

# 6

## Other Issues in Measuring Poverty

**T**he formulation of a poverty measure requires decisions about several issues in addition to the concept and method by which to set and update the thresholds and the appropriate definition of family resources. In this chapter we address three such issues: the time period over which poverty is measured; the unit of analysis on which the measurement occurs (e.g., family or household) and the related issue of the unit of presentation of analysis; and the types of summary measures that are reported to indicate the extent of poverty across time and among population groups. We conclude with a discussion of some of the limitations of any economic measure of poverty.

### TIME PERIOD

The current U.S. poverty rate is an annual rate.<sup>1</sup> It uses an annual accounting period in which an annual need standard is compared with an annual measure of resources. Operationally, families are interviewed each March in the Current Population Survey (CPS) and asked about their income for the preceding calendar year. The resulting calculation of the poverty rate is reported to the nation in a *Current Population Report*, P-60 series, each fall for the preceding year.

### Recommendation

There are several arguments for retaining the annual accounting period, and overall, we find them persuasive. First, not doing so would interrupt the time series of annual poverty rates extending back to the 1960s. Second, an annual

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<sup>1</sup> Poverty measures in other countries (which typically do not have official status) are also in most instances annual; the measures in the United Kingdom are exceptional in their use of a subannual (weekly/monthly) need standard and resource definition.

period for measuring income seems natural. People file tax returns that pertain to their income and deductions for a calendar year. Assistance programs that are geared to the tax system (notably, the Earned Income Tax Credit) also use an annual accounting period. Third, there is widespread acceptance of the view that families can smooth consumption and accommodate fluctuations in income over the period of a year. One would not necessarily want to have a poverty measure that counts as poor such people as teachers, who use winter savings to tide them over the summer, or construction workers, who use summer savings to tide them over the winter.

Of course, no one accounting period or measure is right for all purposes, and the use of the poverty measure should affect the choice. One important use is as a general social indicator for evaluating the socioeconomic health of the nation and for measuring progress toward reducing economic insufficiency for the whole population and for particular groups. For this purpose, the length of the measurement period may matter less than whether different time periods result in different trends over time or different poverty rates for key groups, such as the elderly and children. An annual measure is arguably as appropriate as any other for this important purpose.

Another important use of the poverty measure is as a benchmark against which to evaluate the effectiveness of government assistance programs—in terms of whether benefits are provided primarily to people who are poor (on a pretransfer basis) and whether the benefits move recipients out of poverty. For such programs as Supplemental Security Income (SSI), which assists low-income elderly and disabled people who commonly remain in the program for long periods, determining the proportion of program participants who are poor or not poor on an annual basis is quite appropriate.

In contrast, for such programs as food stamps and Aid to Families with Dependent Children (AFDC), which use a short accounting period and may provide benefits to people for periods as short as a few months, an annual calculation is not always appropriate. As an example, consider the case of someone who loses a job and has few other resources, applies for and receives food stamps for, say, a period of 3 months, and then obtains a job that pays good wages for the remainder of the year. Such a person would be classified as a food stamp recipient during the year but with an annual income that might be well above the annual poverty level. Hence, it would look as if the program had provided benefits inappropriately, when, in fact, it had served its goal of helping someone with a short-term need. For analyses of these kinds of programs, one would like to have a shorter term poverty measure, either in place of or as a supplement to an annual measure. Other programs, which are designed to address such root causes of poverty as low levels of education and lack of training, may need to be assessed on a longer term basis than a year. For these programs, one might want a poverty concept applicable to a segment of the life cycle.

Although the evaluation of assistance programs is important, we view this use of the official poverty measure as secondary to its use as a key social indicator. Although there are arguments for shorter and longer accounting periods for indicator purposes, we believe that it makes most sense to continue to calculate the official poverty statistics on an annual basis. To supplement the annual statistics, we support initiatives to develop and publish shorter term measures of poverty that can facilitate evaluation of such programs as AFDC and food stamps. Because of the eligibility rules of these programs—specifically, their requirement that families use up most assets before applying for benefits—it will probably be necessary to include asset values in the family resource definition for poverty measures that use an accounting period of less than a year. Such shorter term measures may also serve as more timely indicators of trends in poverty (although other readily available measures, such as monthly unemployment rates and program caseloads, may serve the same purpose).

We also support work on developing longer term measures of poverty. This is an area that calls for more research and evaluation, given the lack of consensus about desirable measures. We note that by using the Survey of Income and Program Participation (SIPP) as the basis for poverty measurement in place of the March CPS, it becomes possible to develop both annual and subannual poverty measures on a consistent basis, as well as measures that use an accounting period of somewhat longer than a year. For measures with still longer time horizons, it is necessary to turn to a data source like the Panel Study of Income Dynamics (PSID).<sup>2</sup>

**RECOMMENDATION 6.1. The official poverty measure should continue to be derived on an annual basis. Appropriate agencies should develop poverty measures for periods that are shorter and longer than a year with data from SIPP and the Panel Study of Income Dynamics for such purposes as program evaluation. Such measures may require the inclusion of asset values in the family resource definition.**

### Short-Term Measures

Short-term poverty, as Ruggles (1990) argues, is a meaningful concept. While it is probably impossible to be poor for only one day, no matter how limited one's resources, and quite possible to get by for a week in the face of limited resources, it is more difficult to delay expenses such as rent over periods as short as 1 or 2 months. Indeed, programs designed to provide short-term economic assistance, such as AFDC and food stamps, typically use a 1-month

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<sup>2</sup> The PSID, which began in 1968, is a long-running panel survey in which about 9,000 families are interviewed on an annual basis; see Appendix B.

accounting period. The objection to short-term measures is that they may overstate poverty by counting as poor people who can defer expenditures or draw on resources acquired in an earlier period to tide them over a temporary shortfall.

Although the differences are not great, the evidence from analyses of recently available SIPP data shows that the shorter the accounting period, the higher the poverty rate. Thus, rates estimated on a 4-month accounting period are typically between 1 and 2 percentage points higher than rates estimated on an annual accounting period (see, e.g., David and Fitzgerald, 1987; Engel, 1989; Lerman and Yitzhaki, 1989). In analysis of poverty spells that began during the first 15 months of the 1984 SIPP panel, Ruggles (1988a) similarly concluded that annual measures of poverty miss a considerable number of short spells of poverty.<sup>3</sup>

Unfortunately, no evidence is available about the extent to which short-term poverty measures might produce not only different levels but also different trends over time in comparison with an annual measure. There is limited evidence on the differences that might result in poverty rates for several population groups. Williams (1986) reported virtually no difference by family type between annual and average monthly poverty measures calculated from the 1984 SIPP panel. Ruggles' analysis (1988a), however, suggests that under a shorter rather than under a longer accounting period, a smaller proportion of the poor would be people in single-parent female-headed families.

In an analysis of program participation in the 1984 SIPP panel, Williams (1986) found evidence for the idea that a short-term poverty measure would be more suitable than an annual measure for evaluating assistance programs that use a short accounting period. Thus, 90 percent of recipients of AFDC and food stamps were in poverty at least 1 month, even though only 64-70 percent of recipients were in poverty on an annual basis.

If one wanted to develop a short-term poverty measure to supplement the annual measure to use for such purposes as program evaluation, a major issue would be to determine how short a period would be appropriate. The main argument against a monthly accounting period is that it overstates true hard-

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<sup>3</sup> Annual data from the PSID produce longer estimated spell durations than do monthly data from SIPP. For example, using the PSID, Duncan, Smeeding, and Rodgers (1992) find that 37 percent of poverty spells in the United States are still in progress after 3 years; in contrast, using SIPP, Ruggles (1988a) finds that only 12 to 24 percent (depending on the definition used) are still in progress after just 1 year. Presumably, SIPP is picking up short intrayear poverty spells that are missed in the PSID. Consider the case of someone who is poor for 2 consecutive years on the basis of comparing annual income to an annual poverty threshold, but who, using monthly income and monthly thresholds, is poor for the first 8 months, not poor for the next 4 months, and poor again for the last 12 months. With this pattern of income receipt, Duncan, Smeeding, and Rodgers, using PSID, will identify one spell of poverty lasting 2 years, and Ruggles, using SIPP, will observe two shorter spells.

ship, given that people can shift expenditures through time to at least a limited extent. However, it is not clear how to evaluate the merits of, say, a 2-month, 4-month, or 6-month period.

A related issue concerns the treatment of resources. Assistance programs that use a monthly accounting period also typically include an asset test (with a ceiling on countable assets generally in the range of \$1,000-\$3,000). Researchers have argued that accounting for asset values in some way would enable the development of a more realistic short-term poverty measure. However, accurate estimation of assets poses greater difficulties than accurate estimation of income, and there are also issues of how to value assets for purposes of poverty measurement (see Chapter 4).

Several researchers have constructed and assessed the effects of measures of poverty that take account of assets. For example, David and Fitzgerald (1987) analyzed the 1984 SIPP, adding the capitalized value of reported interest income from the prior wave (assuming a fixed 6% rate of interest) to the family's current income to estimate a "crisis" measure. They found that this measure of poverty was always lower than the official measure derived on the basis of money income alone, and the difference was somewhat greater the shorter the accounting period:<sup>4</sup>

	<u>Crisis Measure (%)</u>	<u>Official Measure (%)</u>
On a monthly basis	11.0	14.0
On a 4-month basis	11.3	13.2
On an annual basis	10.4	11.3

David and Fitzgerald (1987) found that, on average, 21 percent of people who were counted as income-poor on a monthly basis did not experience a crisis when their interest-generating assets were taken into account; the corresponding figure for people who were income-poor on a 4-month basis was 14 percent. In general, the gross money income resource definition overstated short-term transitions: of those entering or exiting poverty from 1 month to 4 months later, 40 percent never experienced a crisis. Also, David and Fitzgerald (1987) found that such assistance programs as AFDC and SSI are targeted to those in crisis and not to income-poor people with financial assets.

SIPP makes possible the regular derivation and publication of short-term poverty measures, including measures that take account of families' asset hold-

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<sup>4</sup> Monthly poverty rates are averages over 12 months; 4-month rates are averages over three 4-month periods. David and Fitzgerald (1987) subtracted reported interest income from families' resources to avoid double counting. Note that the "official" annual rate of 11.3 percent they obtained from the 1984 SIPP is several percentage points lower than the official rate from the March CPS. David and Fitzgerald obtained similar results for a measure that also added the capitalized value of stocks and rental property to families' resources. The reason is that 94 percent of those in crisis poverty on the basis of their income and interest-generating assets did not have stocks or rental property.

ings (see Chapter 5 and Appendix B). David and Fitzgerald (1987) suggest that a 4-month accounting period could be optimal, given the SIPP design of interviews at 4-month intervals.

Some publication issues arise with the use of a subannual accounting period for the poverty measure. For example, if the accounting period is 4 months, 4-month poverty rates could be reported every 4 months (with a likely lag of 5-6 months to allow for data processing and analysis). Such rates might serve as more timely indicators of economic distress in the population, although other readily available measures might serve the purpose just as well (e.g., monthly unemployment rates or counts of program participants, both of which are available on a timely basis). To determine how closely short-term poverty rates track the business cycle, it could be useful to develop 4-month (or even monthly) measures from SIPP for 1984-1994. One could then determine the correlations with economic trends and also how closely the rates track other indicators, such as monthly unemployment rates. If the correlations with other indicators are high, then there would be less need to publish short-term poverty rates on a frequent basis.

An alternative to publication every 4 months (or every month in the case of a monthly measure) would be, each year, to publish 4-month rates, averaged over the three such periods in the year (again with a likely lag, as in the March CPS, of 5-6 months). Such an approach would smooth any seasonal variation in the estimates. In addition to average 4-month rates, an option would be to report the proportion of people each year who had at least one 4-month period of poverty (i.e., to report an ever-poor rate).

### Long-Term Measures

Duncan (1992) and Duncan, Smeeding, and Rodgers (1992) argue strongly for the calculation of a long-term measure of poverty in addition to short-term and annual poverty measures. The characteristics of people who are chronically or persistently poor differ from those who are temporarily poor. Programs that are designed to tackle root causes of poverty and to invest in human capital and economic potential over the long term need to be evaluated by these longer term measures of poverty. Indeed, there is some preliminary evidence, according to Duncan (1992), that the duration of economic deprivation is an important predictor of such developmental outcome variables as completion of high school or teenage pregnancy.<sup>5</sup> However, there are many

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<sup>5</sup> Duncan (1992) notes that few developmental studies have been done that use an adequate measure of family income; however, the existing studies find that economic resources affect outcomes independent of other measures of socioeconomic status (e.g., occupation or education of parents) and that longer periods of deprivation have greater adverse effects.

conceptual, methodological, and data-related difficulties in constructing useful and feasible long-term poverty measures.

Based largely on analysis of the PSID, researchers have built up a picture of persistent versus temporary poverty. Lillard and Willis (1978:1004), for example, reported that the probability of a man in poverty in 1967 being in poverty again the following year, on the basis of his earnings, was 34 percent for whites and 61 percent for blacks.

Rodgers and Rodgers (1993) review the subsequent literature. They focus on what they call chronic poverty, in which, in either recurrent spells or long continuous spells, "income is less than needs during a long and continuous period of time" (Rodgers and Rodgers, 1993:29). They develop the notion of chronic poverty on the basis of a measure of permanent income compared with permanent needs. Using the PSID data for the period since the late 1970s, they conclude that about one-third of measured poverty in the United States as of 1987 can be regarded as chronic, and that over the period they studied, "poverty not only increased, it became more chronic and less transitory in nature" (Rodgers and Rodgers, 1993:51). They also conclude that "the poorest group identified consists of people living in families headed by African-American females without high-school diplomas, for whom chronic poverty is about twelve times as intense as in the entire population" (Rodgers and Rodgers, 1993:52).

Ruggles (1990) also reviews a large number of studies of longer term poverty and reports that estimates of the persistently poor vary from 6 to 80 percent of estimates of the single-year poor. The differences are due to differences in the population studied, the definition of poverty used, and the number of years in which one must be poor in order to be classified as persistently poor. Ruggles concludes that a best-guess estimate is that 40-50 percent of those poor in a single year will remain poor for some years to come.

As another example of this literature, Adams and Duncan (1988), in a study of urban poverty, estimated that 13.4 percent of urban people were poor in 1979, 34.6 percent were poor in at least 1 year between 1974 and 1983, and 5.2 percent were "persistently poor"—defined as poor in 8 of 10 years or 80 percent of the years covered.<sup>6</sup> Hence, the persistently poor were about 40 percent of the single-year poor (consistent with Ruggles's estimate) and 15 percent of the ever poor. The single-year poor were more likely than nonpoor people to be black, poorly educated, and living in female single-parent families; the persistently poor were even more likely to have these characteristics.<sup>7</sup>

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<sup>6</sup> To permit comparison of PSID data with the decennial census, Adams and Duncan (1988) defined "urban" areas to be central counties of metropolitan areas that contained a population of one million or more people. There were 56 such counties (of 3,137 U.S. counties) in 1980.

<sup>7</sup> For another example of long-term poverty analysis and a comparison between metropolitan and nonmetropolitan residents, see Hoppe (1988).

In a paper prepared for the panel, Duncan (1992) notes that there is no agreement in the literature on the optimal form of a measure of long-term poverty. He and Rodgers and Rodgers (1993) distinguish several measures. One measure considers the length or duration of spells of poverty. There are technical issues involved in adjusting for spells that are still in progress at the time of the survey (the censoring problem). Spell analysis is also sensitive to the treatment of missing data. In general, these spell-based measures do not address the phenomenon of multiple spells and hence, as Ashworth, Hill, and Walker (1992) note, are not able to address distributional questions because the unit of analysis is the spell rather than the person or family unit.<sup>8</sup>

A second measure considers the proportion of workers or families whose incomes fall below the poverty threshold in  $x$  out of  $y$  time periods. These measures are easy to implement but attach no extra weight to consecutive periods of deprivation. A related measure takes the sum of the income over an extended period and compares it to the sum of income needs over that same period, thus focusing on the average of income compared with need. This type of measure puts weight on the extent or intensity of any income inadequacy instead of simply treating poverty as an in-or-out dichotomy in which having a few dollars above poverty in one period may be offset by having many dollars below poverty in another period. However, it also implicitly assumes that a family unit can shift income around as needed within the whole time interval selected.

A third measure considers an income-generating model with an error-component structure. Such a model allows the estimation of the pattern of income over some period of time, based on a multivariate model that controls for observed characteristics that systematically affect income and that characterizes the autoregressive and random components of the error term in that statistical model. These modeling efforts are most useful in studies of the composition of poverty and in policy discussions of the effects of one or another intervention that might affect the unit's characteristics or the effect of those characteristics on the generation of income.

To obtain any type of long-term measure of poverty requires using a data source other than the March CPS. Under the planned redesign of SIPP, it will be possible to obtain measures with a maximum accounting period of 4 years. (The 1993 SIPP panel will also be extended for a total of 10 years, with annual interviews after the first 3 years of 4-month interviews.) The PSID makes it possible to develop measures for accounting periods of virtually any length;

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<sup>8</sup> In the first 16 months of the 1984 SIPP panel, Ruggles (1988b) found that 32 percent of all people experiencing at least one spell of poverty experienced multiple spells. Ashworth, Hill, and Walker (1992), with data from the PSID, look at poverty over the entire span of childhood, distinguishing such patterns as poor every year, poor only 1 year, poor occasionally, or having recurrent spells of poverty.



however, the small sample size and attrition problems greatly limit disaggregated analysis (see Appendix B).

Longer term poverty measures are almost always proposed as a supplement to annual or shorter term measures. It would seem desirable, for consistency, to have some measures that are derived within a common framework. For example, with SIPP (as redesigned), it would be possible to produce 4-month measures, annual measures, and measures of the proportion of single-year poor who are still poor 1, 2, or 3 years later. Another consistency issue concerns the treatment of assets. If assets are accounted for in short-term measures, the question is whether and how they should be accounted for in long-term measures.

A publication issue with regard to longer term measures concerns the frequency of reporting. It seems unlikely that such measures would show large year-to-year changes; hence, it might be preferable to publish them at intervals of, say, 2 years or longer.

In summary, considerable progress has been made in understanding longer term poverty, but there is not yet a consensus regarding the best measure. We encourage continued research that can further illuminate the nature and composition of long-term poverty and that evaluates the merits and uses of alternative measures.

## UNIT OF ANALYSIS AND PRESENTATION

“Unit of analysis” is often used to refer to the unit for which statistics are tabulated and presented. However, in measuring poverty, one must first define the groups of people whose economic resources are to be pooled in determining poverty status. The subsequent decision is whether to present statistics in terms of those same units or to present them for other kinds of units; we use “unit of presentation” to designate this latter decision. One might, for example, have the family as the unit of analysis on which the poverty determination is based and then for the unit of presentation report the number of individuals in poverty.

### Unit of Analysis

Throughout this volume we have discussed poverty as a characteristic of a family. We have defined a threshold level of income below which a family is defined to be impoverished, and we have discussed a concept of family income that can be compared with that threshold in making the determination of whether that family is or is not “in poverty.” The current official U.S. poverty measure (see Bureau of the Census, 1993c:App. A) takes a family that resides in the same household as the unit of analysis; it includes unrelated

individuals (whether living alone or with others), who are defined as single-person families for this purpose.<sup>9</sup>

### *Recommendations*

There are reasons to consider other units of analysis, such as the individual or the household (see discussion below), but we find no compelling evidence at this time to move away from the family concept. Hence, we recommend continuing that practice with one important modification: families should be defined to include cohabiting couples.<sup>10</sup> Such couples typically pool resources, and many of them exhibit considerable stability, so that it seems to make sense to treat them like married-couple families for purposes of poverty measurement.

The topic of resource sharing (or lack of sharing) among family and household members is one that merits further study. We support research on how resources are allocated among the adults and children in a family. We also support research on the extent to which unrelated roommates in a household share resources. The results of such research may suggest a further modification to the unit of analysis for poverty measurement at a future date.

**RECOMMENDATION 6.2. The official measure of poverty should continue to use families and unrelated individuals as the units of analysis for which thresholds are defined and resources aggregated. The definition of “family” should be broadened for purposes of poverty measurement to include cohabiting couples.**

**RECOMMENDATION 6.3. Appropriate agencies should conduct research on the extent of resource sharing among roommates and other household and family members to determine if the definition of the unit of analysis for the poverty measure should be modified in the future.**

### *Discussion*

The family is but one of three possible units of analysis that might serve as the basic unit in measuring poverty in the nation. The other two are the household and the individual. We consider important distinctions among these

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<sup>9</sup> No determination of poverty status is made, however, for unrelated people who are under age 15 because no information on their income is available.

<sup>10</sup> In the CPS, cohabiting couples are defined as two unmarried people of the opposite sex living in the same household who are listed as roommates/unmarried partners. Their households may contain children under age 15 but not other adults. The decennial census question on household relationship separates the response categories of “housemate or roommate” and “unmarried partner.” The latter category is taken to represent cohabiting couples.

three and the advantages and disadvantages of each for purposes of measuring poverty.<sup>11</sup>

The Census Bureau defines families and households as follows (Rawlings, 1993:B-2):

- family: a group of two persons or more related by birth, marriage, or adoption and residing together; all such persons (including related subfamily members) are considered as members of one family.
- household: all the persons who occupy a housing unit . . . . A household includes the related family members and all the unrelated persons, if any, such as lodgers, foster children, wards or employees who share the housing unit. A person living alone in a housing unit, or a group of unrelated persons sharing a housing unit as partners, is also counted as a household.

For purposes of poverty measurement, as noted earlier, the definition of “family” includes every unrelated person, whether living alone, with roommates or partners, or with but not related to a family. Hence, the use of a household definition would result in a smaller number of larger units: for example, two or more roommates living together would be counted as one household rather than as two or more single-person families. In contrast, the use of an individual or person definition would result in a number of single-person units equal to the total population of the United States living in households (including both family members and unrelated people).<sup>12</sup>

To measure poverty, one establishes a threshold level of income for a unit and then compares the actual income level to that threshold, so logically this could be done for the family, the household, or the individual. The question is which unit, in principle, should be used as the basis for the measurement? The answer is not self-evident, because the three units differ in the extent to which the members jointly pool their income or share their consumption. If all the members of a family or of a household necessarily experienced the same level of income and monetary well-being, then that would be the unit of analysis one should use in measuring poverty. If there were such a unit and if the poverty threshold were set correctly for that unit and the unit’s income level was estimated correctly, then the members of that unit would either *all* be in poverty or *all* be out of poverty.

But that condition is surely not met for every family or for every house-

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<sup>11</sup> There are also variations in the definitions of family and household, which we do not explore. For example, the United Kingdom in the early 1980s switched the unit of analysis for low-income statistics from the family to the household; however, its definition of “family” was the nuclear family, consisting solely of the parent(s) and children under age 18. In contrast, the Census Bureau’s definition of family includes all related persons in a household, regardless of age or specific relationship.

<sup>12</sup> There are, of course, other persons in the nation who do not live in households, residing instead in such institutions as jails, hospitals, and group homes or living as homeless persons.

hold. Some family members may be deprived of a full share of the family's income, and others may consume far more than the average. Similarly, household members may be in quite different economic circumstances even though they share the same living quarters and jointly use a bundle of consumer durables. So neither of these units is the perfect solution for measuring poverty.

Using the individual person as the unit of analysis has considerable appeal, at least analytically. But what of a dependent family member who has no independent income and is supported by the income provided by another family member? It is not evident how to estimate that dependent person's income level, which makes it difficult to use the individual as the basis of measurement of poverty.

And what of the expenditure on jointly consumed items such as the location of the house in a safe neighborhood or the heat and light in the house? It is also not easily determined how to allocate those expenditures among the individuals who share in their consumption. These jointly consumed items represent a component of the consumption bundle in which the several family or household members do in fact have a common level of resources, if not a common level of utility or satisfaction from them. So even if there were very complete information available about the income received by each person in every household or every family, because of the joint use or consumption of many items, it would not be a simple or straightforward task to determine who received benefit from that income and therefore who was and who was not "in poverty."

Since the joint consumption of many durables and some services contributes to the economies of scale that promote living together in one household and sharing income, there is a sound rationale for using the larger multiperson unit, the family or household, instead of the individual, as the basic unit for defining poverty. But not all the expenditures in a family or household unit are shared equally among its members. Thus a measurement that assumes that all members of the unit are either in poverty or out of poverty cannot be correct in every instance.

We know of no perfect solution to this dilemma. In reality, there is some, but incomplete, pooling of household or family income and joint consumption, and so a choice must be made in the unit of analysis for measuring poverty. That choice has long been noted and is often discussed in reports and essays on the definition of poverty. The extensive and thoughtful review conducted by the 1976 Poverty Studies Task Force, for example, discussed this issue (U.S. Department of Health, Education and Welfare, 1976: Vol.1:34,100). Ruggles (1990:121-124) stressed that the choice should depend on "what one believes about how income is shared among family and household members." In a more analytic discussion, Atkinson (1989:17-24) noted the "fragmentary statistics to bear out the anecdotal evidence that there

is significant inequality” among family members and reviewed underlying assumptions that can justify one or another unit as the basis for the unit of analysis in the definition of poverty.

Lazear and Michael (1988) provide an extensive literature review of this issue and offer extensive empirical evidence of differences in the expenditures on behalf of adults and children in U.S. households based on data from the Consumer Expenditure Survey (CEX). These efforts and those in the United Kingdom by Young years ago (1952), by Pahl more recently (1989), an essay by Jenkins (1991), and calculations by Townsend (1979) that illustrate poverty rates among men and women based on their individual incomes, all emphasize the need for further research on intrafamily resource allocation. Although there has been progress in this area in the past decade or two, there is neither sufficient clarity nor consensus to provide a strategy for cracking apart the family unit to measure individual levels of poverty at this time. We believe that further work on this issue could provide the capacity to do so in the future.

Faced with the choice among three possibilities as the appropriate unit of analysis—the family, the household, or the individual—we recommend that the family continue to be used, with one important modification (see below). We have noted the difficulties of using the individual as the unit of analysis. In deciding between the family and the household, our choice is based partly on the precedent that the family has served as the unit of analysis for the measurement of poverty for many years. It is also based partly on our decision to propose an income-based definition of resources instead of an expenditure-based definition, as the pooling of income is, we believe, greater within a family unit than it is among the roommates and various subunits that constitute many households.<sup>13</sup>

Another reason for this choice is the stability of the unit. Although the composition of both households and families frequently changes, since we have used a time frame of one year for the measurement of poverty, the stability of the family unit is probably greater than the stability of multiperson household units over a 12-month period.

There has developed in the past two decades a form of living arrangement that lies analytically somewhere between a family and a household and is now common enough to require a judgment as to how to treat it. It is cohabitation, a form of living together in a marriage-like relationship with an expectation of some longevity but not recorded by a marriage license. By the definitions of the Census Bureau, couples living in cohabitational units are

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<sup>13</sup> Whichever definition is used for poverty measurement—family or household—poverty statistics would also include unrelated individuals living alone in their own households. The difference is that, with a family definition, unrelated individuals living together in a household are also treated as one-person “families” rather than as a multiperson household.

households but not families. The Census Bureau reports that by 1992 there were 3.3 million “unmarried-couple households,” most of whom are cohabiting couples; two-thirds do not include any children under age 15 while one-third do include children. The number of these unmarried-couple households rose from 523,000 in 1970 (estimated by the Census Bureau), a sixfold increase, and the Bureau reports that the ratio of these couples per 100 married couples rose from 1 per 100 in 1970 to 6 per 100 in 1992 (Saluter, 1992:xv and Table K).

We recommend that these couples be treated as families, not as separate one-person units, in the measurement of poverty. The rationale for this extension is that, on average, these cohabitational units last at least 1 year in duration and many, if not a majority, end in a formal marriage, so that the pooling of income and the sharing of expenditures extend well beyond 1 year on average.<sup>14</sup>

We also support research on resource sharing among other kinds of household members, such as roommates, who may pool income for such items as food and housing. In general, we urge continued research on the complex issues of the apportioning of resources among family members within a family and on the nature and extent of resource sharing within family and household units. For accurate measurement of poverty, more research is needed on the extent of unequal allocations within consumer units and the amounts of cross-unit transfers. Also needed are empirical research-based suggestions of algorithms for calculating individual-level consumption.

Research on resource sharing (whether intrafamilial or among unrelated individuals in households) should include an assessment of the likely magnitude of the effects on poverty rates of changing the unit of analysis (e.g., defining roommates as well as cohabiting couples as “families” or completely replacing the family definition with a household definition). In general, moving from a smaller to larger unit of analysis will probably reduce the poverty rate, for two reasons. First, the larger the unit, the lower its poverty threshold relative to its size, thus requiring less income per person for the larger unit to be below the poverty line. (The exception is for measures in which the equivalence scale has a scale economy factor of 1.0, assuming no scale economies with increasing unit size.) Second, the larger the unit of analysis, the more opportunity for “excess” income of one or more family or household members to offset lower income of other members.

These effects were illustrated dramatically when the United Kingdom shifted from the nuclear family to the household as the unit of analysis for its poverty measure: the poverty rate for the total population dropped by 25

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<sup>14</sup> For analyses of cohabitation in the past decade, see Bumpass and Sweet (1989); Laumann et al. (1994:Ch. 13); Thornton (1988); and Willis and Michael (1994); for the United Kingdom, see Kiernan and Estauigh (1993).

percent. The drop was particularly large for single adult children still living at home, who had been treated as separate units under the old definition but as sharing in the resources of the household under the new definition (Johnson and Webb, 1992). The effect in the United States of moving from a family-based to a household-based measure would not likely be as large because of the more inclusive way in which the family is already defined.

### Unit of Presentation

Having selected a unit of analysis, that is, the unit for the measurement of poverty status, a decision is needed on the unit of presentation. Census Bureau reports from the March CPS have typically presented poverty statistics for both families and individuals; SIPP-based reports of poverty transitions have used individuals as the sole unit of presentation.<sup>15</sup>

The recent Committee on National Statistics (CNSTAT) Panel to Evaluate SIPP considered this issue (Citro and Kalton, 1993:172-176). The panel noted that statistics for family (and household) units are useful for such purposes as government and business planning, which often requires information on families or households for targeting purposes. However, for policy analysis and research on such topics as income inequality and the effects of government policies on poverty, the panel concluded that the use of household or family units can be misleading because smaller families or households are counted as equal to larger units.

Ruggles (1990:123) provides a telling example of the effect of using families rather than individuals as the unit of presentation. The annual poverty rate for *families* headed by an elderly person is *higher* than that for other families, while the poverty rate for elderly *people* is *lower* than that for other people. The reason is more elderly people who are poor than those who are not poor live in small family units, while the reverse is true for the nonelderly. Hence, the elderly poor are a higher proportion of *families* in poverty than of *people* in poverty. Clearly, the family-based measure can distort the picture of the types of people who are disproportionately poor.

The CNSTAT SIPP panel observed that another argument for using people as the unit of presentation relates to statistics that are developed on the basis of longitudinal data, such as the monthly demographic and income information in SIPP. The panel recommended that annual poverty rates from

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<sup>15</sup> Care must be taken in using CPS reports to be sure one understands the unit of presentation in a particular table. Thus, CPS reports include separate tables of poverty statistics for families of two-or-more people and for unrelated individuals (who are treated as one-person families for purposes of poverty measurement). CPS reports (like SIPP reports) also include tables for all people who are members of households. In each case, poverty status is determined on the basis of family characteristics.

SIPP be developed by aggregating the monthly information.<sup>16</sup> Poverty rates calculated in this manner will be more accurate than rates calculated from the March CPS: unlike SIPP, the CPS assumes that the people in each family in March were together for the entire preceding year for which income is measured. When this assumption does not hold (e.g., in the case of a divorced or widowed person who was married for some or all of the preceding year), an erroneous poverty classification may result (see Appendix B).

Although poverty statistics can readily be developed with the SIPP monthly data for people (using the information on their families' characteristics), to develop such statistics for households or families as such poses a conceptual problem. The difficulty is how to define these units longitudinally, given that their composition changes. For example, it may be easy to decide that a married couple that has a baby should be treated as the same family before and after the birth. A more difficult question is how to treat the couple if they later divorce. Is the parent who retains custody of the child the continuation of the original family and the other parent a new one-person household, or does the original family end at the time of the divorce and do two new units begin?

Any longitudinal household or family definition will produce units that exist for only part of the year, and a decision must then be made on whether to count part-period units the same as full-period units. In view of these and other problems, the CNSTAT SIPP panel recommended that the Census Bureau continue the practice of developing person-based longitudinal income, poverty, and program statistics for SIPP reports, with attribution of household, family, and program unit characteristics to people. In the case of annual statistics from the March CPS and SIPP that are designed for comparison purposes, that panel recommended that the tables from both sources should use attribute-based person measures.

We believe that these reasons are convincing for presenting poverty statistics for people. However, users could be misled, and we urge a clarifying note accompanying the presentation. Since by definition all those in a family are either in poverty or not in poverty, the presentation of the "number of people in poverty" might be misunderstood as an independent person-by-person calculation instead of a single calculation for the family unit. A clarifying note with the person counts should minimize that risk.

## INDEXES OF POVERTY

By comparing the poverty threshold with the corresponding income estimate for each economic unit, its poverty status is determined. After determining

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<sup>16</sup> The procedure is to determine each person's monthly family income and monthly poverty threshold corresponding to monthly family composition, aggregate the monthly income and threshold values over the year, and divide to obtain the person's poverty ratio.



the poverty status of all units, there is a question about how to quantify and report that status. The current official U.S. poverty index is a head-count ratio. The head-count ratio measures the proportion of the population with incomes below their poverty thresholds. That head count, expressed as a proportion of the population (e.g., 14.5% for the year 1992), or expressed as a number of people (e.g., 36.9 million people in 1992), is the accustomed way in which poverty is reported in the United States (Bureau of the Census, 1993c:viii).

There are many other ways in which the poverty status of the population might be expressed, and they are typically independent of the concept of poverty, the threshold levels, or the particular definition of income. For example, the Census Bureau currently publishes statistics on the aggregate and mean "poverty gap," or the difference between the income of the poor (or of particular groups) and their poverty thresholds. The Census Bureau also publishes statistics on the proportion of people with family incomes below specified proportions of the poverty thresholds (75%, 50%, etc.)

### Recommendation

We recommend continuing the practice of using the head count and head-count ratio, which are familiar and readily understandable, as the basic statistics on poverty. We also recommend supplementing the head-count ratio by other indexes, which provide additional important information—specifically, statistics on the average income of the poor and the distribution of income of the poor. Finally, we recommend publication of the head-count ratio and supplemental statistics for measures in which family resources are defined net of government taxes and transfers. All of these additional statistics need to be carefully interpreted, but they add a needed depth of understanding about the extent of poverty in the United States.

**RECOMMENDATION 6.4.** In addition to the basic poverty counts and ratios for the total population and groups—the number and proportion of poor people—the official poverty series should provide statistics on the average income and distribution of income for the poor. The count and other statistics should also be published for poverty measures in which family resources are defined net of government taxes and transfers, such as a measure that defines income in before-tax terms, a measure that excludes means-tested government benefits from income, and a measure that excludes all government benefits from income. Such measures can help assess the effects of government taxes and transfers on poverty.

### Alternative Indexes

The head-count ratio has several advantages over other possible indexes of poverty. It enables the continuation of the 30-year time series of annual poverty rates. It is easy to calculate and to understand and is intuitively appealing. The public, as well as policy makers, readily grasp what the number and the proportion represent. Some analysts also argue that it is a relatively easy index to use in forecasting the effects of various public policy proposals, and, as such, is a convenient tool for policy analysis.

Our reason for recommending supplements to the head-count ratio is that the amount of information provided by that ratio is limited. Many important changes in the circumstances of the poor are not reflected in it. For example, a transfer made to a poor individual does not change the head-count ratio if the person remains in poverty, even though that person is made better off. Consider a \$1,000 transfer to either a family just below poverty or a family far below poverty. In the first case, the transfer may raise that family out of poverty and lower the head-count ratio, thus lowering the poverty index as it is currently measured. In the second case, the same \$1,000 transferred to a family far below poverty, and arguably in even greater need, would not lower the head-count ratio if it did not raise the family above the poverty threshold. The head count would still be correct in both cases, but it would not reveal any benefit from the second transfer and would not, therefore, convey a full and accurate picture.

In a seminal paper, Sen (1976) asserted that an ideal poverty index should include three elements: (1) the relative number of poor, indicating the incidence of poverty; (2) the average shortfall of the poor below the poverty threshold, indicating the average deprivation of the poor; and (3) the distribution of income among the poor, indicating relative deprivation among the poor. The head-count ratio only satisfies the first of the three criteria, indicating the incidence of poverty. This index does not reveal the average level of deprivation: it provides the same number if all of those in poverty are \$1 below the poverty line or if each of them has only \$1 of income. Similarly, the head-count ratio does not indicate the distribution of income among the poor. As a result of these shortcomings, the head-count ratio has potential for misuse. For example, programs to reduce poverty that are targeted on those just below the poverty line will reduce the ratio more than programs of the same budgetary cost aimed at the poorest poor people, those far below the poverty line.

Sen (1976) and Rodgers and Rodgers (1991), among others, have proposed a list of specific properties by which one might evaluate the appropriateness of any proposed poverty index. One such property is monotonicity: that is, the index should decrease for an income increase of a poor person even if that increase does not move the person across the poverty line (as well as, of

course, if that increase does move the person across the poverty line). Conversely, the index of poverty should increase for an income decrease of a poor person already below the poverty line. The “poverty gap” has this property, as it is a calculation of the difference between the income of the poor and their poverty thresholds.

A variety of poverty indexes have been proposed that integrate different combinations of the properties suggested for a good index. For example, a number of alternative indexes can be expressed as normalized weighted sums of the poverty gaps of the poor (e.g., indexes of Clark, Hemming, and Ulph, 1981; Foster, Greer, and Thorbecke, 1984; Kakwani, 1980; Rodgers and Rodgers, 1991; Sen, 1976; Takayama, 1979; Thon, 1979—see also Atkinson, 1989; Blakorby and Donaldson, 1980; and the review by Foster, 1984.) These indexes take into account not only the proportion of the population that is poor and the mean income of the poor, but also the distribution of income among the poor.

The statistical advantages of one or another of these indexes as an official poverty statistic, however, must be balanced against possible drawbacks. First, it is imperative that the indexes, like the underlying concept of poverty, have a clear and intuitive interpretation that can be easily understood by those with little or no training in statistics. As Ruggles (1990:29) argues:

As the indexes become more and more complex it can be difficult even for analysts who are familiar with them to pinpoint the sources of change from period to period or to predict how alternative indexes will react to specific changes in the distribution of income or consumption.

This can be the case even with fairly elementary poverty measures; the situation is greatly exaggerated with more complex measures. In contrast, Kapteyn (1977) argues that as a given measurement is used over time, it gains acceptance and understanding regardless of its complexity. He contends, therefore, that attention should be on the development of the “best” measure rather than the least complex one. Second, as suggested by Atkinson (1989), a poverty index may be satisfactory for certain analytic purposes, even if it does not give unambiguous poverty rankings under all conditions.

Kundu and Smith (1983) review a number of poverty indexes and contend that none of them simultaneously meets all the desirable axiomatic properties by which they judged those indexes. Choices clearly must depend on the nature of the poverty index and its intended use. As an example, Hageñaars (1987) suggests that if the poverty line were an absolute boundary between survival and starvation, then the proportion or the number of poor should take priority over all other considerations.

We are persuaded that the head count and the head-count ratio are of considerable value and should be continued as the primary measures of poverty in the United States. They are intuitive and easy to calculate, even

though they fall short of many of the properties considered desirable by those with expertise regarding poverty indexes. To compensate for these shortfalls and to provide a more complete picture of poverty, we are equally persuaded that there should be indicators of both the mean income level and the distribution of income among the poor. These indicators, however, should be kept separate from the head-count ratio, again, for reasons of understandability.

The Census Bureau already produces estimates of the mean poverty gap (or income deficit) each year for both all poor people and various groups, although it is not an official measure of poverty (see, e.g., Bureau of the Census, 1993c). This index measures the average difference between the poverty threshold and the income of the poor. In addition, the Census Bureau produces estimates of the distribution of income among the poor in terms of the proportion falling below specified fractions of the poverty threshold, such as the proportion below 75 percent or 50 percent. (The Census Bureau also publishes the proportion with incomes near poverty, e.g., those below 125% of the poverty threshold.) Together, these statistics provide understandable information on the average deprivation of the poor and the distribution of income among them.

We suggest that the Census Bureau continue to develop such statistics, although we believe that a measure of the *average income* of the poor would be more useful and understandable than the average poverty gap. Also, for statistics on average income (as well as for the poverty gap), it is most important to compute them by groups as well as for all poor people. This is important because different groups have different poverty thresholds, so that a mean income value of, say, \$10,000, has different implications for a group with a poverty threshold of, say, \$12,000 than for a group with a threshold of, say, \$15,000. In this regard, it would be most useful to publish a weighted average poverty threshold, reflecting the composition of the poor population, to accompany statistics on the average income of the poor.<sup>17</sup>

Finally, it is important in the text of reports on poverty to point out limitations of specific indexes. We have noted that the head count and head-count ratio (and changes in them) do not provide any information about the underlying mean and distribution of the income of the poor. Similarly, a measure of mean income does not provide information about the income distribution. Also, it is important to caution about drawing unwarranted conclusions from particular indexes—for example, the poverty gap is not a measure of the amount of money that the government would have to spend to eliminate poverty (see Chapter 8, on behavioral responses to government

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<sup>17</sup> We note that Orshansky (1965a:14), in her original work on the poverty measure, provided exactly this type of information, namely, average income of the poor for groups and average income of the poor for the total population, compared with an average weighted poverty threshold.

policies). Also, the number of people who are very far below the poverty line may be overestimated because of underreporting of income or the reporting of business losses by self-employed people. Nonetheless, such indicators can enrich understanding of the nature and scope of economic poverty in the United States and how it changes over time.

### **Indexes with Alternative Resource Definitions**

The Census Bureau currently publishes indexes for “experimental” measures of poverty that use alternative definitions of family resources. Thus, Bureau of the Census (1995) provides head counts and head-count ratios for estimates of poverty under 18 resource definitions, the official definition and 17 alternatives. For example, definition (2) subtracts government transfers from income; definition (3) subtracts government transfers and adds realized capital gains; definition (4) is the same as (3) with the addition of employer-provided health insurance benefits; and definition (5) is the same as (4) with the subtraction of Social Security payroll taxes. These and the other experimental measures are designed to illustrate the effects on the poverty rate of defining family resources in different ways—specifically, the effects of excluding various government taxes and including various transfers, as well as the effects of including some kinds of asset holdings (e.g., owned homes) in income.

Measures of this type have a number of problems and must be carefully interpreted. We commented above (in Chapter 4) about the inappropriateness of resource definitions that are inconsistent with the poverty threshold concept (e.g., definitions that add the value of medical care benefits without appropriately adjusting the thresholds). Also, the Census Bureau’s practice of specifying definitions in a cumulative fashion is problematic from the perspective of isolating the effect of particular components on the poverty rate. Thus, it is not possible to conclude that the difference between, say, definition (4) and definition (5) is the marginal effect of the added component of subtracting Social Security payroll taxes because of the possible interaction effects of the added component with other changes to the resource definition in the two definitions. (In contrast, in Chapter 5, we present estimates of the marginal effect on poverty rates of each of the proposed changes to the current poverty measure, considered separately, as well as an estimate of the interaction effect.)

Most important, great care must be exercised in attempting to assess the policy implications of differences in poverty rates under alternative resource definitions. People’s responses to such government policy changes as the elimination of taxes or benefit programs are likely to result in very different poverty rates than those seen in comparing the current measure with measures that use a different resource definition but in which the real world remains the same. For example, families who currently receive benefits from such government programs as food stamps or Social Security are not likely to have the

same private income if these programs did not in fact exist (e.g., they might increase their work hours or delay retirement). Hence, properly speaking, poverty rates calculated under alternative resource definitions assess the implications of an instantaneous change in government programs before there is time for people to adjust their behavior.

Nonetheless, we think it is useful to produce poverty head-count ratios (and other indexes, such as the average income of the poor) under some alternative resource definitions. In particular, we believe it would be useful to publish poverty statistics for measures in which resources are defined net of government taxes and transfers. Several such measures could be useful: one in which resources are defined in before-tax terms, one in which resources are net of taxes but exclude benefits from means-tested government programs (whether cash or in-kind), and one in which resources exclude benefits from all government programs, whether means tested or not. Again, the statistics from such measures must be interpreted with care and caveats about their use provided in the text of reports on poverty: because of behavioral responses, the poverty rate in a world without government taxes or government assistance programs would likely differ from the rate under these measures. Nonetheless, when compared with the proposed poverty measure, such before-tax and transfer measures should be helpful for evaluating the effects of government policies and programs on poverty.

### **THE LIMITED SCOPE OF MEASURING ECONOMIC POVERTY**

The body of this report focuses on the concept and measurement of economic poverty. We conclude this chapter by noting three limitations in the scope of our efforts: the limited dimension of impoverishment on which we focus; the need for a richer understanding of the meaning and consequences of impoverishment for adults and, especially, for children; and the need for a deeper understanding of the causes of poverty and the potential private and collective actions that might reduce its prevalence and its adverse effects.

First, although the measure of economic poverty is a very powerful social indicator, it speaks only to one dimension of deprivation—economic or material deprivation, fairly narrowly defined. Measures of other types of deprivation—psychological, physical, social—and the overlap with the economic poverty measure are also needed. Many other dimensions of impoverishment can exist, from anxiety and fear about one's personal safety when living in a high-crime neighborhood or with abusive family members to suffering from inadequate medical care and from homelessness to loneliness to helplessness. These, too, need to be conceptualized, measured, and their prevalence recorded across groups and over time. The joint incidence of these other aspects of impoverishment with economic poverty is, one suspects, quite high, but

not complete. In describing the extent of impoverishment in the United States, these nonmonetary indices would provide important added information.

Second, in this volume we have not explored, analytically or descriptively, the material circumstances of those who are poor: for example, what household goods they have or how they allocate their resources among categories of consumption. Also, we have not asked about the consequences of economic poverty in terms of other dimensions of impoverishment. We encourage research that asks how economic poverty is linked to families' day-to-day lives—for example, to family violence, homelessness or frequent moves to different households, safety of their neighborhoods, or access to friends, services, and jobs. Similarly, the consequences of economic poverty for access to health care and social services, for an individual's self-esteem, mental and physical health, school achievement, prospects for employment, marriage, and parenting all deserve much more research attention. Also, we have not considered in this volume how the consequences of economic poverty differ by an individual's age or other characteristics. These other, less easily quantified indexes of well-being that may or may not be associated with economic poverty are also deserving of study in order to have a fuller understanding of the lives of the poor and a more complete documentation of the consequences of living in poverty.

Consider, in this regard, the life experiences of children who are poor. Evidence suggests that children living in poor families under the current measure score lower on cognitive, language, and achievement tests and exhibit higher rates of grade failure, of placement in special education, and of dropping out of high school (see Baydar, Brooks-Gunn, and Furstenberg, 1993; Brooks-Gunn, Guo, and Furstenberg, 1993; Fitzgerald, Lester, and Zuckerman, 1995; Haveman, Wolfe, and Spaulding, 1991; Huston, 1991; Huston, McLoyd, and Garcia Coll, 1994; Ramey et al., 1992). Children's physical health indicators, such as low birthweight, failure to thrive, and chronic illnesses, also have been shown to be related to measured poverty (Adler et al., 1994; Brooks-Gunn, 1990; Egbonu and Starfield, 1982; Eisen et al., 1980; Klerman, 1991; McCormick et al., 1991; Parker, Greer, and Zuckerman, 1988; Stein et al., 1987). Moderate to severe behavior problems in children are also linked statistically to economic poverty (see, e.g., Rutter, 1989).

At the same time, other social and demographic characteristics of families are associated with negative child and adolescent outcomes, including parents' education, age, and occupation and household structure (i.e., two- or one-parent households). Controlling for such characteristics in statistical models of child outcomes generally diminishes but does not eliminate the association between economic poverty and these outcomes. Such findings underscore the importance of considering other dimensions of poor children's lives that contribute to the probability of decrements in all realms of development.

Not only can the adverse effects of economic poverty on children's lives be clearly documented, but children are also disproportionately among the poverty population in the United States. Presently, one in five children in the United States is living in poverty according to the official measure, with the percentage being slightly higher for children aged 6 and under, compared with the rate of those of elementary and high school age (Hernandez, 1993).

The costs of children in poverty are experienced not only by the children themselves, but also by society. Children have great value to their families and communities. As is often said, children are the nation's most important resource; in their well-being lies the reflection of the character of society today as well as its hopes for tomorrow. Children are an important human resource; their success in school and their eventual success in the workplace are essential for a productive society. Being reared in a household with limited economic resources is disproportionately associated with higher rates of crime, violence, underemployment, unemployment, and isolation from the larger community.

Children are dependent on others for their well-being and because of their dependence, they enter or avoid poverty by virtue of their family's economic circumstances. They typically cannot alter their poverty status by themselves, at least until they approach late adolescence, so it is fitting to focus special attention on them in any study of poverty.

Third, and last, this volume does not address the broad and well-researched topics of the causes of economic poverty or issues in the development of policies to reduce its prevalence or its adverse effects. Those topics are well beyond the scope of the panel's work.