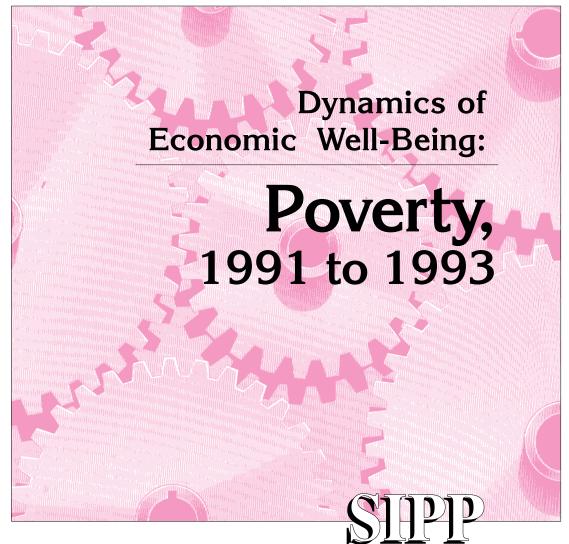
CURRENT POPULATION REPORTS Household Economic Studies P70-45





Survey of Income and Program Participation

by Martina Shea

U.S. Department of Commerce Economics and Statistics Administration BUREAU OF THE CENSUS

Highlights

Poverty

- About 21.6 (±2.4) percent of persons who were poor in 1991 were not poor in 1992. Children and the elderly were less likely to exit poverty than nonelderly adults.
- A substantial proportion of the population was poor on a long-term basis: 4.9 (±0.4) percent or 11.8 (±1.0) million were poor all 24 months of 1991 and 1992.
- Half of all poverty spells lasted longer than 4.3 (±0.4) months. Blacks had significantly longer poverty spells than Whites. Half of all spells experienced by Blacks lasted longer than 5.8 (±0.8) months.

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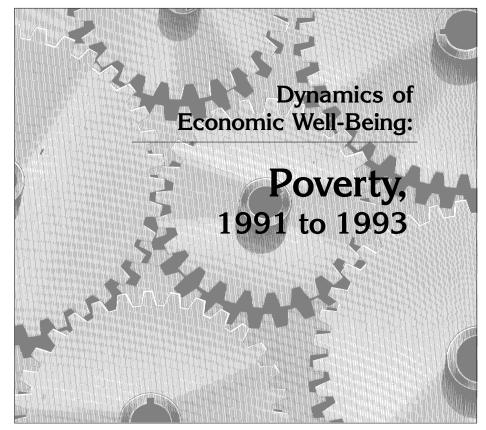
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by Martina Shea



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Dynamics of Economic Well-Being: Poverty, 1991 to 1993

Note: All demographic surveys, including the Survey of Income and Program Participation (SIPP), are affected by undercoverage of the population. This undercoverage results from missed housing units and missed persons within sample households. Compared to the level of the 1980 Decennial Census, overall undercoverage in SIPP is about 7 percent. Undercoverage varies with age, sex, and race. For some groups, such as 20 to 24 year old Black males, the undercoverage is as high as 27 percent compared to the census. It is important to note that the survey undercoverage is an addition to the decennial census undercoverage, which in 1980 was estimated to be about 1 percent overall and about 8.5 percent for Black males. The weighting procedures used by the Census Bureau partially correct for the bias due to undercoverage. However, its final impact on estimates is unknown.

INTRODUCTION

This report uses data from SIPP to examine the incidence of poverty at a point in time and over a 32-month period. It presents data from the complete panel file of the 1991 SIPP which covers the time period from October 1990 through August of 1993.

SIPP enables comparisons of poverty rates among groups of persons of different demographic and socioeconomic characteristics. It also can be used to study the distribution of poverty spell durations. The panel file contains monthly information on income as well as on many other characteristics which can vary over the panel, such as family and labor force status. Efforts were made during the life of the panel to follow persons who moved to ensure that the sample remained representative of the noninstitutional population of the United States. Persons are characterized by the income and poverty status of their respective family unit based on living arrangements each month during the period of study.

It should be noted that longitudinal estimates presented here are based on persons who either were interviewed in all waves of the reference period or for whom imputed wave information exists.¹ Insofar as persons with missing actual or imputed wave information differed in their experience of poverty from those who did not, these longitudinal estimates may be biased.

HIGHLIGHTS

(The numbers in parentheses denote the 90-percent confidence intervals.)

- About 21.6 (±2.4) percent of persons who were poor in 1991 were not poor in 1992. Children and the elderly were less likely to exit poverty than nonelderly adults.
- Three (±0.3) percent of persons who were not poor in 1991 became poor in 1992. Children were more likely than other age groups to become poor.
- Blacks' likelihood of escaping poverty in 1992 decreased compared to previously published data.² Their exit rate dropped from 17.4 (±1.7) percent in 1991 (based on the 1990 panel) to 13.0 (±2.9) percent in 1992 (based on the 1991 panel).
- A substantial proportion of the population was poor on a long-term basis: 4.9 (±0.4) percent or 11.8 (±1.0) million were poor all 24 months of 1991 and 1992.
- Children were much more likely to be poor all 24 months of 1991 and 1992 than nonelderly adults, 8.5 (±1.0) percent versus 3.2 (±0.4) percent. Children accounted for 48.1 (±4.3) percent of the chronically poor.
- Half of all poverty spells lasted longer than 4.3 (±0.4) months. Blacks had significantly longer poverty spells than Whites. Half of all spells experienced by Blacks lasted longer than 5.8 (±0.8) months.
- Persons in married-couple families were much less likely to be poor continuously for all 24 months of 1991 and 1992 than persons in femalehouseholder families, 1.3 (±0.3) percent versus 19.5 (±2.0) percent.

¹A "missing wave imputation" procedure was used for persons who missed an interview but had completed interviews before and after the missing wave.

²U.Š. Bureau of the Census, Current Population Reports, P70-42, *Dynamics of Economic Well-Being: Poverty, 1990 to 1992*, U.S. Government Printing Office, Washington, DC, 1995.

POVERTY IN THE UNITED STATES: 1991-1993

SIPP allows us to deal with the static as well as the dynamic aspects of poverty. It is the latter aspect that provides additional insight into the nature of poverty. Unlike the poverty and income data collected in the Current Population Survey (CPS), which does not allow analysis of change in income and poverty status for particular individuals, longitudinal data make it possible to measure movement along the income distribution and into and out of poverty for the same persons over the life of the panel.

The SIPP collects income information and family composition on a monthly basis. Thus, poverty status can also be determined on a monthly basis, by comparing monthly family income to monthly thresholds. Monthly thresholds rise from month to month by the same percentage as the Consumer Price Index (CPI). In addition, annual poverty estimates can be obtained by summing monthly family income over the year and comparing it to the sum of the 12 corresponding monthly thresholds, based on family size and composition in each month.

These annual poverty estimates based on the SIPP differ from the official poverty estimates that are based on the March Supplement to the CPS. In the CPS, poverty status is based on responses to income questions which refer to income received in the previous calendar year. Annual poverty thresholds are based on family composition fixed as of the survey date and assumed to be constant over the previous year (in the case of 1991 poverty status, the data were collected in the March 1992 CPS).³

This report will examine transitions into and out of poverty during 1991 and 1992 based on an *annual* measure of poverty:

- a. The number and percent of persons who were poor in one year but not the other, i.e. exits from and entries into poverty.
- b. The number and percent of persons who were poor in both 1991 and in 1992. This group represents the long-term poor; those whose annual incomes fall below poverty thresholds for 2 consecutive years.

In addition, this report focuses on 4 *monthly* measures of poverty as derived from the SIPP:

a. The number and percent of persons who were poor in an average month of 1991 (1992).

- b. The number and percent of persons who were poor 2 months or more during 1991 (1992).
- c. The number and percent of persons who were poor each month of 1991 and 1992. This experience is referred to as chronic poverty in this report to denote the severity of economic hardship it represents.
- d. The length and distribution of poverty spells.

Examining poverty with longitudinal data allows one to distinguish between short- and long-term poverty. There are reasons to be concerned about persons who are poor for very long periods in contrast to persons who remain poor for only short periods. Much public policy debate is concerned with persons and families who remain poor for long periods of time. On the other hand, persons who are poor for even a short period of time often require outside assistance, a safety net, to support themselves and their families through unfortunate circumstances. Also, eligibility for means-tested assistance programs is based on monthly rather than annual income. Therefore, it is useful to obtain poverty estimates based not only on yearly income but also on monthly income, in order to capture short-term economic hardship. The official measure of poverty does not allow us to distinguish between short and long spells of poverty. SIPP, however, allows longitudinal analysis of poverty.

Transitions Into and Out of Poverty

According to official poverty estimates from the CPS, the number of poor persons rose from 35.7 million to 36.9 million between 1991 and 1992.⁴ While year-to-year changes in the total number and percent of persons in poverty are, in general, relatively small, the poverty population is actually much more dynamic than is commonly thought. In fact, many more people change poverty status from one year to the next than are indicated by simply looking at the net change in the poverty rate.

SIPP annual poverty estimates can be obtained by summing monthly family income over the year and comparing it to the sum of the 12 corresponding monthly thresholds, based on family size and composition in each month. Based on persons interviewed over the 2-year period, 20.9 million persons who were poor in 1991 remained poor in 1992. There was no significant increase in the number of persons in poverty between 1991 and 1992, as the number of persons who moved out of poverty (5.8 million) was similar to the number of persons who moved into poverty (6.5 million), representing 21.6 and 3.0 percent of the respective populations.

³Comparisons of CPS and SIPP annual poverty estimates can be made by fixing household composition in the SIPP as of March of the following year. Significant differences in poverty rates still remain. See Coder and Scoon-Rogers (forthcoming) technical paper "Evaluating the Quality of Income Data Collected in the Annual Supplement to the March Current Population Survey and the Survey of Income and Program Participation."

⁴U.S. Bureau of the Census, Current Population Reports, P60-185, *Poverty in the United States: 1992*, U.S. Government Printing Office, Washington, DC, 1993. These figures are based on 1980 census population controls. The revised poverty count for 1992 using 1990 census population controls was 38.0 million.

Table A reveals characteristics associated with high exit rates. For instance, persons in married-couple families were much more likely to exit poverty than persons in other type families, 29.9 percent versus 13.7 percent. Likewise, Blacks were less likely than Whites to exit poverty, and children and the elderly were less likely than nonelderly adults to exit poverty. Compared to estimates published earlier⁵, Blacks were the only population subgroup who had a change in the likelihood of escaping poverty. Their exit rate dropped from 17.4 percent in 1991 (based on the 1990 panel) to 13.0 percent in 1992 (based on the 1991 panel).

Monthly Measures of Poverty

About 35.4 million persons were poor in an average month of 1992, representing 14.0 percent of the population, not significantly different from 1991. Substantially more persons were poor for 2 or more months than in an average month, showing considerable movement in and out of poverty. About 50.5 million persons were poor at least 2 months in 1992, representing 20.2 percent of all persons, similar to 1991. A substantial proportion of the population was poor on a chronic basis: 4.9 percent (11.8 million) were poor all 24 months of 1991 and 1992 (see table B and figures 1 and 2).

Table A. Percent of Persons Entering and Exiting Poverty: 1991 to 1992

(Numbers in thousands)

		1991	panel		1990 panel				
Characteristic	Above pov- erty in 1991	Entered poverty in 1992 (percent)	Below poverty in 1991	Exited poverty in 1992 (percent)	Above pov- erty in 1990	Entered poverty in 1991 (percent)	Below poverty in 1990	Exited poverty in 1991 (percent)	
 Total	215,315	3.0	26,640	21.6	211,962	2.9	23,849	21.2	
Race and Hispanic Origin									
White Black Hispanic origin ¹	184,782 21,863 16,454	2.5 6.5 7.4	17,040 8,223 5,766	25.7 13.0 17.4	183,754 21,152 14,627	2.5 6.5 8.3	14,826 7,829 3,938	23.3 17.4 14.3	
Age									
Under 18 years 18 to 64 years 65 years and over		4.2 2.7 2.2	11,826 12,627 2,187	18.8 26.0 11.8	50,549 136,229 25,185	4.3 2.6 1.7	10,183 11,440 2,226	19.0 24.5 14.2	
Family Status									
In married-couple family both years In other family type both years	154,797 24,401	2.0 6.3	8,900 11,438	29.9 13.7	154,532 23,222	1.9 5.9	8,007 9,886	28.6 12.2	

¹Persons of Hispanic origin may be of any race.

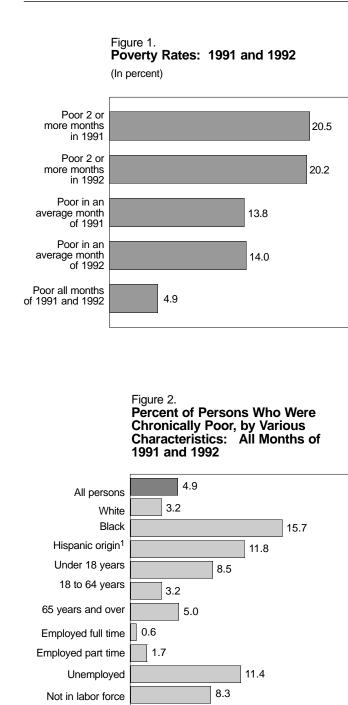
Table B. Poverty Status, by Race and Hispanic Origin: 1991 and 1992

(Numbers in thousands)

Race and Hispanic origin	Persons poor in an average month 1991 1992				Persons poor 2 or more months 1991 1992				Persons poor all 24 months of 1991-92		Median duration of poverty spells in the 1991
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	panel (in months)
Total	34,561	13.8	35,438	14.0	50,739	20.5	50,477	20.2	11,811	4.9	4.3
White Black Hispanic origin ¹		11.3 29.7 28.7	24,101 9,582 6,879	11.4 30.1 28.9	35,946 12,017 9,143	17.5 38.9 40.0	35,750 12,177 9,630	17.1 39.0 39.4	6,490 4,759 2,635	3.2 15.7 11.8	4.1 5.8 5.0

¹Persons of Hispanic origin may be of any race.

⁵U.S. Bureau of the Census, Current Population Reports, P70-42, *Dynamics of Economic Well-Being: Poverty, 1990 to 1992*, U.S. Government Printing Office, Washington, DC, 1995.



8.6

8.6

¹ Persons of Hispanic origin may be of any race.

Figure 3 shows the percent distribution of poverty

spells by spell lengths. The median duration of poverty spells that began after October 1990 was 4.3 months for

all persons (see figure 4), similar to previously published

estimates of spells beginning after October 1989. This

means that half of all poverty spells lasted longer than

19.5

2.5

1.3

With a work disability

With no work disability

Persons in married-

Persons in female-

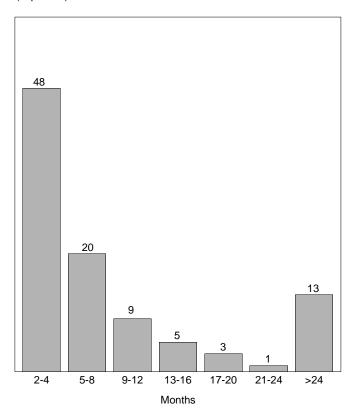
householder families

Unrelated individuals

couple families

Figure 3. Distribution of Poverty Spells, by Spell Length: 1991 to 1993

(In percent)

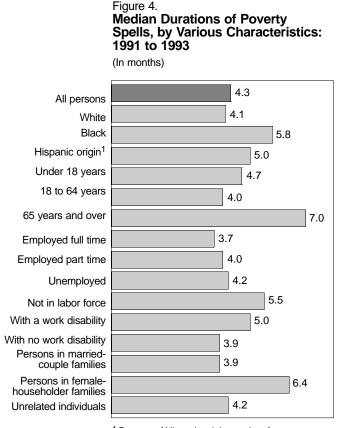


4.3 months. While 48.0 percent of spells lasted 2 to 4 months, smaller proportions of spells fell into subsequent length categories: 20.0 percent of spells lasted between 5 and 8 months, and only 9.0 percent lasted between 9 and 12 months.

Race and Hispanic origin⁶. There was a strong correlation between race and Hispanic origin and poverty, as can be seen in table B. While Whites were less likely than others to be poor in an average month and for 2 or more months during 1992, there was no significant difference between Blacks and persons of Hispanic origin. Blacks were almost three times as likely as Whites to be poor in an average month of 1992, and persons of Hispanic origin had a similar rate to Blacks. Blacks, however, were significantly more likely than persons of Hispanic origin to be poor all 24 months of 1991 and 1992, 15.7 percent versus 11.8 percent.

Despite much higher poverty rates for Blacks and persons of Hispanic origin, the majority of poor persons are White, regardless of the measure used. Whites

⁶Persons of Hispanic origin may be of any race. The information on the Hispanic population shown in this report was collected in the 50 States and the District of Columbia and, therefore, does not include residents of Puerto Rico.



¹ Persons of Hispanic origin may be of any race.

constituted 68.0 percent of the poverty population in an average month of 1992, 70.8 percent of those who were poor 2 or more months during the year, and 54.9 percent of the long-term poor.

Blacks had significantly longer poverty spells than Whites, as can be seen in table B. While White persons experienced a median spell duration of 4.1 months, Blacks had a median duration of 5.8 months. Persons of Hispanic origin had a median spell duration of 5.0 months, not significantly different from the durations of the other groups.

Age. Children were much more likely to be poor than persons in other age groups, as can be seen in table C. One in five children (21.9 percent) were poor in an average month of 1992, compared to 11.5 percent of nonelderly adults and 9.2 percent of the elderly. Even more pronounced is the difference in chronic poverty between children and nonelderly adults, 8.5 percent versus 3.2 percent.

Reflecting a tendency toward longer spells of poverty, the elderly and children made up a larger fraction of the chronic poor than of the average monthly poverty population and of those who were poor 2 or more months during the year. The elderly accounted for 11.3 percent of the chronic poor but only 8.0 percent of those who were poor in an average month. For children, the corresponding fractions were 48.1 and 41.7 percent. In contrast, nonelderly adults accounted for 40.6 percent of the chronic poor but 50.3 percent of those who were poor in an average month. Of the 3.5 million elderly who were poor 2 or more months during 1992, 1.3 million or 37.7 percent were poor during the entire 2-year 1991-92 period. The respective rates for children and nonelderly adults were 28.0 and 18.0 percent.

Median poverty spell durations during the 1991 through 1993 period were 4.0 months for nonelderly adults, 4.7 months for children, and 7.0 months for the elderly.

Employment status. Table D shows that unemployed persons were more likely than other labor force groups to be poor. About 37.8 percent of the unemployed were poor in an average month of 1992, followed by 12.6 percent of part-time workers and 3.5 percent of full-time workers. The proportion of those not in the labor force who were poor was intermediate between part-time workers and the unemployed, 19.2 percent. The percent of persons chronically poor and the percent of persons who were poor 2 months or more varied likewise with employment status.⁷

There were significant differences in poverty spell lengths between full-time and part-time workers on one hand and persons out of the labor force on the other. Full-time and part-time workers had similar median spell durations of 3.7 and 4.0 months, respectively, compared to 5.5 months for persons out of the labor force.

Disability status. As shown in table D, persons with a work disability were much more likely to be poor than others. While 9.9 percent of persons without a disability were poor in an average month of 1992, 20.0 percent of persons with a disability were poor. About 27.7 percent of persons with a disability were poor at least 2 months in 1992 and 8.6 percent were poor in all months of 1991 and 1992. The respective poverty rates for persons without a disability were 15.4 and 2.5 percent.

Disability status also affected the length of poverty spells. Half of the spells experienced by the disabled lasted longer than 5.0 months, compared to 3.9 months for persons who were not disabled.

Family status. Single-parent families generally have female householders, and persons in female householder families are much more likely to be poor than persons in married-couple families. As can be seen in table E, 37.5 percent of persons in female householder families were poor in an average month of 1992, 46.4 percent were poor at least 2 months, and 19.5 percent were poor continuously for 24 months. The corresponding proportions of persons in married-couple families who were poor were significantly smaller, 7.6, 13.4, and

⁷The unemployed were not significantly more likely than persons out of the labor force to be poor all 24 months.

Table C. Poverty Status, by Age: 1991 and 1992

(Numbers in thousands)

Age		Persons poor in an average month 1991 1992				Persons poor 2 or more months				ns poor months 91-92	Median duration of poverty spells in the 1991
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	panel
Total	34,561	13.8	35,438	14.0	50,739	20.5	50,477	20.2	11,811	4.9	4.3
Under 18 years 18 to 64 years 65 years and over	17,620	21.4 11.5 9.2	14,784 17,831 2,824	21.9 11.5 9.2	19,836 27,356 3,548		20,327 26,603 3,548	30.1 17.3 12.3	5,685 4,790 1,337	8.5 3.2 5.0	4.7 4.0 7.0

Table D. Poverty Status, by Employment and Disability Status: 1991 and 1992

(Numbers in thousands)

	Persons poor in an average month				Perso	ns poor 2	or more n	Persons poor all 24 months of 1991-92		Median duration of	
Characteristic	1991		1992		1991		1992			poverty spells in the 1991	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	panel (in months)
Total	34,561	13.8	35,438	14.0	50,739	20.5	50,477	20.2	11,811	4.9	4.3
Employment and Labor Force Status (persons 18 years and over)											
Employed full time Employed part time Unemployed Not in labor force	2,688	3.8 12.4 39.8 18.9	3,338 2,784 2,854 11,679	3.5 12.6 37.8 19.2	8,935 4,589 3,440 13,939	9.5 20.8 49.5 24.4	7,967 4,599 3,370 14,214	8.5 20.2 46.2 24.4	524 370 725 4,508	0.6 1.7 11.4 8.3	3.7 4.0 4.2 5.5
Disability Status (persons 15 to 69 years)											
With a work disability	5,562 14,459	19.8 9.9	5,507 14,752	20.0 9.9	7,515 23,405	28.3 16.0	7,020 22,921	27.7 15.4	2,160 3,596	8.6 2.5	5.0 3.9

1.3 percent respectively. Unrelated individuals had poverty rates that were between those in female-householder and married-couple families.

The length of time spent in poverty differed by family type. Persons in married-couple families and unrelated individuals, although not significantly different from one another, had shorter poverty spells than persons in female householder families. The median poverty spell experienced by persons in female householder families lasted 6.4 months, compared to 3.9 months for persons in married-couple families and 4.2 months for unrelated individuals.

Measures of Long-Term Poverty

As seen in the previous section, SIPP allows us to examine long-term poverty. Comparing an annual measure to a monthly measure, two types of long-term poverty can be described. Using an annual measure of poverty, about 21 million persons who were poor in 1991 were also poor in 1992. Using a monthly measure of poverty (as has been used thus far in the report) results in a smaller estimate of the chronically poor, 11.8 million. In order to be counted as "chronically" poor, a person had to be poor in each of the 24 months of 1991 and 1992. To be counted as long-term poor on an annual basis, persons had to meet a less stringent requirement: the average monthly income had to fall below the average monthly threshold for 2 years in a row. As a result, long-term poverty rates were higher based on the annual measure than based on the monthly measure.

The profile of the long-term poor differed in some instances, depending on which measure was used. This difference reflects the more chronic nature of poverty experienced by some groups. As can be seen in table F, while Blacks made up 34.3 percent of the long-term poor based on an annual measure, they made up 40.3 percent of the chronically poor. Persons in family types other than married-couple made up a significantly larger portion of the chronically poor than of those poor 2 years, 56.4 percent versus 47.3 percent, respectively.

On the other hand, persons in married-couple families accounted for 29.9 percent of those poor for 2 years but only 18.1 percent of those who were chronically poor. These differences in distribution in the different poverty populations attest to differences in intensity and permanency of poverty of some groups relative to others.

Table E. **Poverty Status, by Family Status: 1991 and 1992** (Numbers in thousands)

Family status	Persons poor in an average month				Persons poor 2 or more months				Persor all 24 r	Median duration of poverty spells in	
	19	91	19	92	1991		1992		of 1991-92		the 1991
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	panel (in months)
Total	34,561	13.8	35,438	14.0	50,739	20.5	50,477	20.2	11,811	4.9	4.3
In families In married-couple families . In families with a female householder, no spouse	26,744 12,794	12.5 7.5	27,802 13,061	12.8 7.6	40,612 23,022	19.1 13.5	41,430 23,255	19.2 13.4	8,920 2,142	4.3 1.3	4.3 3.9
present	12,986 7,816	36.6 21.4	13,861 7,637	37.5 21.1	16,101 10,127	45.8 29.1	16,905 9,048	46.4 26.5	6,661 2,892	19.5 8.6	6.4 4.2

Table F. Profile of the Long-Term Poor: 1991 to 1992 and 1990 to 1991

(Numbers in thousands)

		Annual n	neasure ¹		Monthly measure ²				
Characteristic	1991 and 1992		1990 ar	nd 1991	1991 ar	nd 1992	1990 and 1991		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Total	20,873	100.0	18,797	100.0	11,811	100.0	10,619	100.0	
Race and Hispanic Origin									
White Black Hispanic origin ³	12,659 7,156 4,763	60.6 34.3 22.8	11,368 6,471 3,374	60.5 34.4 17.9	6,490 4,759 2,635	54.9 40.3 22.3	5,969 4,060 1,949	56.2 38.2 18.4	
Age									
Under 18 years 18 to 64 years 65 years and over	9,606 9,341 1,927	46.0 44.8 9.2	8,248 8,641 1,909	43.9 46.0 10.2	5,685 4,790 1,337	48.1 40.6 11.3	4,820 4,401 1,399	45.4 41.4 13.2	
Family Status									
In married-couple families both years . In other family types both years	6,240 9,871	29.9 47.3	5,715 8,679	30.4 46.2	2,142 6,661	18.1 56.4	2,299 5,732	21.6 54.0	

¹Requires persons' average monthly income to fall below the average monthly threshold in 2 consecutive years.

²Requires persons to be poor in each of the 24 months of the 2-year period.

³Persons of Hispanic origin may be of any race.

Appendix A. Definitions and Explanations

Population coverage. The estimates in this report are restricted to the civilian noninstitutional resident population of the United States and members of the Armed Forces living off post or with their families on post.

Weights. Five sets of weights were used in this report. Monthly weights for calendar years 1991 and 1992 were used in deriving average monthly poverty figures for each year. Estimates of the numbers of persons who were poor all of 1991 and 1992 and who experienced a change in poverty status from 1991 to 1992 were based on the 1991 panel weight. Calendar year weights for 1991 and 1992 were used to obtain estimates of the number of persons who ever were poor during a given year.

Reference periods for the characteristics age, employment, and family status. While employment status is observed each wave, the other characteristics are observed each month. In order to calculate average monthly statistics, the characteristics were used as they prevailed in the particular month. In order to determine the number of persons who ever or always were poor during a given time period, the characteristics were used as of the first month (wave) of the time period in question. When looking at spells of poverty, the characteristics of persons experiencing the spells were as of the month (wave) during which the spell began.

Poverty definition. The poverty definitions used in this report are based on the government's official definition but were calculated on a monthly basis using the family composition at that time rather than fixing it throughout the year as is done in the Current Population Survey. These data differ from the official figures and are not part of the standard data series on poverty established by Directive 14 from the Office of Management and Budget. Official figures are published annually from the March Current Population Survey in the P-60 series of Current Population Reports.

The poverty definition is based on an index developed at the Social Security Administration in 1964 and revised by Federal interagency committees in 1969 and 1981. The poverty concept is a statistical measure based on the Department of Agriculture's 1961 Economy Food Plan. It reflects the different consumption requirements of families in relation to their size and composition and the age of the family householder. A ratio of food expenditures to income of one-third, based on the Department of Agriculture's 1955 Survey of Food Consumption, was used to derive the original poverty thresholds from the economy food plan. The poverty thresholds have been updated annually based on changes in the Consumer Price Index.

Weighted average poverty thresholds for 1991 and 1992 are shown below in table A-1.

For further discussion of the poverty definition, see Current Population Reports, Series P-60, No. 188, *Income, Poverty, and Valuation of Noncash Benefits: 1993.*

Characteristic	Thresholds				
Characteristic	1991	1992			
One person (unrelated individual) 15 to 64 years 65 years and over	6,932 7,086 6,532	7,143 7,299 6,729			
Two persons Householder 15 to 64 years Householder 65 years and over	8,865 9,165 8,241	9,137 9,443 8,487			
Three persons . Four persons . Five persons . Six persons . Seven persons . Eight persons . Nine persons or more.	10,860 13,924 16,456 18,587 21,058 23,605 27,942	11,186 14,335 16,952 19,137 21,594 24,053 28,745			

Table A-1. Weighted Average Poverty Thresholds in 1991 and 1992

Income-to-poverty ratio. The income-to-poverty ratios used in this report incorporate an adjustment in every month for family size and composition. The poverty threshold for each family was calculated based on the size and composition of that family in each month. For unrelated individuals, individual income was divided by the appropriate one-person-family poverty threshold. In order to obtain the income-to-poverty ratio during a certain period, the family income of a person was summed over each month of that period and divided by the sum of the respective monthly poverty thresholds.

Thus, a person's annual poverty status in this report was determined by comparing the sum of the person's family income each month against the sum of the appropriate monthly poverty thresholds. If the person's family income (personal income if an unrelated individual) was below the sum of the monthly poverty thresholds, the person was classified as below the poverty level for the year shown.

Survival Analysis. Some of the estimates presented in this report are distributions of spell duration for individuals with different characteristics. We used a survival analysis technique to derive these distributions and the resulting estimates of median spell duration for persons observed entering a spell of poverty during the 32 months of the panel. We consider only individuals who were present in the survey all 32 months. One alternative would have been to include all persons up until the time of attrition. It is, however, extremely difficult to come up with appropriate weights for such an analysis, and it was therefore not attempted here.

Spells of poverty must have an observed beginning, i.e. have to be preceded by 1 or more months of "nonpoverty" during the panel. In addition, periods of poverty must last at least 2 months in order to be counted as spells. Furthermore, poverty spells must be more than 1 month apart in order to be counted as separate spells. If two potential spells are separated by only 1 month, they count as one spell. The connecting month is counted as part of the resulting spell. A spell is observed either until it ends or until it is right-censored. Since an individual must have completed interviews for all months of the panel in order to be included in the sample, right-censoring occurs only if an individual is still poor in the last month of the panel.

The probability of exiting a spell in month t, given that the person was experiencing a spell in the beginning of that month, is defined as

$$h(t) = \frac{exits(t)}{prog(t) - (rcens(t)/2)}$$

where exits(t) denotes the number of spell exits in month t, prog(t) is the number of spells that were in progress in the beginning of month t, and rcens(t) is the number of spells which were right-censored in month t.

The survival rate in month t, which is the probability that a spell lasts longer than t months, can then be written as

$$S(t) = \prod_{k=1}^{t} (1-h(k))$$

The survival function evaluated at t gives the probability that an *entrant* into poverty is still poor t time periods later.

The median survival time or spell duration M can be estimated by linear interpolation. Let [t, t+1) be the interval such that S(t)>=.5 and S(t+1)<.5. Then

$$M = t + \frac{S(t)-1/2}{S(t)-S(t+1)}$$

Since a poverty spell must be preceded by a period of nonpoverty, left-censored spells were not included in our analysis. Observations are left-censored when the beginning of a spell of interest is not observed; that is, a spell began at some time before the reference period.

While dynamic estimates may be unbiased for spells with observed beginnings in the reference period, there remains concern about the deletion of left-censored spells from such analyses. There may be particular characteristics of persons, associated with the experience of very long spells, that precludes their inclusion in our sample. For example, in our analysis, which is restricted to persons in sample the entire period, selecting spells with observed beginnings leads to a sample without those persons who were poor from the first month of life onward. Even if one defines the spells of those "born into poverty" as spells with observed beginnings, the problem of unavailable appropriate weights make their inclusion all but impossible. Studies of spells with observed beginnings might result in reasonable estimates of spell distribution and median duration for such spells with observed beginnings, but it might result in downward biased estimates of the median duration of all spells.

Appendix B. Source and Accuracy Statement

SOURCE OF DATA

The SIPP universe is the noninstitutionalized resident population living in the United States. Field representatives interview eligible persons who are at least 15 years of age at the time of the interview. Not eligible to be in the survey are crew members of merchant vessels, Armed Forces personnel living in military barracks, institutionalized persons, such as correctional facility inmates and nursing home residents, and United States citizens residing abroad.

The SIPP sample for the 1991 panel is located in 230 Primary Sampling Units (PSU's) each consisting of a county or a group of contiguous counties. This report also contains some data from the 1990 panel.¹

For the 1991 panel, interviewing began in February, March, April, or May of 1991 for four random subsamples, respectively. For the remainder of the panel, interviews for each person occurred every 4 months for a total of eight interviews. At each interview, the reference period was the 4 months preceding the interview month.

Occupants of about 93 percent of all eligible living quarters participated in the first interview of the panel. For later interviews, field representatives interviewed only original sample persons and persons living with them. We follow respondents who move during the panel. The Census Bureau automatically designated all first-interview noninterviewed households as noninterviews for all subsequent interviews.²

We classified a person as interviewed for the entire panel and both calendar years based on the following two definitions:³

 Those for whom self, proxy, or imputed responses were obtained for each reference month of all eight interviews for the 1991 panel, and all three interviews for each calendar year; or Those for whom self or proxy responses were obtained for the first reference month of the interview period and responses exist for each subsequent month until they were known to have died or moved to an ineligible address (foreign living quarters, institutions, or military barracks).

Everyone else is considered noninterview.4

Some estimates are based on monthly averages from cross-sectional files. Nonresponse rates for the months on the file vary from 8 percent to 21 percent.

Some respondents did not respond to some of the questions. Therefore, the overall nonresponse rate for some items, especially sensitive income and money related items, is higher than the person nonresponse rate.⁵

ESTIMATION

We used several stages of weight adjustments in the estimation procedure to derive the SIPP longitudinal person weights. We gave each person a base weight equal to the inverse of his/her probability of selection. We applied two noninterview adjustment factors. One adjusted the weights of interviewed persons in interviewed households to account for households that were eligible for the sample but which field representatives could not interview at the first interview. The second compensated for person noninterviews occurring in subsequent interviews.⁶

We performed an additional stage of adjustment to longitudinal person weights to reduce the mean square error of the survey estimates. We accomplished this by ratio adjusting the sample estimates to agree with monthly Current Population Survey (CPS) type estimates of the civilian (and some military) noninstitutional population of the United States at the national level by

¹For more information on sample selection, see U.S. Bureau of the Census, Current Population Reports, P70-42, *Dynamics of Economic Well-Being: Poverty, 1990 to 1992*, U.S. Government Printing Office, Washington, DC, 1995.

²For more information on the sample design, see "SIPP 91: Source and Accuracy Statement for the Longitudinal Panel File REVISION," dated October 19, 1994.

³Details on interview-status classification are found in "Weighting of Persons for SIPP Longitudinal Tabulations," paper by Judkins, Hubble, Dorsch, McMillen and Ernst in the *1994 Proceedings of the Survey Research Methods Section, American Statistical Association.*

⁴Details on patterns of nonresponse are in "Weighting Adjustment for Partial Nonresponse in the 1984 SIPP Panel," paper by Lepkowski, Kalton, and Kasprzyk in the *1989 Proceedings of the Survey Research Methods Section, American Statistical Association.*

⁵For more discussion of nonresponse, see *Quality Profile for the Survey of Income and Program participation*, May 1990, by T. Jabine, K. King and R. Petroni. Available from Customer Services, Data Users Services Division (301-457-1139).

⁶For more detail on noninterview adjustment for longitudinal estimates, see *Nonresponse Adjustment Methods for Demographic Surveys at the U.S. Bureau of the Census*, November 1988, Working Paper 8823, by R. Singh and R. Petroni.

demographic characteristics including age, sex, and race, as of the specified control date. We also controlled SIPP estimates to independent Hispanic controls.²

ACCURACY OF ESTIMATES

We base SIPP estimates on a sample. The sample estimates may differ somewhat from the values obtained from administering a complete census using the same questionnaire, instructions, and enumerators. The difference occurs because a sample survey estimate is subject to two types of errors: nonsampling and sampling. We can provide estimates of the magnitude of the SIPP sampling error, but this is not true of nonsampling error. The next few sections describe SIPP nonsampling error sources, followed by a discussion of sampling error, its estimation, and its use in data analysis.

Nonsampling Variability. We attribute nonsampling errors to many sources; they include but are not limited to the following:

- Inability to obtain information about all cases in the sample.
- Inability or unwillingness on the part of the respondents to provide correct information.
- Errors made in collection (e.g. recording or coding the data).
- Undercoverage.

We used quality control and edit procedures to reduce errors made by respondents, coders, and interviewers.⁵

Undercoverage in SIPP resulted from missed living quarters and missed persons within sample households. It is known that undercoverage varies with age, race, and sex. Generally, undercoverage is larger for males than for females and larger for Blacks than for non-Blacks. Ratio estimation to independent age-race-sex population controls partially corrects for the bias resulting from survey undercoverage. However, biases exist in the estimates when persons in missed households or missed persons in interviewed households have characteristics different from those of interviewed persons in the same age-race-sex group. Further, we did not adjust the independent population controls for undercoverage in the census.¹

Comparability With Other Estimates. Exercise caution when comparing data from this report with data from other SIPP publications or with data from other surveys. Comparability problems are from varying seasonal patterns for many characteristics, different nonsampling errors, and different concepts and procedures.⁵

Sampling Variability. Standard errors indicate the magnitude of the sampling error. They also partially measure the effect of some nonsampling errors in response and enumeration but do not measure any systematic biases in the data. The standard errors mostly measure the variations that occurred by chance because we surveyed a sample rather than the entire population.

USES AND COMPUTATION OF STANDARD ERRORS

Confidence Intervals. The sample estimate and its standard error enable one to construct confidence intervals, ranges that would include the average result of all possible samples with a known probability.

Approximately 90 percent of the intervals from 1.645 standard errors below the estimate to 1.645 standard errors above the estimate would include the average result of all possible samples.

Approximately 95 percent of the intervals from 1.960 standard errors below the estimate to 1.960 standard errors above the estimate would include the average result of all possible samples.

The average estimate derived from all possible samples is or is not contained in any particular computed interval. However, for a particular sample, one can say with a specified confidence that the confidence interval includes the average estimate derived from all possible samples.

Hypothesis Testing. One may also use standard errors for hypothesis testing. Hypothesis testing is a procedure for distinguishing between population characteristics using sample estimates. The most common type of hypothesis tested is (1) the population characteristics are identical versus (2) they are different. One can perform tests at various levels of significance, where a level of significance is the probability of concluding that the characteristics are different when, in fact, they are identical. Unless noted otherwise, all statements of comparison in the report passed a hypothesis test at the 0.10 level of significance or better. This means that, for differences cited in the report, the estimated absolute difference between parameters is greater than 1.645 times the standard error of the difference.

To perform the most common test, compute the difference $X_A - X_B$, where X_A and X_B are sample estimates of the characteristics of interest. A later section explains how to derive an estimate of the standard error of the difference $X_A - X_B$. Let that standard error be s_{DIFF} . If $X_A - X_B$ is between -1.645 times s_{DIFF} and + 1.645 times s_{DIFF} , no conclusion about the characteristics is justified at the 10 percent significance level. If, on the other hand, $X_A - X_B$ is smaller than -1.645 times s_{DIFF} or larger than + 1.645 times s_{DIFF} , the observed difference is significant at the 10-percent level. In this event, it is

commonly accepted practice to say that the characteristics are different. Of course, sometimes this conclusion will be wrong. When the characteristics are, in fact, the same, there is a 10-percent chance of concluding that they are different.

Note that as we perform more tests, more erroneous significant differences will occur. For example, at the 10-percent significance level, if we perform 100 independent hypothesis tests in which there are no real differences, it is likely that about 10 erroneous differences will occur. Therefore, interpret the significance of any single test cautiously.

Standard Error Parameters and Tables and Their Use. Most SIPP estimates have greater standard errors than those obtained through a simple random sample because we sampled clusters of living quarters for the SIPP. To derive standard errors at a moderate cost and applicable to a wide variety of estimates, we made a number of approximations. We grouped estimates with similar standard error behavior and developed two parameters (denoted "a" and "b") to approximate the standard error behavior of each group of estimates. Because the actual standard error behavior was not identical for all estimates within a group, the standard errors we computed from these parameters provide an indication of the order of magnitude of the standard error for any specific estimate. These "a" and "b" parameters vary by characteristic and by demographic subgroup to which the estimate applies.

Methods for using these parameters and tables for computation of standard errors are given in the following sections. To calculate standard errors for estimates of persons ever poor or persons poor all of 2 years, use the parameters in tables 1 and 2. To calculate standard errors for estimates of average monthly poverty rate, use the parameters in tables 3 and 4. The standard errors for median spell duration have already been calculated and are given in table 5.

Standard Errors of Estimated Numbers. Approximate s_x using the formula,

$$s_x = \sqrt{ax^2 + bx.}$$
(1)

Here x is the size of the estimate and a and b are the parameters in tables 1 through 4 associated with the particular type of characteristic. When calculating standard errors for numbers from cross-tabulations involving different characteristics, use the factor or set of parameters for the characteristic that will give the largest standard error.

Illustration. Suppose the 1991 SIPP estimates that 34.6 million persons were poor in the average month of

1991. The appropriate "a" and "b" parameters from table 4 are

Using formula (1), the approximate standard error is

$$s_x = \sqrt{(-0.0001154)(34,600,000)^2 + (18,954)(34,600,000)} = 719,000$$

The 90-percent confidence interval is from 33,417,000 to 35,783,000. Therefore, a conclusion that the average estimate derived from all possible samples lies within a range computed in this way would be correct for roughly 90 percent of all samples.

Standard Errors of Estimated Percentages. The reliability of an estimated percentage, computed using sample data for both numerator and denominator, depends on the size of the percentage and its base. When the numerator and denominator of the percentage have different parameters, use the parameter from tables 1 through 4 indicated by the numerator.

Approximate the standard error by the formula:

$$s_{(x,p)} = \sqrt{\frac{b}{x}(p)(100-p)}$$
. (2)

Here x is the total number of persons in the base of the percentage, p is the percentage ($0 \le p \le .100$), and b is the "b" parameter in tables 1 through 4 associated with the characteristic in the numerator of the percentage.

Illustration. As shown in text table C, the 1991 SIPP estimates that 4.9 percent of the population was poor each month of 1991 and 1992. To find the base for the percentage, divide the estimate by the percentage. In this example, 11,811,000/.049 = 241,041,000. The appropriate "b" parameter from table 2 is

$$b = 32,413$$

Using formula (2), the approximate standard error is

$$s_x = \sqrt{\left(\frac{32,413}{241,041,000}\right)(4.9)(100-4.9)} = 0.3 \text{ percent}$$

The 90-percent confidence interval is from 4.4 to 5.4 percent. Therefore, a conclusion that the average percentage derived from all possible samples lies within a range computed in this way would be correct for roughly 90 percent of all samples.

Standard Error of a Difference. The standard error of a difference between two sample estimates, x and y, is approximately equal to

$$s_{(x-y)} = \sqrt{s_x^2 s_y^2 - 2rs_x s_y}$$
(3)

where s_x and s_y are the standard errors of the estimates x and y and r is the correlation coefficient between the characteristics estimated by x and y. The estimates can be numbers, averages, percents, ratios, etc. Underestimates or overestimates of standard error of differences result if the estimated correlation coefficients overestimated or underestimated, respectively. In this report, variances provided for differences in spell length contain a nonzero correlation coefficient. For all other estimates, we assume r is zero.

Illustration. Suppose the SIPP estimates that 3.2 percent of all persons 18 to 64 years old were poor each month of 1991 and 1992 compared with 5.0 percent of people 65 years old and over. The bases for these percentages are 149,688,000 and 26,740,000, respectively. The standard errors for these percentages are computed using formula 2 to be 0.2 percent and 0.7

percent. Assuming that these two estimates are not correlated, the standard error of the estimated difference of 1.8 percent is

$$s_{(x-y)} = \sqrt{(0.2)^2 + (0.7)^2} = 0.9 \text{ percent}$$

Suppose that it is desired to test at the 10-percent significance level whether persons 18-64 years old had lower poverty rates than persons 65 and over. To perform the test, compare the difference of 1.8 percent to the product $1.645 \times 0.9 = 1.5$ percent. Since the difference is greater than 1.645 times the standard error of the difference, the data show that the proportion of persons 18-64 who were poor each month of 1991 and 1992 is less than that of persons 65 and above.

Table B-1. SIPP Generalized Variance Parameters for Estimates From the 1990 Longitudinal File

	Weights						
Characteristics of persons	1990 panel		1990 cale	ndar year	1991 calendar year		
	а	b	а	b	а	b	
Total*							
18+ poverty All others White Black Hispanic	-0.0001077 -0.0000985 -0.0001093 -0.0004066 -0.0000778	18,329 22,724 25,185 11,300 13,256	-0.0000965 -0.0000882 -0.0000979 -0.0003642 -0.0000697	22,560		17,051 21,140 23,429 10,512 12,332	

*Use the "All others" parameter for 0+ program participation and any other type of tabulation not covered by the characteristic "18+ poverty."

Table B-2. SIPP Generalized Variance Parameters for Estimates From the 1991 Longitudinal File

	Weights						
Characteristics of persons	1991 panel		1991 calendar year		1992 calendar year		
	а	b	а	b	а	b	
Total or White*							
18+ poverty All others Black	-0.0001592 -0.0001345 -0.0007588	· ·		30,228	-0.0001531 -0.0001294 -0.0007298	25,143 31,174 21,447	

*Use the "All others" parameter for 0+ program participation and any other type of tabulation not covered by the characteristic "18+ poverty."

Table B-3. SIPP Indirect Generalized Variance Parameters for Annual Estimates Based on Monthly Averages From the 1990 Cross-Sectional Files

Characteristics of paragra	1990 cale	ndar year	1991 calendar year		
Characteristics of persons	а	b	а	b	
Total					
18+ poverty All others White Black Hispanic	-0.0000725 -0.0000663 -0.0000735 -0.0002737 -0.0000524	12,336 15,294 16,951 7,605 8,922	-0.0000790 -0.0000723 -0.0000801 -0.0002983 -0.0000571	13,446 16,671 18,476 8,289 9,725	

Table B-4. SIPP Indirect Generalized Variance Parameters for Annual Estimates Based on Monthly Averages From the 1991 Cross-Sectional Files

Characteristics of persons	1991 cale	ndar year	1992 calendar year		
	а	b	а	b	
Total or White					
18+ poverty All others Black	-0.0001154 -0.0000975 -0.0005501	18,954 23,501 16,168	-0.0001258 -0.0001063 -0.0005997	20,660 25,616 17,623	

Table B-5. Standard Error of Median Spell Duration for Persons Who Became Poor in the 1991 SIPP Panel, by Selected Characteristics

Characteristic	Standard error of spell duration median	
All spells	0.24154	
Race and Hispanic Origin White Black Hispanic origin	0.25860 0.45758 0.49150	
Age Under 18 years	0.40867 0.08233 0.61221	
Disability Status With a work disability With no work disability	0.54540 0.09184	
Family Status In married-couple families In families with a female householder, no spouse present Unrelated individuals	0.08704 0.91801 0.52675	
Employment and Labor Force Status Employed full time Employed part time Unemployed Not in labor force	0.11520 0.16656 0.41367 0.71435	