DOCUMENT RESUME

ED 300 501 UD 026 498

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TITLE Short Term Fluctuations in Income and Their Relationship to the Characteristics of the Low Income Population: New Data from the SIPP. Project Report 3751-02.
INSTITUTION Urban Inst., Washington, D.C.
SPONS AGENCY American Association of Retired Persons, Washington, D.C.; National Science Foundation, Washington, D.C.
PUB DATE Mar 88
GRANT NSF-SES-87-13643
NOTE 44p.; Also supported by the Bureau of the Census.
AVAILABLE FROM The Urban Institute, 2100 M Street, N.W., Washington, DC 20037 ($6.00 prepaid).
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Age Differences; *Business Cycles; Economic Factors; Employment Experience; *Employment Patterns; *Family Income; Fatherless Family; One Parent Family; *Poverty; Racial Differences; Unemployment; Welfare Services
IDENTIFIERS Feminization of Poverty

ABSTRACT

This paper compares the characteristics of those experiencing short spells of low income with those having longer spells. Data from the 1984 panel of the Survey of Income and Program Participation (SIPP) was examined. It was found that short spells--less than six months--are quite common, and make up a substantial proportion of all poverty spells. About 30 percent of the population as a whole has at least one month with an income of less than the poverty level (adjusted to a monthly basis) over an observable period of 16 months. About half of those entering poverty leave within the first three months, and about 80 percent leave within six months. The probability of leaving poverty was highly related to the probability that someone in the family would begin earning again in the near future. Specifically, families with a member who had recently become unemployed were particularly likely to leave poverty quickly, since most unemployed persons with previous earnings find re-employment fairly rapidly. Conversely, those who were less likely to have earnings in the recent past--female-headed families (especially with children) and the elderly--were more likely to have longer spells of poverty. Those seen to be poor on a cross-sectional basis contained a larger proportion of longer-spell cases than did the cohort of poverty entrants, although even those poor on a cross-sectional basis were in the midst of a spell that lasted less than six months. Age and racial differences in poverty duration are discussed. Data are presented on nine tables. A list of references is included. (BJV)

3751-02 March 1988

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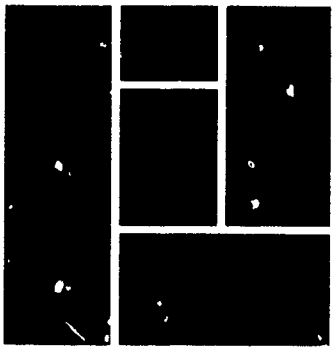

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This paper is based on work supported in part by the American Association of Retired Persons and in part by the National Science Foundation under grant Number SES-87-13643. The research was partially conducted at the U.S. Bureau of the Census while the author was a participant in the ASA/NSF fellowship program, which is supported by the National Science Foundation and the Bureau of the Census. Any opinions expressed in this paper are those of the author only, and do not necessarily reflect the views of AARP, NSF, or the Bureau of the Census.

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Short-Term Fluctuations in Income and Their Relationship to the Characteristics of the Low Income Population

Researchers with an interest in poverty have long believed that the population that is poor over long periods of time differs in some significant ways from those who are poor over shorter periods. Indeed, data from the University of Michigan's Panel Study of Income Dynamics (PSID) make it clear that the very long-term poor—those with incomes below the poverty threshold over a period of eight or more years—are quite different in several dimensions from those who are counted as poor in our official poverty statistics, which are based on annual income as measured in the Current Population Survey (CPS).[1] Among other findings, the long-term poor are more likely to be in female-headed families, are more likely to be elderly, and are more likely to be non-white than are those who are poor on the basis of an annual income measure.

Until recently, however, it has not been possible to consider the characteristics of those who are poor for less than one year in any detail. The characteristics of this short-term low income population are of considerable interest from a policy perspective, since this group makes up the pool of persons eligible for most means-tested transfer programs, such as Aid to Families with Dependent Children (AFDC), Supplemental Security Income (SSI), and the Food Stamp Program (FSP). Eligibility for these programs is typically based on a family's monthly income, and families with low incomes over a period as short as two months may be eligible if they meet other program criteria.

1./See Duncan et. al. (1984); Bane and Ellwood (1986); Ruggles and Marton (1986).

In addition to issues relating to program eligibility, short poverty spells are of interest for another reason. The PSID work cited above implies that certain types of poor persons are relatively unlikely to leave poverty in the short run, while others may typically remain poor only for short periods of time. Because the PSID collects only annual income information, however, detailed examination of short spells of low income is not possible using this data base. If in fact some types of families are likely to experience only very short spells of poverty—for example, six months or less—it may be possible to identify potential long-term poor much earlier, allowing intervention strategies aimed at improving the economic status of such families to be better designed and better targetted.

In order to test hypotheses relating to the incidence of short-term poverty spells, however, it is clearly necessary to have sub-annual data on incomes and family composition. Fortunately, such data have now become available from the 1984 panel of the Survey of Income and Program Participation (SIPP). The SIPP is a longitudinal panel survey that follows a representative group of households over a period of 32 months. Information on monthly income by source, family composition by month, and various other issues is collected from each household in the survey at four-month intervals. Each set of interviews is known as a "wave". The first panel of the SIPP, known as the 1984 panel, was interviewed starting in the fall of 1983, and contained about 20,000 households (60,000 persons) in the first wave.[2]

This paper uses data from the SIPP to examine short spells of low income, and considers the characteristics of those who tend to exit from poverty

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2./A "reduction in sample" was implemented for cost reasons in wave 5, randomly reducing the total sample size to about 13,000 households.

relatively rapidly, as compared to those who remain for longer periods. Unfortunately, we were not able to construct an analysis file for this study using the full SIPP panel; the final few waves of the 1984 panel have not been available for very long, and we have not yet been able to integrate them into our longitudinal file. (Further, longitudinal weights are not yet available for the full file, and the very large reduction in sample that took place in wave 5, as well as attrition rates of over 20 percent, complicate the analysis of this file in the absence of weights.)[3] As a result, this paper reports on data from the first 16 months of the 1984 SIPP panel only.[4] We hope to be able to extend the analysis presented here to the full panel in the near future.

Before turning to the specific analyses undertaken for this paper, a few definitional issues should be discussed. Unless otherwise specified, poverty counts and rates throughout the paper are based on monthly rather than annual poverty thresholds. These poverty thresholds are derived by dividing the appropriate annual thresholds for each family type and size by twelve.[5] A person is counted as poor in a given month if he or she is a member of a family whose income in that month is below the appropriate monthly poverty

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3./The Census Bureau has recently constructed a longitudinal research file from the 1984 panel, although full panel weights are not yet available. See Coder et al. (1987) for some preliminary results from this file, and a discussion of the weighting issue.

4./Use of a 16 month sample does have some advantages; because this sample includes only interviews conducted before the reduction in sample, many more cases are available for analysis than would be if the sample were restricted to those for whom the full 32 months of information is available. This is particularly helpful in considering program eligibility and participation issues, since in some cases the samples of program participants are rather small. As implied above, weighting issues are also less important in the shorter sample, since opportunities for attrition have been fewer.

threshold. (Statistics on those below 50 percent of the poverty threshold, etc., are derived analogously.) Throughout the paper, counts and rates refer to persons rather than to families or households, although in many cases persons are classified according to family types. In such cases, the results shown refer to persons who were ever in families of the specified type during the 16 month period under examination. In general, the duration of spells of low income has been calculated as the total number of months below the appropriate income threshold over the 16 month period as a whole—even if low income months were in some cases separated by one or more months above the poverty threshold.[6]

The next section of this paper gives some brief background information on the incidence of low income spells as observed in the SIPP, and presents some preliminary information on the distribution of such spells. The following section discusses the problems of censoring and attrition, and the potential biases they may impart to the observed distribution of poverty spells. Distributions of censored and uncensored spells are examined, and survival rates for poverty spells by family type are given. A multivariate analysis of the impacts of various family characteristics on the duration of poverty spells is presented in the next section, while the final section summarizes the findings of the paper as a whole and outlines some possible policy conclusions.

5./For details on the calculation of annual poverty thresholds and for information on their levels in 1984, see U.S. Bureau of the Census (1986).

6./The figures shown in Table 6 are an exception to this last rule, as is discussed at the appropriate point below. The incidence of multiple poverty spells is shown in the Appendix Table.

Background Information on the Incidence of Low Income Spells

In a sense, the impetus for the current paper came out of an earlier study undertaken with Roberton Williams of the Congressional Budget Office (Ruggles and Williams (1986)). That study examined entries into and exits from poverty, also using data from the SIPP. Among other findings, marital dissolutions, job losses, and the birth of a child (in that order) were found to be relatively strong predictors of an entry into poverty for those who experienced each type of event. Overall, 23 percent of those in families experiencing marital break-ups, 17 percent in families experiencing a job loss, and 13 percent of those in families experiencing a birth became poor in the same month—in comparison with a monthly poverty entry rate of about 2 percent for the sample as a whole. We hypothesized at the time of that study that not all entry events were associated with poverty spells of equal duration or severity, however, although a test of that hypothesis was unfortunately outside the scope of our work at that time.

One aim of the current study, then, is to extend the earlier work by examining the durations of poverty spells. In general, as will be seen below, this paper has not tried to correlate spell durations directly with specific transition events, but rather has focused on the family types that tend to result from these events. Family type information has the advantage of being observable in both cross-sectional and longitudinal data bases, allowing the SIPP results to be assessed in comparison to more familiar breakdowns of the composition of the low income population derived from cross-sectional data sources such as the CPS or the Decennial Census. Work on the direct implications of specific entry events is continuing, however, and will be reported in a future paper.

In general, the basic hypothesis underlying the work presented in this paper is that the duration of low income spells tends to be closely related to the probability of having some earned income in your family. Many persons without earnings--most notably, the elderly--never become poor in the first place, because they have sufficient amounts of unearned income. Such sources of unearned income--for example, Social Security benefits--tend to be fairly stable once received, however, and it is relatively unlikely that new income from such sources will arise after a poverty spell has begun. Some sources of unearned income such as welfare benefits do arise after the start of poverty spells, but as is discussed in detail below public assistance programs rarely provide sufficient income to lift a family out of poverty. Since most of the poor also lack rich relatives or other sources of unearned funds, earnings are crucial for most families if they are to end spells of poverty in the short run.[7]

The family types examined in this paper, then, include two--those with female heads and those with elderly--who have some clear impediments to employment--and one--families with a job loser--who have recent past earnings and presumably a relatively high probability of future earnings. The fourth family type considered, families with children, may be a mixed group; where the family includes at least two adults, the presence of children may increase employment incentives, but for a single parent the children may impede

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7./As discussed in Puggles and Williams (1986), earnings do account for a substantial proportion of all poverty exits. Some demographic events, notably marriage, were also important for some groups. As other authors have shown, however, there is a positive association between income (including earnings) and marriage for non-married mothers. See Duncan et al. (1984) and Bianchi et al. (1988), for further discussions on this point. In addition, if a birth while unmarried or a divorce precipitated the original poverty spell, exit from poverty though marriage or remarriage may take a substantial amount of time, leading to relatively long average poverty spells.

employment, especially if they are below school age. These family types are considered first on their own, and then in a multivariate analysis that also considers their interactions.[8]

Before turning to a breakdown of spell durations by family type, however, Table 1 briefly outlines the overall distribution of low income spells observed over the 16 months of the sample as a whole. As discussed in the introduction to this paper, a spell is defined as a period of at least one month in which a person's family income is below the specified percentage of the appropriate monthly poverty threshold. As would be expected, the percentage experiencing such a spell rises with the percentage of the poverty threshold specified, from about 16 percent of the sample at a 50 percent threshold, to almost 58 percent of the sample at 200 percent of poverty. The fact that the percentages with spells are so high on the whole, however, does indicate that there are indeed substantial fluctuations in personal incomes over relatively short periods of time. For example, 30 percent of the 16 month sample experienced at least one month with income below 100 percent of the poverty threshold; in comparison, earlier work by Roberton Williams indicates that about 11 percent of persons in the SIPP are poor when 1984 calendar year incomes as a whole are considered (Williams (1986)).

The information presented in Table 1 also suggests that, particularly at very low income levels, brief spells tend to predominate. Over 70 percent of

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8./These family types clearly do not include every possible variable relevant to a test of the hypothesis that factors related to a higher earnings probability will also tend to be associated with shorter spells. At a minimum, for example, it would be useful to include information on educational attainment, as well as finer breakdowns on the ages of children and the number of adults in the family unit. These data exist in the SIPP, and when we solve certain technical problems relating to the handling of very large data sets we hope to be able to include them in this analysis.

Table 1

Percent of Population with Spells of Low-Income, by Percentage of Monthly Poverty Thresholds

Spell Duration:	Percent of Poverty Threshold:					
	50%	75%	100%	125%	150%	200%
No Spell	84.0	77.1	70.0	62.8	55.8	42.4
Spell of 6 months or less	11.3	14.5	17.3	19.9	22.1	25.0
Spell of 7 to 12 months	3.1	4.8	6.6	8.6	10.6	14.5
Spell of more than 12 months	1.6	3.6	6.1	8.7	11.5	18.1
Total with Spell	16.0	22.9	30.0	37.2	44.2	57.6

Source: Calculated from a 16 month sample drawn from the first five waves of the 1984 Panel of the Survey of Income and Program Participation. Spells shown are those observed during the 16 month period, with no adjustments for censoring.

those with a spell of income below 50 percent of the poverty level are observed at that level for 6 months or less, for example, compared to only 43 percent of those observed to have a spell below 200 percent of poverty. Nevertheless, the fact that almost 30 percent of those with spells below 50 percent of poverty are observed in that state for more than 6 months is in itself somewhat surprising. That percentage translates into almost 3000 cases in the SIPP alone, or about 14 million persons on a weighted basis.

Table 2 shows the distribution of observed spells of low income by family type. As discussed above, a person has been counted as belonging to a given family type if he or she was in such a family at any time during the 16 month observation period. Most of the family types shown are self-explanatory. For the purposes of this paper, "elderly" has been defined to include those aged 65 or over; children are those aged less than 18; and "families losing earnings" are those with at least one member experiencing the loss of a job (after having been employed). This last family type corresponds to the "job loss" transition event discussed above.[9]

As Table 2 demonstrates, families of different types differ markedly in their likelihood of experiencing observed spells at various levels of low income, and in their likelihood of remaining poor for extended periods of time. In general, the differences appear to be in the directions suggested by the hypothesis relating to the importance of earnings presented above. As might be expected, persons in female-headed families are relatively likely to

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9./In this paper, as in the Ruggles and Williams paper cited earlier, loss of a job has been defined as a drop in earnings such that total earnings went from at least $200 in one month to less than $200 in the next. This threshold was chosen somewhat arbitrarily to allow for continued irregular earnings from casual jobs such as babysitting. See Ruggles and Williams (1986) for further discussion.

Table 2

Percent of Population with Spells of Low Income,
by Percent of Poverty Threshold and Family Type

	All Families	Persons in: Families with Kids	Families Losing Earnings	Families with Female Heads	Families with Elderly
Panel A					
Percent with Spells Below 50 Percent of Monthly Poverty Thresholds					
No Spell	84.0	80.7	77.1	70.5	94.8
Observed Spell:					
6 months or less	11.3	13.0	17.7	18.3	4.0
7 to 12 months	3.1	3.9	4.2	6.2	0.8
more than 12 months	1.6	2.3	0.9	5.0	0.3
Total with Spell:					
Percent	16.0	19.3	22.9	29.5	5.2
Number of Cases	9,562	6,484	5,639	4,101	522
Panel B					
Percent with Spells Below 100 Percent of Monthly Poverty Thresholds					
No Spell	70.0	65.2	62.0	47.7	78.1
Observed Spell:					
6 months or less	17.3	19.3	24.5	24.4	11.1
7 to 12 months	6.6	7.9	8.8	12.3	5.0
more than 12 months	6.1	7.6	4.7	15.6	4.7
Total with Spell:					
Percent	30.0	34.8	38.0	52.3	21.9
Number of Cases	17,932	11,728	9,369	7,268	2,213
Panel C					
Percent with Spells Below 150 Percent of Monthly Poverty Thresholds					
No Spell	55.8	50.5	48.0	32.2	59.8
Observed Spell:					
6 months or less	22.1	23.8	27.9	25.9	16.2
7 to 12 months	10.6	12.3	13.9	16.5	9.4
more than 12 months	11.5	13.4	10.2	25.4	14.6
Total with Spell:					
Percent	44.2	49.5	52.0	67.8	40.2
Number of Cases	26,393	16,677	12,804	9,429	4,061

Source: Calculated from a 16 month sample drawn from the first five waves of the 1984 Panel of the Survey of Income and Program Participation. Spells shown are as observed, unadjusted for censoring.

experience spells of low income, with over half spending at least some time below 100 percent of the poverty threshold during the 16 month observation period. Further, persons in these families are also relatively likely to remain poor once they enter a low-income spell. About 28 percent have observed poverty spells of more than 6 months within the 16 month period, and almost 16 percent spent more than 12 out of these 16 months in poverty. Indeed, 5 percent had observed spells of income below 50 percent of poverty that lasted more than one year. And as will be discussed in more detail below, the relatively short observation period available understates the overall proportion of this population with long low-income spells.

Families with a job loser present an interesting contrast to female-headed families. (The two categories, of course, are not necessarily exclusive.) Like female-headed families, they are relatively likely to experience low income spells—almost one-fourth have a spell of income below 50 percent of poverty, and over half have a spell below 150 percent. Unlike female headed families, however, those losing earnings are relatively unlikely to stay poor for an extended period of time. Fewer than one percent have incomes below 50 percent of the poverty threshold for more than 12 of these 16 months, and fewer than 5 percent are below 100 percent of the threshold for that long. Indeed, of all the family types examined here, those in families with a job loser are the most likely to experience a spell of poverty lasting 6 months or less, but are among the least likely to experience a poverty spell of 12 months or more.

The group least likely to experience poverty spells over the time period as a whole are those in families containing elderly members. It should be noted here that poverty rates for this group in particular are quite sensitive

to specific definitional issues, although the general patterns of income receipt are similar regardless of definition. For example, Table 2 shows that persons in households containing elderly are less likely to have spells of low income of any duration than are persons in the population as a whole. Previous work on the characteristics of elderly persons themselves, however, demonstrated that while the elderly were indeed less likely to have short spells of poverty they were more likely to have observed spells of at least 6 months (Ruggles 1987).

The data presented in Table 2 bear out that general trend, in that those in families with elderly clearly have a higher relative poverty rate the longer the period under consideration; it is likely that their lower absolute poverty rates are at least partly the result of differences in size between low income households with elderly and those with higher incomes. Specifically, poor elderly are particularly likely to live by themselves, or with at most one other person. Conversely, elderly in larger families are less likely to be poor. When poverty rates are computed based on all persons in families with elderly, these non-poor families are weighted relatively heavily compared to smaller poor families with elderly, since of course they have more members. As shown in the earlier paper cited above, however, rates computed for elderly persons alone are somewhat higher, particularly for longer periods.

Table 2 also demonstrates that while persons in families with elderly are quite unlikely to have very low incomes--below 50 percent of the poverty threshold--their relative liklihood of having a low income spell rises as higher income cutoffs are considered. Indeed, they are more likely than any group except those in female headed families to experience a period of more

than 12 months below 150 percent of the poverty level—almost 15 percent of those in families with elderly had spells of more than a year at this income level. This income level is still quite low, especially for small households. For example, 150 percent of the poverty line would have been an income of less than $7500 for a single elderly person in 1984, and less than $9500 for an elderly couple.[10]

The breakdowns of observed poverty spells seen in Table 2, imply, not surprisingly, that persons in families meeting the categorical requirements for most public assistance programs—in female-headed families, with children, and so forth—are more likely to experience poverty spells and are more likely to remain in poverty when they have such a spell. As noted above, the elderly are the main exception. Table 3 indicates, however, that those within these groups who actually participate in these programs are indeed "the poorest of the poor".[11] For example, almost 58 percent of those in families receiving AFDC have a spell of income below 50 percent of the poverty rate, compared with about 16 percent of the population as a whole. Indeed, over 14 percent

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10./Relative poverty rates are of course quite sensitive to the equivalence scale used to adjust the poverty measure for family size and composition. The scales implicit in the U.S. poverty line definition have a fairly high elasticity for additional family members, and include an additional downward adjustment of about 10 percent for families of one or two persons with elderly heads. A scale of this type will tend to understate poverty for the elderly relative to one with a lower family size adjustment. See Buhmann et. al. (1988) for further discussion, and for a cross-national comparison of poverty rates by demographic group under a variety of equivalence scales.

11./The three public assistance programs shown in Table 3 are Aid to Families with Dependent Children (AFDC), which aids children deprived of parental support and their caretakers, Supplemental Security Income (SSI), which provides aid to the aged, blind, and disabled, and the Food Stamp Program (FSP), which provides food coupons to all families with incomes below specified levels, without categorical restrictions. Although the AFDC program serves families with unemployed heads as well as single parent families in about half the states, in practice more than 90 percent of the recipients are in single parent families. These three programs are the major sources of cash (or in the case of Food Stamps, cash-like) means-tested public assistance available in the United States.

Table 3

Percent of Population with Spells of Low Income, by Percent of Poverty Threshold and Program Participation

	All Families	Persons In: Families with AFDC	Families with SSI	Families with Food Stamps
Panel A				
Percent with Spells Below 50 Percent of Monthly Poverty Thresholds				
No Spell	84.0	42.5	87.1	46.4
Observed Spell:				
6 months or less	11.3	26.2	9.5	28.7
7 to 12 months	3.1	17.1	2.7	14.6
more than 12 months	1.6	14.2	0.7	10.3
Total with Spell:				
Percent	16.0	57.5	12.9	53.6
Number of Cases	9,562	2,078	135	4,034
Panel B				
Percent with Spells Below 100 Percent of Monthly Poverty Thresholds				
No Spell	70.0	12.4	35.5	12.8
Observed Spell:				
6 months or less	17.3	22.5	19.8	26.5
7 to 12 months	6.6	22.0	14.7	24.4
more than 12 months	6.1	43.2	30.0	36.2
Total with Spell:				
Percent	30.0	87.6	64.5	87.2
Number of Cases	17,932	3,167	675	6,565
Panel C				
Percent with Spells Below 150 Percent of Monthly Poverty Thresholds				
No Spell	55.8	6.6	18.6	5.0
Observed Spell:				
6 months or less	22.1	17.5	18.6	18.4
7 to 12 months	10.6	21.8	14.4	24.0
more than 12 months	11.5	54.1	48.3	52.5
Total with Spell:				
Percent	44.2	93.4	81.4	95.0
Number of Cases	26,353	3,377	851	7,157

Source: Calculated from a 16 month sample drawn from the first five waves of the 1984 Panel of the Survey of Income and Program Participation. Spells shown are as observed, unadjusted for censoring.

of those in AFDC families were below this level for more than 12 out of the 16 months observed. Food Stamp recipients were almost as likely to experience a very low income spell, but their observed spells were on average shorter.

Consistent with the findings on the elderly discussed above, persons in families receiving SSI were much less likely spells of income below 50 percent of the poverty rate than were those in families receiving benefits from other means-tested programs. SSI benefits are on average somewhat higher than AFDC benefits, and in addition many SSI recipients also receive at least some Social Security income. Over two-thirds of SSI recepients experienced spells below 100 percent of the poverty level, however, and 30 percent were at this level for more than a year. Thus, while those in SSI recipient families were on average less poor than those in the families of other program participants, they are still substantially more likely to be poor than those in families with elderly as a whole. Further, when a slightly higher income cutoff--150 percent of poverty--is considered, more than 81 percent of those in SSI recipient families have low-income spells, and nearly half are below this level for more than 12 months. At this income threshold, those in SSI recipient families look much more like others in families receiving public assistance than like the population as a whole.

Censoring Issues and and the Duration of Poverty Spells by Family Type

The discussion so far has focused on the distribution of spells of low income as observed over the 16 month period as a whole. Unfortunately, however, in such a short observation period it is relatively unlikely that any given poverty spell will be observed in its entirety. (Further, any that are completely observed will almost by definition be short.) As a result, the average length of observed spells will be understated, and many spells that apppear short in our observation period may in fact continue for some time outside that period. Censoring problems—where part but not all of some spells are observed—arise with almost any type of time-related spell data, but where the observation period is also fairly short relative to the mean spell length, as in this case, they are likely to be particularly severe.

Since the goal of the present paper is not so much to estimate mean spell length, however (which could be somewhat problematic with an observation period as short as 16 months), but rather to consider whether some persons with low-income spells are likely to leave poverty more rapidly than others, the censoring problems encountered in our sample may not prove to be insurmountable. Even if there is differential censoring across those in different family types, for example, as is indeed likely if family type is correlated with spell length, the relative characteristics of those known to be short spell cases and those known to be long spell cases may be largely unaffected. In other words, even if many or most of the long spell cases have censored spells, making an estimation of total time in poverty difficult, it may still be possible to draw reasonable conclusions about the relative characteristics of short and long spell cases.

Table 4 represents a first approach to the examination of this question. The first two lines of that table show a breakdown of those having spells of

Table 4

Persons with a Low Income Spell (Below 100 Percent of the Monthly Poverty Threshold) by Duration of Spell and Family Type

	Percent of Persons with Low-Income Spells In:				
	All Families	Families with Kids	Families Losing Earnings	Families with Female Heads	Families with Elderly
Duration of Spell:					
Known to be:					
less than 6 months	31.3	29.9	39.7	24.7	25.9
6 months or more (total, including censored)	46.3	48.6	40.3	57.2	54.8
Known duration over 6 months:					
6 to 12 months	5.0	5.2	6.3	2.6	4.8
12 months or more	24.0	25.6	15.5	34.4	31.2
Unknown Duration:					
Censored, less than 6 months observed	22.3	21.6	20.0	18.4	19.2
Total with Spells:					
Number of Cases	17932	11728	9369	7268	2213
Percent of Category	30.0	34.8	38.0	52.3	21.9

Source: Calculated from a 16 month sample drawn from the first five waves of the 1984 Panel of the Survey of Income and Program Participation.

poverty of known duration: those with completely observed (uncensored) short spells of less than 6 months, and those having longer spells, observed to last at least 6 months.[12] The percentages shown in each of these lines represent the proportion of those with any observed poverty spell falling into each category. These two lines plus the line labeled "censored, less than 6 months observed" sum to 100 percent and together represent all persons with observed poverty spells during the 16 month period. The third and fourth lines represent subsets of the second line; they do not sum to the second line, however, because there is an omitted category--spells censored after 6 months are observed, but before 12 months.

As the data presented in Table 4 indicate, the proportions of those with observed months of low income having short versus long poverty spells do indeed appear to differ considerably by family type. Those in families with a job loser, for example, appear just about as likely to have a spell observed to last less than 6 months as to have one observed to last 6 months or more. In contrast, the proportion of those in female headed families with longer spells is more than twice the proportion with spells known to be under 6 months. In fact, more than a third of those in female headed families experiencing a low income spell are observed to be poor for a year or more, compared to just over 15 percent of those in families with job losers. Table

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12./Several durations other than 6 months were also considered, but in the 16 month sample this appears to be the most significant break point not coinciding with a wave boundary. Problems relating to the wave "seams" are discussed elsewhere (see for example Williams 1986), but in general many more transitions in income are reported between waves than within them, so use of a wave boundary as the defining point for a "short spell" might tend to overstate the proportions actually having such short spells. When additional months are added to the file, this issue will be re-examined and possibly new categories of spell length will be considered; even in the 16 month file the raw distribution of observed spell lengths was found to differ significantly from that seen in the 12 month file we used earlier.

4 also demonstrates that while those in families with elderly are less likely to have low-income spells overall, those who do are relatively unlikely to have short spells, and are almost as likely as those in female-headed families to have spells of a year or more

The proportion with censored spells of which less than 6 months are observed varies across family types in a predictable pattern. In general, those who are less likely to experience a short spell are also less likely to have a censored spell of less than 6 months, just as one would anticipate. The proportion in this category is fairly similar across all the family types considered, however, implying that excluding these cases, for whom duration information is insufficient, may not significantly bias our examination of the relative characteristics of those experiencing short versus long poverty spells.

Table 5 presents information on the relative durations of low income spells experienced by those in families with assistance program participants. Although, as discussed earlier, most assistance program participants represent subsets of the family types shown in Tables 2 and 4, it is once again clear that they form a subgroup that is considerably worse off than most in the same family types. For example, about 57 percent of those in all female headed families with low income spells are observed to be poor for more than 6 months, compared to 78 percent of those in families with AFDC. Similarly, about 55 percent of those in all families with elderly having low income spells are poor more than 6 months, compared to more than 72 percent of those in families with SSI recipients. Indeed, more than half of those in low income families with either AFDC or SSI recipients have poverty spells that are observed to last for at least 12 of the 16 months observed in the survey. Those in Food Stamp recipient families have patterns similar to those seen for AFDC and SSI; they are slightly more likely than SSI recipients to have spells

Table 5

Persons with a Low Income Spell (Below 100 Percent of the Monthly Poverty Threshold) by Duration of Spell and Program Status

	Percent of Persons with Low-Income Spells In:			
	All Families	Families with AFDC	Families with SSI	Families with Food Stamps
Duration of Spell:				
Known to be:				
less than 6 months	31.3	11.4	14.8	13.5
6 months or more (total, including censored)	46.3	78.1	72.4	73.9
Known duration over 6 months:				
6 to 12 months	5.0	3.2	4.4	4.5
12 months or more	24.0	55.3	51.7	47.8
Unknown Duration:				
Censored, less than 6 months observed	22.3	10.5	12.7	12.6
Total with Spells:				
Number of Cases	17,932	3,167	675	6,565
Percent of Category	30.0	87.6	64.5	87.2

Source: Calculated from a 16 month sample drawn from the first five waves of the 1984 Panel of the Survey of Income and Program Participation.

of longer than 6 months, but slightly less likely to have spells of over a year.[13] Once again, it should be borne in mind that the categories shown here include those ever in a family receiving program benefits during the 16 months of the survey; the period of program recipiency need not have lasted as long as the observed poverty spell.

Why are program recipients so much poorer than others in similar family types? To put it another way, who are those in female headed families and families with elderly who are poor but are not receiving benefits? Part of the answer may be related to program asset limits--families typically may not have more than $1000 to $3000 (depending on the program and the specific family type) in assets other than a home and a car and still qualify for public assistance under these programs. (Some programs also limit allowed car values.) Many families experiencing short term unemployment, for example, must draw down their assets over a period of several months before they will qualify for public assistance, even though they may have had little or no income during those months.

A second part of the answer has to do with the very low levels of benefits available in most public assistance programs. In AFDC, for example, benefit levels vary by state, but in the median state benefits would typically provide

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13./Factors associated with transitions onto and off of welfare programs have received a preliminary examination in Williams and Ruggles (1987); unfortunately, however, partly because of the somewhat longer spells typical of welfare recipients, fewer such transitions are observed in the 16 month file, and of those seen only a relatively small proportion are associated in an obvious way with major economic or demographic events.

an income equivalent to less than 50 percent of the poverty level.[14] The SSI program is more generous, but for a single individual the basic federal benefit provides an income of about 75 percent of the poverty level, while for a couple it is close to 80 percent. Slightly over half the states supplement this benefit, but in most states the basic benefit and supplement alone would not raise recipients above the poverty level.

Basic benefit levels this low guarantee that program recipients will also tend to be very poor. While program participants may have income from other sources as well, in general earnings or other income reduce the benefits received, and non-program incomes must typically be very low in order to maintain positive benefits. As a result, for example, a family categorically eligible for AFDC but with earnings at 75 percent of the poverty level would not qualify for AFDC in most states. Under these circumstances, it is perhaps not so surprising that those in AFDC recipient families have both lower total incomes and longer spells in poverty than those in other female headed families, as seen in Tables 3 and 5 above.

In general, the data on spells seen so far suggest that, as hypothesized at the begining of this section, those in families that are relatively unlikely to have earnings will be more likely to have long poverty spells than those in families with a job loser, who is fairly likely to become re-employed in the short run. The next section of the paper goes on to test that hypothesis more directly, by using a probit estimation technique to examine the relative probability of having an observed poverty spell that lasts for 6 months or more.

14./The exact figure would vary with family size and by year. For a four person family in January 1985, for example, a family relying on AFDC alone would have had an income of about $4550, or about 41 percent of the poverty line, in the median state. See U.S. House of Representatives, Committee on Ways and Means (1987) for more details.

Before turning to that analysis, however, Table 6 presents a final set of estimates of spell lengths by family type, with further adjustments for censoring problems. Specifically, these estimates show the proportion of those entering poverty who are still there after a specified number of months--essentially, the "poverty survival rate" for this population.[15] Some caution should be used in comparing the results shown in Table 6 to those shown elsewhere, however, in that these results are based on first poverty spells only, rather than on total poverty spell time, as in the rest of the paper.[16] As is shown in Appendix A, multiple poverty spells are not uncommon, and their incidence varies across family types. For most family types the relative durations of spells are not affected by the exclusion of subsequent spells, but for families with children the relative amount of time spent in poverty is significantly shorter based on first spells only than if all spells are considered. And of course, for all family types spell lengths for first spells only are somewhat shorter in absolute terms than are total poverty spells.

In spite of these limitations, the results shown in Table 6 help to illustrate typical patterns of poverty exit by family type, and generally

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15./This is analogous to the methodology used by Bane and Ellwood (1986) in constructing their poverty spell estimates based on the PSID.

16./This table was constructed using standard life table techniques. It can presumably be redone to reflect total time in poverty, but some substantial software modifications are necessary to accomplish this and have not yet been carried out. In any case, these results suggest that further investigation of multiple poverty spell patterns should be carried out when more data become available. Preliminary investigation suggests, however, that most such "multiple" spells are more apparent than real, in that they represent only small fluctuations in income that temporarily push an individual or family slightly over the poverty line, only to fall back one or two months later.

Table 6

Proportion of Persons Entering Poverty Remaining After Specified Number of Months, By Family Type (Adjusted for Attrition and Censoring)

Total Months	Percent of Persons with Low-Income Spells In: All Families	Families with Kids	Families Losing Earnings	Families with Female Heads	Families with Elderly
1	100.0	100.0	100.0	100.0	100.0
2	68.2	66.7	66.6	71.2	82.1
3	50.5	47.5	48.3	55.8	73.3
4	42.3	39.3	38.9	46.2	63.9
5	25.3	23.4	24.2	31.2	36.9
6	20.7	18.7	18.9	26.1	33.3
7	18.4	17.1	16.2	23.6	30.6
8	16.0	14.2	13.2	21.1	28.6
9	10.8	9.2	8.1	17.0	20.8
10	10.2	8.9	7.6	16.2	20.5
11	9.6	8.2	6.9	14.8	20.2
12	8.7	7.2	5.8	13.7	20.2
13	7.5	6.9	5.2	12.9	16.6
14	7.5	6.9	5.2	12.6	16.6
15	7.2	5.8	4.9	11.6	16.6

Source: Calculated from a 16 month sample drawn from the first five waves of the 1984 Panel of the Survey of Income and Program Participation.

Notes: Proportions shown apply to those remaining in the sample at specified intervals from first entry into poverty only. Unlike previous tables, which show total time in poverty over the observed period, this table gives the duration of first poverty spells for each individual only. See text for further discussion.

support our hypothesis. For all family types, a suprisingly high proportion of entrants leave poverty within the first few months. Because the population shown in this table is all poverty entrants rather than all those with any poverty spell, as in the past two tables, shorter average durations are of course to be expected. This table in essence shows the proportion of all spells that last a specified amount of time; the previous two tables effectively focus on the proportion of all observed "poverty months" that are part of short, long, or indeterminate spells.[17] When spells are weighted by entrants, rather than by those in poverty at a given point in time, it can be seen that, even among the longest staying family types, the probability that a new entrant into poverty will stay poor for as long as a year is relatively low.

The large drop-off seen after month 4 in all family types represents the wave "seam" problem discussed earlier; it is repeated, with somewhat lower impact, at months 8 and 12, which represent the transition points for waves 2 and 3. Nevertheless, in all family types there is a very substantial decline even within the first wave, with about half the sample leaving poverty within the first three months. As expected, female headed families and families with elderly have the largest proportion of cases remaining at the end of 15 months, although in this table, unlike earlier tables, the proportion of those in families with elderly having very long spells appears to exceed the

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17./This is somewhat analogous to the person versus family weighting problem for the elderly discussed earlier: more families consist of one or two people, but more people come from large families. Similarly, most poverty spells are short, but a higher proportion of observed poverty months come from long spells. (It may also be helpful to remember here that those poor all 16 months--the very long stayers--are excluded from this table because they are by definition left censored, and to the extent that they are qualitatively different--particularly, in their entry determinants--from other entrants this exclusion may bias the results seen here.)

proportion in female headed families. This is again probably related to the relatively low incidence of multiple poverty spells among those in families with elderly.

Overall, the results seen in Table 6 are fairly dramatic, and strongly imply that a very large proportion of poverty entrants leave poverty quite quickly. Average durations would no doubt lengthen if only spells severe enough or long enough to produce annual incomes below the poverty level were counted, but the very low survival rates seen after even a year of poverty call into question the usefulness of measures based on annual data, either for predicting total spell durations or especially, for considering the characteristics of those eligible for assistance programs.

Multivariate Analysis of the Incidence of Short Versus Long Poverty Spells

The tabular results presented in the last section clearly suggest that those in some family types are considerably more likely to stay in poverty for at least 6 months once they become poor than are those in other family types. Generally, as discussed above, these findings are in the directions suggested by our hypothesis, and they appear to involve fairly large differences between the various categories, but it is difficult to assess their overall significance, or even their relative significance in any detail. Further, it is also difficult to use these results to estimate the probability of a long spell (given an observed poverty spell) directly for those in each family type, and it is impossible to estimate the extent to which interactions between the types may occur, and may influence the results seen for each. For these reasons, a multivariate analysis of the incidence of long spells (given that a spell occurred) was also performed.

A multivariate analysis of spell durations might ideally involve the estimation of the "hazard rate" for poverty exits—that is, the rate at which those still in poverty leave at each time interval observed—controlling for the appropriate variables (in this case, family type information.) The survival rates given in Table 6 are in essence hazard rates, but are of course shown for only a subset of the possible stratifications of the data. If one is willing to make some assumptions about the functional form of the underlying hazard function, hazard rates that are a function of the observed co-variates may be estimated using a partial-likelihood approach. However, such an estimation is relatively difficult (and expensive) for very large data sets like the SIPP, and in a case such as this where all the explanatory variables are categorical other methods may give an equally satisfactory

result. (See Allison (1982) for a discussion of this point.) Further, as was discussed with regard to Table 6, examining first poverty spells only is not very satisfactory, given the high incidence of rapid in-and-out movements in this population; but the immediate alternative would be to treat all observed spells as independent, which would be equally unsatisfactory. Therefore, at least until we can edit the underlying data to construct more realistic measures of poverty spells (perhaps by ignoring extremely short exits, for example), an approach as complex as this does not seem justified.

Instead, therefore, the analysis presented here has used a simpler approach, focusing on those with spells that are known to be either less than 6 months or 6 months or more--the group shown in the first two lines of Table 4. Again, because our interest is in the differential impacts of various family characteristics on the probability of a quick exit, rather than in an estimate of mean spell lengths or of the distribution of spell lengths, the exclusion of those with short censored spells should not significantly bias our results, at least with regard to the differentials observed across family types.

In assessing the specific probabilities derived here, however, it should be borne in mind that they represent the probability that persons observed for at least 6 months (and up to 16 months) some time after the start of a poverty spell will have a total spell of at least 6 months. As explained earlier, in the discussion of Table 6, this is not the same as the probability that a person starting a spell will be poor for at least 6 months, because the sample includes some long-stayers for whom starts cannot be observed. Instead, these probabilities are closer to the overall probability that, of all those experiencing a poverty spell at a given point in time, a specific person

chosen at random will be in the midst of a spell of at least 6 months.[18] Clearly, long spell persons will be more heavily weighted in such a population-based estimate than in an estimate whose basis is the sum of all poverty starts.

The dependent variable used in the multivariate analysis, then, was simply a flag indicating whether the case had an observed poverty spell of less than 6 months, or 6 months or more (coded zero for the first alternative, and one for the second). As indicated above, indeterminate cases and cases with no poverty spells were not included in the analysis, since our hypothesis relates only to the probability of remaining in poverty, and not to the probability of entering poverty to begin with. A simple binary probit estimation technique was used to estimate this model, and the explanatory variables, with one exception, were the family type indicators discussed above. In all cases these were coded zero if the person had not been in such a family during the observation period, and one if he or she had.

One additional explanatory variable was added to the model at this stage—an indicator for race. We did not, in fact, expect this variable to be highly significant in explaining the relative lengths of poverty spells once all the other factors had been taken into account, and the inability to separate its effects from those of the other family characteristics in the tabular analyses had caused us to exclude it from those analyses. This was clearly not a problem in the multivariate analysis, however, and so it was included here.

Table 7 presents the results of the multivariate analysis. As that table shows, all of the family characteristics investigated proved to be highly

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18./In order for these estimates to represent that probability exactly, the excluded cases would have to be distributed between long and short spell cases in proportion to their poverty months as well.

Table 7

Factors Affecting the Probability Those Having a Spell of Low Income Will Be in Poverty 6 Months or More

Variable	Coefficient	T Ratio	Variable Mean	Probability at Var = 0	Probability at Var = 1
Constant	0.017	0.60	1	N/A	N/A
Non-White Head	0.394	14.88**	0.26	.56	.71
Female Head	0.337	14.42**	0.43	.55	.68
Earnings Loss	-0.441	-19.19**	0.54	.69	.52
Kids	0.309	12.31**	0.66	.52	.64
Elderly	0.266	7.29**	0.13	.59	.69

Notes: Based on a PROBIT analysis of 13933 cases with an observed low-income spell, where the spell is known to be either less than 6 months or 6 months or more in duration. (Low income is defined in this table as 100 percent of the poverty threshold or less.) Mean probability of a long (6 month or more) spell for this population as a whole is .60. Explanatory variables are coded 0 if the person is not in a family possessing the characteristic in question, and 1 if he or she is in such a family. See text for further discussion.

** Significant at the .99 level.

Source: Cases drawn from the first five waves of the 1984 panel of the SIPP.

significant in distinguishing between short and long spell cases, and all have coefficients in the expected direction. Clearly, our expectation that race would not be highly significant once family type had been controlled for was not confirmed--holding all else constant, the long-spell probability for a non-white family member is about 27 percent higher than for a white (71 percent versus 56 percent). This does not necessarily invalidate our general hypothesis; the race variable may be picking up the effects of omitted variables such as educational attainment and/or labor market discrimination that materially affect employment opportunities, for example, resulting in significantly lower earnings probabilities, and significantly higher long-spell likelihoods, for non-whites. Nevertheless, the strength of race as a correlate of long-spell durations was something of a surprise.

None of the other results seen in Table 7 was particularly surprising in light of our previous analyses, however. Female-headedness and presence of an elderly family member were both associated with high long-spell probabilities, while having a job-loser in the family implied a considerably lower long-spell likelihood. The absence of children from the family proved to be associated with relatively low incidences of long spells, once other factors such as the presence of elderly were controlled for. In general, the differences between those with and without a given characteristic were fairly large; the smallest impact was for those in families with or without elderly, where having the characteristic increased the long-spell probability by about 17 percent. The largest impact was for households with and without a job-loser: those in poor families with no job-losing members were about a third more likely to be long spell poverty cases than were those with job losers in the family. These results are all consistent with our general hypothesis.

Table 8 extends the analysis seen in Table 7 by considering the probability that a person with an observed poverty spell will be in the midst of a spell of at least 6 months, as it applies to some specific cases of interest. Specifically, probabilities have been calculated for two major subcategories—those in female-headed families and those in families with job losers—both of which are particularly relevant to our hypothesis. The findings seen here are in many ways even more suggestive than the general findings seen in Table 7. Once again, race appears to be an extremely important determinant of long-spell probabilities. For those in families with job losers in particular, being white appears to substantially decrease the probability of a long spell, and being both white and in a male headed family results in a probability of only 43 percent, compared to a mean probability of 60 percent for the sample as a whole, 58 percent for those in male headed, non-white families losing earnings, and 64 percent in non-white families losing earnings as a whole. These findings may tend to support the hypothesis that race is to some extent measuring employment opportunities rather than motivation or other similar factors, since the differential remains so large even when the sample is limited to those with recent work experience, who presumably are quite likely to become re-employed given the opportunity.

Race is also an important indicator of the probability that a poor person in a female headed family will be in the midst of a long spell. Non-whites in female headed families experience very high long-spell probabilities—77 percent overall, 80 percent in families with children, and 84 percent in families with elderly. Even whites in female headed families have fairly high probabilities of being in a long spell—ranging from 64 percent to 72 percent--but being non-white clearly increases the probability considerably.

Table 8

Probability That Those Having Spell of Low Income Will Be Poor 6 Months or More: Some Example Cases

	All Persons	Whites	Non-Whites
Probability of a Long Spell for Persons in:			
Female Headed Families:			
All	.68	.64	.77
With Elderly	.76	.72	.84
With Children	.71	.68	.80
Families Losing Earnings:			
All	.52	.48	.64
Female Headed	.60	.56	.71
Male Headed	.47	.43	.58

Notes: Derived from PROBIT results shown in Table 7. See Table 7 note for further details on the sample and coding methods.

Source: Cases drawn from the first five waves of the 1984 panel of the SIPP.

Summary and Conclusions

This paper has examined the characteristics of those experiencing short spells of low income, and has compared them with those having longer spells. In general, it has been found that short spells—less than 6 months—are quite common, and make up a substantial proportion of all poverty spells. About 30 percent of the population as a whole has at least one month with an income of less than the poverty level (adjusted to a monthly basis) over an observation period of 16 months. About half of those entering poverty leave within the first 3 months, however, and about 80 percent leave within six months. Even among those seen to be poor on a cross-sectional basis, about 40 percent are in the midst of a spell that will last less than 6 months.

In addition to its findings on the prevalence of very short poverty spells, the paper has also found that the characteristics of those poor for a short period of time differ considerably, on average, from those of the longer-term poor. The paper hypothesized that the probability of leaving poverty in the short run would be highly related to the probability that one's family would gain earnings in the near future, and that specifically families with a member who had recently become unemployed were particularly likely to leave poverty quickly, since most unemployed persons with previous earnings find re-employment fairly rapidly. Conversely, those who were less likely to have earnings in the short run—female-headed families (especially with children), the elderly—would be more likely to have longer spells.

All of these expectations were confirmed in our analysis. Almost 76 percent of families with a job loser left poverty in less than 6 months, and less than 6 percent were still poor a year after entry. [19] About 63 percent

19./These estimates are based on first poverty spells only; if total time in poverty were taken into account, total spells would undoubtedly be longer, although most would probably still be short. We expect to examine this issue futher in the near future.

of families with elderly and 69 percent of families with female heads entering poverty also exited in less than 6 months, indicating that very short spells predominate even for these groups. About 20 percent percent of families with elderly and 14 percent of families with female heads were still poor after one year, however, a much higher proportion than for families with a job loser.

As would be expected, those seen to be poor on a cross-sectional basis contained a higher proportion of longer-spell cases than did the cohort of poverty entrants. Even here, however, the probability of being in a spell of six months or more (given that one was in a spell at all) was only 60 percent for the population as a whole, and only 52 percent for those in families with job losers. For those in families with elderly the probability rose to 69 percent, and 68 percent for those in families with female heads. Non-whites in general experienced particularly high probabilities of being in a poverty spell of 6 months or more—71 percent of all non-whites with spells were in long spells. Within these broad categories, particular subgroups experienced even greater differences in long-spell probabilities: those in white, male headed families with a job loser had only a 43 percent probability of being in a long spell (given that they were in a spell), while non-whites in female headed families with children had an 80 percent probability of a long spell (given a spell), and non-whites in female headed families with elderly had an 84 percent long-spell probability.

Although the research presented in this paper is still fairly preliminary in nature, and can be expanded upon in several important dimensions, the implications of these findings are important in two regards. First, these findings indicate that there are substantial differences in those with short and long poverty spells, and that these differences are very much along the

lines predicted by our original hypothesis. These differences also help to explain why a substantial proportion of those seen to be poor in cross-sectional data bases never apply for assistance program benefits—even though they may have little or no income for a few months, they simply aren't poor for all that long, and they may never exhaust their own savings or other resources. In contrast, those in the types of families most targetted by assistance programs—female headed families with children, families with elderly—are likely to be poor for longer periods if they become poor, and may therefore also be more likely to run out of alternative sources of support. (In addition, of course, such families may also have had relatively fewer resources to begin with, especially if they have no recent work experience.)

The second set of implications that can be drawn from these findings relate more to data issues than to issues of public policy. Specifically, given the very large numbers of short poverty spells seen in this analysis, we would argue that a broad measure of annual income based on a fixed family composition, like that produced in the Current Population Survey (CPS), may be very misleading for some types of analyses. In particular, it now appears that those data are likely to be quite unsuitable, in the absence of considerable adjustment, for estimates of the population eligible for assistance programs, since program eligibility is computed on the basis of monthly income, which has been shown to fluctuate very widely. Particularly for those with intermitent earnings over the year, annual incomes may have only a fairly low correlation with short-term poverty status during the year. And since, as demonstrated in Ruggles and Williams (1986), poverty transitions are also relatively likely to be associated with events that change family composition, the assumption of a fixed family composition in the CPS may also bias its poverty estimates.

It can certainly be argued that a month is too short a period over which to measure poverty in any meaningful way, and that many people poor for only one month are not really poor in the sense of lacking adequate resources. Indeed, an edited poverty spell variable, that takes into account both the length of an exit and the level of income achieved, is now in preparation to extend this analysis. Nevertheless, perhaps the way to solve the problem of identifying persons with short term poverty spells who are "not <u>really</u> poor" is to move in the direction of the rules used by public assistance programs to determine program eligibility, and to take into account some measure of total resources in addition to income. After all, those with very large bank accounts are "not really poor" either, even if they have very low annual incomes. Such a revised poverty estimate, taking into account both short-term income and total resources, might ultimately be more useful for most types of analysis than the current official poverty definition, which may give us a misleading picture of both the size and the characteristics of the population suffering significant spells of very low income.

Appendix Table A

Percentage of Persons with Poverty Spells Experiencing Multiple Poverty Spells, By Family Type

Percentage or Persons in:	One Spell	Two Spells	Three or More Spells
All Families	67.8	23.0	9.2
Families with Kids	64.6	24.6	10.8
Families Losing Earnings	58.6	28.3	13.1
Female-Head Families	70.4	22.3	7.3
Families with Elderly	75.0	21.0	4.0
Non-White Families	68.6	22.2	9.2
Total Number of Persons	12,164	4,119	1,649

Source: Calculated from a 16 month sample drawn from the first 5 waves of the 1984 panel of the Survey of Income and Program Particiption.

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