THE SURVEY OF INCOME AND PROGRAM PARTICIPATION

The Impact of the Unit of Analysis on Measures of Serial Multiple Program Participation

No. 48

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Mathematica Policy Research, Inc.

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DISCLAIMER

This report uses data from the Survey of Income and Program Participation 1984 Panel (Preliminary) 3-wave longitudinal file, which was released by the Census Bureau for research to improve 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.

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A. INTRODUCTION

The social welfare system of the United States provides income maintenance through multiple programs that fall into two major groups: (1) means-tested programs that are targeted, by and large, on particular demographic groups and/or respond to specific needs; and (2) social insurance programs for which eligibility depends on prior contributions and/or work history, with the amount of benefits typically related to prior earnings. Under the rules and regulations of these programs, individuals and households can often qualify for and, if they choose, participate in more than one assistance program. Previous research on participation in assistance programs at a point in time, for which the 1979 Income Survey Development Program (ISDP) Research Panel (e.g., MacDonald, 1983; Weinberg, 1985) and the Survey of Income and Program Participation (SIPP) (e.g., McMillen, 1985; Falk and Richardson, 1985; Weinberg, 1986; Long, 1988) were used, has shown that a substantial amount of multiple program participation does occur.[1,2] In particular, Weinberg (1986) found that multiple program participation was the norm in 1984: 76 percent of all families and unrelated individuals participating in at

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[1]The ISDP and SIPP are databases that provide detailed monthly information on nationally representative samples of households concerning characteristics of individuals and households participating in a wide range of assistance programs.

[2]Previous research not based on the ISDP and SIPP, was hampered by such problems as nonrepresentative samples (e.g., Storey, Cox, and Townsend, 1973), the availability of information only on a limited number of assistance programs (e.g., MacDonald, 1977), and the use of annual, rather than monthly, reference periods (e.g., Rein and Rainwater, 1978; Coe, 1981).

least one assistance program, received benefits from two or more of the eleven programs studied.

Although these studies indicate that multiple program participation is quite common for participant households, they provide little information on the patterns of participation, that is, ... flows of households into and out of different programs or program combinations. More information on the patterns of multiple participation is needed to answer the following questions:

- How long do individuals/households remain in particular assistance programs and combinations of programs and how do their characteristics relate to their lengths of participation?
- What is the extent of turnover in program caseloads over the course of a year?
- How is participation in any given assistance program or combination of programs linked to participation in other programs and to subsequent self-sufficiency.

Insights into such issues should, in turn, lead to insight into how to improve targeting of program benefits, better estimate program costs, and better evaluate the adequacy of program policy and benefit allotment for meeting program objectives.

With the availability of the SIPP data base, the actual behavior of households and individuals can be traced over time with respect to monthly patterns of household composition, income change, eligibility for program participation, receipt of program benefits, and program turnover.[3]

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[3]The potential of SIPP in this regard is illustrated by Long et al. (1986) who summarized research on the dynamics of multiple program participation and, particularly, participation in Food Stamps, in which the ISDP, the precursor to SIPP, was used as the data source.

However, to realize the full potential of SIPP for facilitating analyses of patterns of multiple program participation overtime (i.e., serial multiple program participation) complex methodological issues related to the analysis of longitudinal data must be resolved. In this paper, we address one of those methodological issues--the choice of the unit of analysis--using as the source data the SIPP Experimental Longitudinal Research File.[4]

The paper is organized as follows: Section B outlines the difficulties associated with the choice of the unit of analysis in longitudinal studies. Section C discusses the data used in the analysis and our technical approach. In section D we provide a framework for our analysis by presenting an overview of the extent and patterns over time of transitions in multiple program participation. Section E presents our findings regarding the impact of the choice of the unit of analysis on the measures of multiple program participation, and, finally, section F summarizes the study and presents our conclusions.

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[4]Other methodological issues that arise in the analysis of serial multiple program participation include issues related to: longitudinal sample design and weighting, longitudinal imputation of missing data, the limited timeframe over which program participation is observed, and potential biases in the timing of reported program transitions. These issues are described briefly in a later section of the paper.

B. THE UNIT OF ANALYSIS

The network of social programs in the United States includes programs that focus on the needs of selected individuals (e.g., children, the elderly, the unemployed) and those that are targeted to low-income households in general. For example, Aid to Families with Dependent Children (AFDC) is targeted to single-parent families with dependent children and, in some states, also serves intact families with dependent children and an unemployed parent (under AFDC-UP). Supplemental Security Income (SSI) is targeted to the low-income elderly and disabled. Food Stamps is targeted primarily to low-income households. Although the unit targeted for assistance under each program is related to the specific goals of that program, the net result of the overlap in the way assistance units are designed within the social welfare system as a whole is considerable variation in the individuals within a household who are covered under the different programs. Thus, for analyses in which the decision-making process that leads to multiple programs participation is examined, it is not at all clear whether the individual, family or household is the appropriate unit of analysis.

Focusing on the simplest unit--the individual--and the set of programs in which he or she is <u>directly</u> participating poses some problems. In analyses of economic behavior, it has long been recognized that the household and family are the fundamental units for decisions concerning labor supply and consumption. In the area of program participation, the interrelated needs, abilities, and resources of the household and family are important factors that determine programs which the entire household and its individual members are eligible for, as well as which programs the

household and its members choose to participate in. An approach that focuses only on the individual's direct program participation would overlook any indirect program benefits he or she receives as a consequence of the sharing of program benefits that may go on within the family or household unit. That resources are indeed shared is a basic assumption of household consumption behavior, and this assumption underlies the decision to target many programs to the needs of assistance units that are larger than a single individual.

In studies of multiple program participation at a single point in time, the fact that assistance units are defined differently within the different assistance programs is typically handled by examining separately the program participation behavior of subgroups of the population, which correspond roughly to different target groups of the assistance programs--for example, single-parent families or households with children, two-parent families or households with children, and families or households with elderly or disabled members (e.g., Weinberg, 1986; Long, 1988). While these particular population subgroups better approximate the filing units of some programs than they do the filing units of other programs, the observed patterns of multiple program participation are generally believed to provide a good approximation of the behavior of the individuals, families, and/or households of interest.

Unfortunately, in moving from a cross-sectional framework to a dynamic analysis, the concept of family and household composition becomes quite complex. Over time, the structure of a household can change--through marriage, separation, divorce, birth, death, and children leaving the parental home, as well as through other, less common, events. To

adequately define a family or household within a dynamic context we need to specify which units continue unchanged, which units cease to exist, and which new units are formed over the time period analyzed. At present, there is no well-accepted definition of what constitutes the same family or household over time.[5] In fact, Duncan and Hill (1985) argue that there is no satisfactory way to define a longitudinal household, and that "attempts to do so obscure the nature of household composition changes and obfuscate attempts to describe the experience of populations over time." Thus, they argue that analyses of multiple program participation should focus on changes in the program participation patterns of the individual, with family and household characteristics incorporated as attributes of the individual.

While an attribute-based analysis of multiple program participation over time obviates the need to develop a longitudinal definition of the family or household, such an approach could make it difficult to address questions related to the administration of assistance programs over time, e.g., the turnover in the program caseload and the costs associated with such turnover. Furthermore, since the patterns of program participation observed for an individual and an individual's household reflect the interdependencies of the program eligibility requirements and the program participation decisions of all of the household members, an individual-based analysis of program participation that fails to consider these interdependencies could lead to biased estimates.

The objective of this paper is to determine the sensitivity of measures of serial multiple program participation to the choice of the

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[5]See Citro et al. (1986) for a discussion of this issue.

unit of analysis, a research task requiring longitudinal estimation and an evaluation of the behavior of groups of individuals over time. Three different analytic frameworks are employed: (1) direct multiple program participation by individuals, (2) multiple program participation by individuals, where the pattern of program participation is based both on participation by the individual as a direct recipient of program benefits and as an indirect recipient of benefits from other programs as a consequence of the participation of members of the individual's household in those programs, and (3) multiple program participation by households. The first framework--direct program participation by the individual--is the simplest analytic unit to define, while the second corresponds to the attribute-based individual-level unit of analysis proposed by Duncan and Hill. The third framework--household program participation--parallels the approach used in studies of concurrent multiple program participation, in which the researcher examines the characteristics of population subgroups that roughly correspond to program assistance units.

The problem of defining groups of individuals, specifically households or families, over time is a difficult one. Despite considerable effort devoted to the issue by researchers at the Census Bureau and other institutions, there has been no consensus as to how to define a longitudinal family or household. If it can be demonstrated that the choice of the unit of analysis has little impact on the findings of longitudinal studies such as this one, then survey designers can proceed to other, equally important, methodological issues. Several other studies (Citro, 1985; Citro and Watts, 1985; and Citro et al., 1986) have provided a first examination of the impacts of alternative units of analysis, specifically

alternative definitions of longitudinal households on annual measures of income status. So far as we are aware, this is the first study to examine the impact of the choice of the unit of analysis on measures of changes over time.

C. DATA AND METHODOLOGY

Longitudinal information from SIPP is used to construct both static and dynamic measures of program participation, which then are compared across three units of analysis. The data and methods employed are described below, and the section concludes with a brief summary of several methodological issues that limit our ability to estimate the dynamic nature of multiple program participation.

1. Data

The Survey of Income and Program Participation (SIPP) is a nationally representative longitudinal survey of adults in the United States designed to provide detailed information on intra-year fluctuations in income, poverty status, program participation, and wealth. It is a multi-panel longitudinal survey to which replacement panels are added each year, and data from the first (or 1984) panel were used in this analysis. This panel consisted of adults, i.e., persons age 15 or older, residing in a cross-sectional sample of approximately 20,000 addresses (dwelling units), who were interviewed initially in the fall of 1983.[6] These individuals, along with other individuals with whom they resided, were interviewed every four months for a period of 2 and 1/2 years. In each round of interviewing (or wave) monthly data were collected pertaining to the four months preceding the interview date. A staggered interviewing schedule was employed for the 1984 panel (and all subsequent panels); hence, the reference period covered in any wave is not the same for all sample members. For example, June through September, 1983 was the Wave 1

[6]These adults are referred to as original sample adults.

reference period for the 25% of the sample interviewed in October; however, for the final 25%, interviewed in January 1984, the Wave 1 reference period was September through December 1983.[7] At the time this study was conducted the only longitudinal SIPP data product available was the three-wave experimental longitudinal research file (Coder et al., 1987) containing data for the first 12 months of the 1984 panel.[8]

The experimental file contains several items of importance to this study.

- It includes information pertaining to receipt and amount of benefits under all the major transfer programs on a monthly basis plus information on which members of a Census household were covered under each program.[9]
- The file incorporates longitudinal weights developed by the Census Bureau for members of the longitudinal sample. The longitudinal sample consists of original sample adults who were successfully interviewed for as long as they remained within the sample universe together with their children present at first interview. The weights assigned to these individuals were adjusted to account for differential sample attrition among individuals included in the initial interview

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[7]For further information on the design and scope of SIPP see U.S. Bureau of the Census (1987).

[8]In the text that follows, months in the reference period are referred to in chronological sequence, where month 1 is the earliest month covered for each rotation group and month 12 is the latest. Due to the elimination of one fourth of the sample from Wave 2 of the 1984 panel, this data set reflects information obtained from Waves 1, 2, and 3 for three-fourths of the observations, and from Waves 1, 3, and 4 for the remaining.

[9]In order to avoid some confusion in terminology, we use the term household or dwelling unit when referring to individuals who reside together and thus form an interview unit for SIPP and other household surveys. The term household is also used in the context of describing the unit for which food stamp benefits are issued. These concepts are not the same, however; hence, we refer to the latter as the food stamp assistance unit or the group of individuals covered under food stamps.

and to conform to independent estimates of the population in existence in December 1983.[10]

- The file contains information on interviewed persons excluded from the longitudinal sample. Hence, we were able to construct household-level attributes reflecting the circumstances of all residents, rather than just those belonging to the longitudinal sample. The excluded individuals were assigned zero weights by the Census Bureau, however, and therefore were omitted from the person-based analysis described subsequently.

- The file contains identifiers that enabled the construction of longitudinal households based on the current (provisional) Census definition of longitudinality. Under this definition, a household is continuous as long as the reference person remains the same and as long as that reference person does not change his or her marital or family arrangements.[11]

- The file incorporates provisional longitudinal weights developed by the Census Bureau for use in longitudinal household estimation. Consistent with the design of the longitudinal sample, longitudinal households with positive weights were restricted to those headed by original sample adults who did not attribute from the sample (this included households whose reference person or spouse was an original sample adult).

2. Technical Approach

Since this study is focused on methodological issues rather than serial multiple program participation per se, four groupings of assistance programs were selected for analysis:

- Social Security or Railroad Retirement (referred to as social security in this report)

- Supplemental Security Income (SSI)

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[10]For a more detailed description of the longitudinal weighting see Kobilarcik and Singh (1986).

[11]Citro et al. (1986) present five definitions of longitudinal households and describe the effects of these on annual household statistics. They refer to the fifth definition as the provisional Census definition; however, because the Census definition was changed subsequent to the preparation of that report, Citro's third definition now corresponds to the Census definition of longitudinal household.

- Public Assistance (PA), which includes Aid to Families with Dependent Children, general assistance, and miscellaneous welfare
- Food Stamps.

Figure C.1 shows the eligibility requirements of each program and the assistance units to which program benefits are targeted. These categories do not encompass the full network of social welfare programs; in fact all health, housing, and energy assistance programs, all but one of the nutrition programs, and all but two of the nonmeans-tested transfer programs are omitted. However, these four assistance programs adequately represent the various types of program units as defined by the regulations governing eligibility and benefits, as illustrated in Figure C.1. In addition, the possible combinations of programs in which individuals and households can participate are of a manageable number for descriptive analysis.[12]

Because it is the simplest unit, we chose the individual as our first unit of analysis. We first analyzed the combination of benefits received in the first month of the reference period and the dynamics of multiple program participation in terms of the individual's direct association with the four program groupings. Then, in order to assess the effects of the unit of analysis on the volume and nature of the program transitions, the analysis is replicated twice, using the individual plus household attributes as the second unit of analysis, and longitudinal

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[12]One of the difficulties inherent in studies of multiple program participation is that the magnitude of program combinations becomes unwieldly to display in tabular form and SIPP sample sizes become very thin.

FIGURE C.1

CHARACTERISTICS OF THE PROGRAMS CONSIDERED IN THE ANALYSIS

Program	Program Eligible Population	Assistance Unit
Social Security and Railroad Retirement (SS)	Retired and disabled workers and their dependents and, for retired workers, their survivors, based on work experience in insured employment	Individual or Couple
Supplemental Security Income (SSI)	Low-income aged, disabled or blind individuals	Individual
Public Assistance:		
(a) Aid to Families with Dependent Children (AFDC)	Low-income single-parent families with dependent children under age 18, dependents of SSI individuals, or, in some states, two-parent families in which the principal earner is unemployed	Family with Exception
(b) General Assistance (GA)	Varies by state and local area--low-income families and/or individuals who are ineligible for AFDC or SSI. Often limited to disabled or others deemed unemployable	Varies
Food Stamps (FS)	Low-income population	Household with Exception

households as the third.[13] The following text describes the analysis files created for this study.

Person-Based, Direct Association File. Measures of an individual's association with each program were developed from the core data on benefit receipt and the list of persons covered under each program. Except in the case of SSI, which serves individuals rather than groups, SIPP collects information on program participation by first determining the primary recipient and then listing all individuals in the dwelling who are covered under these benefits (this is the assistance group). The Census Bureau used this information to construct monthly yes/no flags for all adults and children in each dwelling denoting whether or not they belonged to an assistance group. These flags, referred to as coverage flags, were used to determine direct association with each of the programs included in the study except SSI. In the case of SSI, a person was considered covered under the program if he or she reported (or was imputed) a benefit.

Based on these coverage indicators a series of pattern codes was created for each individual, denoting which (if any) of the following combinations of programs served the individual directly in each month:

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[13]The assessment of the significance of any differences among these estimates was based on the conservative assumption that the person and household participation in the four programs of interest were not correlated. This assumption is clearly not true, as they are positively correlated, and hence the estimates of the standard errors of the differences are inflated. This means that some true differences have gone undetected, but the ones found were significant.

No Program

One Program
- Social Security only
- SSI only
- Public Assistance only
- Food Stamps only

Two Programs
- Social Security and SSI
- *Social Security and Public Assistance
- Social Security and Food Stamps
- *SSI and Public Assistance
- SSI and Food Stamps
- Public Assistance and Food Stamps

Three or More Programs
- *Social Security, SSI and Public Assistance
- Social Security, SSI and Food Stamps
- *Social Security, Public Assistance and Food Stamps
- *SSI, Public Assistance and Food Stamps
- *All Four Programs.[14]

To analyze concurrent multiple benefit coverage, we used the pattern code for the first month of the reference period to examine the distribution of the population in terms of the number and types of program combinations observed. To analyze serial multiple program participation, we examined the distribution of the population in terms of changes in multiple program combination relative to the program combination in the initial month

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[14]Because of small sample sizes, participation and turnover within the program combinations marked with an asterisk (*) were not analyzed separately. For the most part individuals falling in these categories were lumped into an "other" category, which appears in some of the tables in Sections D and E. The definition of "other" varies, depending on the particular comparisons that a table is designed to show. There was one exception to this, however: in studying the direction of change in multiple benefit categories, individuals participating in food stamps, social security and public assistance and individuals participating in all four programs are examined twice, once as part of the food stamps and social security group and once as part of the food stamps and public assistance group. The emphasis changed between the two, focussing on movement to and from social security in the first instance and to and from public assistance in the second instance.

(referred to as the initial benefit category). If the pattern code changed from one month to the next, the individual was classified as having experienced a transition in multiple benefit status between those two months; otherwise, no transition occurred.[15] Rates of turnover, within single programs and program combinations, were defined for this study as the ratio of individuals ever covered under a particular combination of benefits to the number of individuals covered in the first month.

Attribute-Based File. Attribute-based estimates are derived from data on the same group of individuals in the longitudinal sample as are the person-based, direct association, estimates. However, to determine which program combinations applied to each individual in each month, we looked at the benefits received by the household rather than the individual's coverage flags. For example, in the attribute-based approach individuals in households with social security are always classified as social security recipients. In the person-level approach, however, individuals were classified as participating in the Social Security Program only if they were receiving benefits directly or were reported as covered under someone else's benefit.

The analysis file developed for this phase of the project was created by merging data from a household-month file (described below) to the longitudinal person file described above. Multiple program participa-

[15]If an individual who died or left the sample universe was covered under one or more programs in the month before this event, he or she was counted as having experienced a change to nonparticipant status.

tion and changes thereto were created in a manner analogous to the person file, using monthly household program participation.[16]

Household-Based File. For purposes of this study, longitudinal households are used as proxies for food stamp assistance units, and the analyses of households was conducted in a manner analogous to the person-based analyses. The following multi-step procedure was used to construct the longitudinal household file. First, we developed a household-month file which contained income and composition data for each address in the sample each month which had been assigned a longitudinal household identifier. Next we created monthly pattern codes denoting program participation. The household characteristics, such as, for example, total social security benefits received, pertained to all residents of the dwelling rather than just to those belonging to the longitudinal sample. Third, the household-month records were linked on the basis of the Census Bureau's (provisional) longitudinal household identifiers, thus creating profiles of longitudinal households that remained in existence for a length of time ranging from 1 month to 12 months. Finally, longitudinal households were assigned the provisional longitudinal weights developed by the Census Bureau for use in longitudinal household estimation.[17]

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[16]This merge was successful except in the case of 33 individuals residing in households headed by persons who did not belong to the longitudinal sample. Because these households were excluded from longitudinal household estimation by the Census Bureau, they were excluded from the household month file and hence the household characteristics were not available to be merged to the person record in this step of the process. For all but five cases, however, it was determined that the individual's pattern codes, derived from the coverage flags correctly reflected the household's multiple program classification. Hence, for the 33 problem cases the individual's coverage status was used in lieu of the household coverage status.

[17]See Appendix A for a discussion of the characteristics of this file.

The manner in which households that formed or dissolved during the 12-month period were treated in this analysis requires some explanation. First, in the cross-sectional analysis of concurrent multiple program participation, the universe consists of all households existing in month 1, fully weighted regardless of the length of time they existed. Second, in the analysis of serial multiple program participation, the universe consists of all households, including those which did not exist in month 1 and part-period households are time weighted.[18] Finally, analysis of change in program combination over time is focused in changes occurring during the time households exist (as we earlier defined that concept) relative to their program participation status in the first month they are observed (referred to as the initial benefit category).

3. Potential Limitations

While this study focused specifically on the impact of the unit of analysis on the patterns of multiple program participation, there are other equally important methodological issues pertaining to longitudinal analyses that use SIPP data. Those that have a direct bearing on the analysis of serial multiple program participation are summarized below.

Longitudinal Sample Design and Weighting. As described previously, the Census Bureau limited the longitudinal sample to original sample adults who were successfully interviewed as long as they remained within the sample universe, and to the children with whom they resided at the initial interview. Hence, the longitudinal sample omits immigrants

[18]Households observed for less than 12 months were assigned weights adjusted proportionately to the number of months they were observed. For example, households observed for 6 months were assigned one-half of the full longitudinal weight.

and children born after the first interview (both of whom had an initial probability of selection into the sample of 0), as well as new sample adults and persons who attrited from the sample (both of whom had a nonzero probability of selection into the original sample). The restriction of the longitudinal sample in this manner means that the longitudinal edit and imputation methodology and the longitudinal weighting procedures developed by the Census Bureau for the experimental file were imposed only on this group. Other individuals were retained in the data set, and their characteristics were counted in creating household profiles, consisting of data on such variables as size, composition, and income. Note, however, that the data corresponding to the relevant variables were processed cross-sectionally for individuals excluded from the longitudinal sample, and hence, may be inconsistent over time.

The longitudinal weights were designed to compensate for the loss of individuals through sample attrition and were adjusted to independent controls established as of a fixed point in time. Hence, the longitudinal sample provides a picture of the dynamic characteristics of a cross-sectional sample of the population rather than a complete picture of the dynamic characteristics of the population as a whole. For the study of serial multiple program participation, the net effect of the weight adjustment is to suppress estimates of turnover, particularly in that the sample does not capture program entrants arising from births or from immigration. This affects estimates of turnover based on individuals' direct association with each program more so than estimates based on household or family characteristics. The effect is most severe for programs targeted to certain groups, such as the Supplemental Food Program

for Women, Infants, and Children (WIC), but it does affect most of the other programs to some extent.[19]

Another potential problem is that if persons who attrite from the sample exhibit different patterns of turnover than those who stay (and the differences are not accounted for by the characteristics used in the weight adjustment process), then estimates of the dynamics of serial multiple program participation will be biased.

In the development of weights for longitudinal households, those not headed by members of the longitudinal sample were assigned zero weights under the assumption that they were represented by other households within the sample. This is true except in the case of immigrants. One effect of this weighting approach on the study of serial multiple program participation is that entry of immigrants into the programs is understated. Furthermore, Petroni (1986) suggests that this approach to formulating household weights could produce biased estimates of the number of continuing and newly formed households if new sample members did not have an equal probability of being designated the reference person in a household.

Impact of Limited Time Frame. Although the two and one-half years of data collected by SIPP should include a large proportion of spells of program participation for which both the beginning and end point are observed, the survey will also include spells of program participation that are already in progress at the beginning of the sample time period (called left-censored spells) and spells still in progress at the end of

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[19]WIC is means-tested nutrition program targeted to pregnant and nursing women, newborn infants and children under the age of six.

the sample time period (called right-censored spells). Since the probability of a spell of program participation being observed during the sample time frame is correlated with the length of the spell (i.e., longer spells are more likely to be included in the sample time period than shorter spells), the censoring of the observations has important implications for the analysis of the dynamics of multiple program participation. Ignoring the problem of censored spells (either by limiting the analysis to spells the are observed in their entirety or assuming that spells in progress began or ended at the sample frame) leads to distortions in the estimates of program transitions. The distorting effects of censoring will be reduced and the reliability of estimates of program transitions improved, the longer the time period over which the sample is followed.

The "Seam" Problem. Perhaps the major advantage of SIPP for the analysis of multiple program participation is that it contains detailed monthly information on variables related to program participation, thus facilitating analyses of the sequence of participation in multiple programs, the extent to which decisions concerning program participation are made jointly among household members, and the relationship between patterns of program participation and the move to self-sufficiency. However, the potential usefulness of SIPP for these analyses may be substantially reduced if, as has been demonstrated by Moore and Marquis (1987), SIPP's measurement of the time at which transitions occur between the receipt and nonreceipt of income and benefits is biased. As a result of this bias, estimates of the month-to-month sequence of program participation, multiple program participation, and the duration of benefit receipt may not be accurate. On the other hand, it is possible that SIPP

measures the relative timing of entrances into and exists from multiple programs accurately, in which case analysis of serial multiple program participation would not be adversely affected by the bias in the absolute timing of these events. Further research in this area is needed to determine the affect of the seam problem on patterns of change in program combinations.

Type-Z Nonresponse. In general purpose household surveys, noninterview is often handled by reweighting successfully interviewed cases or by imputation of the missing data. In the SIPP file underlying this research, individuals who refused to participate were generally excluded, and a corresponding adjustment was made to the weights of the successfully interviewed cases. However, there was an important exception. As mentioned earlier, except for SSI, program coverage was determined from the data recorded for one individual per program unit (the recipient), rather than measured explicitly for each individual observation. When the recipient was a member of the longitudinal sample, these data were edited and imputed longitudinally. However, if the recipient was a Type-Z nonrespondent, i.e., an individual who refused to be interviewed in an otherwise successfully interviewed household, the data on the composition of the unit (and hence the coverage flags for all members of the unit) were derived from a cross-sectionally imputed record.[20] Similarly, household-level attributes reflect the cross-sectionally

[20]Except in Wave 1 when households containing a Type-Z nonrespondent were deleted, data for Type-Z nonrespondents were generated through a hot deck imputation procedure by which the missing information was derived from another individual in the sample with similar demographic characteristics. Since Type-Z individuals were not part of the longitudinal sample, the cross-sectionally edited data were not altered when these individuals were added to the longitudinal file.

imputed recipiency and benefits derived from Type-Z nonrespondents' records.

Time Weighting and Turnover. Two reasons for analyzing turnover in program participation are (1) to assess how many persons are served during the year and how well the programs target those in need and (2) to determine how many assistance units (or cases) were served at some time during the year as an indication of the volume of services provided. Estimates of the ratio of persons ever covered under each of the four programs, provided in section D, give some indication of the number of individuals served during the year. However, estimating caseload turnover requires records of assistance units linked over time, and, except in the case of the SSI program, none of the statistics included in the body of this report are appropriate for this task.

The household-based turnover statistics presented in section E are relevant for the Food Stamp Program because the food stamp unit in the majority of households receiving food stamp benefits consists of the entire household. Nevertheless, there are some problems. One is that the longitudinal definition of a food stamp unit imposed here is not precisely the same as that imposed by the administrators Food Stamp Program itself. Second, we did not treat the dissolution of a household with food stamps as a program exit. Third, the practice of time weighting affects estimates of the number of food stamp units ever participating in the program at some time during the year, and thus, estimates of program turnover.

To illustrate the last point, consider a three-generation family consisting of an elderly couple, their daughter, and grandchild--where the grandfather is the household reference person in month 1. The household receives food stamps covering all four members, and the grandfather was the initial applicant. The elderly couple remains intact and continues participating in the Food Stamp Program for the full 12 months. The daughter and her child move away in month 6, however at which time, the daughter applies for food stamps in her own name and continues to participate for the rest of the year. Under the program rules, we have two food stamp units: one participating for 12 months and the other entering in the middle of the year. Under the Census household definition, we also have two olds participating in food stamps, but with time weighting, our estimate of the number of cases ever participating in food stamps is 1.5 rather than 2.

Now suppose the food stamp applicant in the preceding example was the daughter instead of the grandfather and that she and her daughter form a continuous food stamp unit from the perspective of program administration (assume the grandparents were not covered under these benefits). In this instance, the Food Stamp Program counts one continuous unit during the year. The Census longitudinal construct creates two units, but each is weighted by 0.5 so the total number of olds ever participating in in food stamps is still 1. Ergo, although time-weighting sometimes results in underestimates of the number of cases ever participating in the Food

Stamp Program, the practice never compensates by overestimating in other instances.[21]

[21]In light of the dilemma over the appropriate weighting strategy to impose in the measurement of turnover among program units we estimated turnover among households receiving food stamp benefits, giving full weight to all households, even those in existence for only one month. The turnover rate, in this case was 1.5 as compared to 1.42 for time-weighted households presented in Section E. This is not necessarily a more precise statement of the ratio of annual ever on households to persons because of the fact that the food stamp program definition of longitudinality was not used. However, it does illustrate the range of the estimate.

D. OVERVIEW OF SERIAL MULTIPLE PROGRAM PARTICIPATION

Much has been written about multiple program participation at a point in time, with some studies focusing on the family as the unit of analysis (e.g., Weinberg, 1985, 1986; Falk and Richardson, 1985) and others examining the behavior of households (MacDonald, 1983; Long, 1988). Little, if any, work has examined the direct receipt of program benefits by individuals. Because it is the simplest unit of analysis and because it has received little attention to date, we have adopted the individual as the starting point for our study. In this section, we provide an overview of multiple program participation by individuals based on their direct association with the programs. The following section (Section E) compares the patterns of multiple program participation by individuals to measures of multiple program participation that are based on two alternative units of analysis: attribute-based and household-based units.

As the first step in examining multiple program participation by individuals, we profile program participation at a point in time--the initial month. The second step of the analysis focuses on the changes that occur over the year in the combinations of programs in which the individuals were initially participating.

1. Program Participation in the Initial Month

As of the initial month, approximately 53 million individuals reported participation in one or more of the four programs chosen for this analysis (see Table D.1). Of these program participants, the majority were covered under benefits from a single program; less than one-fourth reported participation in two or more programs. The program in which

TABLE D.1

EXTENT OF PARTICIPATION IN MULTIPLE PROGRAMS
BY INDIVIDUALS IN INITIAL MONTH
(Weighted)

Number of Programs	Individuals Who Participated in Initial Month		
	Number (Thousands)	Percent	Percent of Program Participants
No Program	178,484	77.1	
One or More Programs	52,917	22.9	100.0
One Program	40,248	17.4	76.0
Two Programs	11,677	5.1	22.1
Three Programs	923	.4	1.8
Four Programs	67	.0	.1
Total Sample	231,401	100.0	

SAMPLE: 47,437 individuals in the longitudinal sample, based on direct association with each program.

individuals participated most frequently was, by far, Social Security (see Table D.2). Approximately 64 percent of the individuals who were participants in one of the four programs were covered under Social Security benefits and, for the majority of those individuals (91 percent), Social Security was the only program in which they participated. Since Social Security is by far the largest of the four programs studied ($181 billion in Fiscal Year 1984) and, unlike the other programs included in the study, is not targeted to the low-income population, these results are not surprising.

In contrast, multiple program participation, rather than participation in a single program, was the norm for the participants in the three means-tested programs, as shown in Table D.2. Sixty-three percent or more of the participants in each of SSI, Public Assistance, and Food Stamps were also participants in at least one additional program. Table D.3 shows the breakdown, in terms of the number of individuals in each program combination analyzed. Of the individuals participating in two or more programs in the initial month, almost 70 percent were participating in a single program combination--Public Assistance and Food Stamps.

2. Program Participation Over Time

A profile of serial multiple program participation provides insights into patterns of individual behavior that cannot be learned from an analysis of program participation at a point in time. Our profile of serial multiple program participation, which focuses on the transitions in multiple program combinations over the course of the year, clearly indicates that there are certain multiple program combinations that, while relatively rare during a single month, are transient states through which

TABLE D.2

FREQUENCY OF PARTICIPATION IN PROGRAM COMBINATIONS
BY INDIVIDUALS IN INITIAL MONTH
(Weighted)

Program Combination	Individuals Who Participated In Initial Month			
	Number (Thousands)	Percent	Percent of All Program Participants	Percent of Participants in Program
One or More Programs	52,917	22.9	100.0	---
Social Security	33,959	14.7	64.2	100.0
Only	30,845	13.3	58.1	90.8
And Additional Programs	3,114	1.3	5.7	9.2
Supplemental Security Income	3,284	1.4	6.1	100.0
Only	891	.4	1.9	27.1
And Additional Programs	2,393	1.0	4.4	72.9
Public Assistance	11,048	4.8	21.0	100.0
Only	1,732	.7	3.1	15.7
And Additional Programs	9,316	4.0	17.5	84.3
Food Stamps	18,351	7.9	34.5	100.0
Only	6,781	2.9	12.7	37.0
And Additional Programs	11,571	5.0	21.8	63.1
Total Sample	231,401	100.0	---	---

SAMPLE: 47,437 individuals in the longitudinal sample, based on direct association with each program.

TABLE D.3

COMBINATIONS OF MULTIPLE PROGRAM PARTICIPATION
FOR INDIVIDUALS IN INITIAL MONTH
(Weighted)

Program Combination	Individuals Who Participated in Initial Month	
	Number (Thousands)	Percent of Multiple Program Participants
Two or More Programs	12,667	100.0
SS and SSI	961	7.6
SS and FS	1,191	9.4
SSI and FS	583	4.6
PA and FS	8,825	69.7
SS, SSI and FS	617	4.9
All Other Combinations[1]	492	3.9

SAMPLE: 2,607 individuals in the longitudinal sample covered under two or more programs.

[1]"All Other Combinations" includes multiple program combinations that represent fewer than 50 unweighted observations: SS and PA; SS, SSI, and PA; SS, PA, and FS; SS, SSI, PA, and FS; SSI and PA; and SSI, PA, and FS.

individuals often pass in moving to more stable program combinations or to self-sufficiency.

Turnover in program participation was relatively high for the means-tested programs, as shown in Table D.4. For Public Assistance and Food Stamps, approximately 40 percent more individuals were covered by the program at any time over the course of the year than were served in a single month.[22] Consistent with the high level of turnover in these programs, individuals who participated in multiple program combinations involving Public Assistance or Food Stamps in the initial month frequently underwent one or more transitions in their multiple program combination over the year, as shown in Table D.5. In particular, individuals participating in only Public Assistance or only Food Stamps in the initial month were very likely to change multiple program combinations during the year. Sixty-five percent or more of the individuals initially in each of those program categories underwent at least one program transition, with 20 percent experiencing two or more transitions.

Program transitions for individuals that were initially participating in Public Assistance-only or Food Stamps-only were in two distinct directions, as shown in Table D.6. Public Assistance-only participants that experienced a transition in program participation were about equally as likely to move to nonparticipation status as they were to

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[22]Note that the program turnover rates presented here, as they are based on direct program participation by individuals, are not strictly comparable to those that have been reported in other studies (e.g., Bane and Ellwood, 1983; Carr et al., 1984; O'Neill et al., 1984; and Williams and Ruggles, 1987). Rather than addressing in this section the likely impact of the choice of the unit of analysis on any differences between our estimates and those obtained in previous work, we confine the analysis of the impacts of the unit of analysis on measures of program participation to the next section.

TABLE D.4

TURNOVER IN PROGRAM PARTICIPATION
FOR INDIVIDUALS OVER A TWELVE-MONTH PERIOD
(Weighted)

Program	Ratio of the Number of Individuals Participating at Any Time During the Year to the Number Participating In the Initial Month
No Program	1.043
Social Security	1.095
Supplemental Security Income	1.200
Public Assistance	1.353
Food Stamps	1.420

SAMPLE: 47,437 individuals in the longitudinal sample, based on direct association with each program.

TABLE D.5

PERCENTAGE DISTRIBUTION OF MONTH-TO-MONTH TRANSITIONS IN PROGRAM COMBINATIONS BY INDIVIDUALS OVER A TWELVE-MONTH PERIOD
(Weighted)

Program Combination	Number of Program Participants in Initial Month	Percentage Distribution of Transitions from Program Combination of Initial Month		
		No Transitions	One Transition	Two or More Transitions
No Program	178,484	94.5	2.9	2.6
Social Security	33,959	88.2	8.2	3.6
Only	30,845	90.5	6.7	2.7
And Additional Programs	3,114	64.7	23.0	12.3
Supplemental Security Income	3,284	74.0	16.4	9.6
Only	891	76.9	14.4	8.7
And Additional Programs	2,393	72.9	17.2	9.9
Public Assistance	11,048	63.4	21.6	15.0
Only	1,732	35.0	45.9	19.1
And Additional Programs	9,316	68.7	17.1	14.2
Food Stamps	18,351	57.2	26.3	16.6
Only	6,781	39.1	40.3	20.6
And Additional Programs	11,571	67.7	18.1	14.2
Total Sample	231,401	90.4	5.7	3.9

SAMPLE: 47,437 individuals in the longitudinal sample, based on direct association with each program.

NOTES: See Appendix B for the percentage distribution of month-to-month transitions for the multiple program combinations listed in Table D.3.

TABLE D.6

OUTCOMES OF FIRST AND SECOND PROGRAM TRANSITION
FOR INDIVIDUALS WITH ONE OR MORE TRANSITIONS IN THEIR PROGRAM COMBINATION
(Weighted)

Program Combination	Number of Program Participants in Initial Month with One or More Transitions	Outcome of the First Transition		Percent of Program Participants with More Than One Transition	Outcome of Second Transition	
		Program Combination	Percent		Program Combination	Percent
No Program	9,749	SS	27.5	47.7	No program	36.9
		PA	9.4		PA & FS and PA, FS & more	6.7
		FS	50.6		All other	4.1
		PA & FS and PA, FS & more	10.7			
		All other	1.8			
One Program						
Social Security (SS)	2,919	No program	75.3	28.9	SS	23.7
		SS and FS	16.8		All other	5.9
		All other	7.9			
Public Assistance (PA)	1,126	No program	46.6	29.4	No program	9.0
		PA & FS and PA, FS & more	50.1		PA	10.6
		All other	3.3		FS	6.2
					All other	3.6
Food Stamps (FS)	4,130	No program	70.9	33.9	PA	2.3
		PA & FS and PA, FS & more	21.7		FS	24.6
		All other	7.8		PA & FS and PA, FS & more	3.1
					All other	3.9
Two or More Programs						
SS and FS	846	SS	37.1	36.1	SS and FS	21.2
		FS	14.1		PA and FS	4.3
		SS, FS & more	23.5		All other	13.8
		All other	29.1			
PA and FS	2,840	No program	34.6	45.3	No program	11.6
		PA	28.1		PA and FS	5.3
		FS	27.8		PA, FS & more	26.8
		PA, FS & more	4.1		All other	1.6

SAMPLE: 47,437 individuals in the longitudinal sample, based on direct association with each program.

[1]"All Other Combinations" includes multiple program combinations that represent fewer than 50 households.

become covered under Food Stamps. Similarly, the most common transitions experienced by Food Stamps-only participants were either to nonparticipation status or to participation in both Food Stamps and Public Assistance. However, for the Food Stamp-only participants, the move to nonparticipation was the much more common transition, with nearly 71 percent making that move at some point during the year.

This movement in and out of program participation and on and off Public Assistance and Food Stamps is also observed for individuals who were initially participating in both Public Assistance and Food Stamps, as well as for those who started the 12 months as nonparticipants. Furthermore, for individuals who experienced a first transition that involved Public Assistance and/or Food Stamp receipt, regardless of their initial program combination, there was often a second transition in which (1) the program or programs (i.e., Public Assistance and/or Food Stamps) that the individual entered into at the first transition were subsequently dropped or (2) the program or programs that had been dropped at the first transition were added back to the program combination.

There is clearly a great deal of movement in program combinations that involve Public Assistance and Food Stamps, and that participation in Public Assistance-only and Food Stamps-only are particularly transient states. As shown in Table D.7, which presents transitions in individuals' participation in program combinations, more than twice as many individuals pass through the Public Assistance-only program combination during a year than are found in the program category in the initial month. Similarly, almost double the number of individuals who were covered only under Food Stamps in the initial month pass through the Food Stamps-only program

TABLE D.7

TRANSITIONS IN PROGRAM COMBINATIONS
FOR INDIVIDUALS OVER A TWELVE-MONTH PERIOD
(Weighted)

Program Combination	Ratio of the Number of Individuals Participating in the Program Combination at Any Time During the Year to the Number Participating in the Initial Month
One Program	
Social Security (SS)	1.108
Supplemental Security Income (SSI)	1.421
Public Assistance (PA)	2.246
Food Stamps (FS)	1.936
Two or More Programs	
SS and SSI	1.336
SS and FS	1.669
SSI and FS	1.313
PA and FS	1.403
SS, SSI and FS	1.459
All Other Combinations[1]	1.767

SAMPLE: 47,437 individuals in the longitudinal sample, based on direct association with each program.

[1] "All Other Combinations" includes multiple program combinations that represent fewer than 50 unweighted observations: SS and PA; SS, SSI, and PA; SS, PA, and FS; SS, SSI, PA, and FS; SSI and PA; SSI, PA, and FS.

category at some time during the year. Given these high transition rates, it is clear that many more individuals participated in Public Assistance-only and Food Stamps-only over the course of a year than a profile of program participation at a point in time (e.g., participation as of the initial month) would suggest.

The frequent transitions to and from both Public Assistance and Food Stamps may be explained in part by the overlap between the rules and regulations of the two programs. The following are four examples of the factors that may come into play:

- The tests for financial eligibility (e.g., the definition of countable income, the level of the income screen) differ under Public Assistance and Food Stamps so that a change in an individual's economic circumstances can lead to a change from one month to the next in the individual's eligibility for and, potentially, participation in one or both of the programs.[23]

- Since the definition of the assistance units for Public Assistance and Food Stamps are more inclusive than the individual (i.e., they may include other members of the individual's family and household, respectively) and do not necessarily coincide, changes in the composition of one or both of the program assistance units over the year can result in changes in coverage status for the individual. For example, if a single-adult with young children, who is initially receiving Public Assistance and Food Stamps, moves into a larger household, the income of the entire Food Stamp assistance unit--the individuals who live together and share food prepara-

[23]To the extent that such changes in the individual's economic circumstances are not reported to the agencies administering the programs when they occur, the impact of the changes on program eligibility would not be reflected until the end of the certification period (i.e., the end of the time period for which the assistance unit was certified to receive program benefits). Since the length of the certification periods for Public Assistance and Food Stamps are not necessarily equal, the impact of a change in the individual's economic circumstances on program eligibility could occur at different points in time for the two programs.

tion--would be counted in determining eligibility for Food Stamps and could result in the loss of Food Stamp benefits for the single-adult and his or her young children.

- Certain Public Assistance and Food Stamp Program recipients must file monthly reports of their economic circumstances at the program office. Failure to submit these reports, which are used to determine benefits for the following month, can result in the discontinuation of benefits until the appropriate report is filed. Since the requirements for monthly reporting do not necessarily coincide across the two programs, some of the movement on and off the programs may reflect the temporary loss of benefits as a result of failing to comply with the monthly reporting requirements under one or both programs.

- Although families that are recipients of AFDC benefits (the largest component of Public Assistance) are also frequently eligible for Food Stamps, in many states the application for benefits under the two programs and/or the processing of the application are independent. Thus, the pattern of sequential entry onto Public Assistance and Food Stamps may reflect differences in the (1) timing of application for benefits by the family and/or (2) the processing of the applications by the agency (or agencies) administering the programs.

The extent to which the observed transitions are due to the first two factors could be evaluated by examining the relationship between the program transitions and changes in the individual's economic circumstances and family/household composition, respectively. Determining the extent to which the latter two factors come into play requires a comparison between reported transitions and administrative records of compliance with monthly reporting requirements and of the dates on which applications were filed and determinations of eligibility were made.

In addition to program-related transitions, there are several data quality issues--biases in the reported timing of program participation,

the imputation of program coverage, design of the longitudinal sample--which may introduce errors in the measures of program transitions available from SIPP. The implications of these factors on the patterns of program transitions observed in SIPP, while discussed in section C, are not investigated in this paper. Consequently, the information on serial multiple program participation that is reported here must be viewed as preliminary; future work is needed to determine the accuracy with which the data represent individual behavior over time.

E. THE IMPACT OF THE UNIT OF ANALYSIS

The measures of dynamic patterns of program participation employed for this study are for the most part relative to participation patterns in the first month of the reference period. Hence, the effect of the unit of analysis on measures of serial multiple program participation is tied to the effect of the unit of analysis on measures of concurrent multiple program participation in the initial month. In this section we first compare estimates of concurrent multiple program participation (i.e., in month 1 of the reference period) across the three units of analysis: individuals, based on direct association; individuals, based on household characteristics (attributes); and households. Then we describe the impact of the unit on the sequential patterns of multiple program participation.

1. Overview

There are a number of factors that affect the profile of serial multiple program participation as the unit of analysis is changed from the individual to either of the two units that measure household characteristics. Those that contribute to the observed differences in the distribution of units across programs and program combinations in month 1 are

- Subunit. When assistance units are subsets of households, the person-based, direct association estimate of the proportion of the population participating in a particular program will be smaller than both the attribute-based and household-based estimates.
- Household Size. When households participating in a particular program or program combination have fewer (more) members than the national average, then attribute-based estimates for that particular program or combination are proportionately smaller (larger) household-based estimates.

- o Targeting. When program x affects one person in the household but program y affects another, person-based, direct association estimates will show less involvement (proportionately) in multiple programs than household- and attribute-based estimates.

Factors that contribute to observed differences in distributions of units in terms of the volume and nature of the change in multiple program participation over time include the following factors in addition to those noted above:

- o Household Change. If changes in program combinations occur at the same time that households form or dissolve, then household-based estimates of the proportion experiencing a change will be lower than attribute-based estimates. This result is largely an artifact of the design of this particular study. Procedures could be invoked to change this outcome, particularly with regard to measuring program exits.

- o Subunit Change. If one person in a household loses benefits under one program while another continues participating in program y or begins to participate in program z, then person-based, direct association estimates will show proportionately more program exits, and household- and attribute-based estimates will show proportionately more transitions among multiple benefit categories.

- o Time Weighting. When program transitions occur in part-period households, household-based estimates of the dynamics of multiple program participation will show less movement than attribute-based estimates.

These factors interact as well. For example, if changes in benefits affect subsets of households, and the majority of these households are small (i.e., contain fewer members than the national average), then person-based, direct association estimates of the proportion of the population affected will be lower than attribute-based estimates, which will in turn be lower than household-based estimates. If the affected

households are large, however, then the attribute-base estimates of the proportion affected will be the highest.

The number of possible interactions is quite large, and it is difficult to understand in the abstract how the combination affects the outcome. As we will show subsequently, there is no set pattern of change across the units of analysis and in some instances there is no apparent change at all (even when other evidence suggests there should be). The outcome of the comparisons are summarized below, relating each to the factors that seem to come into play.

2. Concurrent Multiple Program Participation

A comparison of the distribution of observations by multiple benefit category in month 1 across the three units of analysis is provided in Table E.1. Estimates of the proportion of the population participating in at least one of the four programs in that month increase to 34 percent (from 23 percent) when the unit of analysis is changed from persons to households, with the attribute-based estimates falling in between (30 percent). These differences are largely driven by differences in the proportion of units participating in Social Security alone. Except for Social Security participants that also participate in Public Assistance and Food Stamps, this pattern of change across the units of analysis holds true for each of the program combinations that include Social Security. It also holds for the proportion of units participating in Social Security in total (14.7 percent for persons based on direct association, 21.1 percent for persons based on attributes, and 27.4 percent for households). These findings serve to strengthen the conclusion that Social Security, and particularly Social Security alone is the most common of all program

ie a person in the survey is in a household where another member receives benefits of some kind

TABLE E.1

COMPARISON OF MULTIPLE PROGRAM PARTICIPATION
IN MONTH ONE ACROSS UNITS OF ANALYSIS
(Weighted)

Benefit Category	Units That Participated in Month One		
	Persons	Attribute-Based	Households
None	77.1% (a,h)	70.1% (p,h)	65.8% (p,a)
One Program	17.4	22.1	27.3
Social Security (SS)	13.3 (a,h)	18.0 (p,h)	24.2 (p,a)
Supplemental Security Income (SSI)	.4 (a,h)	.8 (p)	.6 (p)
Public Assistance (PA)	.7	.9 (h)	.6 (a)
Food Stamps (FS)	2.9 (a,h)	2.4 (p,h)	1.9 (p,a)
Two or More Programs	5.5	7.8	6.9
SS and SSI	.4 (a,h)	.9 (p)	1.0 (p)
SS and FS	.5 (a,h)	.7 (p)	.9 (p)
SSI and FS	.3 (a,h)	.4 (p)	.5 (p)
PA and FS	3.8 (h)	4.0 (h)	3.0 (p,a)
SS, SSI and FS	.3 (a,h)	.5 (p)	.7 (p)
SS, PA and FS	.1 (a,h)	.4 (p)	.3 (p)
SSI, PA and FS	* (a,h)	.3 (p)	.3 (p)
All Other Combinations[1]	.1 (a,h)	.6 (p,h)	.3 (p,a)
Total Sample (1000)	231,401	231,401	85,459

SAMPLE: Persons and attribute-based estimates are derived from data on 47,437 individuals in the longitudinal sample. Household estimates are derived from data on 17,569 longitudinal households existing in month 1 using full weights.

[1]"All Other Combinations" includes the following multiple program combinations: Social Security, SSI, and Public Assistance; Social Security, SSI, Public Assistance, and Food Stamps; Social Security and Public Assistance; and SSI and Public Assistance.

*Less than .05.

a = Significantly different than attribute-based estimate at 90% level or higher.
h = Significantly different than household-based estimate at 90% level or higher.
p = Significantly different than person-based estimate at 90% level or higher.

combinations examined here. The findings are also consistent with the notion that Social Security beneficiaries primarily reside in households that are smaller than the national average, as is often the case for the elderly population.[24] Furthermore, they illustrate the interaction of the subunit phenomenon and the household size effect.

The distribution of observations among multiple benefit categories that include means-tested programs but not Social Security are also affected by the unit of analysis, but in a different way. For the most part, the household-based statistics show the lowest participation (proportionately) in means-tested programs, implying that households receiving these benefits are larger on average than total households. In terms of the program combination having the highest participation--food stamps and public assistance--the estimates of the total population affected range from 3.0 percent for households to 3.8 percent for persons based on direct association to 4.0 percent for persons based on attributes; relying on the conservative test, the difference between the latter two is not significant. Note that if the attribute-based and person-based, direct association estimates truly are the same (and we cannot say for sure that they are), then this would imply that both benefits were serving the entire household when they were jointly received. However, Landa (1987) demonstrates that in 14 percent of the households receiving Food Stamps in August 1984, there existed a Public Assistance unit that was different than the Food Stamp assistance unit.

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[24]In March 1984 the average size of households headed by persons age 65 or older was 1.76, while the average size of all households was 2.68 (U.S. Bureau of the Census, 1985).

The percentage of units in the Food Stamps-only category is lowest for households. However, contrary to the rates of participation in the Public Assistance and Food Stamps combination, the maximum rate of participation is found in the person-based, direct association estimates rather than in those based on attributes. Both sets of estimates suggest that the Food Stamp assistance unit is larger on average than households in general.[25] The estimates also imply that persons covered under Food Stamps only often reside in households that participate in at least one of the other three programs. This reflects the situation occurring in large households that receive Food Stamps and either Social Security or SSI where one or two individuals receive the latter but the entire household (or, in some instances, the remainder of the household) is covered under Food Stamps.

Although different conclusions may be reached on the extent of participation in the means-tested programs depending on the unit of analysis, the principal finding holds true: that multiple program participation among this group is the norm. Comparing participation in means-tested programs in total (from Table E.2) to participation in a single means-tested program (from Table E.1) reveals no decreases in the proportions that receive benefits from more than one program when the unit of analysis is changed. In fact, multiple program participation is even more common among households receiving Food Stamps (75 percent of food stamp households received benefits from at least one of the other

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[25]In August 1984 the average size of the Food Stamp assistance unit was 2.88 (U.S. Department of Agriculture, 1984). In March 1984 the average household size was 2.68 (U.S. Bureau of the Census, 1985) and in March 1985, it was 2.69 (U.S. Bureau of the Census, 1986).

TABLE E.2

COMPARISON OF PARTICIPATION
IN SINGLE PROGRAM PARTICIPATION IN MONTH ONE
(Weighted)

Program	Percent of Units That Participated in Single Program Categories in Month One		
	Persons	Attribute Based	Households
Social Security	14.7% (h,a)	21.1% (p,h)	27.4% (p,a)
Supplemental Security Income	1.4 (h,a)	3.3 (p)	3.3 (p)
Public Assistance	4.8 (a)	6.2 (p,h)	4.3 (a)
Food Stamps	7.9 (a)	9.0 (p,h)	7.5 (a)
TOTAL SAMPLE (1000)	231,401	231,401	85,459

SAMPLE: Person- and attribute-based estimates are derived from data on 47,437 individuals in the longitudinal sample. Household estimates are derived from data on the sample of 17,569 longitudinal households existing in month 1, fully weighted.

a = Significantly different than attribute-based estimate at 90% level or higher.
h = Significantly different than household-based estimate at 90% level or higher.
p = Significantly different than person-based estimate at 90% level or higher.

programs) than among persons covered under Food Stamps (63 percent were covered under at least one other program). This result holds true for all three means-tested programs, and for Food Stamps and SSI the estimates increase significantly over person-based, direct association estimates.

The attribute-based statistics on the proportion of the population participating in Food Stamps, either singly or in combination with other programs (see Table E.2), are significantly higher than the corresponding estimates derived from the other two sources (which do not appear different). The pattern of change in the proportion of the population participating in the Public Assistance programs, either singly or in combination with other programs, was the same as that observed for Food Stamps. These estimates agree with the earlier observation that households receiving Food Stamps or Public Assistance are larger than the average household and that the assistance unit is not always the full household.

In contrast, the pattern for SSI participation more closely resembles that observed for Social Security except that there is no significant difference between household- and attribute-based statistics on the proportion of units receiving SSI benefits. Both the household- and attribute-based estimates are more than twice the person-based, direct association estimates. The lack of significance between the household- and attribute-based estimates prevents any conclusion on the size of the households containing SSI recipients.

3. Multiple Program Participation Over Time

As we learned from the preceding discussion, there are differences in the distribution of the population by multiple program participation in

the first month of the reference period due to both the household size and subunit phenomena. The question now is whether there is a difference in the picture of the dynamics of program participation over time above that which can be attributed to the differences in static estimates. To address this question, estimates of turnover and of the volume and nature of transitions for persons as direct recipients of benefits (see Section D) were replicated twice, using as the units of analysis persons as indirect recipients based on household characteristics (attribute-based approach) and households. The full details have been omitted here so that the more interesting results of the comparisons can be highlighted.[26]

Estimates of turnover for each of the four programs (Table E.3) do not vary substantially across units of analysis, all showing the least turnover among Social Security recipients, and the most, among participants in the Public Assistance and Food Stamp programs.[27] The largest range in these estimates occurred for Public Assistance, but these do not appear to be significant.[28]

Although there is only a small amount of variation in the measure of turnover in each program, some interesting differences in the volume of change in multiple program combinations are observed among units of

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[26]Tables showing the complete statistics for all three units of analysis are available from the authors.

[27]As noted, households were time weighted for this portion of the study. However, it is not clear that this approach for the analysis of turnover is the best. See Section C for further discussion.

[28]We did not test the significance of the difference in these ratios directly. Instead, we constructed the inverse, i.e., the ratio of month 1 participants to participants ever on the program combination during the 12-month period, and then tested the significance of the difference between these percentages across the three units of analysis, assuming no correlation among the estimates.

TABLE E.3

COMPARISON OF TURNOVER IN PROGRAM PARTICIPATION
OVER A TWELVE-MONTH PERIOD
(Weighted)

Program	Ratio of the Number of Units Participating at Any Time During the Year to the Number Participating in the Initial Month		
	Persons	Attribute Based	Households
Social Security	1.095	1.100	1.086
Supplemental Security Income	1.200	1.231	1.233
Public Assistance	1.353	1.381	1.419
Food Stamps	1.420	1.420	1.419

SAMPLE: Person- and attribute-based estimates are derived from data on 47,437 individuals in the longitudinal sample. Household estimates are derived from data on the sample of 19,109 longitudinal households, time weighted.

analysis. Table E.4 shows the results for units in initial benefit categories in which statistically significant differences in the volume of transitions were detected for at least one of the two-way comparisons. A close examination of this table reveals the following:

- Among nonparticipants in the initial month, attribute-based statistics show an increase in program transitions in total and an increase in the percent that experienced two or more transitions. The person-based, direct association estimate of the number of nonparticipants with one transition is smaller than both the household-based and attribute-based estimates.

- Among Social Security only participants in the initial month, attribute-based statistics show the highest proportion of units experiencing a transition and household-based statistics show the lowest.

- The pattern among SSI-only participants is the same as the pattern among Social Security only participants; however, the only significant differences detected were between the person-based, direct association and attribute-based statistics.

- Among participants in Social Security, SSI and Food Stamps, the attribute-based statistic on the percent with one or more transitions is higher than both the household-based and person-based, direct association estimates. The difference between the attribute- and households-based estimates is significant.

The differences observed between person- and attribute-based statistics reflect the fact that in many instances the programs are targeted to a subset of the household. The differences observed between household- and attribute-based estimates reflect one of two things: (1) changes in program combinations are coincident with changes in household formation and dissolution, or (2) households that experienced a change in program combination are larger on average than households that did not. Given that most of the transitions among nonparticipating individuals involves entry into the Food Stamp Program (61 percent, from Table D.6),

TABLE E.4

COMPARISON OF THE VOLUME OF MONTH-TO-MONTH TRANSITIONS IN MULTIPLE PROGRAM COMBINATIONS ACROSS UNITS OF ANALYSIS[1]
(Weighted)

Initial Multiple Benefit Category / Unit of Analysis	Number of Program Participants in Initial Month (Thousands)	Percentage Distribution of Transitions from Program Combinations in the Initial Month: No Transitions	One Transition	Two or More Transitions
No Program				
Persons	178,484	94.5 (a)	2.9 (h,a)	2.6 (a)
Attribute-based	162,098	93.3 (p,h)	3.6 (p)	3.1 (p,h)
Households	56,304	94.1 (a)	3.5 (p)	2.4 (a)
Social Security Only				
Persons	30,845	90.5 (h,a)	6.7 (h)	2.7 (h,a)
Attribute-based	41,586	88.8 (p,h)	7.6 (h)	3.6 (p,h)
Households	20,465	95.1 (p,a)	3.1 (p,a)	1.8 (p,a)
SSI only				
Persons	891	76.9 (a)	14.4	8.7 (a)
Attribute-based	1,782	59.2 (p)	21.2	19.6 (p)
Households	531	67.1	18.1	14.8
Social Security, SSI and Food Stamps				
Persons	583	67.3	18.0	14.8
Attribute-based	1,129	59.9 (h)	29.1	11.0
Households	564	75.4 (a)	18.8	5.8
Total Sample (1000)				
Persons	231,401			
Households	85,311			

SAMPLE: Person-based and attribute-based estimates are derived from data on 47,437 individuals in the longitudinal sample. Household estimates are derived from data on the sample of 19,109 longitudinal households, time weighted.

[1]This table has been limited to units in initial multiple benefit categories where significant differences in the volume of transitions across units of analysis existed. Full details are available from the authors.

a = Significantly different than attribute-based estimate at 90% level or higher.
h = Significantly different than household-based estimate at 90% level or higher.
p = Significantly different than person-based estimate at 90% level or higher.

the second factor is likely to be the stronger influence in these differences.

The unit of analysis has a more substantial affect on the direction of the change in multiple program combinations than it does on program turnover. In addition to the expected differences among units of analysis for nonparticipants and participants in the Social Security Program, the nature of the change in combination of programs among participants in both Public Assistance and Food Stamps also differs depending on the units of analysis.

Table E.5 shows several instances where units initially classified as nonparticipants experience different types of transitions when a change occurred, due principally but not exclusively to the subunit phenomenon.[29] First, nonparticipating households are more likely than either of the other two nonparticipating units to enter the Social Security Program when they experience a change, reflecting the fact that households receiving Social Security benefits tend to be small. Second, individuals (person-based, direct association) are more likely to enter the Food Stamp Program than either of the other two units of analysis, reflecting the influence of the subunit phenomenon among the other programs.[30] Third, while

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[29]Table E.5 contains estimates of the volume of transitions across three units of analysis for those initial benefit categories in which significant differences were detected in at least one of the two-way comparisons.

[30]For example, if one or two individuals in households of size 3 or more enter the Social Security Program, the attribute-based estimates count more Social Security Program entrants than the person-based, direct association estimates. Hence the occurrence of that event relative to other events involving most or all individuals directly (such as entry into the Food Stamp Program) is proportionately higher in the attribute-based statistics.

TABLE E.5

COMPARISON OF THE DIRECTION OF THE TRANSITION ACROSS THREE UNITS OF ANALYSIS[1] (Weighted)

Initial Benefit Category	Status After First	Status After Second	Unit of Analysis: Persons	Attribute	Households
No Program					
	Any	One Transition	52.3 (h)	54.0	59.3 (p)
		No Program	36.9 (h,a)	31.7 (p)	29.4 (p)
		FS and PA	6.7	7.5	6.4
		Other	4.1 (a)	7.3 (p)	5.5
	SS only	Any	27.5 (h)	31.5 (h)	40.0 (p,a)
		One Transition	22.5 (h)	24.9 (h)	34.2 (p,a)
		No Program	4.6	5.5	5.1
	PA only	Any	9.4 (a)	12.4 (p)	9.4
		One transition	3.6	5.3	3.6
		No Program	3.1	3.6	3.6
		FS and PA	2.5	2.9	1.9
	FS only	Any	50.6 (h,a)	40.7 (p)	37.6 (p)
		One transition	18.9 (a)	15.2 (p)	14.4
		No Program	26.8 (h,a)	19.6 (p)	18.1 (p)
		FS and PA	4.1	4.1	3.8
	FS and PA	Any	19.7	10.9	9.2
		One transition	5.9	5.4	4.3
		No program	2.2	2.3	2.0
		Other	2.7	3.3	3.4
SS only	Any	One transition	71.1	67.5	62.8
		SS Only	23.7	20.7	29.8
		Other	5.9 (a)	13.3 (p)	9.2
	No Program	Any	75.3 (h,a)	57.9 (p,h)	38.0 (p,a)
		One transition	57.4 (h,a)	49.6 (p,h)	25.0 (p,a)
		SS only	16.7 (a)	7.3 (p)	12.1
	FS and SS	Any	16.8 (h,a)	25.1 (p)	36.7 (p)
		One transition	8.5 (h)	8.7	20.9 (p)
		SS only	5.7	9.4	12.3
		Other	3.1 (a)	8.3 (p)	4.7
	Other	Any	7.9 (h,a)	16.8 (p)	25.3 (p)
		One transition	5.3 (h,a)	9.0 (p)	17.0 (p)
		SS only	1.3 (a)	3.9 (p)	5.3

TABLE E.5 (continued)

Initial Benefit Category	Status After First	Status After Second	Unit of Analysis: Persons	Attribute	Households
FS and PA	Any	One transition	54.7	54.4	58.1
		No Program	11.6	12.5	10.9
		FS and PA	26.8	25.7	23.3
		FS or PA	5.3	4.2	3.6
	No program	Any	34.6 (a)	26.4 (p)	27.8
		One transition	24.2	17.9	20.2
		FS and PA	5.3	4.1	3.9
		FS or PA	4.6	3.7	3.3
	PA only	Any	28.1	24.2	21.7
		One transiton	12.1	8.8	6.8
		No Program	4.0	5.3	5.8
		FS and PA	11.4	10.1	8.8
	FS only	Any	27.8 (a)	16.7 (p)	19.2
		One transition	12.4 (a)	6.6 (p)	9.1
		No Program	6.9	5.5	5.1
		FS and PA	8.2	4.7	5.1
	FS and PA[2]	Any	4.1 (h,a)	15.8 (p)	15.6 (p)
		One transition	2.0 (h,a)	11.6 (p)	11.9 (p)
	Other	Any	5.5 (h,a)	17.0 (p)	15.6 (p)
		One transition	4.0 (a)	9.5 (p)	10.1
FS and SS	Any	One transition	63.9	66.4	70.4
		FS and SS	21.2	19.2	19.4
		FS and PA	4.3	8.9	7.5
		Other	13.8	12.5	7.7
	SS only	Any	37.1	32.8	37.6
		One transition	28.2	24.1	30.7
		FS and SS	4.0	4.8	5.8
	FS only	Any	14.1 (h,a)	3.6 (p)	4.0 (p)
	FS and SS[3]	Any	23.5	25.8	27.8
		One transition	16.6	15.1	18.4
	Other	Any	25.4 (a)	37.8 (p)	30.6
		One transition	15.5	25.3	19.7
		FS and SS	6.8	6.8	9.5

[1]This table is restricted to units in initial benefit categories in which there was a significant difference in movement among at least some cells as defined by the table in Appendix C. Detailed estimates of transitions among households and transitions among persons based on household characteristics (attribute-based analysis) are available from the authors.

[2]This category reflects changes in either Social Security or SSI.

[3]This category reflects changes in either Public Assistance or SSI.

estimates of the proportion of nonparticipants that entered Public Assistance do not, in general, appear to differ, among units of analysis, the attribute-based statistic on the percent that entered public assistance only is almost one third larger than the person-based, direct association statistic (this is the subunit phenomenon at work). Finally, person-based estimates show a higher proportion returning to nonparticipant status after a period of coverage under one of the four programs than do either of the corresponding estimates for the other two units of analysis (also because of the effect of subunits).

As expected, the pattern of multiple program participation for those units affiliated with the Social Security Program was affected when the analysis unit was changed from the individual based on direct association, to either of the two units for which household characteristics are taken into account. In this instance, virtually every one of the potential factors comes into play. Among Social Security-only units, individuals that experienced a change were primarily leaving the program, whereas attribute- and household-based estimates reveal that most changes involved supplementing the Social Security benefits with benefits from one of the means-tested programs. Individuals initially covered under both Social Security and Food Stamps were also more likely to lose their Social Security benefits than were either households or individuals, based on attributes. On the other hand, attribute-based estimates show a higher proportion of such units experiencing a change in program participation status with regard to means-tested programs than do the person-based, direct association estimates. The following factors contribute to these differences:

- As some individuals in households lose benefits under the Social Security Program, other individuals are substituting other programs to supplement the lost income. (Subunit change)

- Exits from Social Security-only status are likely to be occurring frequently in small households, whereas entrances into multiple program combinations that include Social Security are likely to be occurring in large households, particularly when the Food Stamp Program is involved.

- While the preceding would suggest that household-based estimates would give more weight to the exits from Social Security only (because of the household size effect), they do not. The lower household estimates could be due to the coincidence of program exit with the dissolution of the household or the coincidence of multiple program entry with household formation.

The participation patterns among household- and attribute-based units involved in Public Assistance or Food Stamps do differ somewhat from those of individuals. Both the household- and attribute-based estimates confirm that participation in one of those programs alone was a transient state (to conserve space, transitions among those in either Public Assistance only or Food Stamps only in the initial month were not displayed). However, households and attribute-based individuals participating in both Public Assistance and Food Stamps were less likely to exit one or both of these programs than were individuals covered under both programs but were more likely to experience a transition to or from Social Security or SSI. Hence, while the change in unit of analysis tends to confirm the earlier finding that there is a great deal of movement among the program combinations that include both Public Assistance and Food Stamps, the nature of the movement is somewhat different.

The absence of significant differences between household- and attribute-based estimates for Public Assistance and Food Stamps implies that the principal contributing factor to these differences is the subunit

phenomenon. In some cases it appears that the differences are due to the fact that individuals participating in the Public Assistance and Food Stamp Programs are losing eligibility because other persons in the household are entering Social Security or SSI. However, more surprisingly, it also appears that some but not all persons within Food Stamp and Public Assistance households are changing their status with regard to one of those two programs, particularly Public Assistance.[31] This last finding merits additional research.

[31]Based on figures not shown separately, we know that at least 80,000 persons lost coverage under public Assistance but remained within the households receiving Food Stamps and Public Assistance. As yet we have not determined the full extent of this event.

F. SUMMARY AND CONCLUSIONS

The social welfare system in the United States includes programs that are targeted to the needs of specific individuals, as well as those that are targeted to low-income households in general. The appropriate unit of analysis for an examination of the dynamics of multiple program participation is not at all apparent. Focusing on the individual--the simplest unit to define over time--provides a profile of direct program participation, but does not take into account the interdependencies in program eligibility and program participation that exist within the family and household. Focusing on groups of individuals, whether program assistance units, the family, or the household, also poses problems since there has been no consensus as to how to define such units over time. To the extent that the choice of the unit of analysis is found to have little impact on the findings of longitudinal analyses, the efforts that have been devoted to developing acceptable definitions of longitudinal households can be redirected to other, equally important, methodological issues. Researchers then can proceed with longitudinal analyses using the easily defined attribute-based unit.

In this paper, we have explored the sensitivity of measures of serial multiple program participation to the choice of unit of analysis. Three different analytic units are considered: the individual, the household, and an attribute-based unit suggested by Duncan and Hill (1985). The latter unit of analysis, which is based on persons but measures the program participation behavior of the household, combines the simplicity of the definition of the individual-based unit of analysis with

the more comprehensive measure of behavior afforded by the household-based unit.

Comparing the measures of serial multiple program participation across the three different units of analysis provides some interesting insights into the dynamics of program participation. First, the following major findings do not change with the unit of analysis:

- There are multiple program combinations which, while relatively rare at a point in time, are transient states through which individuals often pass in moving to more stable program combinations or to self-sufficiency.
- Multiple program participation, particularly in program combinations involving Public Assistance and Food Stamps, is highly volatile with significant numbers of the participants in one or both of those programs having one or more transitions in their multiple program combination over the course of the year.

In contrast, the specific nature of the movement among multiple program combinations is somewhat sensitive to the particular unit chosen. Not surprisingly, the profile of serial multiple program participation obtained from the individual-based analysis differs significantly in several respects from the alternative measures, which incorporate the program participation of the entire household. However, more importantly, the two alternative measures--attribute-based and household-based units of analysis--result in some measures of serial multiple program participation that are significantly different. These differences are related to the relationships between the size of the household and the size and composition of the assistance units of the programs that are being studied. Furthermore, it is likely that some of the differences are the result of the particular longitudinal household definition that is used and the difficulties associated with accounting for households that do not exist

for the full time period. In order to determine which of these factors are driving the differences in the attribute-based and household-based measures we intend to extend our analysis to consider (1) alternative longitudinal household definitions, including those that more closely correspond to the definitions of program assistance units over time, and (2) alternative methods of treatment for part-period households.

In the debate regarding the futility of defining households over time, which began with Duncan and Hill (1985), this study makes several important contributions. First, longitudinal household estimation does not necessarily exclude that portion of the population undergoing the most change (Duncan and Hill's principal argument against it). Second, treatment of part-period units is extremely important, both in terms of the appropriate weighting strategy and in terms of the classification of the unit at the time of formation or dissolution. Finally, we continue to believe that some questions cannot be adequately answered if the individual is used as the unit of analysis, even with the attribute-based measures that account for household characteristics. For example:

- What is the extent of turnover in caseloads for programs that are targeted to groups rather than to individuals?
- How is the decision to participate in multiple assistance programs arrived at?

To be able to provide acceptable answers to these questions, continuation of the efforts devoted to the development of an acceptable method of longitudinal estimation for households and other aggregate groupings of individuals is needed.

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APPENDIX A

CHARACTERISTICS OF THE LONGITUDINAL HOUSEHOLD FILE

The longitudinal household file contained 21,695 longitudinal household records, 19,109 of which were assigned positive weights in accordance with the provisional weighting parameters developed by the Census Bureau. Of those with positive weights, 86 percent existed the full 12 months, with the average duration over all households being just over 11 months. Except for the absolute number of cases, these figures agree with those in Citro et al. (1986). Differences are attributed to the use of a different input file (Citro et al. developed the longitudinal file from linked cross-sectional files) and to the fact that the longitudinal sample was more restrictive than the selection criteria imposed in the Citro et al. study.

Some interesting statistics on the duration of the longitudinal households were discovered during the creation of this file. Table A shows the distribution of households by the number of months they were observed in this study (note this is not total duration of their existence due to the censoring problem). Essentially the table shows that the number of months a household existed was more often than not a multiple of 4. This occurred for all longitudinal households, but the frequency was much higher for households with zero weights, i.e., those headed by individuals who were not member of the longitudinal sample. By design there is a bias in the duration estimates because household composition was fixed for the first four reference months. However, these figures suggest that the seam problem which effects income recipiency may also effect the measurement of the timing of changes in household composition.

TABLE-A

LONGITUDINAL HOUSEHOLDS WITH POSITIVE WEIGHT
BY RECEIPT OF TRANSFER PAYMENTS BY MONTH
(Unweighted Based on the Census Definition)

	Total	Has Positive Weight	Has 0 Weight	Receives Transfer Payment	
				Yes	No
Total	21,695	19,109	2,586	8,098	13,597
1 Month	419	295	124	106	313
2 Months	377	254	123	101	276
3 Months	338	235	103	101	237
4 Months	1,275	455	820	430	845
5 Months	321	237	84	111	210
6 Months	318	235	83	103	215
7 Months	316	248	68	110	206
8 Months	1,370	356	1,014	467	903
9 Months	102	94	8	40	62
10 Months	126	119	7	56	70
11 Months	136	128	8	55	81
12 Months	16,597	16,453	144	6,418	10,179
Average Duration		11.06			

APPENDIX B

PERCENTAGE DISTRIBUTION OF MONTH-TO-MONTH TRANSITIONS IN MULTIPLE PROGRAM COMBINATIONS OVER A YEAR FOR INDIVIDUALS
(Weighted)

	Number of Program Participants in Initial Month (Thousands)	Percentage Distribution of Transitions from Program Combinations of the Initial Month		
		No Transitions	One Transition	Two or More Transitions
No Program	178,484	94.5	2.9	2.6
One Program				
Social Security (SS)	30,845	90.5	6.7	2.7
Supplemental Security Income (SSI)	891	76.9	14.4	8.7
Public Assistance (PA)	1,732	35.0	45.9	19.1
Food Stamps (FS)	6,781	39.1	40.3	20.6
Two or More Programs				
SS and SSI	961	79.9	15.3	4.8
SS and FS	1,191	54.9	28.0	17.0
SSI and FS	583	67.3	18.0	14.8
PA and FS	8,825	69.9	16.3	13.8
SS, SSI and FS	617	73.1	16.9	10.0
All Other Combinations[1]	492	46.8	31.9	21.4
Total Sample	231,401	90.4	5.7	3.9

SAMPLE: 47,437 individuals in the longitudinal sample.

[1]"All Other Combinations" includes multiple program combinations that represent fewer than 50 unweighted observations. Those combinations are: SS and PA; SS, SSI and PA; SS, PA and FS; SS, SSI, PA and FS; SSI and PA; SSI, PA and FS.