) Significant at the .05 (.01) level.

Table 20

Coefficient Estimates for the Competing-Risk Hazard Model for
First Observed Spells of Participation in PA Only, FSP Only,
Both Programs, and Neither Program

Variable	Exit from PA Only to:		Exit from FSP Only to:	
	Both Programs	Neither Program	Both Programs	Neither Program
Constant	-1.614	-2.686 **	-4.201 **	-3.122 **
Child is White	0.166	0.540 *	0.629 *	0.189
Head is High School Grad	-0.858 *	-0.202	-0.340	0.227 *
Multiple-Family Household	-1.332 **	-0.293	0.101	0.275 *
Single-Parent Family	0.341	0.052	1.009 **	-0.466 **
Child Less Than Age 6	1.049 **	-0.414	0.392	-0.176
Worker Present	-1.449 **	0.159	-0.637 **	0.364 **
Monthly Unearned Income	-0.085 *	-0.031	-0.386 **	0.014
Birth of a Child	-0.324	1.431	0.029	-0.515
Youngest Child Turned 6	2.355	3.507 **	-17.141	0.762
Occurrence of a Marriage	4.179 **	2.584 *	1.592	1.246
Breakup of a Marriage	2.580 **	-16.937	1.713 **	0.414
Added First Worker	-18.337	2.580 **	0.011	1.503 **
Lost Last Worker	1.020 *	-17.892	0.400	-0.474 *
Maximum AFDC Benefit	-0.019	-0.175 *	0.165 *	0.111 **
Unemployment Rate	0.109	0.078	0.003	-0.000
Months 3 to 4	-0.908 **	-0.213	-0.170	-0.174
Months 5 to 8	-1.482 **	-0.668 *	-0.806 **	-0.306 *
Months 9 to 12	-2.125 **	-1.558 **	-0.226	-0.635 **
Months 13 to 16	-1.638 *	-0.630	-17.529	-0.789 **
Months 17 and Up	-17.203	-2.496 *	-0.871	-0.741 **
Seam Month	1.418 **	2.342 **	0.770 **	1.521 **
Log-likelihood	432.83		615.23	

Table 20 (Continued)

Variable	Exit from Both Programs to:		
	PA Only	FSP Only	Neither Program
Constant	-6.813 **	-1.316 *	-4.101 **
Child is White	0.250	0.121	0.512 **
Head is High School Grad	0.474	0.398	0.335
Multiple-Family Household	0.683 *	-0.016	-1.014 **
Single-Parent Family	0.365	-0.943 **	0.059
Child Less Than Age 6	0.519	-0.405 *	-0.486 **
Worker Present	0.354	0.687 **	0.919 **
Monthly Unearned Income	0.044 *	0.032	0.072 **
Birth of a Child	-16.661	-0.860	-0.314
Youngest Child Turned 6	-15.466	2.128 **	0.218
Occurrence of a Marriage	-15.822	-0.873	2.884 **
Breakup of a Marriage	-16.693	1.011	-1.108
Added First Worker	1.456 **	1.830 **	1.410 **
Lost Last Worker	0.329	-1.049 *	-0.494
Maximum AFDC Benefit	0.116	-0.358 **	-0.056
Unemployment Rate	0.013	-0.149 **	-0.013
Months 3 to 4	-0.949 **	-0.264	-0.299
Months 5 to 8	-0.155	-0.137	-0.427
Months 9 to 12	-1.498 **	-0.889 **	-1.471 **
Months 13 to 16	-0.114	-1.274 **	-2.147 **
Months 17 and Up	-1.668 *	-1.188 **	-2.031 **
Seam Month	1.723 **	1.601 **	1.265 **
Log-likelihood	680.93		

Table 20 (Continued)

Variable	Exit from Neither Program to:		
	PA Only	FSP Only	Both Programs
Constant	-7.376 **	-2.393 **	-8.937 **
Child is White	-0.554 **	0.098	-0.408
Head is High School Grad	-0.281	-0.374 **	-0.116
Multiple-Family Household	0.606 **	0.102	0.241
Single-Parent Family	0.877 **	0.120	0.890 **
Child Less Than Age 6	0.459 *	0.223 *	0.630 **
Worker Present	0.035	-0.286 *	-0.536
Monthly Unearned Income	0.011	-0.028 *	-0.099 *
Birth of a Child	-15.024	0.041	2.522 **
Youngest Child Turned 6	0.464	-0.109	0.262
Occurrence of a Marriage	-16.560	1.000 *	-16.798
Breakup of a Marriage	-15.498	-0.629	1.468 *
Added First Worker	1.157 *	-0.242	0.732
Lost Last Worker	0.243	1.216 **	0.879
Maximum AFDC Benefit	0.194 **	-0.208 **	0.347 **
Unemployment Rate	0.012	-0.043	0.254 **
Months 3 to 4	0.700 *	0.198	0.328
Months 5 to 8	0.487	0.013	-0.840 *
Months 9 to 12	-0.161	-0.331	-1.693 **
Months 13 to 16	0.004	-0.823 **	-0.056
Months 17 and Up	-0.039	-1.242 **	-1.153 *
Seam Month	1.812 **	0.955 **	1.396 **
Log-likelihood	604.24		

SOURCE: 1984 SIPP Full-Panel Research File.

NOTE: Means for the explanatory variables and estimates of the standard errors are reported in Tables A.1 and A.3, respectively.

* (**) Significant at the .05 (.01) level.

REFERENCES

Allison, P.D. 1984. Event History Analysis: Regression for Longitudinal Data. Beverly Hills, CA: Sage University Press.

Bane, M.J. and D.T. Ellwood. 1983. "The Dynamics of Dependence: The Routes to Self-sufficiency." Cambridge, MA: Urban Systems Research and Engineering, Inc.

Blank, R. 1989. "Analyzing the Length of Welfare Spells." Journal of Public Economics, Vol. 39, No. 3, pp. 245-273.

Boskin, M. and F.C. Nold. 1975. "A Markov Model of Turnover in Aid to Families with Dependent Children." Journal of Human Resources, Vol. 10, No. 4, pp. 467-481.

Burkhead, D. and J. Coder. 1985. "Gross Changes in Income Recipiency from the Survey of Income and Program Participation." Selected Papers Given at the 1985 Annual Meetings of the American Statistical Association. Washington, DC: U.S. Bureau of the Census.

Burstein, N.R. and M.G. Visher. 1989. "The Dynamics of Food Stamp Program Participation." Cambridge, MA: Abt Associates, Inc.

Carr, T.J., P. Doyle, and I.S. Lubitz. 1984. "Turnover in Food Stamp Participation: A Preliminary Analysis." Washington, DC: Mathematica Policy Research, Inc.

Coe, R. 1979. "An Examination of the Dynamics of Food Stamp Use," In G.J. Duncan and J.N. Morgan, eds., Five Thousand American Families--Patterns of Economic Progress, Vol. 7. Ann Arbor, MI: Institute for Social Research, University of Michigan, pp. 183-268.

Coe, R. 1981. "A Preliminary Empirical Examination of the Dynamics of Welfare Use." In M. Hill, D. Hill, and J.N. Morgan, eds., Five Thousand American Families--Patterns of Economic Progress, Vol. 9. Ann Arbor, MI: Institute for Social Research, University of Michigan, pp. 121-168.

Coder, J., and P. Ruggles. 1988. "Welfare Recipiency as Observed in the SIPP." Paper presented at the American Statistical Association Annual Meetings, New Orleans.

Doyle, P. and S.K. Long. 1988. "The Impact of the Unit of Analysis on Measures of Serial Multiple Program Participation." In Individuals and Families in Transition: Understanding Change through Longitudinal Data. Washington, DC: U.S. Bureau of the Census.

Duncan, G.J., et al. 1984. Years of Poverty, Years of Plenty. Ann Arbor, MI: Institute for Social Research, University of Michigan.

Ellwood, D.T. 1986. "Targeting 'Would-be' Long-Term Recipients of AFDC." Princeton, NJ: Mathematica Policy Research, Inc.

Ellwood, D.T. 1987. "Understanding Dependency: Choices, Confidence or Culture?" Waltham, MA: Heller Graduate School, Brandeis University.

Engberg, J., P. Gottschalk, and D. Wolf. 1990. "A Random Effects Logit Model of Work-Welfare Transitions." Journal of Econometrics, Vol. 43, No. 1/2.

Ernst, L. and D. Gillman. 1988. "Excluding Sample that Misses Some Interviews from SIPP Longitudinal Estimates." SIPP Working Paper No. 8825. Washington, DC: U.S. Bureau of the Census.

Fitzgerald, J. 1988. "The Effects of the Marriage Market and AFDC Benefits on Recipient Duration on AFDC." In Individuals and Families in Transition: Understanding Change through Longitudinal Data. Washington, DC: U.S. Bureau of the Census.

Hoffman, S.D. and K.R. Hopkins. 1987. "Chapter 11: Directions for Future Research," in K.R. Hopkins "Welfare Dependency: Behavior, Culture and Public Policy." Alexandria, VA: Hudson Institute.

Hutchens, R.M. 1981. "A Government Transfer Program: The Case of Aid to Families with Dependent Children." Journal of Human Resources, Vol. 16, No. 2, pp. 217-237.

Kalbfleisch, J.D. and R.L. Prentice. 1980. The Statistical Analysis of Failure Time Data. New York, NY: Wiley Press.

Kirlin, J.A. and S.R. Merrill. 1983. "A Longitudinal Study of Participation Patterns in the Food Stamp Program." Cambridge, MA: Abt Associates.

Lamas, E., and J. McNeil. 1988. "What Happens When Persons Leave Welfare: Data from the SIPP Panel File." Paper presented at the American Statistical Association Annual Meetings, New Orleans.

Long, S.K. 1988. "Multiple Program Participation Among Food Stamp Recipients." Paper presented at the American Statistical Association Annual Meetings, New Orleans.

Lubitz, I.S. and T.J. Carr. 1985. "Turnover in the Food Stamp Program in 1979: The Role of Trigger Events." Washington, DC: Mathematica Policy Research, Inc.

McArthur, E. 1988. "Measurement of Attrition Through the Completed SIPP 1984 Panel: Preliminary Results." Memorandum.

Merck, C.L. 1980. "Turnover and Recidivism in the Food Stamp and Aid to Families with Dependent Children Programs." Washington, D.C.: Mathematica Policy Research.

O'Neill, J.A., D.A. Wolf, L.J. Bassi, and M.T. Hannan. 1987. "The Duration of Welfare Spells." The Review of Economics and Statistics, Vol. 69, No. 2, pp. 241-248.

Plotnick, R. 1983. "Turnover in the AFDC Population: An Event History Analysis," Journal of Human Resources, Vol. 18, No. 1, pp. 65-81.

Rein, M. and L. Rainwater. 1978. "Patterns of Welfare Use," Social Service Review, Vol. 52, pp. 511-534.

Ruggles, P. 1988. "Welfare Dependency and Its Causes: Determinants of the Duration of Welfare Spells." Paper presented at the annual meetings of the Allied Social Science Association, New York.

Short, K. and E. McArthur. 1986. "Life Events and Sample Attrition in the Survey of Income and Program Participation." Selected Papers Given at the 1986 Annual Meetings of the American Statistical Association. Washington, DC: U.S. Bureau of the Census.

Singh, R., L. Weidman, and G. Shapiro. 1988. "Quality of the SIPP Estimates." In Individuals and Families in Transition: Understanding Change through Longitudinal Data. Washington, DC: U.S. Bureau of the Census.

Springs, R.C. 1977. "Food Stamp Participation Patterns in Seattle, Washington- -1971." Washington, D.C.: Mathematica Policy Research.

Williams, R. and P. Ruggles. 1987. "Determinants of Changes in Income Status and Welfare Program Participation." Paper presented at the American Statistical Association Annual Meetings, San Francisco.

APPENDIX A

SUPPLEMENTAL TABLES

Table A.1

Means and Standard Errors for the Explanatory
Variables Included in the Models

Variable	PA Only Mean	Std. Error	FSP Only Mean	Std. Error	Both Programs Mean	Std. Error	Neither Program Mean	Std. Error
Constant	1.000	0.00	1.000	0.00	1.000	0.00	1.000	0.00
Child is White	0.619	0.49	0.665	0.47	0.554	0.50	0.705	0.46
Head is High School Grad	0.824	0.38	0.758	0.43	0.794	0.40	0.812	0.39
Multiple-Family Household	0.410	0.49	0.206	0.40	0.281	0.45	0.175	0.38
Single-Parent Family	0.569	0.50	0.424	0.49	0.731	0.44	0.396	0.49
Child Less Than Age 6	0.481	0.50	0.512	0.50	0.677	0.47	0.473	0.50
Worker Present	0.905	0.29	0.754	0.43	0.412	0.49	0.885	0.32
Monthly Unearned Income	3.585	7.90	2.470	3.59	1.435	3.54	2.237	5.68
Birth of a Child	0.014	0.12	0.006	0.08	0.013	0.12	0.004	0.07
Youngest Child Turned 6	0.006	0.08	0.009	0.09	0.008	0.09	0.008	0.09
Occurrence of a Marriage	0.005	0.07	0.002	0.05	0.005	0.07	0.004	0.07
Breakup of a Marriage	0.007	0.08	0.010	0.10	0.010	0.10	0.005	0.07
Added First Worker	0.008	0.09	0.045	0.21	0.047	0.21	0.016	0.13
Lost Last Worker	0.029	0.17	0.048	0.21	0.053	0.22	0.018	0.13
Maximum AFDC Benefit	4.372	1.50	3.250	1.42	4.041	1.56	3.812	1.52
Unemployment Rate	7.560	1.61	7.880	2.02	7.817	1.73	7.614	1.81
Months 3 to 4	0.233	0.42	0.228	0.42	0.185	0.39	0.163	0.37
Months 5 to 8	0.183	0.39	0.214	0.41	0.234	0.42	0.229	0.42
Months 9 to 12	0.114	0.32	0.102	0.30	0.142	0.35	0.161	0.37
Months 13 to 16	0.082	0.27	0.052	0.22	0.097	0.30	0.109	0.31
Months 17 and Up	0.067	0.25	0.049	0.22	0.104	0.31	0.149	0.36
Seam Month	0.212	0.41	0.238	0.43	0.230	0.42	0.218	0.41

SOURCE: 1984 SIPP Full-Panel Research File.

Table A.2

Estimation Results for the Hazard Models for First
Observed Spells of PA Only, FSP Only, Both Programs, and
Neither Program

Variable	PA Only		FSP Only	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-1.127	0.591	-2.826 **	0.256
Child is White	0.336	0.187	0.231 *	0.098
Head is High School Grad	-0.316	0.219	0.141	0.106
Multiple-Family Household	-0.703 **	0.220	0.231 *	0.108
Single-Parent Family	0.129	0.199	-0.256 **	0.094
Child Less Than Age 6	0.158	0.175	-0.091	0.087
Worker Present	-0.845 **	0.250	0.220 *	0.110
Monthly Unearned Income	-0.047 *	0.020	-0.010	0.012
Birth of a Child	1.029	0.529	-0.482	0.552
Youngest Child Turned 6	3.181 **	0.955	0.607	0.409
Occurrence of a Marriage	3.372 **	0.814	1.585 *	0.622
Breakup of a Marriage	0.995	0.737	0.934 **	0.332
Added First Worker	0.915	0.620	1.335 **	0.166
Lost Last Worker	0.349	0.399	-0.326	0.199
Maximum AFDC Benefit	-0.124 *	0.061	0.121 **	0.030
Unemployment Rate	0.092	0.051	0.002	0.021
Months 3 to 4	-0.509 *	0.213	-0.181	0.105
Months 5 to 8	-1.022 **	0.259	-0.374 **	0.114
Months 9 to 12	-1.863 **	0.408	-0.560 **	0.163
Months 13 to 16	-1.074 **	0.365	-1.017 **	0.258
Months 17 and Up	-3.064 **	1.024	-0.763 **	0.255
Seam Month	2.069 **	0.189	1.406 **	0.085
Log-likelihood	308.66		458.87	

Table A.2 (Continued)

Variable	Both Programs Coefficient	Std. Error	Neither Program Coefficient	Std. Error
Constant	-2.318 **	0.373	-3.102 **	0.270
Child is White	0.249 *	0.115	-0.067	0.091
Head is High School Grad	0.402 **	0.147	-0.341 **	0.099
Multiple-Family Household	-0.124	0.143	0.213 *	0.107
Single-Parent Family	-0.300 *	0.124	0.333 **	0.092
Child Less Than Age 6	-0.239 *	0.115	0.309 **	0.086
Worker Present	0.728 **	0.120	-0.273 *	0.119
Monthly Unearned Income	0.047 **	0.013	-0.020	0.011
Birth of a Child	-0.952	0.733	0.681	0.473
Youngest Child Turned 6	1.423 **	0.419	0.038	0.400
Occurrence of a Marriage	1.373 **	0.454	0.355	0.444
Breakup of a Marriage	0.018	0.484	0.037	0.504
Added First Worker	1.565 **	0.168	0.153	0.258
Lost Last Worker	-0.496	0.276	1.024 **	0.216
Maximum AFDC Benefit	-0.126 **	0.038	-0.064 *	0.029
Unemployment Rate	-0.072 *	0.031	0.002	0.023
Months 3 to 4	-0.399 **	0.150	0.273 *	0.123
Months 5 to 8	-0.188	0.139	-0.020	0.123
Months 9 to 12	-1.215 **	0.219	-0.452 **	0.152
Months 13 to 16	-1.057 **	0.252	-0.594 **	0.182
Months 17 and Up	-1.592 **	0.326	-1.058 **	0.204
Seam Month	1.467 **	0.110	1.141 **	0.086
Log-likelihood	504.59		407.28	

SOURCE: Extract from the 1984 SIPP Full-Panel Research File.

* (**) Significant at the .05 (.01) level.

Table A.3

Estimation Results for Competing-Risk Hazard Model for
First Observed Spells of Participation in PA Only, FSP Only,
Both Programs, and Neither Program

| | Exit from PA Only to: | | | |
| | Both Programs | | Neither Program | |
Variable	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-1.614	0.898	-2.686 **	0.779
Child is White	0.166	0.281	0.540 *	0.245
Head is High School Grad	-0.858 *	0.343	-0.202	0.267
Multiple-Family Household	-1.332 **	0.362	-0.293	0.265
Single-Parent Family	0.341	0.306	0.052	0.247
Child Less Than Age 6	1.049 **	0.278	-0.414	0.225
Worker Present	-1.449 **	0.326	0.159	0.411
Monthly Unearned Income	-0.085 *	0.036	-0.031	0.023
Birth of a Child	-0.324	0.697	1.431	0.779
Youngest Child Turned 6	2.355	1.327	3.507 **	1.066
Occurrence of a Marriage	4.179 **	0.948	2.584 *	1.070
Breakup of a Marriage	2.580 **	0.804	-16.937	5469.550
Added First Worker	-18.337	4191.870	2.580 **	0.807
Lost Last Worker	1.020 *	0.446	-17.892	2399.780
Maximum AFDC Benefit	-0.019	0.093	-0.175 *	0.078
Unemployment Rate	0.109	0.081	0.078	0.064
Months 3 to 4	-0.908 **	0.330	-0.213	0.270
Months 5 to 8	-1.482 **	0.450	-0.668 *	0.315
Months 9 to 12	-2.125 **	0.755	-1.558 **	0.481
Months 13 to 16	-1.638 *	0.675	-0.630	0.426
Months 17 and Up	-17.203	2142.760	-2.496 *	1.038
Seam Month	1.418 **	0.312	2.342 **	0.225
Log-likelihood	432.83			

Table A.3 (Continued)

Variable	Exit from FSP Only to:			
	Both Programs		Neither Program	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-4.201 **	0.587	-3.122 **	0.278
Child is White	0.629 *	0.245	0.189	0.105
Head is High School Grad	-0.340	0.251	0.227 *	0.114
Multiple-Family Household	0.101	0.261	0.275 *	0.116
Single-Parent Family	1.009 **	0.229	-0.466 **	0.103
Child Less Than Age 6	0.392	0.213	-0.176	0.093
Worker Present	-0.637 **	0.241	0.364 **	0.121
Monthly Unearned Income	-0.386 **	0.067	0.014	0.012
Birth of a Child	0.029	1.048	-0.515	0.626
Youngest Child Turned 6	-17.141	4902.880	0.762	0.433
Occurrence of a Marriage	1.592	0.864	1.246	0.741
Breakup of a Marriage	1.713 **	0.451	0.414	0.424
Added First Worker	0.011	0.503	1.503 **	0.176
Lost Last Worker	0.400	0.395	-0.474 *	0.223
Maximum AFDC Benefit	0.165 *	0.071	0.111 **	0.032
Unemployment Rate	0.003	0.049	-0.000	0.023
Months 3 to 4	-0.170	0.250	-0.174	0.113
Months 5 to 8	-0.806 **	0.306	-0.306 *	0.121
Months 9 to 12	-0.226	0.317	-0.635 **	0.184
Months 13T16	-17.529	2099.900	-0.789 **	0.261
Months 17 and Up	-0.871	0.610	-0.741 **	0.277
Seam Month	0.770 **	0.214	1.521 **	0.091
Log-likelihood	615.23			

Table A.3 (Continued)

	Exit from Both Programs to:					
	PA Only		FSP Only		Neither Program	
Variable	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-6.813 **	0.839	-1.316 *	0.542	-4.101	0.619
Child is White	0.250	0.238	0.121	0.168	0.512 **	0.196
Head is High School Grad	0.474	0.324	0.398	0.214	0.335	0.244
Multiple-Family Household	0.683 *	0.281	-0.016	0.209	-1.014 **	0.276
Single-Parent Family	0.365	0.314	-0.943 **	0.175	0.059	0.201
Child Less Than Age 6	0.519	0.273	-0.405 *	0.169	-0.486 **	0.132
Worker Present	0.354	0.254	0.687 **	0.178	0.919 **	0.193
Monthly Unearned Income	0.044 *	0.021	0.032	0.023	0.072 **	0.019
Birth of a Child	-16.661	3428.180	-0.860	1.028	-0.314	1.023
Youngest Child Turned 6	-15.466	4244.820	2.128 **	0.480	0.218	1.087
Breakup of a Marriage	-15.822	4313.580	-0.873	1.168	2.884 **	0.500
Breakup of a Marriage	-16.693	3729.960	1.011	0.550	-1.108	0.938
Added First Worker	1.456 **	0.324	1.830 **	0.229	1.410 **	0.276
Lost Last Worker	0.329	0.450	-1.049 *	0.495	-0.494	0.442
Maximum AFDC Benefit	0.116	0.075	-0.358 **	0.061	-0.056	0.061
Unemployment Rate	0.013	0.066	-0.149 **	0.046	-0.013	0.052
Months 3 to 4	-0.949 **	0.355	-0.264	0.221	-0.299	0.226
Months 5 to 8	-0.155	0.282	-0.137	0.211	-0.427	0.227
Months 9 to 12	-1.498 **	0.501	-0.889 **	0.304	-1.471 **	0.380
Months 13 to 16	-0.114	0.366	-1.274 **	0.447	-2.147 **	0.618
Months 17 and Up	-1.668 *	0.742	-1.188 **	0.449	-2.031 **	0.607
Seam Month	1.723 **	0.228	1.601 **	0.164	1.265 **	0.179
Log-likelihood	680.93					

Table A.3 (Continued)

	Exit from Neither Program to:					
	PA Only		FSP Only		Neither Program	
Variable	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-7.376 **	0.740	-2.393 **	0.314	-8.937 **	0.811
Child is White	-0.554 **	0.214	0.098	0.110	-0.408	0.243
Head is High School Grad	-0.281	0.247	-0.374 **	0.115	-0.116	0.295
Multiple-Family Household	0.606 **	0.235	0.102	0.132	0.241	0.285
Single-Parent Family	0.877 **	0.236	0.120	0.109	0.890 **	0.270
Child Less Than Age 6	0.459 *	0.209	0.223 *	0.100	0.630 **	0.244
Worker Present	0.035	0.308	-0.286 *	0.141	-0.536	0.302
Monthly Unearned Income	0.011	0.008	-0.028 *	0.014	-0.099 *	0.041
Birth of a Child	-15.024	3755.170	0.041	0.724	2.522 **	0.641
Youngest Child Turned 6	0.464	0.734	-0.109	0.516	0.262	1.031
Breakup of a Marriage	-16.560	3641.040	1.000 *	0.446	-16.798	3467.520
Breakup of a Marriage	-15.498	3489.100	-0.629	0.752	1.468 *	0.694
Added First Worker	1.157 *	0.500	-0.242	0.333	0.732	0.589
Lost Last Worker	0.243	0.664	1.216 **	0.243	0.879	0.554
Maximum AFDC Benefit	0.194 **	0.066	-0.208 **	0.036	0.347 **	0.076
Unemployment Rate	0.012	0.060	-0.043	0.027	0.254 **	0.061
Months 3 to 4	0.700 *	0.347	0.198	0.146	0.328	0.297
Months 5 to 8	0.487	0.349	0.013	0.142	-0.840 *	0.381
Months 9 to 12	-0.161	0.435	-0.331	0.171	-1.693 **	0.625
Months 13 to 16	0.004	0.466	-0.823 **	0.229	-0.056	0.399
Months 17 and Up	-0.039	0.465	-1.242 **	0.255	-1.153 *	0.555
Seam Month	1.812 **	0.215	0.955 **	0.102	1.396 **	0.235
Log-likelihood	604.24					

SOURCE: 1984 SIPP Full-Panel Research File.

* (**) Significant at the .05 (.01) level.