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## Poverty Thresholds

**A**s we describe in Chapter 1, we conclude that the current measure of poverty should be revised for several reasons. First, the measure is flawed in the definition of family resources. The resource definition counts taxes as income, although taxes are not available for consumption. A before-tax income definition is also inconsistent with the original threshold concept, which was derived on an after-tax basis. In addition, the resource definition does not count in-kind benefits as income, although such programs as food stamps are designed to provide for consumption.

Second, the measure is flawed in the adjustments to the thresholds for different family circumstances. There are anomalies in the adjustments for family type and size (i.e., in the implicit equivalence scale), and there are no adjustments of any kind for geographic cost-of-living differences. Third, the measure does not distinguish between parents who work outside their homes and workers generally versus nonworkers, or between people with higher versus lower health care needs and costs—either by adjusting the thresholds or (as we propose) by deducting nondiscretionary expenses from income. Changes over the past three decades, including socioeconomic changes (such as the increase in the proportion of working mothers), demographic changes (such as the growth in elderly households), and government policy changes (such as changes in tax laws and the growth of in-kind benefit programs), have made all of these aspects of the current measure increasingly problematic for its primary purpose of informing policy makers and the public of differences in poverty rates across time and among population groups and areas.

Fourth, the concept for the official poverty thresholds is problematic. That concept originally was the cost of a minimum diet times a multiplier to

allow for all other expenses; however, as implemented, the concept is simply the threshold value that was set for 1963 updated for price changes. Hence, whether the concept is still relevant today, given the increase in the U.S. standard of living over the past 30 years, is very much a question.

### THRESHOLD CONCEPTS

The measurement of economic poverty involves two primary components: a budget or threshold below which people are considered poor and an estimate of resources available to people to compare with that threshold. Although the two components work in conjunction with one another—indeed, they need to be defined in a consistent manner in order to have a defensible measure of poverty—for reasons of analysis and presentation we discuss each component in turn.

In this chapter we consider concepts for a poverty threshold for a reference family type, including the implications for how that threshold is updated over time. (Chapter 3 discusses adjustments to the reference family threshold for other family types.) We also consider levels for the reference family threshold with which to initiate a new series of poverty statistics under the proposed measure.

Analysts often use the terms “absolute” and “relative” poverty thresholds. Absolute thresholds are fixed at a point in time and updated solely for price changes, as is the case for the current U.S. poverty measure. Relative thresholds, in contrast, are updated regularly (usually, annually) for changes in real consumption.

Absolute thresholds also generally carry the connotation that they are developed by “experts” with reference to basic physiological needs (e.g., nutritional needs) for one or more budget elements. Relative thresholds, as commonly defined, are developed by reference to the actual expenditures (or income) of the population. For example, a relative measure might set the poverty threshold for a four-person family at one-half the median income or expenditure of families, adjusted for the composition of the population by family type.

Relative thresholds are often criticized on the grounds that the choice of the expenditure or income cutoff is arbitrary or subjective rather than reflecting an objective standard of economic deprivation. It is also argued that relative poverty thresholds do not provide a stable target against which to measure the effects of government programs because they change each year in response to real increases or decreases in consumption levels. In practice, however, relative poverty thresholds are not so different from thresholds developed according to expert standards of need: the latter also embody a great deal of relativity and subjectivity. Moreover, it is rare for expert (or other) standards to be maintained in absolute terms (i.e., to be updated solely for

price changes) over long periods of time. The more common experience is that an old standard is replaced after some period of time by a new standard that is higher in real terms.

Our review below of poverty threshold concepts begins with an overview of our recommended concept, which leads us also to propose that the current level of the reference family threshold be reassessed (although we do not make a recommendation on the level). We then discuss in detail both expert-based poverty budgets and relative concepts developed both here and abroad. Because expert budgets are typically updated on a sporadic rather than a regular basis, with price adjustments made between realignments, we discuss types of price updating. We also review “subjective” poverty concepts, which derive poverty thresholds from survey questions. Finally, we return to the proposed concept, which is a hybrid of the budget and relative approaches and for which there is support provided by a time series of subjective thresholds developed for the United States.

Our conclusions about the threshold concept and the need to reevaluate the level of the current reference family threshold involve considerable elements of judgment. Although judgment enters into nearly all aspects of the poverty measure—from how to value in-kind benefits to how to specify the particular form of an equivalence scale—questions of the threshold concept and level are more inherently matters of judgment than other aspects of a poverty measure. In our deliberations on the threshold concept, we used the criteria we developed in Chapter 1 for a poverty measure—namely, that it be understandable, statistically defensible, and operationally feasible. Also, to the greatest extent possible, we used historical and statistical evidence about the implications of alternative concepts for official poverty statistics in the United States.

In this regard, we note that our review was largely limited to poverty measures that, like the current measure, relate to economic or material needs and resources and to threshold concepts that, correspondingly, express the poverty threshold in monetary terms. In other words, we reviewed measures of economic deprivation, in which poverty is defined as insufficient economic resources (e.g., money or near-money income) for minimally adequate levels of consumption of economic goods and services (e.g., food, housing, clothing, transportation).

Such measures have been criticized as too narrow in focus, even considered as measures of economic poverty. Townsend (1992:5, 10), for example, comments that people are “social beings expected to perform socially demanding roles as workers, citizens, parents, partners, neighbors, and friends.” He argues that economic poverty should be defined as the lack of sufficient income for people to “play the roles, participate in the relationships, and follow the customary behavior which is expected of them by virtue of their membership of society.” Toward this end, Townsend (1979, 1992) has

worked to derive a monetary poverty standard that corresponds to low scores on a “deprivation index.” Other researchers (e.g., Mack and Lansley, 1985; see also Callan, Nolan, and Whelan, 1992) have developed deprivation indexes to measure socioeconomic deprivation directly—that is, they define socioeconomic poverty as low scores on the index itself. Deprivation indexes commonly include a dozen or more behaviors and types of ownership that are viewed as indicative of full participation in one’s society: for example, whether people have certain appliances for household maintenance, new (not second-hand) clothing, access to items necessary for getting and keeping a job (e.g., a telephone or a car or other transportation), or the ability to take a vacation.<sup>1</sup>

We agree with Townsend and others about the limitations of economic poverty measures as commonly defined. We argue in Chapter 1 for the need for measures of other forms of deprivation. It is important to have direct indicators of such types of deprivation as physical and mental illness, family abuse, unemployment, hunger, homelessness, risk of criminal victimization, and others. It is also important to have measures that characterize the standard of living, such as the extent to which certain types of consumption (e.g., automobiles, televisions) have diffused throughout society (see, e.g., the work of Mayer and Jencks, 1993) or the extent to which people engage in leisure activities.

Our charge, however, was to consider the official U.S. poverty measure, which compares economic resources with a monetary threshold for economic consumption. We saw our primary task as twofold—to evaluate the usefulness of the current measure for informing policy makers and the public and to review alternative measures of economic or monetary poverty that could represent an improvement over the current measure. Although we did not do so, we certainly encourage work on measures of other kinds of deprivation, as well as work on measures (such as the Townsend deprivation index) that relate to, but are not the same as, an economic measure of poverty.

## RECOMMENDATIONS

We recommend a revised threshold concept for the official U.S. measure of poverty. Two aspects of the proposed threshold concept need to be kept in mind when comparing it with other concepts: the definition of a reference family and the treatment of nondiscretionary expenses.

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<sup>1</sup> Sen (1983, 1987) and Atkinson (1985, 1989) discuss the philosophical basis for deprivation indexes that reflect specific, socially influenced types of activities and consumption that are needed to achieve basic capabilities (e.g., literacy, the ability to obtain a job). In the version developed by Mack and Lansley (1985), the index is limited to items that at least one-half of the respondents to a national survey claim to be “necessary” for minimal participation in society, and people who lack a given item because they do not want it are distinguished from people who lack it because they cannot afford it.

### **The Two-Adult/Two-Child Reference Family**

We recommend that the poverty threshold concept apply to a reference family of two adults and two children, with the thresholds for other types of families developed by means of a formal equivalence scale that recognizes the different needs of adults and children and the economies of scale for larger families. An alternative approach would be to develop thresholds for each family type on a separate basis, by building up a budget with specific assumptions about scale economies and the needs of different types of family members for each item (e.g., food, housing). The current thresholds were originally developed by Orshansky in this manner, although food was the only budget item specifically determined for each family type. Renwick (1993a, 1993b) also proposes such an approach for constructing budgets for a number of major commodities. This approach, however, involves making many specific judgments about each item and each type of family. Such judgments are inevitably arbitrary (as is evidenced by the anomalies in the current thresholds across family types), and, in our judgment, it is better to have the arbitrariness expressed in a formal equivalence scale. (See Chapter 3 for a detailed discussion of alternative equivalence scales with which to adjust the reference family threshold and methods to adjust the thresholds for geographic area differences in the cost of living.)

Any proposed equivalence scale will, of course, produce different thresholds for various types of families than the scale implicit in the current thresholds. Hence, it is desirable for the reference family to fall near the center of the family size distribution rather than at one of the extremes: this tends to reduce the sensitivity to the equivalence scale. Also, it is preferable for the reference family to be one that accounts for a relatively large proportion of the population because its spending patterns observed in a sample survey will be the basis for the poverty thresholds under the proposed concept.

The two-adult/two-child family meets these criteria. Although it is no longer the predominant living arrangement in U.S. society, it represents the largest number of people. Of all households (including family households and those headed by unrelated individuals), the single largest type today consists of one-adult households (25% of total households in 1992), followed by married couples with no other family member (22%). The four-person family, comprising a married couple and two other family members, is the third largest household type (13%). However, these four-person families are the modal type in terms of the number of people they represent: in 1992, they accounted for 20 percent of all people, compared with 17 percent for married couples with no other family members, and 10 percent for one-adult households (Rawlings, 1993:Table 16).

### **Nondiscretionary Expenses**

In addition to accounting for different needs of families by number of adults and children and geographic area of residence, we recommend that the poverty measure take account of different needs due to the fact that some families incur nondiscretionary expenses that are not available for consumption. For example, some families pay for child care in order to earn income, while other families (and individuals) make no such payments, yet the current thresholds are the same for both situations. One way to recognize these different circumstances is to develop additional thresholds, such as thresholds for nonworking families, working families with children who pay for child care, and other working families (see Renwick 1993a, 1993b, for an example of such an approach). We recommend instead that nondiscretionary expenses—which we define as taxes, child care and other work-related expenses, child support payments to other households, and out-of-pocket medical care expenditures (including health insurance premiums)—be deducted from the incomes of families with such expenses.

This approach will more accurately capture the poverty status of families in different circumstances than would the approach of trying to develop a range of different thresholds (see Chapter 4). However, the proposed approach has implications for comparing poverty thresholds across concepts: a reference family threshold developed as we propose will necessarily exclude some expenses that are typically averaged in for all such families.

### **Updating the Thresholds**

The major reason, in our view, to revise the threshold concept for the U.S. poverty measure is its implications for updating the thresholds over time. In this regard, it is important to understand the nature of the current poverty measure. As described below (“Expert Budgets”), the method originally used to develop the official thresholds involved taking the cost of a minimum food diet and applying a multiplier that reflected the share of food in the total expenditures of the average family, but that method has never been used to update the thresholds (although its original author, Mollie Orshansky, urged several times that this be done). The thresholds have been updated only for price changes. In other words, the poverty line of about \$3,100 for a two-adult/two-child family that was originally set for 1963 has been treated as an absolute standard of need and kept fixed in real terms ever since. Thus, it no longer represents a current estimate of the cost of the food budget times a food-share multiplier. In fact, neither the cost of that original food basket nor the food share underlying the multiplier of three has remained constant over time. The share of food in the typical consumer bundle has declined with economic growth, and the cost updating using the overall Consumer Price

Index (CPI) does not necessarily reflect changes in the price of food. Moreover, the composition of the minimum food diet has not been reevaluated on the basis of new information about the food-buying preferences of low-income families.

If one believes that it is appropriate to have an absolute poverty line that is updated solely for price changes, there is little need to revisit the threshold concept. However, we believe that to maintain a standard in absolute terms becomes increasingly problematic as living standards change over time. The historical evidence supports the conclusion that poverty standards reflect their time and place. This is true not only when poverty standards are set in an explicitly relative fashion (e.g., as a percentage of median income or expenditures), but also when they are developed according to expert criteria for various needs. Similarly, when surveys ask people questions about minimum income levels, their answers generally reflect prevailing levels of consumption.

Hence, we conclude that the relevant question is not whether poverty thresholds should be updated for changes in real consumption, but whether they should be updated on a sporadic or on a regular basis. The former choice would suggest revisiting the standards periodically, perhaps every 10-20 years, and making price adjustments in between major realignments. The latter choice would suggest an automatic mechanism for recalculating the thresholds annually to reflect real consumption changes. We believe that an automatic, regular adjustment is preferable to sporadic adjustments. An automatic adjustment will avoid major breaks in the time series of poverty statistics and also will obviate the controversy that is likely to occur with periodic readjustments.<sup>2</sup>

A decision to recommend a regular adjustment of the thresholds entails careful consideration of the updating properties of alternative concepts, particularly the implications for the magnitude of the adjustment that is made. We believe that a conservative adjustment is preferable—that is, one that updates them for real growth in consumption of basic goods and services that pertain to a concept of poverty, rather than to update them for real growth in total consumption or income. There is support for a conservative approach from ideas of poverty levels derived from surveys, specifically, those developed on the basis of responses to questions about minimum income amounts needed to “get along.” Over time, such levels have reflected growth in real income but less than proportionately with overall growth (see below). Also, a conservative updating approach will make less of a break with the historical time series.

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<sup>2</sup> Of course, even an “automatic” updating procedure should be reviewed periodically to determine if it is performing as intended or whether it needs to be modified. Such a review, which would include the data source and methodology, should be part of the regular reviews of the poverty measure that we recommend be carried out every 10 years by the U.S. Office of Management and Budget (see Chapter 1).

A way to implement a regular adjustment of the thresholds would be to return to the original concept for developing the poverty line and apply it afresh each year, namely, determine a minimum food budget and apply a multiplier that is equal to the inverse of the share of food in the total expenditures of the average family. If that procedure was correct for 1963, then it should be correct for every other year. The advantages of this method of updating mirror its initial attractiveness: it rests on a commodity, namely food, that all would agree is a necessary item of consumption; it is understandable ("food times a multiplier"); and it is easy to implement with available consumer expenditure data. However, we believe that its problems outweigh its advantages.

One problem is the reliance on experts to determine the minimum food budget. As we show below, judgment inevitably enters into the determination of a poverty level for any basic need, whether food, housing, or anything else. We believe it best if these judgments are introduced explicitly and not with an apparent reliance on experts. A more important problem is the use of only one commodity with a large multiplier and, moreover, a multiplier that reflects total expenditures of the *average* family. This approach is not conservative with respect to adjusting the thresholds over time because the multiplier, which drives the thresholds, will reflect increased spending on luxuries as well as on basic commodities. In other words, continued application of the original threshold concept is more akin to a completely relative concept, like one-half median family income or expenditures.

We sought a concept that would retain the attractive features of the original concept, namely, its understandability and grounding in familiar, basic commodities, but improve on it. Our recommendation is that the reference family poverty threshold be developed by specifying a percentage of median expenditures on the sum of food, clothing, and shelter (including utilities) by two-adult/two-child families in the Consumer Expenditure Survey (CEX), and applying a multiplier to that dollar value so as to add a small amount for other needed expenditures (e.g., personal care, household supplies, non-work-related transportation). This approach builds the budget on three categories of basic goods and services plus a little more, and it uses actual expenditure data directly in the derivation.

Having specified a percentage of median expenditures and a multiplier, these values would then be used to update the poverty threshold for the reference family each year on the basis of more recent CEX data. To smooth out year-to-year fluctuations and to lag the adjustment to some extent, we propose to perform the calculations for each year by averaging the most recent 3 years' worth of CEX data, with the data for each of those years brought forward to the current period by using the change in the CPI. Once the threshold is updated for the reference family, the thresholds for other family types can be calculated (see Chapter 3).



The proposed concept has an important advantage for updating the poverty thresholds over time. Historically, spending on food, clothing, and shelter has increased at a slower rate in real terms than has total spending; hence, the proposed updating procedure will tend to update the thresholds in a conservative or a quasi-relative rather than a completely relative manner. However, because the proposed procedure is new, it will be important to evaluate the behavior of the resulting thresholds in relation to the thresholds that would result from a simple adjustment for the change in the Consumer Price Index.

**RECOMMENDATION 2.1.** A poverty threshold with which to initiate a new series of official U.S. poverty statistics should be derived from Consumer Expenditure Survey data for a reference family of four persons (two adults and two children). The procedure should be to specify a percentage of median annual expenditures for such families on the sum of three basic goods and services—food, clothing, and shelter (including utilities)—and apply a specified multiplier to the corresponding dollar level so as to add a small amount for other needs.

**RECOMMENDATION 2.2.** The new poverty threshold should be updated each year to reflect changes in consumption of the basic goods and services contained in the poverty budget: determine the dollar value that represents the designated percentage of the median level of expenditures on the sum of food, clothing, and shelter for two-adult/two-child families and apply the designated multiplier. To smooth out year-to-year fluctuations and to lag the adjustment to some extent, perform the calculations for each year by averaging the most recent 3 years' worth of data from the Consumer Expenditure Survey, with the data for each of those years brought forward to the current period by using the change in the Consumer Price Index.

**RECOMMENDATION 2.3.** When the new poverty threshold concept is first implemented and for several years thereafter, the Census Bureau should produce a second set of poverty rates for evaluation purposes by using the new thresholds updated only for price changes (rather than for changes in consumption of the basic goods and services in the poverty budget).

### Setting the Initial Threshold

Although we recommend a threshold concept and a procedure for updating the poverty thresholds, we do not recommend an initial level with which to initiate a new series of official poverty statistics under the proposed measure.

Specifying a poverty line is the most judgmental of all the aspects of a poverty measure, and we did not think it appropriate for us to make that final, ultimately political, judgment.

We do, however, recommend that the level of the current threshold for a two-adult/two-child family be reevaluated in light of both the proposed poverty concept (which treats nondiscretionary expenses as deductions from income rather as elements of the poverty budget) and the increase in the standard of living since 1963, when the current threshold was first fixed in real terms. We also offer a conclusion about what we believe is a reasonable range for the initial reference family threshold. This conclusion is informed by our analysis of thresholds that result from a variety of concepts in the published literature and is consistent with our recommendation to update the thresholds in a conservative manner.

We conclude that reasonable values for the starting threshold for a two-adult/two-child family lie in the range of \$13,700 to \$15,900 (in 1992 dollars). In terms of the proposed budget concept, the lower end of the range can be expressed as 1.15 times the spending on food, clothing, and shelter of two-adult/two-child families at the 30th percentile of the distribution of such spending. The upper end of the range can be expressed as 1.25 times the spending on food, clothing, and shelter of two-adult/two-child families at the 35th percentile of the distribution. In overall terms, the range of \$13,700 to \$15,900 is 14 to 33 percent higher than the current 1992 reference family threshold, when it is converted (as best as can be done) to the proposed budget concept (i.e., when an amount for nondiscretionary expenditures is removed). The updating that these figures represent is conservative when compared with thresholds developed for 1992 with other approaches and converted to the proposed concept (see below, "Implementing the Proposed Approach").

**RECOMMENDATION 2.4.** **As part of implementing a new official U.S. poverty measure, the current threshold level for the reference family of two adults and two children (\$14,228 in 1992 dollars) should be reevaluated and a new threshold level established with which to initiate a new series of poverty statistics. That reevaluation should take account of both the new threshold concept and the real growth in consumption that has occurred since the official threshold was first set 30 years ago.**

In the remainder of this chapter we describe in greater detail the nature of and reasoning behind our choice of a poverty threshold concept and procedure for updating the thresholds. We describe the major alternatives, including expert budget concepts, relative concepts, and subjective (survey-based) concepts of poverty. We give our reasons for preferring our recommended approach to the others. We note that other approaches support the appropri-

ateness of regularly adjusting the poverty thresholds for real changes in consumption of basic goods and services.

### EXPERT BUDGETS

Expert-based poverty thresholds, as they have been developed in recent decades, generally derive from one of several approaches that fall along a continuum: expert-defined budget allotments for one or a few categories of expenditures with a large multiplier to allow for other needed expenditures (i.e., the Orshansky multiplier method); expert allotments for a larger number of categories with perhaps a small “other” or miscellaneous category; and expert allotments for a comprehensive, detailed list of budget items (e.g., specific types of clothing instead of clothing as a broad category).<sup>3</sup> Thresholds developed in this manner have the appeal of being based on the notion of minimum standards of physical needs. Food is almost always specified in expert budgets since it is biologically required for survival. Emphasis is also typically placed on other goods necessary for survival, such as shelter and clothing.

Although expert budgets are generally intended to be derived in an objective manner, with a strong grounding in human physiological requirements, large elements of relativity and subjective judgment invariably enter the process. Thus, for every category for which an explicit budget figure is developed, judgments must be made about the composition of the category and the dollar value that is appropriate for a poverty standard. In a developed country such as the United States, there is usually a wide variety of specific items at varying quality and price levels for any category, almost any of which are adequate for sheer survival. To decide, for example, that a minimally adequate diet must include meat as well as rice and beans and how much of each foodstuff, or that a minimally adequate house or apartment must include at least one bedroom for every two children, is to make a set of judgments that are inevitably influenced by the mores and experiences of the expert’s own society. Similarly, to decide what quality of meat (hamburger or ground sirloin) or clothing (polyester or cotton) to price as the poverty standard is to make another set of judgments. Moreover, the people who are defined to be in poverty according to the standards developed by the experts may or may not agree with the experts’ choices.

Experts can decide to eschew the valuation of a specific item, such as a haircut, in favor of a broader category, “personal care.” This approach will reduce the number of specific judgments required, but it will also inevitably

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<sup>3</sup> The term for expert budgets in earlier literature is “standard budget” (see, e.g., de Neufville, 1975; Orshansky, 1959). The approach of applying a large multiplier to a budget for one or a few categories was originated by Orshansky in her work on the U.S. poverty measure.

lead to consideration of the distribution of actual expenditures on those categories. The process will again introduce elements of relativity to time and place and judgment in that a choice must ultimately be made of a specific dollar level to serve as the poverty standard.

The use of a multiplier introduces other elements of judgment and relativity. The advantage of a multiplier is that it is another way to reduce the number of budget categories for which explicit decisions must be made. But there is no method for scientifically or objectively determining a multiplier. Hence, experts are again inevitably driven to look at actual expenditures.

It is not a criticism of the poverty thresholds that result from expert-based approaches to say that they embody judgments that almost always reflect the conditions of the society for which those judgments are made. This statement is true of other poverty thresholds as well. Indeed, Adam Smith's definition of "necessaries" captured the essence of the matter: they include "not only the commodities which are indispensably necessary for the support of life, but whatever the custom of the country renders it indecent for creditable people, even of the lowest order, to be without" (1776:Book V, Chap. II, Pt. II, Article 4th). The definitions of "custom of the country," "indecent," "the lowest order," and even "indispensably necessary" all clearly involve judgment. The problem with expert approaches is that people may not recognize the elements of judgment involved and may prefer the experts' budgets because they appear more objective.

### **Multiplier Approaches**

The official U.S. poverty thresholds were originally developed by setting expert standards for one commodity, food, and applying a large multiplier to allow for other needed expenditures. In this section, we review the methods underlying those original thresholds (see Fisher, 1992a, 1992b, for more detail on their history and derivation), along with a few other examples of the multiplier approach.

#### *The Original U.S. Poverty Thresholds*

The original U.S. poverty thresholds were those developed by Mollie Orshansky in the 1960s on the basis of the Economy Food Plan, the least expensive of four food plans designed by the U.S. Department of Agriculture (USDA).<sup>4</sup> This plan was developed in 1961 with data from the USDA 1955

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<sup>4</sup> Orshansky actually developed two sets of thresholds—one derived from the Economy Food Plan and another derived from the somewhat more generous Low-Cost Food Plan. The lower set of thresholds was designated for official government use.

Household Food Consumption Survey (as a plan for temporary or emergency use) by examining the food-buying patterns of lower income households, modifying these preferences to develop a nutritionally balanced food plan, and costing out the items in the plan. Orshansky calculated the cost of the Economy Food Plan for families of various sizes and compositions. Specifically, her budgets varied by total family size, number of family members who were children, sex of the family head, and whether the head of a one-person or two-person family was over or under age 65. She developed thresholds for families residing on farms as a percentage of the corresponding nonfarm thresholds. Later, the distinctions by sex of head and farm or nonfarm residence were dropped.

To get from minimum food costs to estimates of minimum total living costs for families of three or more persons, she multiplied the food budgets by three. This multiplier was based on evidence from the 1955 Household Food Consumption Survey that the average family of three or more persons spent one-third of its total after-tax income on food. (Orshansky used somewhat different procedures to develop thresholds for families of one and two persons; see Chapter 3.)

In focusing on the two-adult/two-child threshold developed by Orshansky, which was about \$3,100 for 1963, one can see the elements of relativity and judgment in its derivation. First, although nutritional experts at the USDA made use of their knowledge in developing the Economy Food Plan, the basis of the plan was the food-buying patterns of households deemed to be "lower income" from the 1955 survey. The USDA experts could readily have developed an "economy" plan at a lower cost that was still nutritionally adequate if they had been willing to ignore the preferences of Americans, even at lower income levels, for some variety and taste in their diet. Alternatively, they could have readily developed an "economy" plan at a somewhat higher cost with more variety than that provided in the plan they actually developed. The USDA experts also made other judgments in developing the Economy Food Plan: that low-income households had adequate time and knowledge to minimize waste by very careful management of their food storage and preparation and that all meals would be prepared at home.

Second, the multiplier was based on the share of total after-tax money income spent on food by the average family of three or more persons. This approach assumed that all kinds of expenditures should be included in the multiplier. It has also been criticized for using the expenditure patterns of the average family as the basis for deriving a budget for poor families. Thus, Friedman (1965) argued that poor families spend a higher proportion of their income on food than do average families.

Again, our point is not that the judgments that underlay the original poverty thresholds were necessarily more or less preferable than other judgments that could have been made, but rather, that Orshansky's approach

involved judgments that are ultimately subjective in nature.<sup>5</sup> As we have seen, the particular judgments were strongly influenced by the spending patterns at that time—of lower income families for the food budgets developed by the USDA and of average-income families for the multiplier. As a consequence, the thresholds were higher in real terms than minimum budgets that were developed earlier in the twentieth century. For example, the Economy Food Plan was more generous in terms of allowed quantities than the food components of minimum budgets that were derived for major American cities between 1906 and 1929; also, the implicit allowance for nonfood items in the Orshansky multiplier was considerably more generous than the allowance in pre-1929 budgets, when incomes were lower and the percentage spent on food was, consequently, higher (Appelbaum, 1977; see also Fisher, 1993).

### *The Orshansky Multiplier over Time*

The multiplier method developed by Orshansky has been used only once in the history of the official U.S. poverty thresholds—when the thresholds were first derived. The method was never used again to revise the thresholds, although Orshansky and others recommended its use several times (see, e.g., Fendler and Orshansky, 1979; see also Fisher, 1992b). Instead, the thresholds have been kept constant in real terms over the years through a price adjustment.

One can argue, in fact, that Orshansky's thresholds were adopted as the official thresholds not because her basic method had such widespread support, but for two other reasons. First, her central threshold for 1963 of \$3,100 for a two-adult/two-child family accorded well with other views about the level for a poverty line at the time (see Vaughan, 1993; see also Fisher, 1992b, 1993). Also, unlike a number of other contemporary attempts at developing a poverty measure, she provided a matrix of thresholds that reflected different family circumstances, instead of one threshold for all families and another for unrelated individuals. Thus, the more lasting influence of her work on the official thresholds has been her implicit equivalence scale rather than her basic concept of a minimum food budget times a multiplier.

The application of Orshansky's method to update the thresholds would involve two steps: first, revising the food budget to reflect more recent data on the buying patterns of lower income families and, second, recalculating the multiplier. Each of these steps presents some problems.

In terms of the food budget, the USDA has revised its food plans several times since it developed the Economy Food Plan in 1961. (In between revisions, it uses changes in the Consumer Price Index for specific food

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<sup>5</sup> Indeed, we want to acknowledge Orshansky's pioneering efforts in developing a poverty measure that proved broadly acceptable and widely useful. Having struggled with the issues and with the problems of available data, we realize full well the task that she faced.

categories to update the plan costs.) In 1975 USDA published revised food plans based on data from a 1965-1966 Household Food Consumption Survey and revised recommended dietary allowances (RDAs) from the National Research Council.<sup>6</sup> The lowest cost plan was renamed the Thrifty Food Plan. In 1983, USDA published a revision of the Thrifty Food Plan based on data from the 1977-1978 Nationwide Food Consumption Survey, further revisions to the RDAs, and new information about the nutrient content of various foods.

For the 1975 and 1983 Thrifty Food Plans, however, USDA relied much less heavily than in the original Economy Food Plan on the food-buying patterns of lower income households. Instead, it gave greater weight to cost constraints, namely, a decision to keep the costs of each revision about the same in real terms as the costs of the previous plan. This decision was made because a revised plan reflecting newer data on food-buying patterns would have resulted in a considerable cost increase (24% for the 1983 plan), and the Economy and then Thrifty Food Plan had been mandated as the basis for benefit allotments under the Food Stamp Program, so cost increases would have affected program costs to an extent that was viewed as unacceptable (Peterkin et al., 1983; Greger, 1985:3-4; Orshansky, 1986; see also Ruggles, 1990:179-180). Thus, changes in the mix of foodstuffs in the plan for reasons of nutrition or variety were made to stay within these cost limits. In terms of real dollar costs, the Thrifty Food Plan has been held about constant over time.

We estimated the effects on the reference family poverty threshold of implementing the Orshansky approach for selected years from 1950 to 1992, expressing the results in constant 1992 dollars; see Table 2-1.<sup>7</sup> We first determined the share spent on food (consumed at home and away from home) in each year by four-person families as a percentage of their total after-tax expenditures and the corresponding multiplier (the inverse of the share). We then determined the ratio of the multiplier in each year to the multiplier in 1960 and applied that ratio to the official poverty threshold in 1992 dollars for a two-adult/two-child family.<sup>8</sup> By definition, the official threshold and the

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<sup>6</sup> The RDAs are based on the scientific findings of nutritional research, but they also involve judgment.

<sup>7</sup> We used 1992 as the reference year because our analysis of the effects on poverty rates of implementing the proposed measure used 1992 income data from the March 1993 Current Population Survey (see Chapter 5).

<sup>8</sup> We did not take the more straightforward approach of simply applying the multiplier we derived for each year to the food budget (i.e., one-third of the official threshold) because the multiplier in 1960 from CEX data was higher than that used by Orshansky from the 1955 USDA survey (4.56 for four-person families or 4.12 for all families, compared with her multiplier of 3.00 for families of three or more persons). Hence, to apply each year's multiplier as it would overadjust the thresholds relative to the change in the multiplier that occurred over the 1960-1992 period (the multiplier for four-person families increased from 4.56 in 1960 to 6.62 in 1991); see Table 2-1 for sources.

**TABLE 2-1** Comparison of Updated Poverty Thresholds for a Two-Adult/Two-Child Family Using the Orshansky Multiplier, the Official Threshold, and Two Relative Thresholds, 1950-1992, in Constant 1992 Dollars

| Year                          | Official Threshold | Orshansky Multiplier Threshold <sup>a</sup> | One-Half Median Four-Person Family Income |                        |
|-------------------------------|--------------------|---|---|------------------------|
|                               |                    |   | Before-Tax <sup>b</sup>                   | After-Tax <sup>c</sup> |
| Dollar Amount                 |                    |   |   |                        |
| 1950                          | 14,228             | 11,681                                      | 10,697                                    | 10,106                 |
| 1960                          | 14,228             | 14,228                                      | 14,919                                    | 13,030                 |
| 1963                          | 14,228             | 14,228                                      | 16,364                                    | 14,120                 |
| 1972-1973                     | 14,228             | 16,874                                      | 21,661                                    | 18,236                 |
| 1980                          | 14,228             | 16,163                                      | 20,715                                    | 16,629                 |
| 1989                          | 14,228             | 20,659                                      | 23,062                                    | 18,990                 |
| 1991                          | 14,228             | 20,659                                      | 22,174                                    | N.A.                   |
| 1992                          | 14,228             | N.A.  | 22,308                                    | 18,018                 |
| Percent of Official Threshold |                    |   |   |                        |
| 1950                          | 100.0              | 82.1  | 75.2                                      | 71.0                   |
| 1960                          | 100.0              | 100.0                                       | 104.9                                     | 91.6                   |
| 1963                          | 100.0              | 100.0                                       | 115.0                                     | 99.2                   |
| 1972-1973                     | 100.0              | 118.6                                       | 152.2                                     | 128.2                  |
| 1980                          | 100.0              | 113.6                                       | 145.6                                     | 116.9                  |
| 1989                          | 100.0              | 145.2                                       | 162.1                                     | 133.5                  |
| 1991                          | 100.0              | 145.2                                       | 155.8                                     | N.A.                   |
| 1992                          | 100.0              | N.A.  | 156.8                                     | 126.6                  |

NOTES: The official 1992 threshold for a two-adult/two-child family (which, in constant 1992 dollars, applies to all earlier years) from Bureau of the Census (1993c:Table A).

<sup>a</sup>Based on calculating the share of food in the total after-tax expenditures of four-person consumer units, determining the multiplier (the inverse of the share), calculating the ratio of the multiplier in each year to that in 1960, and applying the ratio for each year to the official 1992 poverty threshold. The procedure assumes that the cost of the food component of the threshold remained constant in real terms and that Orshansky would have used the same food share and multiplier for a base year of 1960 as she did for her base year of 1963. Food shares and multipliers were obtained for 1960, 1972, 1980, and 1991 from tabulations provided to the panel from the 1960-1961, 1972-1973, 1980, and 1991 Consumer Expenditure Survey by the Bureau of Labor Statistics. The food share and multiplier for 1989 are assumed to be unchanged from 1988 (from Bureau of the Census, 1991:Table 718 for four-person consumer units). The food share and multiplier for 1950 relative to 1960 were derived by comparing food shares for these years for all urban families from Bureau of the Census (1975:323).

<sup>b</sup>For 1950, 1960, 1963, 1973, and 1989, calculated from Vaughan (1993:Table 1); for 1991 and 1992, calculated from Bureau of the Census (1993b:Table 13). All amounts were converted to 1992 dollars using the CPI-U (the CPI for urban families; from Bureau of the Census, 1993c:Table A-2).

<sup>c</sup>For 1950, 1960, 1963, 1973, and 1989, calculated from Vaughan (1993:Table 1), who estimated taxes for a two-adult/two-child family; for 1992, calculated from the March 1993 Current Population Survey; all amounts were converted to 1992 dollars using the CPI-U.



threshold as we calculated it are the same for the base year for Orshansky's original work.<sup>9</sup>

There are at least two ways of expressing the comparison between columns 1 and 2 of Table 2-1. First, since the method of setting the threshold was applied only once, the base year for which it was applied is critically important. If the official poverty level had been defined for 1950 instead of for 1963, the threshold would have been considerably lower than it is—about 18 percent lower—throughout the past 40 years. Yet if the official level had been defined for 1972-1973 instead of for 1963, using the identical logic and relevant data, the threshold would have been consistently higher than it is—about 19 percent higher—throughout the past 20 years.<sup>10</sup> Thus, pegging the threshold at one point in time—whether 1950, 1963, or 1972-1973—and then only updating for price changes means that the level of the threshold will be affected by the historical accident of the base year for which it is set.

Second, if the method of setting the threshold had been applied annually or periodically, the threshold would have risen dramatically as real income rose over the past 40 years. That is, the application of the same method for 1950 and for 1991 would have yielded a reference family poverty threshold of \$11,681 for 1950 and \$20,659 for 1991.

Even if the method for determining the poverty threshold for 1963 is considered flawless, there is no logical argument why 1963 was the historically correct time at which to apply that method to set a level for all years thereafter. Yet to apply that same method in subsequent years would have had a very large impact on the threshold. So one is faced with the uncomfortable conclusion that the current U.S. poverty threshold today cannot be right: if it was right for 1963, a year selected by historical accident, then it cannot also be right today.

For comparison purposes, we also developed two sets of relative thresholds (drawing on Vaughan, 1993): one set represents one-half the median before-tax four-person family income and the other set represents one-half the median after-tax four-person family income (see Table 2-1). Both thresholds are considerably below the 1950 equivalent of the official threshold (by 25-29%), while they are reasonably close to the official threshold for 1963 (the before-tax threshold is 15% above and the after-tax threshold is 1% below the official threshold for that year). Subsequently, both relative thresholds exceed

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<sup>9</sup> That year was 1963; for our calculations, we assumed that the multiplier she used would have been the same for 1960 as for 1963.

<sup>10</sup> These percentage increases are somewhat higher than would result from applying an estimate of the change in the food multiplier to poverty thresholds that were updated by the change in the cost of the Economy/Thrifty Food Plan instead of the CPI (see below). However, they are lower than would result from applying an estimate of the change in the food multiplier to poverty thresholds based on an update of the Economy/Thrifty Food Plan to reflect new data on food-buying patterns of lower income families.

the official threshold—by amounts that now bracket the Orshansky multiplier threshold.

Because of problems of data comparability over time and measurement error, one should not make too much of the specific threshold values shown in Table 2-1 (or below). They are illustrative and broadly accurate, and we present them only to emphasize the overall patterns. In this set of comparisons, what is clear is that the relativity in the application of the Orshansky approach, which stems from the large multiplier that includes all other non-food spending, produces thresholds that mirror changes in real consumption above and beyond price changes.

### *Other Multiplier Approaches*

Ruggles (1990:Table A.5) derived poverty thresholds by using a multiplier approach but applying the multiplier to a poverty standard for housing rather than food. Her foundation for this measure was the fair market rents developed by the U.S. Department of Housing and Urban Development (HUD) for use in determining rent subsidies to eligible families under the Section 8 Housing Assistance Payments Program, established in 1975.

HUD develops fair market rents by analyzing rent distributions in metropolitan areas and nonmetropolitan counties for two-bedroom apartments occupied by recent movers that meet specified quality standards. (The data sources for the rent distributions include the decennial census, the American Housing Survey [AHS], and local-area random digit dialing telephone surveys; see Chapter 3.) The Section 8 program subsidizes tenants by making up the difference between a rental amount, which generally cannot exceed the applicable fair market rent, and a percentage of the family's income. Currently, fair market rents are set at the 45th percentile of the rent distribution in each area, and eligible families are expected to contribute 30 percent of their net countable income toward the rent. (Prior to 1983, fair market rents were set at the median or 50th percentile of the distribution, and prior to 1981, families were expected to contribute only 25% of their net countable income toward the rent.)

To calculate poverty thresholds, Ruggles divided the annualized value of the fair market rent for the nation as a whole by the applicable percentage of income: 25 percent, corresponding to a multiplier of 4.00, or 30 percent, corresponding to a multiplier of 3.33; see Table 2-2. Thresholds developed in this manner are not available prior to the initiation of the Section 8 program; for the period 1977-1992, such thresholds have exceeded the official threshold by 45-55 percent.

Weinberg and Lamas (1993) developed a set of poverty thresholds for 1989 by budgeting amounts for both food and housing and applying a multiplier. They took the annual cost of the Thrifty Food Plan, added the 25th percentile value of the distribution of all nonsubsidized rented units from the

**TABLE 2-2** Comparison of Poverty Thresholds for a Two-Adult/  
Two-Child Family Using Two Multiplier Approaches, Selected Years,  
in Constant 1992 Dollars

| Year                          | Official<br>Threshold <sup>a</sup> | Housing<br>Multiplier<br>Threshold<br>(45th or 50th<br>percentile) <sup>b</sup> | Housing and Food Multiplier Threshold <sup>c</sup> |                 |
|-------------------------------|------------------------------------|---|--|-----------------|
|                               |                                    |   | 25th percentile                                    | 35th percentile |
| Dollar Amount                 |                                    |   |  |                 |
| 1977                          | 14,228                             | 20,781  | N.A.   | N.A.            |
| 1980                          | 14,228                             | 21,331  | N.A.   | N.A.            |
| 1982                          | 14,228                             | 21,205  | N.A.   | N.A.            |
| 1985                          | 14,228                             | 20,758  | N.A.   | N.A.            |
| 1988                          | 14,228                             | 22,154  | N.A.   | N.A.            |
| 1989                          | 14,228                             | 21,815  | 20,267   | 21,790          |
| 1992                          | 14,228                             | 21,640  | N.A.   | N.A.            |
| Percent of Official Threshold |                                    |   |  |                 |
| 1977                          | 100.0                              | 146.1   | N.A.   | N.A.            |
| 1980                          | 100.0                              | 149.9   | N.A.   | N.A.            |
| 1982                          | 100.0                              | 149.0   | N.A.   | N.A.            |
| 1985                          | 100.0                              | 145.9   | N.A.   | N.A.            |
| 1988                          | 100.0                              | 155.7   | N.A.   | N.A.            |
| 1989                          | 100.0                              | 153.3   | 142.4  | 153.1           |
| 1992                          | 100.0                              | 152.1   | N.A.   | N.A.            |

<sup>a</sup>The official 1992 threshold for a two-adult/two-child family (which, in constant 1992 dollars, applies to all earlier years) from Bureau of the Census (1993c:Table A).

<sup>b</sup>The housing multiplier is based on obtaining the nationwide HUD fair market rent value for two-bedroom rental units (calculated for such units occupied by recent movers and having other specified characteristics) and applying a multiplier (the inverse of the percent of net countable income that subsidized tenants are expected to contribute toward rent). For 1977-1982, fair market rents were set at the 50th percentile of the distribution of all two-bedroom units including subsidized units and new construction; for subsequent years, fair market rents were set at the 45th percentile of the distribution of two-bedroom units excluding subsidized units and new construction. For 1977-1980, the multiplier was 4.0 (inverse of 25%); for 1982, the multiplier was 3.85 (inverse of 26%, reflecting a phase-in to 30%); for 1985 and later, the multiplier was 3.33 (inverse of 30%). The estimated thresholds for years 1977-1988 are from Ruggles (1990:Tables A.3, A.5); for 1989 and 1992 derived by using Ruggles' method with fair market rent(s) provided by HUD; all values were converted to 1992 dollars using the CPI-U (from Bureau of the Census, 1993c:Table A-2).

<sup>c</sup>The housing and food multiplier was originally developed by Weinberg and Lamas (1993:32-35) by calculating the value for the 25th or 35th percentile of the distribution of all nonsubsidized rental units by region and type of place (central city, suburb, nonmetropolitan) from the American Housing Survey, adding the value of the Thrifty Food Plan for a three-person family, and applying a multiplier of 2.0. The estimated thresholds for 1989 were calculated by taking the simple average of the Weinberg and Lamas region-place-specific thresholds times 1.282 (the ratio of the weighted average four-person official threshold to the weighted average three-person official threshold) to convert to four-person thresholds; all values were converted to 1992 dollars using the CPI-U.

AHS, and multiplied the result by two. The basis for their multiplier was the HUD limit of 30 percent on the amount of income families who receive rent subsidies are expected to contribute to the rent plus an estimate from CEX data that food accounts for about 20 percent of total expenditures. (This method follows Orshansky's approach of using the spending of average families to determine the food component of the multiplier but then determines the housing component of the multiplier on the basis of program standards for lower income families.) They computed another set of thresholds in the same manner but using the 35th percentile value of the rental distribution (see Table 2-2). Their thresholds are, respectively, 42 and 53 percent higher than the official threshold for 1989.

Several points emerge from the work by Ruggles (1990) and Weinberg and Lamas (1993). First, the level of the poverty threshold is obviously affected by the choice of the standard.<sup>11</sup> In the case of the food component, several analysts have argued that the Thrifty Food Plan is unrealistically restrictive and that the Low-Cost Food Plan should be used instead.<sup>12</sup> Second, over time, if the developers of poverty thresholds rely on program standards that are set by legislation, the standards may change for many reasons other than an evaluation of need (such as the desire to cut program costs). This problem is evident in Ruggles' HUD-based thresholds, for which changes were legislated in the early 1980s for both the housing standard (from the 50th to the 45th percentile) and the basis for the multiplier (from a 25% to a 30% share of income).<sup>13</sup> Had these changes not been made, it is likely that the HUD-based thresholds in Table 2-2 would have increased as a percent of the official threshold in the late 1980s rather than remaining flat.

### Categorical Approaches

Renwick and Bergmann (1993) took a categorical approach to defining a poverty budget, which they refer to as a basic needs budget (BNB). Their approach is based on adequacy standards, not only for food, but also for housing and household operations, transportation, health care, clothing, child

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<sup>11</sup> Why there is not more of a difference between the Weinberg and Lamas (1993) thresholds and the Ruggles (1990) thresholds, which are based on different percentiles of the rent distribution (see Table 2-2), is not clear. Weinberg and Lamas calculated the 25th and 35th percentiles of the rent distribution of all nonsubsidized rental units, while the HUD fair market rents used by Ruggles represent the 45th or 50th percentile of two-bedroom units occupied by recent movers and having other specified characteristics. In addition, the data sources were somewhat different.

<sup>12</sup> Indeed, Orshansky herself developed two sets of poverty thresholds, one based on the Economy Food Plan and the other on the Low-Cost Food Plan.

<sup>13</sup> Indeed, CEX data for 1991 indicate that the housing share of total after-tax expenditures was about 24 percent (for all consumer units and four-person units), not 30 percent (Bureau of the Census, 1993d:Table 708).

care, and personal care. To date, they have developed BNBs for single-parent and two-parent families with varying numbers of children (see Renwick and Bergmann, 1993; Renwick, 1993a, 1993b). Their budgets vary by whether the parent(s) work and by whether they receive such in-kind benefits as food stamps, school meals, free or subsidized child care, and medical care benefits. Their budgets also vary by region and type of place (central city, suburb, rural). The final step in their procedure is to determine the before-tax income required to be out of poverty on the basis of the BNB dollar level together with an estimate of payroll and income tax liabilities.

In constructing the basic needs budget, Renwick and Bergmann used previously defined standards whenever they considered them appropriate. Their food standard is based on the USDA Low-Cost Food Plan, the second least expensive of the four food plans, which incorporates some economies of scale for families of larger sizes. For housing, they assumed that parents have a separate bedroom from children and that no more than two children share a bedroom. For two-bedroom units they analyzed AHS data to determine the 25th percentile of the distribution of all such units, separately by the four regions and by central city, suburban, and rural locations. They allowed for a telephone and household supplies in the budget (updating the latter from the Bureau of Labor Statistics (BLS) lower level family budget—see below), but they did not allow for household furnishings or equipment, assuming that families would make do with what they had during a poverty spell. They assumed the use of public transportation by central city and suburban families and developed a weekly allowance for work trips for each adult earner plus an allowance for shopping and errands. In the budget for rural families, they allocated the cost of operating a second-hand car, using data from a 1977 survey on distance to work and the mileage allowances of the Internal Revenue Service (IRS) to estimate the cost of work trips for these families. They based their allowance for health insurance on the average total premium cost of group health insurance covering lower income families as reported in the National Health Care Expenditure Survey, and their allowance for out-of-pocket medical care expenditures was based on typical expenditures of moderate-income families with health insurance from the same source.<sup>14</sup> They developed a child care budget (for the case of no parent at home) by using the IRS dependent care tax credit limits on eligible expenses in full or in part, depending on the assumed age of the children and an assumption about use of free or subsidized care. For the clothing portion of the budget, they updated the lower level family budget allowance from the BLS. Finally, for personal care, they updated the BLS lower level family budget allowance, omitting the services component (principally, haircuts) and adding an allowance for dispos-

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<sup>14</sup> It is not clear, but presumably the survey they used is the 1987 National Medical Expenditure Survey.

able diapers for children under age 2. They made no provision for other or miscellaneous expenses, thus excluding such BLS categories as reading materials, recreation, educational expenses, alcohol, and miscellaneous.

In the case of two-parent families with at least one wage earner, Renwick (1993a:Table 2, Appendix) made a further adjustment to the basic needs budget by deducting an estimated employer contribution to the health insurance premium. For a two-adult/two-child family in 1992, the resulting BNB (assuming the use of public transportation and weighted average housing costs) was \$16,044, which was 113 percent of the official poverty threshold. For the same family with two adult earners (and hence higher work expenses and a need for child care), the resulting BNB was \$21,132, or 149 percent of the official threshold.

Watts (1993) also proposed a categorical approach to the definition of poverty thresholds based largely on the work of Renwick and Bergmann. He concluded that the categorical approach is more feasible, understandable, and acceptable than either budgets with a large multiplier applied to only one or two categories or very detailed budgets.<sup>15</sup> Watts' proposal differs from the Renwick and Bergmann approach in a number of ways. First, he recommended that actual work-related transportation expenses be deducted from family resources rather than accounted for in the budget. Second, he argued that adequate medical insurance should be assumed for people with coverage. For households that lack such coverage, the cost of a standard insurance package should be deducted from resources. Employee contributions to medical insurance should also be deducted from resources. That is, the budget itself should only allow for estimated out-of-pocket medical costs (other than premiums). Third, since child care is an expense of work, he recommended that it too be deducted from resources. Fourth, he proposed that a new look be taken at the BLS family budget standards for clothing and personal care.

To develop what he termed a "modest proposal budget," Watts simply deducted the work and child care expense and medical insurance components from budget thresholds presented by Renwick (1993a). Implementing these calculations for 1992 produces a two-adult/two-child poverty threshold of \$14,580, or 102 percent of the official threshold.

Watts' adaptation of the Renwick and Bergmann categorical budget approach has the advantage, in our judgment, of treating such expenses as child care that pertain to specific situations (namely, working) as deductions from family resources rather than as components of the budget. At the time Orshansky originally developed her thresholds, the treatment of such a category as child care expenses was largely not an issue because most families with

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<sup>15</sup> Watts also found attractive the feature of the BNB approach that a budget is developed explicitly for each family type (in terms of the number of adults and children) rather than by applying a formal equivalence scale. We believe, however, that this feature is problematic, just as it is problematic for the official thresholds (see Chapter 3).

children had a parent at home to provide care. Today, many working families need to pay sometimes sizable amounts for child care in order to earn income. It seems preferable to deduct actual expenses from the income of those who pay for child care rather than to develop separate budgets for working families who pay for day care, working families who do not, and nonworking families. It also seems preferable to deduct from families' resources their actual out-of-pocket medical care expenses, which vary widely across the population (see Chapter 4 on these points).

In comparing the categorical approach with the multiplier approach, the categorical method does not require setting a multiplier; also, it does not allow changes in the multiplier to drive the behavior of the thresholds over time. On the negative side, the categorical approach requires making a larger number of individual judgments about standards (e.g., how many family members should be expected to share a bedroom or whether to provide for disposable diapers or assume that the family has a washing machine). One can anticipate disagreements about the assumptions for each category and also the particular dollar levels that are chosen.

### **Detailed Budget Approaches**

Extensive work on detailed budgets has been done abroad; one example is the work of the York Family Budget Unit in the United Kingdom. The United States also has experience with detailed budgets, most recently through the BLS Family Budgets Program.<sup>16</sup>

#### *York Family Budget Unit*

The Family Budget Unit of York was established in 1985 to conduct research on the cost of living throughout the United Kingdom and on the economic requirements and consumer preferences of families of different compositions. The research on budget standards has sought to construct a series of "modest-but-adequate" and "low-cost" budgets for families in the United Kingdom, develop a means of updating the budgets, explore the relationship between living levels, develop equivalence scales from the budgets, and assess the practical and political applications of the budgets approach (Bradshaw, 1991).

In developing the modest-but-adequate budget, the York analysts included such items as durable goods that were owned by more than half of the population. For the low-cost budget, they included items that more than two-thirds of the population viewed as "necessary" or that were owned by at least 75 percent of the population (Yu, 1992). The budgets comprise amounts

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<sup>16</sup> Extensive work on expert (or "standard") budgets was done in the United States from 1900 to 1940, although mostly outside the federal government (see Fisher, 1993).

for housing, which include shelter costs, fuel (with slightly higher allowances in the modest budget), interior decoration, and maintenance (the latter only in the modest budget); food at home, food away from home, and alcohol (the latter two categories in the modest budget only); clothing; household goods and services (including such things as furniture, kitchenware, stationery, postage, telephone services, and dry cleaning); personal care; medical care; transportation; leisure goods and services (including such goods as a television, sporting equipment, toys, Christmas decorations, and such services as home-based activities, sport and physical exercise, and social and cultural activities). Standards were drawn from a combination of government standards (e.g., for housing) and expenditure patterns.

### *BLS Family Budgets Program*

The modern BLS Family Budgets Program had its origins in a 1945 directive from the Committee on Appropriations of the U.S. House of Representatives for BLS to determine how much it cost workers' families in large U.S. cities to live. Since the turn of the century, private groups and some local and state agencies had developed detailed budgets for various types of families and geographic locations (generally individual cities), for such purposes as determining relief payments and government pay scales. A few such budgets were also developed by BLS and later the Works Progress Administration (WPA) (see Expert Committee on Family Budget Revisions, 1980; Fisher, 1993). After World War II, Congress wanted BLS to revamp the old WPA budgets, and this resulted in a series of budgets. In 1948 BLS published a "modest but adequate" budget for 1946 for urban working families, priced separately for 34 cities. In 1960 BLS published a revision of this budget for 1959, which was derived using data from the 1950 CEX. In 1967 BLS published a further revision of the budget for 1966, which it termed a "moderate living standard" and derived using data from the 1960-1961 CEX. Finally, in 1969, BLS published a revision of the moderate budget for 1967 (also derived using 1960-1961 CEX data), together with higher and lower budgets developed by scaling the moderate budget up and down.<sup>17</sup> Between revisions, the budgets were repriced by using augmented price data collected for the CPI, or, after 1966, by using changes in the appropriate components of the CPI (see Bureau of Labor Statistics, 1969; Sherwood, 1977). In 1981 BLS discontinued the Family Budgets Program for lack of funds to improve it.

BLS initially developed the higher, moderate (or intermediate), and lower budget levels for two family types: a four-person family with a husband aged 38 and employed full-time, a homemaker wife (with no age specified), a girl of 8, and a boy of 13; and a retired couple aged 65 or over in reasonably good

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<sup>17</sup> The moderate budget was later termed the intermediate budget level.



health. Budget levels for other family types were set by the use of an equivalence scale (see Chapter 3). BLS also varied the budgets by region of the country and size of area, publishing budgets over the years for 25-40 specific urban areas, together with regional averages. Examples of geographic differences included an assumption of use of public transportation in larger cities, different foodstuffs reflecting regional variations in food-buying patterns, and adjustments in utility costs for climate differences.

The detailed family budgets included food, transportation, clothing, personal care, medical care, and specific other consumption items, gifts and contributions, and occupational expenses. The budgets also allowed for income and payroll taxes. The food-at-home allowance for the intermediate budget was based on USDA's Moderate-Cost Food Plan. The housing component was based on recommendations on number of rooms, essential household equipment, adequate utilities, and neighborhood location, originally made by the American Public Health Association and the U.S. Public Housing Administration. The intermediate budget used the average for the middle third of the distribution of housing prices for houses and apartments meeting the designated requirements.

For additional components of the budget for which no expert standards had been developed—such as food away from home, furniture, transportation, clothing, personal care items, medical care, reading and recreational materials, education, tobacco, alcohol, gifts and contributions, life insurance, and miscellaneous consumption items—BLS used a statistical procedure known as the quantity-income-elasticity (q-i-e) technique. This method attempted to determine at what point an increase in income resulted in a decrease in the rate at which expenditures rose for each category of goods. This technique “sought to determine the income level at which elasticity, defined as the percentage change in the quantity purchased divided by the percentage change in income, reached a maximum. The associated quantities were then used to form the budget list” (Expert Committee on Family Budget Revisions, 1980:21). The results of applying the q-i-e method, however, were often uninterpretable, and the BLS analysts ultimately had to use their judgment to set budget levels. Generally, each time that the moderate or intermediate budget was revised, the budget level equated closely to median family income.

To develop the lower budget, BLS adapted the intermediate budget in several ways. For food at home, BLS used the USDA Low-Cost Food Plan (the second lowest cost of the four USDA plans). For housing, it used the mean contract rent for the bottom third of rental units that met specified requirements (excluding all owned units). For the items for which no standard existed and the q-i-e approach was used, BLS generally derived the lower budget from the income interval below the interval in which maximum elasticity was estimated to have occurred. As a whole, the lower budget amounted to about two-thirds of the intermediate budget.

In 1981, the last year for which BLS published family budget estimates (Bureau of Labor Statistics, 1982:Table A), the lower level budget for urban four-person families excluding taxes was \$19,587 (in 1992 dollars), or 138 percent of the official poverty threshold for a two-adult/two-child family. Excluding gifts, contributions, insurance, and work expenses, the lower budget was \$18,629, or 131 percent of the official poverty threshold.

### *Schwarz and Volgy Budget*

Schwarz and Volgy (1992:Table 4) took an approach similar to, although less detailed than, the original BLS Family Budgets Program to develop an "economy budget" for a family of two adults and two children for 1990. Their market basket of goods contains those things that they consider to be "basic necessities," defined as goods and services directly and indirectly necessary to sustain life and health. Direct necessities include food, medical care, housing, clothing, and personal care and cleaning products. Indirect necessities include transportation, clothing adequate for employment of the adults and for school for the children, and such smaller items as school supplies and postage stamps. They also included items needed to participate in the wider community and express one's feelings, such as a telephone, a television, newspapers, stationery, and a gift fund. Their budget allows for the payment of federal and state income taxes and Social Security contributions.

The food component of the budget was based on the USDA Thrifty Food Plan. The housing component used the Department of Housing and Urban Development's fair market rent standard, based on the 45th percentile of two-bedroom rental units in an area that met specified characteristics. Transportation and medical care were based on national averages. Allowances for additional items, such as clothes, toys and presents, dishes, utensils, bedding, and used furniture, as well as other personal items and incidentals, appear to be based solely on the authors' judgments.

The resulting budget constructed by Schwarz and Volgy for a four-person family for 1990, including payroll and state and federal income taxes, was \$22,176 in 1992 dollars; excluding taxes, the budget was \$18,983. These figures are, respectively, 156 percent and 133 percent of the official four-person poverty line.

### *Conclusions*

Detailed budgets avoid the problem of specifying a multiplier, which is inevitably done by reference to actual expenditure patterns. Such budgets, however, entail a myriad of judgments about many different goods and services. Moreover, inevitably such judgments also make reference to actual spending patterns as opposed to strictly physiologically based standards of need. This is true even when the budget makers adopt expert standards from another source,

such as the USDA food plans or HUD fair market rents: we have seen the elements of relativity (and, indeed, political considerations) that enter into those standards.

BLS attempted to introduce some objectivity into standards for such commodities as clothing by the q-i-e approach, which assumed that the point at which the rate of increase in expenditures on the commodity relative to income slowed down was the point at which families no longer “needed” so much of the item. For most categories for which this approach was initially applied, however, there was no such inflection point or it came at a level that was not believable. Moreover, it is unclear whether the theory underlying this approach can be rigorously defended (see Expert Committee on Family Budget Revisions, 1980:30-34, for a detailed critique). Again, the BLS analysts had to make their own judgments, which, again, inevitably referred to actual spending patterns.

### Updating for Price Changes

Until a new budget standard is adopted, expert budgets are usually updated for price changes to keep the dollar levels constant in real terms. An important issue in deciding to maintain a poverty line as an absolute standard—whether the line is originally developed from an expert budget or from another concept—is what type of price index to use. We have used values of the CPI-U (the Consumer Price Index for urban consumers) to express poverty thresholds developed under various methods for earlier years in constant 1992 dollars, because the original official poverty thresholds have historically been updated by the CPI-U, and we wanted to maintain the real dollar relationship between the 1963 two-adult/two-child family threshold of about \$3,100 and the 1992 threshold of \$14,228. But our purpose is purely illustrative.

For use in maintaining an absolute poverty standard, one can argue for other price indexes. Historically, the CPI-U overestimated inflation due to its treatment of housing costs, although this problem was corrected in the last revision, introduced beginning in 1983.<sup>18</sup> For years prior to 1983, BLS developed an experimental index, CPI-U-X1, which closely approximates the methodology of the current, improved CPI-U.<sup>19</sup> If a combination of the

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<sup>18</sup> Prior to 1983, the measurement included changes in the asset value of homes; subsequently, it was modified to consider just the consumption aspects of home ownership by measuring changes in the equivalent rental costs for owned homes (see Bureau of the Census, 1993a:Appendix H). It is likely that, for other reasons, the CPI-U still overestimates inflation, but the extent is not known.

<sup>19</sup> The CPI-U-X1 shows less inflation prior to 1983 than the CPI-U (particularly in the period 1978-1981, when sale prices of housing were rising significantly faster than equivalent rental costs). Values of the CPI-U-X1 have been created back to 1947, although for years prior to 1967 they are not an actual calculation using the BLS procedures, but a ratio adjustment to the CPI-U; see Bureau of the Census (1993b: Table B-1).

CPI-U-X1 and CPI-U for the years before and after 1983 had been used to update the official poverty thresholds, then the threshold for a two-adult/two-child family in 1992 would have been \$13,082, or 92 percent of the official threshold for that year.

If the poverty thresholds had continued to be updated by the cost of the Economy Food Plan (as occurred prior to 1969), the thresholds would also have increased less than has been the case with the CPI-U: the two-adult/two-child threshold in 1992 would have been \$13,072, or 92 percent of the official 1992 threshold.<sup>20</sup>

The use of a Consumer Price Index specific to the low-income population has sometimes been discussed (see, e.g., King, 1976). Low-income people have different consumption patterns from high-income people: they spend a larger fraction of their budgets on necessities and a smaller fraction on luxury goods. Hence, if the relative prices of necessities and luxuries change over time, as has happened in some periods in the past, the use of the CPI will not give an accurate picture of real adjustments for poor people. In practice, however, the use of a low-income price index would probably not have made much of a difference over the period from 1963 to 1992 taken as a whole. (As we have noted, the cost of the Economy/Thrifty Food Plan increased about as much over this period as the overall CPI-U-X1.) Hence, we believe that work on a low-income price index is not a priority, although circumstances might arise in the future that could make it advisable to investigate the issue further. (To develop a reliable low-income price index could require improvements to both the CEX and the BLS price database.) We note that our proposed updating method has the advantage of relying very little on a price index: the only use of an index is to express the expenditure data for the prior 3 years that will be used to develop each year's reference family threshold in current dollars.

### RELATIVE THRESHOLDS

Relative poverty thresholds—thresholds that are derived from the outset in a relative fashion—are based on comparing the income or consumption of a family to that of other typical families. The relative approach, as commonly implemented, designates a point in the distribution of income or expenditures to serve as the poverty line for a reference family. (Thresholds for other family types are developed by use of an equivalence scale.) Although a relative threshold, once chosen, could be kept constant in real dollars over a period of

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<sup>20</sup> This is derived from changes in the cost of the Economy and Thrifty Food Plans, 1963-1992: the 1963 cost figure is from Ruggles (1990:Table A.4); the 1992 cost figure is from unpublished tables provided by the Food and Nutrition Service, U.S. Department of Agriculture.

years (i.e., be turned into an absolute threshold), relative thresholds are usually updated automatically on the basis of new information about the distribution of income or expenditures.

The conceptual argument that is often made for relative thresholds is that people are social beings and operate within relationships. Full participation within those relationships and within society requires that they “fit in” with others. Those whose resources are significantly below the resources of other members of society, even if they are able to eat and physically survive, are not able to participate adequately in their relationships, and therefore are not able to participate fully in society.<sup>21</sup> A relative approach to deriving poverty thresholds recognizes the social nature of economic deprivation and provides a way to keep the poverty line up to date with overall economic changes in a society.

There are several advantages to relative thresholds. First, they are easy to understand and fairly easy to calculate. Indeed, convenience is often as important a reason for choosing a relative approach as is any theoretical argument. The convenience factor is particularly compelling in the case of international comparisons of poverty, for which it can be difficult to develop comparable expert budgets or other types of poverty thresholds for different countries. Second, relative thresholds are explicitly arbitrary. They do not represent any type of budget, but simply a point in the distribution of income or expenditures. That point is usually one-half the median. As we have seen, expert budgets have large elements of relativity and judgment in them, but are typically couched as representing something more objective. Third, relative thresholds are self-updating, so their use avoids the need for periodic—and often controversial—reassessments of budgets or other types of thresholds to determine if they need to be revised for other than price changes.

Yet the very advantages that some find in the relative, arbitrary, and self-updating features of relative thresholds are drawbacks to others. For example, some argue that relative thresholds offer too much of a moving target for policy makers attempting to ameliorate poverty. Such arguments can be overstated—it is not, as is sometimes said, impossible to reduce poverty with a relative threshold. If the reference family threshold is defined as a percentile of the distribution of income or expenditures (e.g., the 25th or 35th percentile), that would be true. By definition, 25 or 35 percent of the population is always below the 25th or 35th percentile. However, if relative thresholds are defined as a percentage of the median value (as is commonly done), then it is possible to reduce poverty, and this seems the appropriate approach. Defined in such terms, relative thresholds will move with the median (as, indeed, expert budgets tend to move, although sporadically rather than on a continuous basis).

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<sup>21</sup> See Townsend (1992) for an argument that poverty has a social as well as a physical dimension and, furthermore, that people evaluate their own situation in relation to others, not by reference to an absolute standard of need.

But changes in the distribution of income or expenditures below the median can lower the poverty rate even when the median value (and hence the value of the poverty line as a fixed percent of the median) increases.

However, there are serious concerns about the behavior of relative thresholds over time, not only in periods of economic growth but also in periods of recession or depression, when relative thresholds may decline in real terms. Many people are uncomfortable with a poverty measure that could possibly show a lower poverty rate in a recession that makes everyone worse off or that could fail to show a decrease in the rate in response to a policy change that makes everyone better off, including the poor. While decreases in relative thresholds in real terms will not necessarily lead to decreases in the poverty rate (just as increases in the thresholds in real terms will not necessarily lead to increases in the rate), it may be difficult to explain and justify frequent changes in the thresholds that are not simply a reflection of price changes.

### International Examples

The United States is one of the few developed countries with an official poverty measure (see Will, 1986), but many countries and international organizations have undertaken poverty measurement. Often, individual countries use their benefit standards for public assistance programs as unofficial poverty lines. For comparative work across countries, however, poverty thresholds are often defined in relative terms. Thus, the Social Indicator Development Program of the Organization for Economic Cooperation and Development (OECD) includes an indicator of "material deprivation" in its list of 33 indicators. That indicator defines households facing material deprivation as those with incomes or expenditures below a proportion of median disposable (i.e., after-tax, after-transfer) household income, adjusted for differences in household composition (Organization for Economic Cooperation and Development, 1982). No suggestion is made for the specific proportion of median income below which a household would be considered materially deprived.

Work by the European Community to compare poverty rates among member nations has often used relative poverty thresholds. As an example, O'Higgins and Jenkins (1990) at the request of the European Commission worked with consultants from each member country to develop comparable poverty estimates for 1980 and 1985. O'Higgins and Jenkins specified poverty thresholds at 40, 50, and 60 percent of average equivalent disposable income of households. This represents household income adjusted by means of an equivalence scale to produce a threshold for one-person households, with thresholds for households of other sizes developed by means of the same scale.<sup>22</sup>

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<sup>22</sup>The adjusting procedure works as follows: if the equivalence scale says that families of four need two (or three) times as much income or consumption to sustain the same living standard as

The United Kingdom recently began to publish estimates of the proportion of households with incomes below various proportions of average income. Analysts most commonly cite the estimates based on 50 percent of average income, using them in place of the earlier practice of using the welfare benefit ("supplementary benefit") standard as an unofficial poverty line (Johnson and Webb, 1992).

In Canada, Statistics Canada has for a number of years published a time series of statistics on the low-income population that is similar to a poverty rate series. The determination of low-income status has been based on a set of "low income cut-offs" (LICOs), which were developed by means of a hybrid approach that involved a set of quite complex procedures (Wolfson and Evans, 1989). The LICOs were developed by first determining the average expenditure of all families on food, shelter, and clothing as a percent of gross income. To this percentage was added an arbitrary 20 percentage points. Then, log-linear curves were fit between food, shelter, and clothing on one side and before-tax income on the other, taking account of variations in family size and urbanization (size of community).<sup>23</sup> Finally, on the basis of these curves, the LICO for each family type that corresponded to the designated proportion of spending on food, shelter, and clothing was determined.

The idea behind the LICOs, originally developed by Jennie Podoluk on the basis of a 1959 Survey of Family Expenditures, was that families spending more than the specified proportion on "necessities" (i.e., the average proportion plus 20 percentage points) were constrained in their spending on other items and hence could be considered "low income." The LICOs were revised subsequently on the basis of new expenditure data for 1969 and 1978.<sup>24</sup> The "straitened circumstances" proportion (i.e., the average plus 20 percentage points spent on food, shelter, and clothing) was estimated at 70 percent of income in 1959, 62 percent in 1969, and 58.5 percent in 1978, thus adjusting the LICOs for changes in real consumption. Between revisions, the LICOs were adjusted for price changes. The approach is a hybrid in that it refers to specific types of goods as necessities but determines the key parameter for the

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a single person, then the income (or expenditures) of four-person families would be divided by two (or three) to produce a per capita equivalent amount, and so on for other family sizes. Median or average adjusted income for one-person households would then be produced from the distribution of equivalent per capita amounts. This procedure can be adapted to set a reference threshold for any size family. Thus, for a four-person reference family, income amounts for other families would be converted to four-person equivalent amounts (e.g., the income for a single person would be multiplied by two or three, depending on the ratio of the equivalence scale value for a four-person family to that for a single person).

<sup>23</sup> This curve-fitting approach is similar to the Engel or iso-prop method of developing equivalence scales; see Chapter 3 for a critique.

<sup>24</sup> Most recently, the LICOs were revised on the basis of 1986 expenditure data (see Statistics Canada, 1991:App.).

procedure (the maximum proportion spent on necessities) by reference to actual spending patterns, so that both that proportion and the implicit allowance in the LICOs for other spending are determined in a relative manner.<sup>25</sup>

Recently, Statistics Canada decided to publish another series, on an experimental basis, in which the determination of low-income status is based on a set of "low-income measures" or LIMs, which are derived in an explicitly relative manner (Statistics Canada, 1991:App.; see also Wolfson and Evans, 1989, who reviewed a range of alternative measures, including LIMs). The decision to add this series (and possibly in the future to publish it as the main or preferred series) stemmed mainly from Statistics Canada's conclusion that no type of low-income measure is clearly superior to others and that all measures have arbitrary components. In that agency's view, it seems best to minimize the number of arbitrary judgments and to make them as clear and explicit as possible.

Wolfson and Evans (1989) note that a relative measure can be tied to a number of national measures, such as an average wage index, per capita gross domestic product (GDP), median consumption or expenditures, or median family income. Statistics Canada chose to tie the Canadian measure to median family income adjusted for family size by means of an equivalence scale, setting one-half the median as the low-income line. Although an average wage index is a reasonable indicator of changes in the average income per person, it fails to account for the trend toward an increasing number of wage earners per family and decreasing family size. Average per capita GDP (or personal income or consumption from the national accounts) has a similar failing. Additionally, GDP is subject to historical revisions and includes non-household income. Median adjusted family income, in contrast, directly measures family income and adjusts for the needs of families of different sizes through an equivalence scale. (Median adjusted family consumption or expenditures could also be used, but expenditure surveys are conducted only periodically in Canada, while income surveys are conducted annually.)

### **U.S. Expert Committee on Family Budget Revisions**

The Expert Committee on Family Budget Revisions (1980), when assigned the job of assessing the BLS Family Budgets Program (described above), recommended abandoning the budgets that had been built commodity by commodity and substituting a relative set of standards. The committee asserted that a scientific basis does not exist by which to develop commodity-

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<sup>25</sup> A variant of the approach used to develop the LICOs is based on the idea that the smaller the proportion of total income that is spent on necessities, the better off the household is. Hence, a maximum on the proportion of total income that is devoted to fixed costs (such as food and shelter) is designated as the poverty threshold. For an application of this approach in the Netherlands, see Hagenaaars and De Vos (1988).



based budgets. It also argued that actual consumption levels are the best indicator of living standards and that overall levels of expenditure—rather than expenditure shares on specific items—represent the appropriate focus, given that consumers differ in their preferences and can and do adjust their spending patterns for price changes.

The committee recommended that a “prevailing living standard” be established as the median of after-tax expenditures for the reference family of two adults and two children (with the standard for other family types determined by means of an equivalence scale) and that the prevailing standard be updated annually with new expenditure data.<sup>26</sup> Three other standards would depend on the prevailing standard: the “social abundance standard” would be 50 percent above the prevailing standard; the “lower living standard” would be two-thirds of the prevailing standard; and the “social minimum standard” would be one-half the prevailing standard. To make more concrete to the public what levels of living these various standards represented, the committee recommended that breakdowns of expenditures for different family types be developed, corresponding to the total spending level for each standard. Furthermore, the committee recommended that, when possible, illustrations be provided of lists of goods and quantities that could be afforded within each expenditure category.

The social minimum standard for a two-adult/two-child family recommended by the committee for 1979 (representing one-half median after-tax expenditures) was \$15,584 in 1992 dollars, or 110 percent of the official 1992 two-adult/two-child poverty threshold (Expert Committee on Family Budget Revisions, 1980:Table IV-1). For 1991, the social minimum standard would be \$19,987 in 1992 dollars, or 140 percent of the official threshold (Bureau of the Census, 1993d:Table 708).<sup>27</sup>

### Issues in Deriving Relative Thresholds

There are a number of issues in deriving relative poverty thresholds from data on family (or household) income (or expenditures) that make them somewhat less straightforward to calculate than might appear. One issue concerns the type of adjustment to make for family size in determining the threshold for the reference family (an equivalence scale is always used to determine thresholds for other family types). Sometimes 50 percent (or another percent) of median income of all families is used as the threshold for a reference four-person

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<sup>26</sup> The level of the prevailing standard for the reference family as of 1979 was about 105 percent of the BLS intermediate budget for that year, indicating that the BLS expert budget was very close to the median level of spending (Expert Committee on Family Budget Revisions, 1980:Table IV-1).

<sup>27</sup> This 1991 figure represents one-half average expenditures of four-person consumer units. Data are not available on one-half median expenditures of two-adult/two-child families.

family (see, e.g., U.S. House of Representatives, 1985). This approach, however, is problematic for updating the thresholds over time because of changes in household and family composition. Thus, because of declining family size in the United States—from 3.67 people in 1960 to 3.17 people in 1992—the real median income of all families (before taxes) increased by 38 percent over the period 1960-1992, but the real median income of four-person families increased by 50 percent over the same period.<sup>28</sup>

Another approach is to apply an equivalence scale to the income amounts for families or households in order to develop a per capita equivalent income for the reference family (see, e.g., O'Higgins and Jenkins, 1990; Wolfson and Evans, 1989). This approach takes account of changing household or family size over time but is sensitive to the particular equivalence scale used. Still another approach is to pick a reference family type and base the reference poverty threshold on the distribution of income for those families. A possible drawback to this approach, depending on the data source, is limited sample size because information is used for only one family type.

Another issue concerns the definition of income (or expenditures). Occasionally, income is defined in before-tax terms; more typically, an after-tax definition is used, which appropriately reflects the fact that families face different tax burdens. Rarely, however, do relative thresholds take account of other important differences in nondiscretionary expenditures or charges against income. Thus, families who must pay for child care or incur other work expenses to earn income are in a different position from families that do not have those expenses. Although it may seem odd to introduce specific components (e.g., work expenses) into a relative measure, not doing so will distort the comparison of poverty rates among important groups. Similarly, in the absence of national health insurance in the United States, it is important to recognize significant differences among families in their outlays for medical care. Finally, it is important to recognize the receipt of in-kind benefits by some families and not others. Any or all of these adjustments can be made by developing separate thresholds for particular types of families (e.g., working families with and without children and nonworking families) or by developing a disposable money and near-money income definition of family resources.

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<sup>28</sup> Data for family size figures come from Bureau of the Census (1993d:Table 65); for median family income from Bureau of the Census (1982:Table 16; 1993b:Table 13); for median four-person family income from Vaughan (1993:Table 1) and Bureau of the Census (1993b:Table 13). Comparisons in the text are made with all dollar figures expressed in constant 1992 CPI-U dollars; comparisons with constant CPI-U-X1 dollars would show greater increases, but the same relationship between trends in family and four-person family income. Also note that family (or household) size changes can move in the opposite direction. Thus, average family size increased in the United States from 3.5 persons in 1950 to 3.7 persons in 1965 (Bureau of the Census, 1975:41).

We argue (see below and Chapter 4) that the latter course is more feasible and understandable.

### **Behavior of Relative Thresholds Over Time**

Vaughan (1993) constructed time series from 1947 to 1989 of median four-person family income before and after taxes. We extended the two series to 1992 from Census Bureau data, converted all figures into constant 1992 dollars by using the CPI-U, and divided them by two; see Table 2-3. The resulting estimates of one-half median before-tax and after-tax four-person family income are problematic in some respects. Thus, some years are missing from Vaughan's series; also, Vaughan's procedures for estimating federal income and Social Security payroll taxes are rough.<sup>29</sup> Neither series takes account of in-kind income, although for defining poverty thresholds as a percentage of the median (as distinct from determining poverty status by comparing income to the thresholds), this is not such a problem—families at the median level do not generally receive such benefits as food stamps. In contrast, almost all two-adult/two-child families have one or more earners and hence pay taxes. Finally, neither series takes account of child care or other work expenses, which would have an effect on disposable income over time with the entry of more mothers into the work force.

Despite these problems, the two series provide some insights on the behavior of relative poverty thresholds over time. Table 2-3 shows that one-half median before-tax four-person family income increased over the period 1947-1992 in real terms from about \$10,400 to about \$22,300—an increase of 115 percent. The importance of taking taxes into account is evident in the fact that the estimated after-tax series increased only 86 percent over the same period. In relation to the official four-person family poverty threshold of \$14,228 in 1992 dollars, both the before-tax and the after-tax series were considerably lower through about 1955, at about the same level through about 1965, and then well above that threshold thereafter. (The before-tax series

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<sup>29</sup> Vaughan assumed that all four-person families represented a husband and wife filing jointly, with two dependents, with adjusted gross income equivalent to the observed before-tax median, all income from wage and salary earnings of only one worker, taking the standard deduction, and filing according to the tax law in effect in the particular year. For the years 1980-1986, he was able to use Census Bureau published estimates of after-tax income by before-tax income and household size, which are based on a detailed simulation of taxes (see, e.g., Bureau of the Census, 1988b). For 1989 he used unpublished estimates from the Census Bureau. Unfortunately, the Census Bureau's experimental income estimates, which exclude federal and state income tax and payroll tax from some resource definitions (see, e.g., Bureau of the Census, 1993a), are not helpful in estimating median after-tax income for four-person families. The estimates are not published by family size; also, the definitions are not clean in that other changes are made to income besides excluding taxes.

**TABLE 2-3** Relative Poverty Thresholds for a Four-Person Family Derived as One-Half of Median Before-Tax and After-Tax Four-Person Family Income, 1947–1992, in Constant 1992 Dollars

| Year                | One-Half Median Four-Person Family Income |             |                               |             |
|---------------------|---|-------------|-------------------------------|-------------|
|                     | Dollar Amount                             |             | Percent of Official Threshold |             |
|                     | Before Taxes                              | After Taxes | Before Taxes                  | After Taxes |
| 1947                | 10,356                                    | 9,695       | 72.8                          | 68.1        |
| 1948                | 10,095                                    | 9,655       | 71.0                          | 67.9        |
| 1949 <sup>a</sup>   | 9,957                                     | 9,556       | 70.0                          | 67.2        |
| 1950                | 10,697                                    | 10,106      | 75.2                          | 71.0        |
| 1951                | 11,122                                    | 10,253      | 78.2                          | 72.1        |
| 1952                | 11,576                                    | 10,530      | 81.4                          | 74.0        |
| 1953 <sup>b</sup>   | 11,631                                    | 10,567      | 81.7                          | 74.3        |
| 1954 <sup>a,b</sup> | 12,431                                    | 11,258      | 87.4                          | 79.1        |
| 1955                | N.A.                                      | N.A.        | N.A.                          | N.A.        |
| 1956                | N.A.                                      | N.A.        | N.A.                          | N.A.        |
| 1957                | 13,701                                    | 12,198      | 96.3                          | 85.7        |
| 1958 <sup>a</sup>   | 13,799                                    | 12,251      | 97.0                          | 86.1        |
| 1959                | 14,633                                    | 12,866      | 102.8                         | 90.4        |
| 1960                | 14,919                                    | 13,030      | 104.9                         | 91.6        |
| 1961 <sup>a</sup>   | 15,102                                    | 13,171      | 106.1                         | 92.6        |
| 1962                | 15,693                                    | 13,635      | 110.3                         | 95.8        |
| 1963                | 16,364                                    | 14,120      | 115.0                         | 99.2        |
| 1964                | 16,945                                    | 14,858      | 119.1                         | 104.4       |
| 1965                | N.A.                                      | N.A.        | N.A.                          | N.A.        |
| 1966                | 18,059                                    | 15,660      | 126.9                         | 110.1       |
| 1967                | 18,890                                    | 16,303      | 132.8                         | 114.6       |
| 1968                | N.A.                                      | N.A.        | N.A.                          | N.A.        |
| 1969                | 20,305                                    | 17,058      | 142.7                         | 119.9       |
| 1970 <sup>a</sup>   | 20,190                                    | 17,068      | 141.9                         | 120.0       |
| 1971                | 20,137                                    | 17,238      | 141.5                         | 121.2       |
| 1972                | N.A.                                      | N.A.        | N.A.                          | N.A.        |
| 1973                | 21,661                                    | 18,236      | 152.2                         | 128.2       |
| 1974                | 21,299                                    | 17,621      | 149.7                         | 123.8       |
| 1975 <sup>a</sup>   | 20,664                                    | 17,699      | 145.2                         | 124.4       |
| 1976                | 21,347                                    | 17,807      | 150.0                         | 125.2       |
| 1977                | 21,674                                    | 17,997      | 152.3                         | 126.5       |
| 1978                | 21,978                                    | 18,098      | 154.5                         | 127.2       |
| 1979                | 21,752                                    | 17,633      | 152.9                         | 123.9       |
| 1980 <sup>a</sup>   | 20,715                                    | 16,629      | 145.6                         | 116.9       |
| 1981                | 20,277                                    | 15,991      | 142.5                         | 112.4       |
| 1982 <sup>a</sup>   | 20,078                                    | 15,975      | 141.1                         | 112.3       |
| 1983                | 20,552                                    | 16,495      | 144.4                         | 115.9       |
| 1984                | 20,995                                    | 16,768      | 147.6                         | 117.9       |
| 1985                | 21,369                                    | 17,019      | 150.2                         | 119.6       |
| 1986                | 22,220                                    | 17,626      | 156.2                         | 123.9       |
| 1987                | N.A.                                      | N.A.        | N.A.                          | N.A.        |
| 1988                | N.A.                                      | N.A.        | N.A.                          | N.A.        |

**TABLE 2-3** *Continued*

| Year              | One-Half Median Four-Person Family Income |             |                               |             |
|-------------------|---|-------------|-------------------------------|-------------|
|                   | Dollar Amount                             |             | Percent of Official Threshold |             |
|                   | Before Taxes                              | After Taxes | Before Taxes                  | After Taxes |
| 1989              | 23,062                                    | 18,990      | 162.1                         | 133.5       |
| 1990              | 22,249                                    | N.A.        | 156.4                         | N.A.        |
| 1991 <sup>a</sup> | 22,174                                    | N.A.        | 155.8                         | N.A.        |
| 1992              | 22,308                                    | 18,018      | 156.8                         | 126.6       |

NOTES: Data for one-half median four-person family before-tax and after-tax income values for 1947-1989 derived from Vaughan (1993:Table 1); one-half median four-person family income before-tax values for 1990-1992 from Bureau of the Census (1993b:Table 13); one-half median four-person family income after-tax value for 1992 from the March 1993 CPS. All dollar values were converted to constant 1992 dollars using the CPI-U from Bureau of the Census (1993c:Table A-2); all percentages were calculated relative to the constant 1992 dollar value of \$14,228 for the official two-adult/two-child poverty threshold (Bureau of the Census, 1993c:Table A).

<sup>a</sup>Year contained the low point of a recession as determined by the National Bureau of Economic Research (see Bureau of the Census, 1993b:B-1).

<sup>b</sup>Values estimated by Vaughan on the basis of the relationship between median income for families with two children and four-person families, 1947-1952 and 1955-1960.

went from 73% of the official threshold in 1947 to 157% of that threshold in 1992; the after-tax series went from 68% to 127% of the official threshold over the same period.)<sup>30</sup> These data indicate why the original 1963 threshold for a two-adult/two-child family was widely regarded as the right level for that time; such a figure, however, might well have been viewed as too high earlier in the post-World War II period, just as it has come under criticism by some as too low today.

Another clear finding is that relative thresholds are responsive to changes in the business cycle. In only one year over the entire period did the thresholds drop in *current* dollars (for the before-tax threshold in 1949). In *real* terms, however, they declined in most of the years that experienced recessionary conditions: for example, both the before-tax and the after-tax thresholds declined from 1979 to 1983, a period that included two recession years; they also declined during the most recent recession in 1990. In contrast, the before-tax and after-tax thresholds increased in real terms, sometimes to a considerable degree, in periods of economic growth.

<sup>30</sup> If the CPI-U-X1 is used to update the 1963 official threshold, then in 1992 the relative thresholds would exceed the official threshold by larger margins (the before-tax threshold would be about 171% and the after-tax threshold about 138% of the official threshold in 1992).

Again, there is no necessary relationship between a decline in the poverty threshold and a lower poverty rate or between an increase in the threshold and a higher rate (see Stephenson, 1977, on this point). Indeed, Wolfson and Evans (1989:52-53) found that poverty rates declined in Canada over the period 1967-1986, whether a relative updating method (based on adjusted median family income) or an absolute updating method (based on price inflation) was applied to the original LICOs. The decline was greater, however, for the absolute method. Also, during the recessionary conditions experienced in 1981-1986, poverty increased in Canada with either updating method, although the increase was greater for the absolute approach.<sup>31</sup>

If one believes that poverty thresholds must inevitably be adjusted for changes in real consumption, at least eventually, then a relative approach, which automatically updates the thresholds each year, has advantages. It will better preserve the continuity of time series over an approach that sporadically updates the thresholds. Nonetheless, the year-to-year variations in real terms exhibited by the relative poverty thresholds in Table 2-3 are disconcerting. To smooth out these variations, one suggestion is to develop the thresholds on a 3-year moving-average basis. Another suggestion, made by the Expert Committee on Family Budget Revisions (1980), is to take a "ratchet" approach, that is, to let the thresholds increase with real economic growth but not let them decline below the previous year's level in real terms.

### SUBJECTIVE THRESHOLDS

An approach to defining poverty thresholds that has been the subject of considerable research, especially in Europe, makes use of public opinion data. Responses by samples of households to survey questions that ask for the minimum level of income or consumption needed by a certain type of household (or a household like theirs) to "get along" or to "make ends meet" are used to construct poverty thresholds, which are commonly labeled "subjective" thresholds.<sup>32</sup>

The subjective approach has the advantage that it obviates reliance on experts and relies instead on prevailing opinion in a society to set a poverty line for that society. There are many problems, however, in implementing a subjective approach, and the resulting thresholds must be interpreted with

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<sup>31</sup> Similarly, Vaughan (1993:Table 1) estimated that the use of a subjective poverty threshold, which behaved in much the same manner over the post-World War II period as a relative threshold, would have produced a similar time trend of poverty rates as the official threshold. With the subjective threshold, poverty rates declined through the mid-1970s and then rose somewhat; poverty rates with the official threshold showed a similar but more pronounced decline followed by a similar but less pronounced increase.

<sup>32</sup> This label is unfortunate, given that all types of thresholds involve subjective elements.

caution. Research has found that subjective poverty thresholds vary significantly with the type of question and other differences in methodology. In the Netherlands, Flik and Van Praag (1991) developed estimates for several subjective poverty thresholds that varied by more than 200 percent. Some variation may be appropriate, to the extent that different questions carry different meanings, but research has also found significant variation with small modifications in question wording (see below). In general, little is known about how respondents interpret the questions—for example, whether they exclude taxes or include in-kind benefits in their responses.

Another problem is that estimates are often based on small sample sizes, which carry large standard errors. Although the standard errors can be reduced by increasing the sample size, the responses also often show wide variation around the mean. For example, a question in the 1993 General Social Survey about the weekly amount of a poverty line for a two-adult/two-child reference family (see below) elicited responses that averaged \$341 per week, but they varied from as low as \$25 to as high as \$1,500 per week. The standard deviation was \$167, or 49 percent of the mean—a high variation. (The range excludes two clear outlying responses of \$5,000 and \$7,000 per week.) Because of these characteristics of survey responses, it may be difficult to set an actual threshold using them with any confidence.

A quite different problem might arise if survey responses are known to be used to set official poverty thresholds: respondents might give different answers because of knowledge that the poverty line affects eligibility levels in a number of government assistance programs. More broadly, subjective responses may reveal more about underlying differences in expectations and current circumstances than about relative needs. For example, O'Hare et al. (1990) found that Hispanics gave answers to a question about the poverty line that were substantially lower than the answers of other groups. This result may have occurred simply because this group is constrained in income and consequently has lower expectations.

### Research Findings

There has been extensive work on the development of subjective poverty thresholds, particularly by analysts in Europe (see, e.g., Flik and Van Praag, 1991; Goedhart et al., 1977; Hagenaaars, 1986; Hagenaaars and de Vos, 1988; Hagenaaars and Van Praag, 1985; Van Praag, 1968; Van Praag, Dubnoff, and Van der Sar, 1988; Van Praag, Goedhart, and Kapteyn, 1980).<sup>33</sup> Analysts have sometimes used a single question on minimum income: "What do you consider an absolute minimum net income for a household such as yours?"

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<sup>33</sup> Maritato (1992) provides a detailed review of the literature on subjective poverty measurement in Europe, Canada, and the United States.

Sometimes they have used a question evaluating income at multiple levels: "Under our conditions, I would call a net household income per week [or month or year] of about  $x$  very bad, bad, insufficient, sufficient, good, very good." One method uses a minimum income question together with a question on whether the household can, with its current income, make ends meet "with great difficulty, with difficulty, with some difficulty, rather easily, easily, or very easily." Analysts have also used different econometric techniques to estimate subjective poverty thresholds (or thresholds at various levels, including a poverty level and higher levels) from the survey responses. Typically, the methods try to take account of the influence of family size and the respondent's own income on these responses. Sometimes the estimation uses the data from only a subset of respondents, such as those who report that they can only make ends meet with their own income with some difficulty.

Work on subjective measures of poverty has also been done in the United States and Canada (see, e.g., Colasanto, Kapteyn, and Van der Gaag, 1984; Danziger et al., 1984; De Vos and Garner, 1991; Kilpatrick, 1973; Michalos, 1989; Morissette and Poulin, 1991; Poulin, 1988; Rainwater, 1974, 1992; Vaughan, 1993). The questions used in some of these studies asked respondents about the income needed for families similar to theirs to "make ends meet." But different question wordings have been used. For example, the question used by De Vos and Garner (1991) asked specifically about income needed before deductions, while the one used by Colasanto, Kapteyn, and Van der Gaag (1984) asked about after-tax income. The question used by Danziger et al. (1984) did not specify whether respondents were to answer in before-tax or in after-tax terms.

Although the variations in question wording were minor, the resulting estimated thresholds differ substantially.<sup>34</sup> De Vos and Garner (1991) estimated a poverty threshold (1982 CEX data) of \$32,530 in 1992 dollars, or 229 percent of the official 1992 two-adult/two-child poverty threshold. Danziger et al. (1984) estimated a four-person family poverty threshold (with 1980 data from the 1979 Income Survey Development Program Research Panel) of \$24,680 in 1992 dollars, or 173 percent of the official 1992 threshold. In contrast, Colasanto, Kapteyn, and Van der Gaag (1984) (with data from the 1981 Wisconsin Basic Needs Study) estimated a four-person family subjective threshold of only \$12,160 in 1992 dollars, or 85 percent of the official 1992 threshold. The question analyzed by Colasanto, Kapteyn, and Van der Gaag specifically asked about after-tax income; also, their data source was limited to a single state (Wisconsin).

It seems clear that a good deal more work is needed before the approach of using survey responses to derive poverty thresholds could be seriously considered for an official measure. If such responses were available over time

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<sup>34</sup> There were also differences in estimation methodology.



on a consistent basis, however, they could provide useful information with which to evaluate the official methodology for updating the thresholds.

### **Behavior of Subjective Thresholds Over Time**

In the United States there are data available with which to derive subjective thresholds on a reasonably consistent basis. The Gallup Poll has asked samples of adults the following question for most years between 1946 and 1989: "What is the smallest amount of money a family of four (husband, wife and two children) needs each week to get along in this community?" Vaughan (1993) assembled the results from the Gallup Poll and various other sources for years between 1947 and 1989, converting the average weekly amounts to average yearly amounts.<sup>35</sup>

At the request of the panel, Gallup included the same get-along question in its August 1992 poll, and we included the average weekly amount (converted to an annual basis) with Vaughan's numbers; see Table 2-4. The resulting time series indicates that the get-along amount has increased over time (in constant 1992 dollars): from a level of about the same as that of the official 1992 two-adult/two-child poverty threshold in the period 1947-1950 to well above that threshold subsequently, reaching 176 percent of the threshold by 1992. In other words, the Gallup get-along amount has increased with increases in real income. It also seems to clearly represent a higher level than a poverty standard (but still below median income). In this regard, the fact that the get-along amount and the official poverty threshold were about the same in the late 1940s suggests that the poverty line, which was viewed as about "right" when it was adopted in the 1960s, would have been viewed as too high earlier in the post-World War II period.

In 1989 the Gallup Poll asked the get-along question in May, and then in July-October asked separate samples of adults a question designed specifically to elicit poverty levels: "People who have income below a certain level can be considered poor. That level is called the 'poverty line.' What amount of weekly income would you use as a poverty line for a family of four (husband, wife, and two children) in this community?" Vaughan used the relationship between the average of the poverty responses and the average of the get-along responses in 1989 (the ratio of the two means was 71.8%) to construct a series of subjective poverty thresholds for the period 1947-1989 from the get-along data.

At the request of the panel, Gallup included the poverty question in its August 1992 poll; the average poverty amount was 62.8 percent of the

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<sup>35</sup> For some years, only medians are readily available. Ordinarily, one would prefer medians to means; however, in the early years of the Gallup series, there is evidence of instability in the medians due to rounding of amounts by respondents. Also, median figures published by Gallup are limited to nonfarm households.

**TABLE 2-4** Subjective Poverty Thresholds for a Four-Person Family  
Derived from Survey Data, 1947–1993, in Constant 1992 Dollars

| Year              | Average of Responses to Survey Questions |                    |                               |                    |
|-------------------|--|--------------------|-------------------------------|--------------------|
|                   | Dollar Amount, Four-Person Family        |                    | Percent of Official Threshold |                    |
|                   | “Get-Along”<br>Level                     | “Poverty”<br>Level | “Get-Along”<br>Level          | “Poverty”<br>Level |
| 1947              | 14,785                                   | 10,620             | 103.9                         | 74.6               |
| 1948              | 15,718                                   | 11,288             | 110.5                         | 79.3               |
| 1949 <sup>a</sup> | 15,244                                   | 10,947             | 107.1                         | 76.9               |
| 1950              | 14,525                                   | 10,432             | 102.1                         | 73.3               |
| 1951              | 15,433                                   | 11,084             | 108.5                         | 77.9               |
| 1952              | 17,069                                   | 12,256             | 120.0                         | 86.1               |
| 1953              | 16,342                                   | 11,734             | 114.9                         | 82.5               |
| 1954 <sup>a</sup> | 17,316                                   | 12,434             | 121.7                         | 87.4               |
| 1955              | N.A.                                     | N.A.               | N.A.                          | N.A.               |
| 1956              | N.A.                                     | N.A.               | N.A.                          | N.A.               |
| 1957              | 19,412                                   | 13,945             | 136.4                         | 98.0               |
| 1958 <sup>a</sup> | 20,744                                   | 14,894             | 145.8                         | 104.7              |
| 1959              | 20,809                                   | 14,941             | 146.3                         | 105.0              |
| 1960              | 20,097                                   | 14,433             | 141.2                         | 101.3              |
| 1961 <sup>a</sup> | 20,308                                   | 14,584             | 142.7                         | 102.5              |
| 1962              | 20,083                                   | 14,420             | 141.2                         | 101.4              |
| 1963              | 19,844                                   | 14,250             | 139.5                         | 100.2              |
| 1964              | 20,086                                   | 14,424             | 141.2                         | 101.3              |
| 1965              | N.A.                                     | N.A.               | N.A.                          | N.A.               |
| 1966              | 21,842                                   | 15,684             | 153.5                         | 110.2              |
| 1967              | 24,246                                   | 17,411             | 170.4                         | 122.4              |
| 1968              | N.A.                                     | N.A.               | N.A.                          | N.A.               |
| 1969              | 23,457                                   | 16,844             | 164.9                         | 118.4              |
| 1970 <sup>a</sup> | 23,692                                   | 17,013             | 166.5                         | 119.6              |
| 1971              | 24,499                                   | 17,591             | 172.2                         | 123.6              |
| 1972              | N.A.                                     | N.A.               | N.A.                          | N.A.               |
| 1973              | 24,483                                   | 17,582             | 172.1                         | 123.6              |
| 1974              | 25,009                                   | 17,960             | 175.8                         | 126.2              |
| 1975 <sup>a</sup> | 21,833                                   | 15,678             | 153.5                         | 110.2              |
| 1976              | 23,976                                   | 17,218             | 168.5                         | 121.0              |
| 1977              | 23,958                                   | 17,204             | 168.4                         | 120.9              |
| 1978              | 24,505                                   | 17,597             | 172.2                         | 123.7              |
| 1979              | 24,520                                   | 17,607             | 172.3                         | 123.8              |
| 1980 <sup>a</sup> | 22,135                                   | 15,895             | 155.6                         | 111.7              |
| 1981              | 24,400                                   | 17,522             | 171.5                         | 123.2              |
| 1982 <sup>a</sup> | 22,983                                   | 16,505             | 161.5                         | 116.0              |
| 1983              | 23,073                                   | 16,569             | 162.2                         | 116.5              |
| 1984              | 23,452                                   | 16,841             | 164.8                         | 118.4              |
| 1985              | 23,663                                   | 16,992             | 166.3                         | 119.4              |
| 1986              | 24,230                                   | 17,399             | 170.3                         | 122.3              |
| 1987              | N.A.                                     | N.A.               | N.A.                          | N.A.               |
| 1988              | N.A.                                     | N.A.               | N.A.                          | N.A.               |

TABLE 2-4 *Continued*

| Year              | Average of Responses to Survey Questions |                    |                               |                    |
|-------------------|--|--------------------|-------------------------------|--------------------|
|                   | Dollar Amount, Four-Person Family        |                    | Percent of Official Threshold |                    |
|                   | "Get-Along"<br>Level                     | "Poverty"<br>Level | "Get-Along"<br>Level          | "Poverty"<br>Level |
| 1989              | 24,653                                   | 17,703             | 173.3                         | 124.4              |
| 1990              | N.A.                                     | N.A.               | N.A.                          | N.A.               |
| 1991 <sup>a</sup> | N.A.                                     | N.A.               | N.A.                          | N.A.               |
| 1992              | 25,028                                   | 15,714             | 175.9                         | 110.4              |
| 1993              | N.A.                                     | 17,228             | N.A.                          | 121.1              |

NOTES: "Get-along" levels for 1947-1989 are from Gallup Poll data assembled by Vaughan (1993:Table 1). Get-along amounts for most years are mean weekly responses, annualized on the basis of a 52-week, 364-day year. Get-along amounts for 1970, 1973, 1975, 1977, and 1980 are median amounts for persons in nonfarm households. See Vaughan (1993) for more details on sources. "Poverty" levels for 1947-1989 are from Vaughan (1993:Table 1), derived by assuming a constant relationship of the poverty amount to the get-along amount of 71.8 percent. (This level was observed in 1989, when, in addition to asking one sample the get-along question, the Gallup Poll asked separate samples a question on the poverty level; see O'Hare, 1990, and O'Hare et al., 1990:18.) See text for wording of the get-along and poverty questions.

Get-along and poverty levels for 1992 are from Gallup Poll questions administered to the same sample of persons (sample size of 901); amounts are annualized mean weekly responses (derived from tabulations provided to the panel). The poverty level for 1993 is from the General Social Survey (sample size of 1,385) of the National Opinion Research Center; amounts are annualized mean weekly responses (derived from tabulations provided to the panel, excluding two outliers).

All dollar values were converted to constant 1992 dollars using the CPI-U from Bureau of the Census (1993c:Table A-2); all percentages were calculated relative to the constant 1992 dollar value of \$14,228 for the official two-adult/two-child poverty threshold (Bureau of the Census, 1993c:Table A).

<sup>a</sup>Year contained the low point of a recession as determined by the National Bureau of Economic Research (see Bureau of the Census, 1993b:B-1).

average get-along amount in that survey. Because the two questions were administered to the same respondents in 1992 (instead of to different samples as in 1989), the lower ratio in 1992 may stem from the influence of respondents' get-along answers, elicited first, on their poverty answers. Most recently, in 1993, also at our request, the General Social Survey administered the poverty question (but not the get-along question).<sup>36</sup> Table 2-4 includes the

<sup>36</sup> The General Social Survey also included the poverty question for a family of three and a question on the minimum amount needed specifically for food. The Wisconsin Survey (a national telephone survey) also included both the get-along and the poverty questions in 1992 to the same respondents. The Wisconsin data are not strictly comparable, however, as the questions pertained to monthly rather than weekly amounts. Also, the sample size was very small—only 528 responses.

average weekly amounts (converted to an annual basis) for 1992 and 1993 with Vaughan's poverty numbers for 1947-1989.

The sample sizes are small in each year and, at least partly for this reason, the year-to-year changes in the estimated Gallup poverty level (and similarly in the get-along level) show considerable variation. Nonetheless, some clear patterns emerge. Most striking, the estimated poverty level from the Gallup Poll data shows about the same relationship to the official poverty threshold as does one-half the median after-tax four-person family income (compare with Table 2-3). Both of these series were below the official threshold through 1955, about the same as the official threshold through about 1965, and then above the official threshold.

It seems clear that subjective poverty thresholds respond to changes in real income or consumption, both up and down. For example, one can see dips in the Gallup get-along and poverty levels in real terms in periods of recession from the data in Table 2-4. One major question for poverty analysts is the time-series elasticity of subjective poverty thresholds with respect to changes in median income or consumption. If the elasticity is 1 or very close to 1 (i.e., if a percentage change in the threshold series is the same as the percentage change in the income series), one could argue for a strictly relative approach to updating poverty thresholds. If the elasticity is somewhat less than 1, one might prefer an updating method somewhere between a completely relative and an absolute approach.

Vaughan (1993:42) estimated the elasticity of the Gallup get-along series for 1947-1989 with respect to median after-tax four-person family income as 0.80 (using constant 1967 dollars and only the years for which means rather than medians were available). Not surprisingly, because of generally increasing taxes over the post-World War II period, Vaughan's estimate of the elasticity of the get-along series with respect to median *before-tax* four-person family income is lower, 0.65. With respect to average family income, Rainwater (1992) estimated the elasticity as 1.0 for the get-along series through 1986.<sup>37</sup> Maritato (1992), in a review of get-along responses in Canada over the period 1973-1985 presented in Michalos (1989), estimated the elasticity with respect to family income (whether mean or median) as 0.70.

## CONCLUSIONS

We draw several conclusions from our review of alternative concepts that could be used to derive and update poverty thresholds for the United States. First, it is clear that all approaches involve judgments—whether in choosing a

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<sup>37</sup> One reason for Rainwater's result may be his use of current dollars. If the elasticity is truly less than 1 and the correct regression is in real terms, then the estimated coefficient will be biased toward 1 if current dollars are used. Maritato also used current dollars.

particular distribution (e.g., income or expenditures and from which data set) and a particular cutoff point for a relative poverty threshold (it is only by convention that 50% of the median is the common cutoff); in choosing a particular question wording and estimation method (e.g., using the full set or a subset of respondents) for deriving a subjective poverty threshold from survey data; or in deriving the specifications for an expert budget. As a result, poverty thresholds developed by different applications of a particular approach (e.g., by different experts), as well as by different approaches, differ.

Second, it is clear that all concepts have large elements of relativity in them. In developing a poverty standard, some reference is invariably made to the living conditions of the particular time and place. Consequently, poverty thresholds constructed at different times tend to reflect real changes in consumption. This is true, by definition, of relative thresholds. And there is strong evidence that survey responses about poverty or minimum income levels are also relative to time and place: the time-series elasticities of subjective responses with respect to median income are high (although not 1.0).<sup>38</sup> Finally, on close inspection, it turns out that expert budgets—at the time of their development—are also relative. And while the practice is to update an expert budget for price changes until it is replaced by a new standard, the new standard typically takes account of the real changes in income or consumption since the old standard was set. For example, the post-World War II BLS family budgets, which were revised at about 10-year intervals, each time mirrored median levels of expenditure.

Table 2-5, which includes thresholds developed by several approaches, illustrates both of these points. Columns 1 and 2 list thresholds developed around 1980 and 1990, respectively (in 1992 dollars). The thresholds listed in each column vary, indicating the effects of different judgments about concepts, methods, and data. The thresholds also show relativity to time and place: for most thresholds for which comparable estimates are available for around 1980 and around 1990 (excluding the thresholds that are updated simply for price changes), the value (in 1992 dollars) increases from the earlier to the later year. (See also Table 2-1, which shows the large increases in real terms in the value of thresholds developed by the Orshansky multiplier method and those specified as 50 percent of median income over the period 1950 to 1992.)

Given the evidence of relativity in the way in which poverty thresholds are commonly derived, we conclude that the key point for consideration is not whether to treat poverty thresholds as absolute or relative, but, rather,

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<sup>38</sup> In various countries, cross-sectional elasticities of respondents' answers about minimum income with respect to their own income have been estimated at 0.40 to 0.60 (see Maritato, 1992:Table 1), indicating that respondents in better-off societies will tend to set a higher poverty line than respondents in less wealthy countries.

**TABLE 2-5** Examples of Poverty Thresholds for Four-Person Families Set by Various Methods for Years Around 1980 and 1990, in Constant 1992 Dollars

| Type and Source of Threshold                                 | Thresholds Set for Years Around 1980 | Thresholds Set for Years Around 1990 |
|--|--------------------------------------|--------------------------------------|
| <b>Expert Budget Thresholds</b>                              |                                      |                                      |
| Official (Orshansky 1963 threshold indexed by CPI-U)         | 14,228                               | 14,228                               |
| Orshansky 1963 threshold indexed by CPI-U-X1                 | 13,082                               | 13,082                               |
| Orshansky food multiplier developed from CEX data            | 16,163 (1980)                        | 20,659 (1991)                        |
| Ruggles housing multiplier                                   | 21,331 (1980)                        | 21,640 (1992)                        |
| Weinberg/Lamas food/housing multiplier—25th percentile       | N.A.                                 | 20,267 (1989)                        |
| Weinberg/Lamas food/housing multiplier—35th percentile       | N.A.                                 | 21,790 (1989)                        |
| BLS lower level budget                                       | 19,587 (1981)                        | N.A.                                 |
| Renwick budget <sup>a</sup>                                  | N.A.                                 | 17,600 (1992)                        |
| Schwarz and Volgy budget                                     | N.A.                                 | 18,983 (1990)                        |
| <b>Relative Thresholds</b>                                   |                                      |                                      |
| Vaughan one-half median before-tax four-person family income | 20,715 (1980)                        | 22,308 (1992)                        |
| Vaughan one-half median after-tax four-person family income  | 16,629 (1980)                        | 18,018 (1992)                        |
| Expert Committee on Family Budget Revisions social minimum   | 15,584 (1979)                        | 19,987 (1991) <sup>b</sup>           |
| <b>Subjective Thresholds</b>                                 |                                      |                                      |
| Vaughan “poverty”  | 15,895 (1980)                        | 17,703 (1989)                        |
| General Social Survey “poverty”                              | N.A.                                 | 17,228 (1993)                        |
| Colasanto et al.   | 12,160 (1981)                        | N.A.                                 |
| Danziger et al. <sup>c</sup>                                 | 24,680 (1980)                        | N.A.                                 |
| De Vos and Garner <sup>d</sup>                               | 32,530 (1982)                        | N.A.                                 |

SOURCE: See Tables 2-1, 2-2, 2-3, 2-4, and text.

NOTE: All thresholds are after-tax unless otherwise noted; dates in parentheses are the year for which the threshold was developed; all amounts are expressed in constant 1992 dollars using the CPI-U (except the second one, as noted).

<sup>a</sup>Renwick threshold calculated as weighted average of thresholds for two-adult/two-child families with one earner and two earners. (Weighting assumes that 75% of two-adult/two-child families have two earners and that one-third of those pay for day care.)

<sup>b</sup>Calculated as one-half average (rather than median) expenditures of four-person consumer units.

<sup>c</sup>Survey question did not specify whether respondents were to indicate minimum income level before or after taxes.

<sup>d</sup>Survey question asked respondents to indicate minimum income level before taxes.

how often to update them for real changes in living standards. We believe there are advantages to an automatic updating method over an approach that updates the thresholds at sporadic intervals. We also conclude that it is time to reconsider the current U.S. thresholds, which have been maintained in absolute terms for more than 30 years and rest on survey data that are almost 40 years old. We recommend a new concept and procedure for updating the U.S. poverty thresholds; however, given the element of judgment involved, we do not recommend an initial threshold for a two-adult/two-child family.

In considering concepts for a poverty threshold, we identified some attractive features of Orshansky's original multiplier method (and that of other expert budgets), in particular, the reference to specific needs (e.g., food). This feature produces poverty thresholds that have a normative cast, which we believe is likely to be more attractive to policy makers and the public than are thresholds developed by a purely relative approach (e.g., one-half median after-tax adjusted family income). But, in practice, the Orshansky multiplier approach is little different from a purely relative approach because the multiplier that is applied to the food budget (and essentially drives the thresholds) includes all spending—on luxuries as well as necessities—by the average family.

We believe a preferable approach is one that updates the thresholds in a conservative or quasi-relative manner—one that drives the thresholds by changes in spending on necessities that pertain to a concept of poverty rather than by changes in spending on all kinds of consumption. We also believe the bundle of necessities should include more than just food. However, to try to develop a detailed list seems an exercise in futility and likely to raise needless controversy. A good compromise, we concluded, is to specify a bundle of food, clothing, and shelter (including utilities) and apply a small, fixed multiple for other needed spending, such as personal care, household supplies, and non-work-related transportation.

Everyone agrees that food, clothing, and shelter are necessary goods and services (although the level of each that is needed is a matter of debate). These categories are evident in society's thinking about the needs of the poor, as evidenced in homeless shelters, soup kitchens, and winter clothing drives. The food, clothing, and shelter bundle also constitutes a large share of spending for the average family—45 percent in 1991 of total after-tax expenditures by four-person consumer units (Bureau of the Census, 1993d:Table 708). Most important, historically these items have behaved like necessities: that is, their combined elasticity with respect to total expenditures has been less than 1.0 (we estimate that elasticity at about 0.65 over the period 1959-1991).<sup>39</sup>

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<sup>39</sup> This estimate is derived from data in the National Income and Product Accounts (NIPA) for 1959-1991, the log of personal consumption expenditures on the sum of food, clothing and shoes, housing, fuel oil and coal, and electricity and gas regressed on the log of total personal

More broadly, the basic concept—food, clothing, and shelter plus a little more—is as easy to understand as the original concept of food times a multiplier.

On the basis of the historical evidence, to update the poverty thresholds for real changes in expenditures on food, clothing, and shelter times a small, fixed multiple means that they will track real changes in total consumption but in a conservative manner. That is, the percentage changes in the thresholds will lag somewhat behind the percentage changes in total expenditures and so will lag somewhat behind the change in a purely relative measure, such as one-half median income (or the Orshansky approach). We find justification for a conservative approach to updating the thresholds from the behavior of subjective thresholds over time, which clearly move with real growth in living standards (hence, outstripping inflation), but on a less than 1-for-1 basis (most estimates range from 0.65 to 0.80). This conservative approach may also be more acceptable to policy makers and the public than making a complete switch from the absolute procedure used to update the official thresholds over the past 30 years to a purely relative procedure.

Although we propose to relate the U.S. poverty thresholds to specific goods (food, clothing, and shelter), we do not propose to have the budget levels for these goods set on the basis of expert standards (e.g., for a certain type of diet or dwelling). We believe it is preferable to turn directly to actual expenditure data as the basis for setting the levels. This approach makes explicit both the judgment and the relativity that are inherent in all of the methods for deriving poverty thresholds that we have reviewed (including expert budgets). Also, with this approach it is more feasible to implement changes on an annual basis than would be an approach of having experts review the budget levels every year.

Finally, we conclude that important socioeconomic changes, such as the increase in the number of mothers who work outside the home, make it imperative to address an issue that has received relatively little attention in the debate over poverty thresholds: how to adjust them for differences in family circumstances. Poverty analysts have given considerable attention to how to adjust the thresholds for family size and composition differences and some attention to how to adjust them for cost-of-living differences among geographic areas (see Chapter 3). Almost universally, it is agreed that poverty thresholds should be specified in after-tax terms, recognizing that families differ in tax burdens and hence in their disposable income (although the current U.S. poverty measure does not correspondingly define family income

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consumption expenditures minus expenditures for medical care, with all amounts in constant 1987 dollars (see Council of Economic Advisers, 1992:Table B-12). The reason for subtracting medical care expenditures is that the NIPA includes payments by insurance as well as out-of-pocket expenditures. A similarly derived estimate of the elasticity of food with respect to total expenditures minus medical care is 0.33.



in after-tax terms for comparison with the thresholds).<sup>40</sup> However, there are only a few examples of efforts to develop poverty thresholds that consider the different needs of working parents and workers generally in comparison with nonworkers or the variations in people's health care needs (Renwick and Bergmann, 1993, is an exception). Yet if these different needs (e.g., of working parents for child care in order to earn income) are not recognized, the poverty measure will not appropriately describe the differences in poverty among important population groups.

We propose to deal with these kinds of circumstances by subtracting such expenses as child care from family resources (see Chapter 4). The implication for the discussion here is that the proposed threshold concept is not quite the same as the concepts reviewed above. The proposed budget includes such categories as food that apply to all family types, as do all budgets, but most other budgets explicitly or implicitly include an average for such expenses as child care for which the need varies across otherwise similar types of families. This difference in the proposed concept must be considered, along with the real increase in consumption that has occurred since the early 1960s, when evaluating the level of the current threshold and whether it is appropriate for the United States today.

### IMPLEMENTING THE PROPOSED APPROACH

To implement the proposed concept and updating procedure for the reference family poverty threshold is straightforward once the values of two parameters have been specified: (1) a percentage of median expenditures by two-adult/two-child families on the sum of food, clothing, and shelter (including utilities); and (2) a multiplier to apply to the amount for food, clothing, and shelter so as to add a small fraction for other needed spending. As a hypothetical example, suppose that median expenditures on food, clothing, and shelter by two-adult/two-child families are \$15,500 in year  $T$  and \$15,650 in year  $T + 1$  (in constant dollars), for a real increase of 1 percent. Also suppose that, for deriving the reference family poverty threshold, the percentage of the median is specified as 80 percent and the multiplier as 1.20. Then, the initial threshold in year  $T$  is  $[0.80(15,500) \times 1.20]$ , or \$14,880 and the threshold in year  $T + 1$  is  $[0.80(15,650) \times 1.20]$ , or \$15,024—also a real increase of 1 percent. By assuming, as has occurred historically, that total spending increased by more than 1 percent between year  $T$  and  $T + 1$ , then the reference family poverty threshold would have been updated in real terms in a quasi-relative rather than in a completely relative manner.

The recommended procedure is somewhat more complicated than the

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<sup>40</sup>The appropriateness of using after-tax income data was recognized when the official thresholds were originally developed, but such data were not available at the time.

illustration because, in order to increase the sample size and also to smooth out year-to-year changes in the threshold and lag them behind changes in real consumption, we recommend that the calculations for each year be performed with the average of CEX data for the previous 3 years. Also, to express each year's reference family threshold in current dollars, it will be necessary to make an appropriate price adjustment to the CEX data. One way to do this is to convert the dollar amounts on each of the 3 years of CEX data files into current dollars by means of the CPI before calculating the threshold. Finally, after each year's reference family threshold is determined, the thresholds for other family types and areas of the country should be calculated by using the recommended equivalence scale and cost-of-housing index (see Chapter 3).

### Setting the Initial Threshold

We do not recommend a value for the initial reference family threshold on which to base a new official poverty statistics series with the recommended poverty measure. However, we do reach a conclusion about a range for the initial reference family threshold that we believe is reasonable. Our conclusion is informed by analysis of consumer expenditure data, consideration of the values of other thresholds developed in recent years on the basis of alternative concepts, and our judgment.

#### *Analysis of 1989-1991 CEX Data*

We analyzed data from the interview survey component of the 1989-1991 CEX to help us form a judgment about a reasonable level for the initial reference family threshold under the proposed concept. Importantly, as part of this process, we gained experience with the data and how best to use them for calculating each year's reference family threshold.

The CEX, under its current design, is a continuing survey with two components—the Interview Survey and the Diary Survey. The Interview Survey includes a sample of about 5,000 consumer units, who are interviewed at 3-month intervals for a year.<sup>41</sup> Data are collected on most but not all categories of expenditures. The Diary Survey, which obtains 2-week diaries of all expenses incurred during the period from about 6,000 consumer units, is used to supplement the Interview Survey data for expenditures that are not collected or not adequately reported in that survey. Because the two compo-

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<sup>41</sup> Each quarter the Interview Survey includes an added number of consumer units (about 1,800), who are given an initial interview to bound their later responses. BLS defines consumer units in a manner that is similar to but not quite the same as the Census Bureau definition of families and unrelated individuals (see Appendix B for a description of the CEX).

nents include different samples, it is only possible to use the Interview Survey for the kind of microlevel analysis that we required.<sup>42</sup>

BLS prepared a large number of tabulations for us from the 1991 Interview Survey and the 1989-1991 surveys combined. For processing convenience and to meet our timetable, these tabulations treated each quarterly interview falling within a calendar year as a separate observation, inflating the amounts by four to obtain annual figures. This procedure increases sample size because it uses all of the available data and not just the data for consumer units who responded to all interviews within a year.<sup>43</sup> For actual use in updating the reference family poverty threshold, however, we believe it would be preferable to aggregate quarterly amounts for those units with complete data, making an appropriate adjustment to the weights to account for other units.

*The Basic Bundle* We began our analysis by looking at the distribution of expenditures on the basic bundle of food, clothing, and shelter (including utilities). BLS arrayed consumer units by their expenditures on these four categories, separately and combined, and, in each instance, determined the dollar values corresponding to the spending level for every 5 percent of units, from the lowest 5 percent to the highest 5 percent.

In examining spending patterns on food, clothing, and shelter, we found it convenient to look at the distribution in terms of the dollar values that demarcated every 5th percentile of the distribution. However, for purposes of calculating the reference family poverty threshold, whatever percentile value is chosen must be reexpressed as a percentage of median expenditures on food, clothing, and shelter for the same reason that relative thresholds are expressed as a percentage of median income or expenditures rather than as a percentile value. That is, if the thresholds are expressed as, say, the 25th or 30th percentile of income or expenditures, then, by definition, 25 or 30 percent of families are always poor; however, if the thresholds are expressed as, say, 40, 50, or 60 percent of median income or expenditures, then changes that affect the distribution of income or expenditures below the median can increase or decrease the poverty rate. As an example, a recession could move some families in the lower half of the income distribution from above to below 50 percent of the median, so that the poverty rate increased whether median income itself stayed the same or fell. Conversely, an income assistance program could move families from below to above 50 percent of median income, so that the poverty rate decreased whether median income stayed the same or

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<sup>42</sup> The Interview Survey is adequate to use by itself for the categories in the basic bundle. BLS estimates that the Interview Survey obtains about the same aggregate amount of expenditures on food as the Diary Survey, and the Interview Survey is used exclusively by BLS for estimates of expenditures on clothing, shelter, and utilities.

<sup>43</sup> The effective sample size is not as large as the number of quarterly observations, however, because many of these observations are from the same consumer units and hence are correlated.

rose. Similarly, the food, clothing, and shelter component of the reference family poverty threshold under the proposed concept must be expressed as a percentage of median expenditures on these categories.

In the BLS tabulations, "food" included expenditures on food purchased for home use and away from home, excluding nonfood items purchased at grocery stores and alcohol. "Clothing" included expenditures on all kinds of apparel as well as sewing materials. "Shelter" included rent and, for owners, payments on mortgage interest (but not principal), taxes, and maintenance and repair. (The shelter variable for home owners was defined in this way for processing convenience; a preferable definition would include actual outlays for mortgage payments, taxes, insurance, and maintenance and repairs, together with an imputed amount for the estimated rental value of the home net of such outlays. Such a definition would treat homeowners with low or no mortgage payments in a comparable manner with other homeowners and renters.) "Utilities" included such fuels as natural gas and electricity, telephone, and such public services as water and sewer.

Values for every 5th percentile were determined for two-adult/two-child consumer units and selected other family types. Values were also determined by arraying the data for all types of units and converting each unit's expenditures into the equivalent of a two-adult/two-child unit by means of an equivalence scale. For this exercise, two variations of the proposed equivalence scale were used, one with a scale economy factor of 0.65 and the other with a scale economy factor of 0.75, each applied to the number of equivalent adults (the proposed scale treats children under 18 as 0.70 of an adult; see Chapter 3).

On the basis of these tabulations, we concluded that it is preferable to work with the expenditure values that result from arraying the *sum* of each consumer unit's expenditures on food, clothing, shelter, and utilities, constructed from 3 years' worth of data. We had originally liked the idea of building up a budget by taking values from the separate arrays for each of these expenditures. The budget-building approach, however, encounters the problem of zero expenditures on more detailed items, especially using quarterly observations, so we recommend using the sum of these items, which is more robust.

We also concluded that it is preferable to use the array for a single reference family type—two-adult/two-child families—even though this procedure considerably reduces the sample size in comparison with the procedure of converting each consumer unit's expenditures to an amount equivalent to a two-adult/two-child family. (The sample size reduction for the 1989-1991 CEX is from 61,385 quarterly observations for all consumer units to 5,485 observations for two-adult/two-child families.)

The use of different equivalence scales produces somewhat different percentile values: for example, median expenditures on the sum of food, clothing, and shelter differed by \$800 between the two scales that we applied.

More important, changes over time in family composition, such as a continued decline in family size, could change the poverty thresholds in different ways depending on the choice of scale. Yet there is no agreement in the research community on the best form of an equivalence scale. Hence, we believe it is preferable to develop the expenditure array for the same family type each year. In this regard, while the sample size for two-adult/two-child families is adequate for this purpose when 3 years' worth of CEX data are pooled, it would clearly be advantageous to have a larger size for the survey.

The final set of percentile values (for each 5% of units) that we examined was derived from arraying the annualized expenditures of two-adult/two-child consumer units on the sum of food, clothing, shelter, and utilities for the period 1989-1991; see Table 2-6, which also shows each percentile value as a percentage of the median. In 1992 dollars, the median value is \$15,344.<sup>44</sup>

The designation of a percentile value for food, clothing, and shelter—which, when expressed as a constant percentage of the median, will drive the poverty thresholds in future years—is obviously a matter of judgment. We do not recommend a specific value or even a range; we do, however, conclude that a reasonable range for the food, clothing, and shelter component of the reference family threshold would be from the 30th to the 35th percentile, or from 78 to 83 percent of the median. In 1992 dollars, this range is from \$11,950 to \$12,719.

What would these amounts buy? Illustratively, a family at the 30th percentile might spend the following: \$355 per month or \$4,260 annually for food, which is the value of the Thrifty Food Plan for a four-person family; \$545 per month or about \$6,550 per year for rent and utilities (including telephone) for a two-bedroom apartment, which is the fair market rent in 1992 for such units that is the basis of federal housing assistance; and \$95 per month (\$24 per family member) or \$1,140 per year for clothing. The total per year for a family at the 30th percentile is \$11,950. A family at the 35th percentile would spend an extra \$64 per month on food, clothing, and shelter, or an extra \$770 per year, for a total of \$12,720.

For comparison, the following are the allotments in two recently developed expert budgets for a two-adult/two-child family (in 1992 dollars):

- Renwick (1993a): \$420 per month or \$5,040 per year for food (the value of the Low-Cost Food Plan, which Renwick used instead of the Thrifty Food Plan—the latter was designed for temporary or emergency use and has never been updated in real terms); \$428 per month or \$5,136 for housing

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<sup>44</sup> The 1989-1991 CEX data originally supplied to us were in nominal dollars. We converted the data to constant 1992 dollars by applying the weighted average of the price increases for 1989-1992, 1990-1992, and 1991-1992. A preferable procedure is to adjust the data for each year to the dollars of the year for which the threshold is being calculated before producing the expenditure array.

**TABLE 2-6** Percentile Values of Expenditures on the Panel's Basic Bundle by Two-Adult/Two-Child Families, 1989-1991 Consumer Expenditure Survey, in Constant 1992 Dollars, with Multiplier

| Percentile    | Basic Expenditures |                   | Multiplier of Larger Bundle to Basic Bundle |                           |
|---------------|--------------------|-------------------|---|---------------------------|
|               | Dollar Amount      | Percent of Median | Definition 1 <sup>a</sup>                   | Definition 2 <sup>b</sup> |
| 5th           | 7,041              | 45.9              | 1.18  | 1.20                      |
| 10th          | 8,374              | 54.6              | 1.22  | 1.25                      |
| 15th          | 9,275              | 60.4              | 1.21  | 1.23                      |
| 20th          | 10,188             | 66.4              | 1.18  | 1.19                      |
| 25th          | 11,100             | 72.3              | 1.18  | 1.20                      |
| 30th          | 11,950             | 77.9              | 1.19  | 1.23                      |
| 35th          | 12,719             | 82.9              | 1.20  | 1.26                      |
| 40th          | 13,575             | 88.5              | 1.15  | 1.18                      |
| 45th          | 14,389             | 93.8              | 1.16  | 1.21                      |
| 50th (median) | 15,344             | 100.0             | 1.14  | 1.17                      |
| 55th          | 16,282             | 106.1             | 1.17  | 1.19                      |
| 60th          | 17,277             | 112.6             | 1.15  | 1.18                      |
| 65th          | 18,369             | 119.7             | 1.13  | 1.16                      |
| 70th          | 19,627             | 127.9             | 1.15  | 1.20                      |
| 75th          | 20,989             | 136.8             | 1.15  | 1.18                      |
| 80th          | 22,521             | 146.8             | 1.15  | 1.18                      |
| 85th          | 24,594             | 160.3             | 1.13  | 1.16                      |
| 90th          | 27,580             | 179.7             | 1.14  | 1.17                      |
| 95th          | 34,094             | 222.2             | 1.12  | 1.16                      |
| 100th         | 114,942            | 749.1             | 1.09  | 1.13                      |

NOTES: Data are from tabulations prepared by the Bureau of Labor Statistics from the Interview Survey component of the 1989-1991 Consumer Expenditure Survey; all amounts were converted to 1992 dollars by the CPI-U. The multipliers were derived from the average of families with expenditures on the basic bundle within the range from 2.5 percentiles below to 2.5 percentiles above each 5th percentile level (e.g., the multiplier for the 15th percentile value was derived from the average of families spending between the 12.5 and 17.5 percentiles on the basic bundle).

<sup>a</sup>Definition 1 for the multiplier defines the larger bundle of goods as the basic bundle (food, clothing, shelter, including utilities) plus personal care and one-half of total transportation costs.

<sup>b</sup>Definition 2 defines the larger bundle as the basic bundle plus personal care, education, reading materials, and one-half of total transportation costs.

(rent, utilities, and telephone, developed as the 25th percentile of the distribution of rents for all two-bedroom apartments); and \$105 per month or \$1,260 per year for clothing (developed by adjusting the clothing component of the BLS lower level budget for inflation)—for a total of \$11,436 per year on these categories.

- Schwarz and Volgy (1992): \$355 per month or \$4,260 per year for food; \$554 per month or \$6,648 per year for rent, utilities, and telephone for

a two-bedroom apartment; and \$90 per month or \$1,080 per year for clothing—for a total of \$11,988 per year on these categories.

The total amounts for both Renwick (1993a) and Schwarz and Volgy (1992)—\$11,436 and \$11,988—are similar to the value of \$11,950 for the 30th percentile of food, clothing, and shelter expenditures from the CEX. The sum of the larger food and clothing allowances in Renwick and the larger housing allowance in Schwarz and Volgy is \$12,948, which is higher than the value of \$12,719 for the 35th percentile of food, clothing, and shelter expenditures from the CEX.

*The Multiplier* We then considered the multiplier to be applied to the food, clothing, and shelter component of the poverty threshold so as to allow a small fraction for other needed expenditures. BLS developed tabulations for us, from the 1989-1991 CEX Interview Survey, of the ratio of a broader bundle of expenditures to expenditures on the basic bundle. (The multipliers were calculated for families spending around each 5th percentile level on food, clothing, and shelter, from the lowest 5th to the highest 5th.) For our purpose, the definition of the broader bundle always excluded costs that we propose be deducted from family resources instead of included in the thresholds (e.g., child care and out-of-pocket medical care expenditures; see Chapter 4). We also excluded some other costs in order to implement our recommendation for a small fixed multiple applied to a larger basic budget.

The Interview Survey may seem ill-suited for constructing a multiplier because it excludes such items as household cleaning supplies and some types of personal care items that one might think should be included in a poverty budget (e.g., shampoo and soap). (These items are picked up in the Diary Survey of the CEX, which we could not analyze.) But our purpose was not to mimic the type of detailed budget-building exercise followed by BLS in the Family Budgets Program or more recently by Renwick and Bergmann (1993) and Schwarz and Volgy (1992). Rather, we wanted to get a rough idea of what could constitute a fairly lean multiplier applied to a larger budget for food, clothing, and shelter.

With the available Interview Survey data, we looked at several alternative definitions of a broader bundle, including a definition (1) that included the basic bundle plus personal care items and one-half of total transportation costs, and a definition (2) that included the basic bundle plus personal care items, education expenses, reading materials, and one-half of total transportation costs. We arbitrarily chose to exclude one-half of transportation costs because the Interview Survey does not distinguish between work expenses, which we propose to deduct from resources, and personal transportation for errands, vacations, etc.<sup>45</sup> Our calculations showed that multipliers for two-adult/two-

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<sup>45</sup> In fact, it appears that the federal statistical system does not anywhere provide information on the allocation by families of transportation costs for work and nonwork uses. One estimate

child families at or below the median level of expenditures on the basic bundle varied from 1.14 to 1.22 for the first definition and from 1.17 to 1.26 for the second definition (see Table 2-6). We concluded that a reasonable range for the multiplier to apply to the food, clothing, and shelter component of the reference family poverty threshold is 1.15 to 1.25. If the amount for food, clothing, and shelter is \$11,950-\$12,720 per year (in 1992 dollars), then a multiplier in the range of 1.15-1.25 will provide an added \$1,790-\$3,180 per year, or about \$150-\$265 per month, for all other consumption.<sup>46</sup>

For comparison, the implicit multipliers on food, clothing, and shelter in some expert poverty budgets for two-adult/two-child families (after excluding those expenditures that we propose to deduct from resources) range from 1.14 to 1.30:

- 1.14, covering personal care, household supplies, and non-work-related transportation (Renwick, 1993a);
- 1.29, covering personal care, household furnishings and operations, non-work-related transportation, reading, recreation, alcohol, tobacco, education, and miscellaneous (Bureau of Labor Statistics, 1982:Table 1);<sup>47</sup> and
- 1.30, covering personal care, household supplies, non-work-related transportation, and such incidentals as newspapers, stamps, stationery (Schwarz and Volgy, 1992).

*The Basic Bundle and Multiplier Together* On the basis of our review of CEX data, we concluded that a reasonable range for the initial poverty threshold for a two-adult/two-child family is \$13,700 to \$15,900 (in 1992 dollars). The lower end of this range is the value of the 30th percentile of expenditures on food, clothing, and shelter (or 78% of the median) times 1.15; the upper end of the range is the value of the 35th percentile of expenditures on food, clothing, and shelter (or 83% of the median) times 1.25 (both rounded to the nearest \$100).

Of course, it would be possible to obtain an initial reference family threshold within the same range with a higher (lower) value for food, clothing, and shelter and a lower (higher) value of the multiplier. We cannot claim scientific backing for the ranges of values that we conclude are reasonable for these two parameters, or for the range for the initial poverty threshold itself. We can point to the reasonableness of the ranges we suggest both in terms of

prepared for us by the Energy Information Administration, based on automobile and truck usage only, suggests that the allocation might be one-third work and two-thirds nonwork uses (letter from Lynda T. Carlson to the panel, 1994).

<sup>46</sup> The amount for the 1.15 multiplier in Chapter 1 is shown as \$1,750 instead of \$1,790 per year because that is the amount when the lower end of the suggested range is rounded down to the nearest \$100.

<sup>47</sup> This estimate of the multiplier is for the BLS lower level budget, which was about two-thirds of the intermediate budget and not intended to represent a poverty level.



what these amounts would buy and in comparison with other thresholds (see below).

However, it should be clear that building a poverty threshold on food, clothing, and shelter plus a little more does not imply that families must spend their income accordingly. Families may spend less on food, clothing, and shelter than implied in the poverty threshold and not necessarily be poor. They may, for example, grow some of their own food or make some of their own clothing in order to increase their available income for other spending. They are poor only if their total income (net of nondiscretionary expenses) is below the poverty line. Conversely, families may spend more on food, clothing, and shelter than implied in the poverty threshold and yet still be poor if their net income falls below the poverty line. The proposed threshold concept is not intended to mandate a spending pattern for low-income people but to lead to an initial threshold that is reasonable for purposes of deriving poverty statistics. More important, that concept is intended to provide a method for updating the initial threshold that takes account of real increases in consumption for basic necessities—food, clothing, and shelter—that pertain to an economic measure of poverty.

#### *Comparison with Other Thresholds*

The range of \$13,700-\$15,900 that we concluded is reasonable for the initial reference family threshold is 96-112 percent of the official 1992 two-adult/two-child threshold of \$14,228. The range is lower than other recently developed thresholds (see column 2 of Table 2-5, above). It would appear that it does not represent much, if any, updating of the current threshold for real increases in living standards.

However, the proposed threshold concept differs from most of the concepts we reviewed by treating some kinds of expenses as deductions from resources rather than including them in the threshold (not only taxes, but also other work expenses and out-of-pocket medical care expenses). To get a better sense of how the range of \$13,700-\$15,900 relates to other thresholds, we sought a way to convert the current threshold and recently developed thresholds to the proposed budget concept. Data limitations made it difficult to carry out such a conversion, but we developed a procedure that provides a rough approximation.

For our analysis of the effects of the proposed measure compared with the current measure (see Chapter 5), we added estimates to the March 1993 CPS of each family's spending on child care and other work-related expenses and out-of-pocket medical care expenses (including health insurance premiums). We estimated the average combined deductions for two-adult/two-child families with after-tax income around the median (using families from 7.5 percentiles below to 7.5 percentiles above the median to increase the sample size).

The ratio of this average to median after-tax income for two-adult/two-child families was 0.84. We then applied this ratio to other thresholds to convert them, approximately, to the proposed budget concept (see Table 1-4 in Chapter 1). For the thresholds developed by Renwick (1993a) and Schwarz and Volgy (1992), we made the conversion by inspecting their budgets. We note that the ratios of the “as converted” to the “as developed” amounts in Table 1-4 for the Renwick and Schwarz and Volgy budgets are 0.74 and 0.82, respectively. These ratios are lower than the ratio we calculated because their budgets assume that every two-adult/two-child family spends the maximum allowance for such items as work expenses.

The official 1992 threshold, before conversion to the proposed budget concept, is \$14,228, and the range of other thresholds shown in Table 1-4 is \$17,200 to \$21,800 (rounded to the nearest \$100). After conversion, the official threshold is \$12,000, and the estimated range of other thresholds is \$13,100 to \$18,300, or 9 to 53 percent higher than the official threshold. The Renwick budget of \$13,100 is an outlier at the low end of the range; four other thresholds (two subjective thresholds, a relative threshold expressed as one-half median after-tax income of four-person families, and the Schwarz and Volgy budget) are clustered between \$14,400 and \$15,600; two other thresholds (the relative threshold recommended by the Expert Committee on Family Budget Revisions and the lower of the two Weinberg and Lamas multiplier thresholds) are between \$16,800 and \$17,100; and three other thresholds (variations of the multiplier method that make use of expenditure data) are between \$17,400 and \$18,300. In comparison, the range that we conclude is reasonable, \$13,700-\$15,900, is 14 to 33 higher than the official threshold and falls within but toward the lower end of the estimated range of other thresholds.<sup>48</sup> Thus, it represents a conservative updating in real terms of the current threshold, consistent with our recommendation.

### Analysis Over Time

The most important aspect of the proposed threshold concept is not so much the threshold that it produces for a designated start-up year, but how it moves that initial threshold over time. Our intent was to recommend a concept and procedure that would update the initial reference family poverty threshold for changes in real consumption but in a conservative manner.

Unfortunately, there is no good times series with which to evaluate the likely behavior of the proposed procedure. The National Income and Product

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<sup>48</sup> The range of 13,700-\$15,900 is 37-42 percent of median before-tax income for two-adult/two-child families in 1992 and 45-53 percent of median after-tax income converted as described in the text to the proposed threshold concept. We do not have an exact estimate of the range as a percentage of disposable income defined with all of the adjustments that we recommend (see Chapter 4).

Accounts (NIPA) estimates of personal consumption expenditures (PCE) suggest, as we noted above, that the procedure would work as intended: we estimated the elasticity of the basic bundle with respect to total consumption minus medical care as 0.65. Indeed, we briefly considered the use of the PCE estimates (specifically, the change each year in real expenditures on the basic bundle) to update the initial reference family poverty threshold. The PCE estimates are not suitable for this purpose, however, for two major reasons: they include expenditures by nonprofit institutions as well as households, and while they can be adjusted for population growth, they cannot be adjusted for changes in family size over time.

Thus, we turned back to the CEX. The current continuing CEX was initiated in 1980. Consumer expenditure surveys were also conducted in 1972-1973 and 1960-1961 (and at intervals of about 10-15 years back to the turn of the century). The design of the surveys was not the same over time; also, there is evidence of some deterioration in the reporting of expenditures in the CEX in comparison with the NIPA (see, e.g., Gieseman, 1987; Slesnick, 1991a). With so few data points and those of doubtful comparability, it is very difficult to construct a historical time series with which to evaluate the proposed updating procedure.

To get a very rough estimate of what a poverty threshold developed with the proposed procedure would look like now in comparison with the one actually developed for 1963, we first adjusted median 1991 CEX expenditures on the bundle of food, clothing, and shelter to correct for the greater extent of underreporting (*vis-à-vis* the NIPA) in that year than was observed in the 1960-1961 CEX. We then calculated the ratio of median expenditures on the basic bundle by two-adult/two-child families in the 2 years (with data supplied by BLS) and applied this ratio to \$14,228, the official poverty threshold as of 1963 in 1992 dollars.<sup>49</sup> The result was a poverty threshold of \$16,152 in 1992 dollars, representing an increase of 14 percent in the thresholds over the period. This increase compares to a 21 to 24 percent increase in Vaughan's subjective thresholds over about the same period (1963-1993 or 1963-1989; see Table 2-4).<sup>50</sup>

For the period 1980-1991, BLS provided us with a comparable time series from the CEX (although data for 1986 are missing because of tape storage

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<sup>49</sup> For want of an alternative, we picked the official threshold, which enjoyed widespread support as the right level for 1963, even though the proposed concept—unlike the original concept—treats some expenses as deductions from family resources. We did not believe it appropriate for this exercise to use the ratio of 0.84 to convert the official threshold to the proposed concept because the spending level on such expenses as child care and out-of-pocket medical care would have differed in 1963 from the level in 1992.

<sup>50</sup> The increase over the period 1963-1992 was only 10 percent, but the 1992 subjective poverty line is from a Gallup Poll in which the same respondents were asked the get-along question followed by the poverty question. In contrast, the poverty questions in 1989 and 1993 were administered to respondents who were not also asked the get-along question.

**TABLE 2-7** Poverty Thresholds Developed Under Panel's Proposed Procedure, in Constant 1992 Dollars

| Year | Single-Year Thresholds |                               | 3-Year Moving Averages |                               |
|------|------------------------|-------------------------------|------------------------|-------------------------------|
|      | Dollar Amount          | Percent of Official Threshold | Dollar Amount          | Percent of Official Threshold |
| 1980 | 14,228                 | 100.0                         | N.A.                   | N.A.                          |
| 1981 | 14,227                 | 100.0                         | N.A.                   | N.A.                          |
| 1982 | 14,537                 | 102.2                         | N.A.                   | N.A.                          |
| 1983 | 14,739                 | 103.6                         | 14,331                 | 100.7                         |
| 1984 | 14,374                 | 101.0                         | 14,501                 | 101.9                         |
| 1985 | 15,246                 | 107.2                         | 14,550                 | 102.3                         |
| 1986 | N.A.                   | N.A.                          | 14,786                 | 103.9                         |
| 1987 | 14,649                 | 103.0                         | 14,809                 | 104.1                         |
| 1988 | 15,134                 | 106.4                         | 14,946                 | 105.0                         |
| 1989 | 14,899                 | 104.7                         | 14,892                 | 104.7                         |
| 1990 | 15,026                 | 105.6                         | 14,894                 | 104.7                         |
| 1991 | 15,219                 | 107.0                         | 15,020                 | 105.6                         |
| 1992 | N.A.                   | N.A.                          | 15,048                 | 105.8                         |

NOTES: Data are from tabulations of the CEX Interview Survey for years 1980-1985 and 1987-1991 provided to the panel by the Bureau of Labor Statistics. Single-year thresholds were constructed by applying the year-to-year change in median expenditures on the sum of food, clothing, and shelter (including utilities) by two-adult/two-child families to the starting threshold of \$14,228 (the official threshold in 1992 dollars).

Because data are not available for 1986, the 3-year moving-average figure for 1987 is the average of 1985 and 1984; that for 1988 is the average of 1985 and 1987; and that for 1989 is the average of 1987 and 1988. Otherwise, moving-average thresholds are the average of the single-year thresholds for the 3 prior years. Data for 1982-1983 apply to urban families only.

problems, and the CEX interviews in 1982-1983 included only urban families because of budget cuts). We needed a starting point for this series and, for want of a better choice, pegged it at the official poverty line. The thresholds produced under the proposed procedure, when using a single year's worth of data, move somewhat erratically, with a small overall increase of 7 percent in real terms between 1980 and 1991; see Table 2-7.<sup>51</sup> By comparison, Vaughan's subjective poverty thresholds increased by 8-11 percent over the same period (1980-1993 or 1980-1989; see Table 2-4), and relative thresholds expressed as one-half median after-tax four-person family income increased by 8-14 percent over the same period (1980-1993 or 1980-1989; see Table 2-3).

The variations in the thresholds we calculated are likely due in part to

<sup>51</sup> Again, because we picked an arbitrary starting point, we updated the thresholds by applying the ratio of the medians for each pair of years, rather than using a percentage of the median times a multiplier.

small sample sizes for two-adult/two-child consumer units in single years of the CEX. Also, it appears that the thresholds are not as responsive to economic ups and downs as are relative and subjective thresholds reviewed above (see Tables 2-3 and 2-4). A reason may be that people at or below the median alter their consumption of other items in response to economic ups and downs before they alter their consumption of the basic bundle of food, clothing, and shelter.

Our last calculation was to smooth the thresholds for 1980-1991 by constructing 3-year moving averages for 1983-1992 (see Table 2-7). The smoothed series behaves quite reasonably, increasing slowly but steadily over the period by about 5 percent in real terms.

### **Further Evaluation**

We strongly believe that the principles underlying the proposed threshold concept and updating procedure are an improvement over both the original concept (food times a large, changing multiplier) and that concept as actually implemented (adjusting the thresholds only for price changes). The proposed concept, in contrast, updates the thresholds for real changes in consumption of a bundle of necessities rather than of all goods and services. The concept also retains a normative cast, with its emphasis on food, clothing, and shelter (plus a little more).

We are reasonably confident that the CEX data for implementing the proposed concept and updating procedure will produce thresholds that behave in the intended manner. However, we would obviously have preferred to have a longer time series with which to evaluate the likely behavior of the thresholds. We also would have liked to assess the effects of some methodological improvements that we believe should be made in using the CEX data (e.g., construct annual estimates for each consumer unit, use imputed rent for homeowner shelter expenditures). Finally, we believe that it is very important to improve the underlying data—for example, expanding the sample size of the CEX and reducing the extent of underreporting would make more robust the estimates needed to update the poverty thresholds. More generally, the United States would benefit from improvements in data on consumer expenditures, savings, and wealth, which are needed for many important purposes, including the measurement of poverty (see Chapter 5).

One concern with using a continuing survey to update the poverty thresholds is the effects that changes in data quality or other aspects of the survey may have on estimates of the required parameters over time. This concern applies to the proposed concept, which relies on 3 years' worth of CEX data to update each year's reference family poverty threshold. (It also applies to relative concepts that peg the thresholds at, say, one-half median adjusted family income or expenditures, and to subjective concepts that make use of

survey responses about the poverty line or minimum income.)<sup>52</sup> In the case of the proposed concept, a change in the quality of reporting of expenditures, whether an improvement or a deterioration in reporting, could alter the time series of poverty thresholds even though the underlying phenomena (i.e., real expenditures on food, clothing, and shelter) had not changed. The possibility of changes in the thresholds occurring as artifacts of fluctuations in reporting or other changes to the underlying CEX data will necessitate careful monitoring of the year-to-year consistency in the survey,

A second concern with the proposed concept is how the poverty thresholds behave as the economy moves through the business cycle. To facilitate evaluating the thresholds that are developed by the proposed procedure and their implications for poverty rates, it will be important to generate another, unofficial set of thresholds and rates based on them for some time. This other set should represent an initial set of thresholds (developed as we have outlined for the reference family and adjusted appropriately for different types of families and areas of the country) that are updated for price changes rather than for real changes in basic consumption. We believe that tying the thresholds to changes in consumption of the basic necessities of food, clothing, and shelter, together with the use of 3 years' worth of data to develop each year's reference family threshold, will moderate the sensitivity of the thresholds to changes in the business cycle. However, another unofficial set of thresholds that are updated simply for price changes will ensure that important information is available with which to assess the behavior of the official thresholds at the next regularly scheduled review of the poverty measure.

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<sup>52</sup> Although not as obvious, the same concern applies to the current concept, which maintains the thresholds unchanged in real terms through an inflation adjustment that is based on a continuing survey of consumer prices. However, the survey that is used to estimate the year-to-year change in the CPI is more robust than the CEX. There is a similar concern with the estimation of family resources for comparison with the thresholds, however they are updated: thus, changes in the quality of income reporting or other aspects of the March CPS could affect the time series of poverty rates under the current measure.