Exploring the Use of the Public's Views to Set Income Poverty Thresholds and Adjust Them Over Time

*by Denton R. Vaughan**

This study considers how the views of the public at large may be used to define the poverty income level. The basic data for the study come from routine Gallup surveys conducted since the beginning of the post-World War II period that asked representative samples of adults in the United States to estimate the smallest amount of money that a family of four needs to "get along." Additional Gallup surveys undertaken in 1989 established the income corresponding to the poverty level using a similar approach. The author constructs a set of poverty thresholds, covering the post-World War II period, based on the single point-in-time poverty/get-along income relationship in 1989 and the full get-along series. Comparison of this set of thresholds with an alternative poverty series that is consistent with the Federal Government's official poverty measure yields three principal findings: (1) a poverty level consistent with the official measure was a good deal higher than the Gallup-based poverty threshold in the immediate post-World War II period, (2) the income level of the official measure was likely consistent with the public's views about the poverty level at the time when the official measure was introduced, and (3) since the late 1960's and the early 1970's, the income level of the official measure has fallen increasingly below the Gallup-based poverty threshold until 1989 when the official measure was 20 percent below the Gallup series. It is suggested that the two series have diverged over time because the views of the public about poverty level income have responded to increases in real income that have occurred since World War II while the official measure has remained fixed in real terms.

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This article discusses the role that the systematically measured judgments of the public at large might play in the measurement of poverty. Special attention is given to how such assessments might be used to set the minimum income associated with a poverty welfare level and to track such a level over moderately long periods of time. The central importance of understanding how the public's views of poverty thresholds vary with respect to secular trends in real family income is stressed. The argument presented is that this can best be done by thinking through the issue in the broadest possible social science framework. Indeed, before the reasonableness of any updated poverty threshold can be assessed, it is important to think more carefully about the sort of social processes that translate increases in real income into increases in the value of a minimally adequate income in the eyes of the members of society and how these processes work.[1] By way of an empirical illustration, particular attention is given to how one threshold series, based on the so-called Gallup get-along question, has varied over the post-World War II period with respect to median four-person family income on both a before- and after-tax basis. The same series is used to move a recent one-time assessment of the poverty threshold by a representative sample of the public back to the late 1940's.

Relevance of the Views of a Society's Own Members to Poverty Measurement

The basic orientation used to consider poverty measurement in this discussion is sociological. From this perspective, in the complex, largely urban, and industrial and service societies of the post-World War II United States, Canada, and Western Europe, the poverty problem stems from the existence of substantial population subgroups whose members lack the material resources required to perform—except with the greatest difficulty—roles in the central societal domains of family, work, and citizenship as defined by the mainstream members of society and as generally accepted by

members of the low-income groups themselves. These societies are characterized by a relatively high degree of social stratification and economic inequality. As members and, more importantly, as actors in these societies, individuals necessarily have a relatively well-developed sense of the material resources associated with differing levels in the material status hierarchy. It is this sense that permits the individual to judge the difference between a good salary and a poor one, a nice car and a bare bones econo-box, or a decent apartment and a slum tenement, and more generally to assess his or her location in the overall stratification system. Given that one of the abiding concerns of all adults is the budgetary one—that is, the constant balancing of resources (income, credit, assets) with the requirements of maintaining a desired position in the socioeconomic status hierarchy—people generally have a rather well-developed sense of the budgetary requirement of their current position as well as useful information about possible alternative ones (either those to be avoided or to be aspired to).

From this perspective, individuals make such judgments based in large part on the general level of material offerings available in their society at a given time. Thus in 1850, an urban New Yorker would hardly have felt deprived by not being able to afford a telephone, radio, or television; as such goods did not exist, they were not part of the choice set in New York society of 140 years ago. For the same reason, the individual could hardly have felt diminished as a breadwinner because of an inability to acquire such items for his or her family. As a more relevant example from our own era, color television was not a part of the typical choice set in New York City during the 1950's, but it most definitely is in the New York City of 1993. And simply because such consumption expectations exist, a consistent inability to meet them that arises from financial constraints is likely to take a heavy toll on individuals who see themselves as family providers.

The principal innovation in poverty measurement occasioned by this general perspective is the reliance on the population at large as the appropriate reservoir of expertise on the financial requirements associated with need. From this point of view, access to such special knowledge, in a scientific sense, does not flow automatically from the tool kit of any social science discipline; however, it can be obtained by the proper sampling of the perceptions of the general population. The case for the central importance of the study of the perceptions of society's members about the material requirements associated with various levels of living rests on the simple observation that society is not made up of isolated individuals holding idiosyncratic opinions that are of no significance beyond the given individual (Duesenberry 1949). It is the interaction of the individual's views and behavior as a consumer with the views and behavior of fellow consumers in the context of the material offerings of a given time and place that define the material requirements of central social roles and more generally the social meaning of poverty and affluence. From this standpoint, the task of the social scientist interested in defining the poverty threshold is to learn how to properly elicit these perceptions from society's members.

Actually, a fair amount of information has been developed about the material requirements associated with differing levels of economic well-being through the systematic study of the views held by representative samples of society's members. Measures of this sort are commonly thought of as being *subjective*, most probably because they are grounded in the everyday and necessarily subjective perceptions of typical individuals. However, this characterization is something of a misnomer, since the findings of these studies are based on standard household survey techniques and multivariate statistical analysis (Saunders and Bradbury 1989). In addition, no alternative methods of arriving at poverty thresholds can escape a similar charge of subjectivity, and in the case of the alternative approaches, their subjective elements do not meet the test of representativeness nor are they generally open to systematic analysis within a social science framework.[2]

This body of research suggests that careful analysis of the judgments of the public could reasonably be expected to play a role in addressing four key objectives of poverty measurement:

(1) Setting the income threshold associated with a poverty-level income (Goedhart *et al.* 1977; Dubnoff 1985; Saunders and Bradbury 1989; O'Hare *et al.* 1990; and Rainwater 1974, 1990);

(2) differentiating the poverty threshold for variations in need associated with family size and composition and perhaps for geographic differences in cost of living by region and size of place[3] and other important factors affecting family needs such as the number of adult earners in the family unit (Rainwater 1974; Kapteyn and van Praag 1976; Vaughan and Lancaster 1979; Dubnoff *et al.* 1981; Colasanto *et al.* 1984; Danziger *et al.* 1984; Vaughan 1984; Bradbury 1989; O'Hare *et al.* 1990; Morissette and Poulin 1991; and Rainwater 1992);

(3) measuring the degree of deprivation as incomes fall increasingly below the threshold (Rainwater 1974, 1990; and Vaughan and Lancaster 1979);[4] and

(4) adjusting the threshold over time in a way that is consistent with changes in the general level of affluence in society (Kilpatrick 1973, n.d.; Leveson 1978; and Rainwater 1974, 1990).

The remainder of this article focuses on the fourth objective, adjustment of the poverty threshold over time. The issue is introduced by a short review of what is already known about using socially defined needs standards to portray the level of minimum economic needs of the population in the context of growing levels of affluence. The introductory material is followed by a description of the data employed in and developed for the study. The Gallup get-along series, the single long-term series representing

the public's judgments of minimum income needs, is introduced. The development of a poverty series from the get-along series and the derivation of poverty thresholds consistent with the official poverty measure for the period between the close of World War II and the late 1950's are also presented. The nature of the resource measures employed in the study and the development of net-of-tax estimates at the median four-person family income level are the final aspects of the study data to be discussed. The major study findings are organized around three themes: (1) a description of how the Gallup get-along series and the two poverty series vary with respect to the median income of four-person families net of tax over the period 1947-89; (2) a comparison of the percent and number of four-person families falling below the three needs levels over the course of the post-World War II years; and (3) a discussion of the variation in the level of needs standards similar to those proposed previously by Ruggles (1990) compared with variation in the Gallup-based poverty standard over the last two decades. The article concludes with a summary of findings, a few suggestions for further research, and a short discussion of the general climate surrounding the issue of updating poverty standards. The Technical Appendix clarifies certain details about the 1988-89 Gallup get-along and poverty estimates and assesses the implications of using alternative assumptions to project the 1989 Gallup poverty standard back to the beginning of the post-World War II period.

The Current State of Affairs With Respect to Tracking Economic Needs Over Time on the Basis of Socially Defined Standards

If the social science community had developed agreed-upon procedures for eliciting society's views about the income levels required to support (or to avoid falling below) alternative living levels and had succeeded in administering those procedures over the years, depicting the distribution of the population with respect to the standards would, by now, be a relatively routine matter. Comparisons of such standards with average levels of economic resources and with other procedures for tracking the size of groups enjoying different standards of living would be straightforward, and whatever lessons were to have been learned from such comparisons perhaps would have been learned already.

Such is not the case, however. In fact, the only relatively consistent series of money amounts corresponding to a living-standard threshold based on judgments of representative samples of the members of American society is one developed by the Gallup polling organization. The Gallup Organization has queried samples of U.S. adults about the so-called get-along amount approximately 37 times from 1946 through 1989.[5] As Kilpatrick (1973, p. 327) suggested informally, and Rainwater (1974, pp. 94-117) demonstrated more systematically, "getting along" represents a higher living standard than poverty. Based on analysis of data from the Boston Social Standards Survey developed to elicit respondents' views on the amounts of money necessary for maintaining various living standards, Rainwater concluded that the money value of the poverty threshold amounted to about two-thirds of the get-along income. He found this to be in approximate agreement with findings of Ornati (1966), whose data on the evolution of minimum subsistence, minimum adequacy, and comfort budgets in the United States from 1905 through 1960 indicate that the minimum subsistence standard averaged 70 percent of the minimum adequacy standard for the whole period, and slightly less (67 percent) for the years after World War II (1945-60) (Ornati 1966, as analyzed by Rainwater (1974, pp. 45-49)).[6] As will be shown, O'Hare *et al.* (1990) have recently reproduced Rainwater's findings about the relationship between the get-along and poverty levels in the context of the Gallup Organization's own surveys.

Although the Gallup get-along series clearly does not represent a poverty standard, researchers have taken its change over time in relation to average levels of income and consumption as a useful proxy for how poverty thresholds ought to change in response to changes in the general standard of living (Kilpatrick 1973,[7] Leveson 1978). Leveson explored some of the implications of moving the official Federal poverty standard, expressed in 1960 dollars, backward and forward in time by assuming differing degrees of responsiveness of the poverty line to changes in average family income (before tax). He noted some of the anomalous results of maintaining the official thresholds constant in real dollar terms over relatively long time periods in the face of substantial changes in average real income. For example, he found that moving the official threshold for a 1960 family of four back to the immediate post-World War II years using the Consumer Price Index (CPI) would yield a threshold value equivalent to three-fourths the median family income. He also experimented with moving the official measure backwards and forwards in time on the basis of alternative elasticities ranging between 0 and 1 with respect to median income, but focused particularly on an elasticity of 0.6, which he had estimated for the get-along series (Leveson 1978, pp. 14-16). When using an elasticity of 0.6, he found that by 1973, 13 years following his base year of 1960, the modified threshold, in response to changes in real income, would have increased to 24 percent above the level of the official measure. However, Leveson had to accept the value of the official standard as the relevant poverty standard and had to arbitrarily pick a given year and therefore implicitly, a given ratio of the poverty threshold to the level of average family income from which to begin his exercise. Of course, in the absence of actual observation, the relationship between the official standard in any given year and the views of society's members about the level of the poverty threshold is uncertain.[8] In any case, he did not systematically explore the relationship between his version of the thresholds and average income levels or use the thresholds to construct trends in poverty rates or numbers of poor (although he did investigate their effect on the poverty gap).

Although analysts could have used insights provided by Ornati and others who have studied the evolution of expert budgets (Mack as cited in Miller 1965, Smolensky 1965) or Rainwater's findings to construct a poverty level threshold paralleling the Gallup get-along series, to my knowledge, no researcher has done so, perhaps because of some of the inherent uncertainties involved (for example, the Ornati series stops in 1960, and the relationships between alternative budget levels presented in his series vary somewhat over short time periods (Rainwater 1974, table 3-1)).

Recently, however, the Gallup Organization was commissioned by the Families USA Foundation to directly measure a socially defined poverty standard (O'Hare *et al.* 1990). From July 1989 through October 1989, respondents in four monthly samples were asked the following question:

> *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?*

Earlier, in May 1989, the Gallup Organization administered the standard get-along question as well (O'Hare 1990).[9] As a result, it is possible to directly compare poverty and get-along standards as defined by representative samples of our society's adult members at virtually the same point in time. However, because published estimates for the Gallup poverty threshold reflect the price level of July 1988 rather than July 1989 through October 1989 (when they were collected by the Gallup Organization), the published figure for the poverty standard had to be adjusted to reflect the price levels of mid-1989, when originally collected, in order to derive the correct ratio for the two needs standards on the basis of consistent price levels. Details of the adjustments used to recover the value at the point of collection are discussed in the Technical Appendix. The resulting annual dollar values at 1989 price levels are $21,788 for the get-along standard and $15,646 for the poverty standard. The resulting ratio of the poverty to the get-along standard is 0.718.

However, this comparison may not be as straightforward as it first appears because both standards may not incorporate the same resource concept. The use of the term "money" in the standard Gallup get-along question seems to imply a consumption-oriented concept or, alternatively, a net-of-tax concept, and analysts who have used the get-along series seem to presume it represents something other than before-tax income. So there is some precedent for thinking of the get-along values in after-tax terms.[10] There would seem to be less certainty about the concept associated with the recent Gallup poverty question. Were it phrased in terms of a money requirement it would be natural to assume it was consistent with the get-along concept. However, it refers to "income" not "money." O'Hare and his colleagues treat it as representing an after-tax concept and actually suggest an approximate corresponding before-tax amount (O'Hare *et al.* 1990, note 36, p. 46). Furthermore, O'Hare indicates (personal communication, August 9, 1991) that although one cannot be certain of the income concept involved, his group felt it was likely that when discussing poverty-level incomes, respondents would think in after-tax terms. Despite this ambiguity, in the present context, the Gallup poverty threshold will be treated as representing an after-tax concept.[11] However, the implications of this choice will be noted as appropriate.

Information Employed in the Study

Source and Nature of the Basic Gallup Get-Along Estimates

In general, the annual get-along estimates presented in this article were derived from weekly means calculated directly by Rainwater (1974, table 3-4, p. 53; 1990, table 1, p. 6) from files deposited with the Roper Center Archives[12] by the Gallup Organization. There is some overlap between the two series provided by Rainwater, and they do not always provide precisely the same value for a given year. Estimates provided in the earlier source were given precedence when both were available.[13, 14] Of the years in which the get-along question was asked, Rainwater does not provide estimates for 1970, 1973, 1975, 1977, 1980, and 1989. For all of these years except 1989, the published Gallup median for nonfarm households was used. The value for 1989 was taken from O'Hare (1990) and is the arithmetic mean.[15] All amounts were originally reported as weekly amounts and were annualized by multiplying them by 52. Thirty-seven annualized get-along amounts resulted for the period from 1946 through 1989. Observations are missing for only 7 years during the 44-year period (1955, 1956, 1965, 1968, 1972, 1987, and 1988).

Construction of the Gallup-Based Poverty Series

With a representation of a socially defined poverty standard[16] and knowing the Gallup poverty standard's relationship to the Gallup get-along level in 1989, a parallel poverty standard series was constructed for all years since the get-along question was initially asked in 1946 using the additional assumption that the poverty standard has remained a constant percentage of the get-along standard throughout the post-World War II era (that is, that its elasticity with respect to the get-along standard was unitary).[17] Given the assumption of unitary elasticity, the construction of the series is a trivial exercise: for each year with an available get-along estimate, the corresponding Gallup-based poverty standard was obtained by multiplying by 0.718, the ratio of the Gallup poverty standard to the Gallup get-along level in 1989.

Moving the Official Four-Person Threshold Back to the Period Before 1959

The official (Federal) poverty thresholds for the United States have not been defined for years before 1959. However, since the basic methodology of the official measure was first implemented in the context of the Current Population

Survey (CPS) for calendar year 1963 (Orshansky 1965a, 1965b), it has been updated annually for change in the average price level using the CPI.[18] Thus, for about the past 30 years the thresholds have remained fixed in real terms (at least as defined by the CPI).

There would seem to be no compelling reason that the thresholds could not be projected back to years before to 1959 (only 4 years before the year that Orshansky originally defined the thresholds). Certainly, it is no less reasonable to move the thresholds back to 1947, only 16 years prior to their base year, than to carry them forward to the present, some 30 years from the point they were first defined in the early 1960's. This is particularly the case since the value of the food-to-income ratio, the key methodological feature tying the thresholds to the general standard of living,[19] pertains to the economic circumstances of the mid-1950's, the point at which it was measured in the Household Food Consumption Survey, conducted nearly 40 years ago.

The principal technical difficulty in using the CPI to move the lines back to the period before 1959 stems from the lack of readily available information to weight the component thresholds within family size categories for possible changes in the mix of family types. Although it would be preferable to compute the appropriate weighted threshold for each year before 1959, it is unlikely that failure to alter weights would represent a serious problem when dealing with families of size four. Consequently, for years prior to 1959, the dollar value of the existing four-person nonfarm threshold, as weighted for 1959, was simply maintained in real terms using the CPI.

It should be obvious, however, that because the official thresholds, and thus official estimates of poverty rates and numbers of the poor, are not defined prior to 1959, price adjusting the thresholds to that period provides only an unofficial account of the prevalence of poverty among four-person families in this earlier period. Thus, subsequent references to poverty trends associated with the "official measure" in the pre-1959 period are made in an informal and expositional sense only.

Resource Measures

The income supplement to the Current Population Survey makes available three basic items of information on the income of four-person families for the period since 1947: the mean, median, and the size distribution of regular money income.[20] All three are measured on a before-tax basis. This information was obtained from the appropriate Bureau of the Census Series P-60 report on income for each year for which there was a corresponding observation for the value of the get-along amount.[21] Estimates of the percentage and number of families below the three needs standards (Gallup get-along, Gallup-based poverty, and the official poverty measure, including the thresholds adjusted to price levels for years before 1959) were derived from the published income size distributions for four-person families. Straight-line interpolation was used in the income size category containing the standard to estimate the number and percentage of families that fell below the standard.

Restriction of the resource measure to money income is a clear limitation of this study. It would be quite useful to extend the measure of resources to include noncash benefits. Comparison of a resource measure including noncash benefits to the Gallup poverty threshold would undoubtedly be subject to the same criticism that has been levied at the Bureau of the Census for its comparison of the official thresholds to a resource definition, including money income plus the value of publicly provided noncash benefits.[22] Nonetheless, inclusion of publicly provided noncash benefits of the usual sort (for example, food stamps and other means-tested food and nutrition benefits, means-tested subsidized housing, and public health care programs) in the measure of resources while maintaining the lines as defined would result in lower poverty rates and fewer poor families, particularly in the past 15-20 years. It is noteworthy, however, that the effect of including publicly provided noncash benefits in the resource measure on estimates of the poverty rate would likely be larger for the official measure than for the Gallup measure. For example, the Bureau of the Census found a reduction of about 20 percent in the 1989 poverty rate for persons and families when the official thresholds were used and noncash benefits were valued using its experimental procedures (1990, table E, p. 10, and table 3, pp. 46-47). On the other hand, O'Hare and his colleagues (1990, table VII, p. 33) found that when the same expanded resource measure was used with the higher Gallup poverty line, the 1989 poverty rate for persons declined by only about 12 percent. This finding is likely attributable in large part to the explicit targeting of noncash benefits to persons relatively near or below the official poverty level.[23]

Developing Net-of-Tax Estimates at the Median Four-Person Family Income

Given that the Gallup get-along series has generally been treated as representing an expenditure requirement or an after-tax income amount, and because the official poverty thresholds are also defined in after-tax terms,[24] a representation of the income of four-person families after tax is necessary to maintain consistency between the resource measure and the needs standard.

Because published after-tax income estimates are not consistently available before 1980 and the microdata required to make estimates of after-tax income from the CPS are not available for years prior to the mid-to-late 1960's,[25] a set of consistent estimates of the after-tax income for four-person families with incomes equivalent to the before-tax median of four-person families was constructed for the 36 years since 1947 with corresponding Gallup get-along values. Federal income tax and Social Security (FICA)[26] payroll tax liabilities were computed according to the applicable tax regulations for each year with a Gallup get-along observation. Tax liability was computed on the basis of the following assumptions:

- A tax-filing unit consisting of a

husband, wife, and two dependent children, filing a joint return, and claiming four exemptions;

- an adjusted gross income (AGI) equal to the median four-person family income for the year in question;
- all unit income stemming from the wage and salary earnings of a single earner; and
- use of the standard deduction.

Special income tax surcharges and general tax credits were accounted for, as appropriate. Payroll tax rates that reflected the employee's contribution were used in conjunction with the applicable taxable maximums to estimate payroll tax liability.

The Basic Study Data

The five data series forming the basis of the study are given in table 1: (1) the median four-person family income before tax; (2) the same median but net of Federal income and FICA payroll taxes; (3) the annualized Gallup get-along amount; (4) the Gallup annual poverty threshold; and (5) the official four-person family poverty threshold, shown for the 36 years during the period from 1947 through 1989 for which get-along estimates are available. All amounts are in current dollars. Each of the three needs standards is also expressed as a percentage of the before- and after-tax median income. Finally, the total number of four-person families and the number and percentage of four-person families estimated to have before-tax incomes below each of the needs levels are also provided.

Presentation of Findings

Variation of the Three Needs Levels With Respect to Median Four-Person Family Income Net of Taxes

How do the three needs levels vary with respect to the median income of four-person families net of taxes over this period? This question is addressed in the tabulation to the right, which summarizes the detail provided in table 1 by averaging the yearly percentages into 4-year time periods. Over the full 43-year period, the Gallup get-along level averaged about 73 percent of the median four-person family income net of taxes; the Gallup-based poverty level, 52 percent; and the official measure, 51 percent. However, these averages obscure some important variations. There appear to be two periods that characterize the get-along level: (1) the years before about 1961[27] when the 4-year averages fluctuated between 77 percent and 81 percent of the after-tax median income and (2) the period after 1960 when the 4-year averages fluctuated between 68 percent and 72 percent of the after-tax median. Given the way in which it was constructed, the Gallup poverty measure shows the same pattern of variation, but at a lower level. Prior to 1961, the 4-year averages ranged between 56 percent and 58 percent of the median four-person family income net of taxes; after 1960, the averages fluctuated between 49 percent and 52 percent of the after-tax median income. The fact that the Gallup-based poverty threshold has remained so close to 50 percent of the median for nearly 30 years is of particular interest given the wide currency that this point in the distribution has as a threshold in the context of relative definitions of poverty (Fuchs 1965, 1967; Smeeding *et al.* 1988; and Statistics Canada 1991).

On the other hand, the official measure has behaved very differently than the two Gallup series. At the beginning of the post-World War II period (1947-50), the official threshold averaged 74 percent of the median four-person family income net of taxes; it dropped steadily throughout the balance of the 1950's, 1960's, and first half of the 1970's, with the 4-year average reaching about 40 percent of the median four-person family income net of taxes in the years 1971-75. Beginning with the 1971-75 period, no further systematic decline with respect to the median income net of taxes occurred. After an increase of about 4 percentage points with respect to the after-tax median in the early 1980's, the official threshold fell back to about 40 percent for the balance of the decade.

The year-by-year variation of the three needs levels as a percentage of the median four-person income net of taxes is shown in chart 1. Vertical lines represent the points at which the food-to-income ratio, the key "theoretical" element of the official lines, actually was measured in the 1955 Food Consumption Survey and at which the official measure was first introduced for calendar year 1963. The get-along level (the thick solid graph), representing the highest standard of need, is consistently at the top of the chart. For the most part, values of that measure for the individual years fluctuate between 80 percent and 65 percent of the median net of taxes, with the higher values coming before 1961. The Gallup

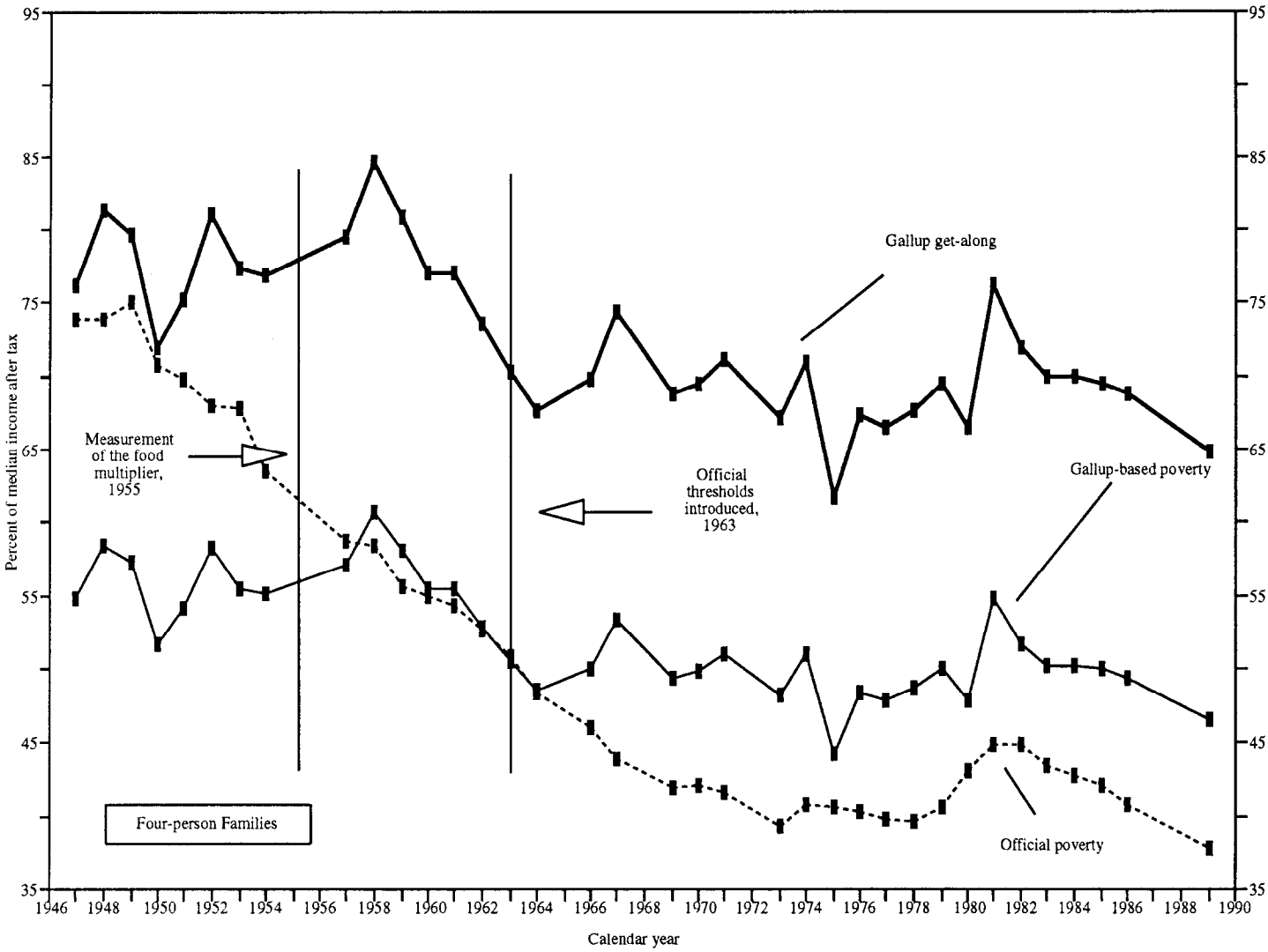
Calendar year intervals including four observations	Needs standard		
	Gallup get-along	Gallup poverty	Official poverty
1947-50	77.3	55.5	73.5
1951-54	77.6	55.8	67.3
1957-60	80.6	57.8	57.0
1961-64	72.2	51.8	51.5
1966-70	70.6	50.7	43.5
1971-75	67.7	48.6	40.5
1976-79	67.8	48.7	40.1
1980-83	71.2	51.1	44.1
1984-89	68.3	49.0	40.8
1947-89 average	72.6	52.1	50.9
1947-60 average	78.5	56.4	65.9
1961-89 average	69.6	50.0	43.4

poverty level (the lighter solid graph) follows the same pattern of variation but necessarily displays considerably lower percentages of the median income net of taxes. Basically, the two socially determined needs measures march horizontally across the chart with only a modest tendency to slope downward over the 43-year period. The official measure (represented by the broken graph), on the other hand, declines pretty consistently over the quarter century starting just after World War II through the early 1970's. Thereafter it fluctuates between just under 40 percent to just under 45 percent of the median income net of taxes, reaching a low of 38 percent in 1989, the last year shown.

More interesting, however, is the apparent relationship between the official threshold and the two socially determined standards. In the late 1940's, the official measure clearly fell in the get-along range and thus connoted a level of economic welfare that is likely to have been well above the social poverty standard at that time.[28] Given that the official measure is fixed in real terms, the substantial growth in real after-tax four-person family income during the 1950's and 1960's resulted in a marked decline of the official thresholds relative to the median income. The official measure first came into the range of the Gallup-based poverty level at about the time of the measurement of the food-to-income ratio in 1955. The official measure remained basically at the same level as the Gallup-based poverty standard for the balance of the 1950's and through the early 1960's, suggesting that it was generally consistent with societal notions about the poverty level prevailing at about the time it was introduced. By 1969, the level had fallen noticeably below the Gallup-based poverty measure, and it has remained there ever since. In short, these data provide intriguing evidence that the level of economic well-being denoted by the official poverty standard may have changed quite substantially with respect to societal norms over the course of the post-World War II period.

Another way of looking at the relationships among the levels of the three needs standards is to express the official poverty line as a percentage of both the Gallup get-along amount and the Gallup-based poverty level. This view is presented in the last two columns of table 1 and provides much the same perspective as when the needs levels are expressed as a percentage of median four-person family income net of tax. However, it is of interest to note that for the 19 observa-

Chart 1.--The Gallup get-along, the Gallup-based poverty, and the official poverty standards, all after tax, as a percent of median four-person family income after tax, 1947-89



tions after 1966, the official lines averaged 60 percent of the Gallup get-along level (varying from a low of 57 percent to a high of 66 percent) and about 84 percent of the Gallup-based poverty standard (varying from a low of 80 percent to a high of 92 percent).[29]

Number and Percentage of Four-Person Families Below the Three Needs Levels

What is the picture that the three measures provide of the extent of poverty among four-person families over this 43-year period? The answer to this question is not completely straightforward. In part, this has to do with the lack of microdata files prior to the late 1960's, but more importantly, it is because the published distributions of four-person families by income are based on before-tax income, and although the number and percentage of families with before-tax incomes below the three needs levels can be estimated by interpolation, the conceptual inconsistency between the definitions of income and needs is troubling.[30]

One possible solution to this problem would be to adjust the needs levels upwards by the amount of tax liability to a before-tax basis—that is, to "gross up" the after-tax standards. However, the evaluation of the approach taken to construct after-tax estimates of median four-person family income indicated that, although these procedures appear to perform acceptably at the median income level, they would significantly overestimate the tax amount associated with the three needs levels (that fall a good deal below the median) except in the immediate post-World War II period. At that time, nearly all income at these levels was in the form of earnings, most families paid little if any Federal income tax, and FICA payroll taxes were very low.

Fortunately, an alternative was available for the 1980's, when the assumption of fully taxable income was not appropriate. Beginning with 1980, the Bureau of the Census (1983) has published detailed estimates of average tax liability by level of before-tax income and household size. These published estimates were used to estimate Federal income and payroll tax liability of four-person families with after-tax incomes equivalent to the three needs standards for the years 1981-86.[31]

By providing two sets of estimates, the author has enabled the reader to better appreciate the importance of a consistent treatment of taxes when comparing needs and resource measures. The first, based on the comparison of after-tax needs standards to before-tax income, covers the entire period after 1946 providing year-by-year estimates for each year for which a Gallup get-along estimate is available. Because, as shown in table 1 (column 4), a substantially greater proportion of the income of four-person families with income at the median was taxed away at the end of the period than at the beginning, to the extent that the income levels corresponding to the three needs levels were similarly affected by taxation, the view based on after-tax needs standards given in table 1 will tend to overstate the degree of reduction in the prevalence of need over the 43-year period from the standpoint of either poverty rates or absolute numbers of poor families.

The second approach provides results based on comparison of before-tax needs standards and before-tax income for the first and last 6 years of the period—that is, 1947-52 and 1981-86—and is given in the bottom half of table 2.[32] Before-tax needs standards for the early period (1947-52) were constructed by grossing up the after-tax standards using the same methods employed to estimate taxes at the median for four-person families. As previously noted, the before-tax standards for the more recent period (1981-86) were derived from the after-tax standards using more refined estimates of tax liability for four-person households that have been developed by the Bureau of the Census in the CPS context (for example, Bureau of the Census 1983).

Findings based on comparison of before-tax income with after-tax needs standards.—The full series of year-by-year estimates can be used to assess change in the percentage and number of families falling below the three needs standards on the basis of comparing after-tax standards to before-tax income. This information is given in table 1, depicted graphically in charts 2 and 3, and summarized in the top bank of table 2.

The view based on the official thresholds, with extensions back to 1947, as compared with before-tax income suggests poverty rates for four-person families above 25 percent in the 3 earliest postwar years (1947-49) followed by a secular decline that continued until 1969. By that year, the rate had declined to its post-World War II low of 6.5 percent. Thereafter the rate trended upward, peaking at 11.5 percent in 1983 and then falling back to 10.9 percent by 1989.[33]

The series for the Gallup get-along standard and the Gallup-based poverty standard suggest the same general trend, descending from their highest levels in the earliest observable postwar years until reaching their lowest point in the late 1960's before trending upward again through the 1970's and 1980's. There is also some suggestion of at least a stabilization in the rates toward the end of the observable series beginning in the mid-1980's.

While the general pattern of secular variation over the post-World War II years is similar for the three needs standards, the rates associated with each present distinct pictures. By manner of construction, the rates associated with the get-along standard always exceed the Gallup-based poverty standard. What is more interesting is the clear movement of rates associated with the official measure (and its extension back to 1947) from the general level of the get-along standard prior to 1950 to levels commensurate with the Gallup-based poverty standard from the late 1950's through the middle 1960's. Thereafter, rates associated with the official threshold average about 3 percentage points, or 30 percent, below those of the Gallup-based poverty standard.

Regardless of the after-tax needs standard considered, comparison with the before-tax income measure indicates a lower prevalence at the end of the period than at the beginning. As shown by averages in the top bank of table 2, for the first and last 6 years of the period (1947-52 and 1981-86), the percentage

Table 1.--The Gallup get-along, the Gallup-based poverty, and the official poverty standards for four-person families as a percent of the median income of income, selected years 1947-89

[Number of families in

Year	Month of get-along collection	Number of families [5]	Median four-person family income			Gallup get-along standard [1]				
			Before tax [5]	After tax [6]	After tax as % of before tax	Amount [7]	As percent of median four-person family income		Below standard [4]	
							Before tax	After tax [6]	Percent	Number
1947	October	7,393	$3,292	$3,082	93.6	[8] $2,350	71.4	76.3	28.0	2,069
1948	June	7,956	3,468	3,317	95.6	2,700	77.9	81.4	32.1	2,556
1949	May	7,756	3,378	3,242	96.0	2,586	76.6	79.8	30.1	2,332
1950	February	8,228	3,675	3,472	94.5	2,495	67.9	71.9	23.9	1,968
1951	April & Dec.	8,128	4,122	3,800	92.2	[9] 2,860	69.4	75.3	23.9	1,943
1952	October	8,328	4,373	3,978	91.0	3,224	73.7	81.0	27.4	2,280
1953	March	...	[10] 4,427	4,022	90.9	3,110	70.2	77.3	...	...
1954	April	...	[10] 4,767	4,317	90.6	3,320	69.7	76.9	...	...
1957	November	8,849	5,488	4,886	89.0	3,888	70.8	79.6	24.1	2,134
1958	May	9,062	5,685	5,047	88.8	4,273	75.2	84.7	28.6	2,596
1959	August	9,166	6,070	5,337	87.9	[11] 4,316	71.1	80.9	25.9	2,370
1960	August	9,288	6,295	5,498	87.3	4,240	67.4	77.1	23.8	2,215
1961	January	9,200	6,437	5,614	87.2	4,328	67.2	77.1	24.5	2,252
1962	January	9,368	6,756	5,870	86.9	4,323	64.0	73.6	21.2	1,989
1963	April	9,435	7,138	6,159	86.3	4,328	60.6	70.3	20.1	1,893
1964	November	9,137	7,488	6,566	87.7	4,438	59.3	67.6	19.3	1,761
1966	Feb. & Nov.	9,400	8,341	7,233	86.7	[11] 5,044	60.5	69.7	17.9	1,685
1967	December	9,467	8,994	7,762	86.3	5,772	64.2	74.4	20.4	1,927
1969	February	9,893	10,623	8,924	84.0	[11] 6,136	57.8	68.8	16.8	1,662
1970	December	9,899	11,167	9,440	84.5	[12] 6,552	58.7	69.4	18.1	1,793
1971	November	10,524	11,626	9,952	85.6	7,072	60.8	71.1	19.0	2,003
1973	January	10,789	13,710	11,542	84.2	[12] 7,748	56.5	67.1	17.1	1,841
1974	February	11,002	14,969	12,384	82.7	8,788	58.7	71.0	19.5	2,145
1975	January	11,276	15,848	13,574	85.7	[12] 8,372	52.8	61.7	16.5	1,864
1976	January	11,483	17,315	14,444	83.4	9,724	56.2	67.3	19.1	2,188
1977	February	11,774	18,723	15,547	83.0	[12] 10,348	55.3	66.6	18.5	2,175
1978	April	12,037	20,428	16,821	82.3	11,388	55.7	67.7	19.1	2,304
1979	February	12,180	22,512	18,249	81.1	12,688	56.4	69.5	19.4	2,368
1980	Jan. & March	12,436	24,332	19,532	80.3	[12] 13,000	53.4	66.6	19.1	2,377
1981	Jan. & Feb.	12,594	26,274	20,721	78.9	15,808	60.2	76.3	23.6	2,970
1982	Jan. & Feb.	13,039	27,619	21,976	79.6	15,808	57.2	71.9	21.5	2,810
1983	January	13,228	29,181	23,420	80.3	16,380	56.1	69.9	22.0	2,904
1984	January	13,259	31,097	24,836	79.9	17,368	55.9	69.9	22.0	2,919
1985	January	13,355	32,777	26,104	79.6	18,148	55.4	69.5	22.1	2,954
1986	Jan. & March	13,620	34,716	27,538	79.3	18,928	54.5	68.7	20.7	2,813
1989	May	14,026	40,763	33,566	82.3	[13] 21,788	53.5	64.9	20.2	2,832

Note: The symbol "..." denotes not available.

[1] Annualized from weekly amount based on 52-week, 364-day year. Except where noted, weekly amounts are arithmetic means.

[2] Constructed using methods explained in the text.

[3] Weighted average for four-person families. For explanation of the derivation of threshold values shown for the period 1947-58, see discussion in the text.

[4] Based on comparison of standard to size distribution of before-tax family income with straight line interpolation to estimate the number of families below the standard value in the size category containing the amount of the standard.

[5] Taken from Bureau of the Census, *Current Population Reports* (Series P-60) for the respective income year.

[6] See the text for an explanation of the derivation of the median income net of tax.

[7] Except where noted, Rainwater (1974, table 3-4, p. 17).

[8] Average of August and December surveys.

[9] Average of April and December surveys.

of four-person families below the get-along standard declined from 27.6 percent to 22.0 percent, or by about 20 percent. Under the official poverty standard, the decline was much more dramatic. From a prevalence rate near that of the get-along standard (an average 23.8 percent for 1947-52), it fell to an average 11.0 percent, or by 54 percent, by 1981-86. The view given by the Gallup-based poverty standard is quite different, suggesting a basic picture of stability over the course of the post-World War II era. The average for the 6 years at the end of the period (14.0 percent) was only slightly lower than the average for the initial 6 years (14.8 percent). Clearly, the average rate for the period from 1947 through 1952 associated with the informal version of the official measure is much higher (in fact, by about 60 percent). Thus, the two poverty standards provide very different views of the changes in the prevalence of poverty among four-person families over the long term. As will be seen, this contrast is somewhat heightened when the rates are derived on the basis of before-tax needs standards and before-tax income.

Turning to the estimates of the num-

four-person families before and after tax, with the percent and number of families below each standard on the basis of before-tax

thousands; current dollars]

Gallup-based poverty standard [1,2]					Official poverty standard [3]							
	As percent of median four-person family income		Below standard [4]			As percent of median four-person family income		Below standard [4]		As percent of Gallup standard		
Amount	Before tax	After tax [6]	Percent	Number	Amount	Before tax	After tax [6]	Percent	Number	Get-along	Poverty	Year
$1,688	51.3	54.8	15.3	1,128	$2,278	69.2	73.9	26.3	1,948	96.9	135.0	1947
1,939	55.9	58.5	17.2	1,365	2,455	70.8	74.0	26.9	2,141	90.9	126.6	1948
1,857	55.0	57.3	16.4	1,275	2,432	72.0	75.0	26.6	2,067	94.0	130.9	1949
1,792	48.8	51.6	13.6	1,123	2,455	66.8	70.7	23.3	1,915	98.4	137.0	1950
2,054	49.8	54.0	12.2	989	2,649	64.3	69.7	20.7	1,686	92.6	129.0	1951
2,315	52.9	58.2	14.4	1,200	2,707	61.9	68.1	19.0	1,585	84.0	116.9	1952
2,233	50.4	55.5	...	...	2,728	61.6	67.8	...	...	87.7	122.2	1953
2,384	50.0	55.2	...	...	2,741	57.5	63.5	...	...	82.6	115.0	1954
2,792	50.9	57.1	12.9	1,139	2,871	52.3	58.8	13.4	1,183	73.8	102.8	1957
3,068	54.0	60.8	15.1	1,372	2,949	51.9	58.4	14.1	1,281	69.0	96.1	1958
3,099	51.1	58.1	13.9	1,274	2,973	49.0	55.7	12.8	1,177	68.9	95.9	1959
3,045	48.4	55.4	13.1	1,213	3,022	48.0	55.0	12.9	1,196	71.3	99.3	1960
3,108	48.3	55.4	13.7	1,263	3,054	47.4	54.4	13.3	1,220	70.6	98.3	1961
3,104	45.9	52.9	12.1	1,134	3,089	45.7	52.6	12.0	1,126	71.5	99.5	1962
3,108	43.5	50.5	10.9	1,029	3,128	43.8	50.8	11.0	1,042	72.3	100.6	1963
3,187	42.6	48.5	10.9	997	3,169	42.3	48.3	10.8	988	71.4	99.4	1964
3,622	43.4	50.1	10.3	965	3,335	40.0	46.1	9.0	847	66.1	92.1	1966
4,145	46.1	53.4	10.6	1,004	3,410	37.9	43.9	7.7	731	59.1	82.3	1967
4,406	41.5	49.4	9.1	897	3,743	35.2	41.9	6.5	640	61.0	84.9	1969
4,705	42.1	49.8	9.9	979	3,968	35.5	42.0	7.6	753	60.6	84.3	1970
5,078	43.7	51.0	10.4	1,098	4,137	35.6	41.6	7.5	790	58.5	81.5	1971
5,564	40.6	48.2	9.6	1,033	4,540	33.1	39.3	6.9	749	58.6	81.6	1973
6,311	42.2	51.0	11.4	1,251	5,038	33.7	40.7	7.8	859	57.3	79.8	1974
6,012	37.9	44.3	9.7	1,092	5,500	34.7	40.5	8.5	953	65.7	91.5	1975
6,983	40.3	48.3	10.9	1,252	5,815	33.6	40.3	8.2	943	59.8	83.3	1976
7,431	39.7	47.8	11.0	1,294	6,191	33.1	39.8	8.2	970	59.8	83.3	1977
8,178	40.0	48.6	11.0	1,326	6,662	32.6	39.6	8.2	987	58.5	81.5	1978
9,111	40.5	49.9	11.5	1,397	7,412	32.9	40.6	8.6	1,049	58.4	81.3	1979
9,335	38.4	47.8	11.6	1,442	8,414	34.6	43.1	10.1	1,252	64.7	90.1	1980
11,352	43.2	54.8	14.5	1,826	9,287	35.3	44.8	10.6	1,334	58.7	81.8	1981
11,352	41.1	51.7	13.4	1,744	9,862	35.7	44.9	10.8	1,403	62.4	86.9	1982
11,763	40.3	50.2	14.2	1,875	10,178	34.9	43.5	11.5	1,526	62.1	86.5	1983
12,472	40.1	50.2	14.5	1,917	10,609	34.1	42.7	11.4	1,505	61.1	85.1	1984
13,032	39.8	49.9	14.1	1,879	10,989	33.5	42.1	11.3	1,503	60.6	84.3	1985
13,592	39.2	49.4	13.2	1,800	11,203	32.3	40.7	10.2	1,391	59.2	82.4	1986
[14]15,646	38.4	46.6	13.2	1,846	12,675	31.1	37.8	10.0	1,416	58.2	81.0	1989

[10] Estimated based on the relationship between the median incomes for families with two children and four-person families, 1947-52 and 1955-60.
[11] Rainwater (1990, table 1, p. 6).
[12] Medians for persons in nonfarm households, (American Institute of Public Opinion 1985, p. 18).
[13] Arithmetic mean from O'Hare (July 1990, pp. 36-39). See table A1 of this article for additional details.
[14] Based on the arithmetic mean from O'Hare, *et al.* (1990, p. 18); 1989 price level, weekly amount annualized on a 52-week year basis. See table A1 of this article for additional details.

ber of poor four-person families made on the basis of comparing the year-to-year after-tax needs standards with before-tax income (table 1 and chart 3), it is shown that, from the perspective of the official measure moved back to 1947, the number of poor four-person families forms a lopsided V-shape with the left side higher than the right and the low point of the V coming in 1969. From highs of approximately 2 million families in the late 1940's, the number of poor four-person families declined to 640,000 at its lowest point in 1969 and subsequently climbed back to the 1.5 million range throughout the 1980's.

Again, the Gallup-based poverty standard provides a rather different picture. For the late 1940's, the poverty standard yields a count on the order of 1.1-1.4 million, very considerably below that given by the informal version of the official measure for that period. It also reaches its lowest point (897,000) in 1969. However, that general level (of about 900,000 to 1.1 million) was maintained throughout most of the 1960's through 1973. Beginning in 1974, the number of poor four-person families began a steady rise until reaching levels of 1.8-1.9 million in the early and middle 1980's.

Findings based on comparison of before-tax income to before-tax needs standards.—Before-tax thresholds for the three needs standards are given in the bottom bank of table 2, along with the percentage and number of four-person families falling below the thresholds on the basis of before-tax income. As noted earlier, information is given for two 6-year periods: 1947 through 1952,

at the beginning of the post-World War II era, and 1981 through 1986, the last 6 years for which contiguous Gallup estimates are available.

Analysis of the table shows that the use of before-tax as opposed to after-tax thresholds has only a very slight to modest effect on the measured poverty rates and the number of poor in the 1947-52 period. For example, the average 6-year poverty rates as measured for those years by the official thresholds and by the Gallup-based poverty standard using before-tax cutoffs are only 2-3 percent higher than when after-tax standards are employed; the average percent of families below the get-along standard is only 5 percent higher (29.1 percent vs. 27.6 percent) with the before-tax version of the standard.

On the other hand, the use of before-tax cutoffs for the period from 1981 through 1986 has a more noticeable impact. The 6-year average poverty rates and poverty counts are 14 percent higher (15.9 percent vs. 14.0 percent and 2.1 million vs. 1.8 million families poor) if the before-tax version of the Gallup-based poverty measure is used, and 11 percent higher (12.1 percent

Table 2.--Low-income standards before and after taxes, and percent and number of four-person families below the standards on the basis of before-tax income, 1947-52, 1981-86, and 1989

[Number of families in thousands; current dollars]

Year and type of standard	Total number of families	Dollar value of the standards			Percent of four-person families below the standard [1]			Number of four-person families below the standard [1]		
		Gallup get-along [2]	Gallup poverty [3]	Official poverty [4]	Gallup get-along	Gallup poverty	Official poverty	Gallup get-along	Gallup poverty	Official poverty
After tax standards										
1947	7,393	$2,350	$1,688	$2,278	28.0	15.3	26.3	2,069	1,128	1,948
1948	7,956	2,700	1,939	2,455	32.1	17.2	26.9	2,556	1,365	2,141
1949	7,756	2,586	1,857	2,432	30.1	16.4	26.6	2,332	1,275	2,067
1950	8,228	2,495	1,792	2,455	23.9	13.6	23.3	1,968	1,123	1,915
1951	8,128	2,860	2,054	2,649	23.9	12.2	20.7	1,943	989	1,686
1952	8,328	3,224	2,315	2,707	27.4	14.4	19.0	2,280	1,200	1,585
1947-52 average	***7,965***	***2,703***	***1,941***	***2,496***	***27.6***	***14.8***	***23.8***	***2,191***	***1,180***	***1,890***
1981	12,594	15,808	11,352	9,287	23.6	14.5	10.6	2,970	1,826	1,334
1982	13,039	15,808	11,352	9,862	21.5	13.4	10.8	2,810	1,744	1,403
1983	13,228	16,380	11,763	10,178	22.0	14.2	11.5	2,904	1,875	1,526
1984	13,259	17,368	12,472	10,609	22.0	14.5	11.4	2,919	1,917	1,505
1985	13,355	18,148	13,032	10,989	22.1	14.1	11.3	2,954	1,879	1,503
1986	13,620	18,928	13,592	11,203	20.7	13.2	10.2	2,813	1,800	1,391
1981-86 average	***13,183***	***17,073***	***12,260***	***10,355***	***22.0***	***14.0***	***11.0***	***2,895***	***1,840***	***1,444***
1989	14,026	21,788	15,646	12,675	20.2	13.2	10.0	2,832	1,846	1,416
Percentage change, 1947-52 to 1981-86 [5]	**65.5**	...	...	...	**-20.3**	**-5.9**	**-54.0**	**32.1**	**55.9**	**-23.6**
Before tax standards [6, 7]										
1947	7,393	2,407	1,705	2,319	29.3	15.5	27.3	2,165	1,147	2,016
1948	7,956	2,738	1,959	2,484	32.9	17.4	27.5	2,621	1,384	2,187
1949	7,756	2,612	1,876	2,460	30.7	16.7	27.2	2,380	1,292	2,110
1950	8,228	2,533	1,819	2,496	24.6	13.9	23.9	2,026	1,147	1,969
1951	8,128	2,958	2,085	2,697	25.4	12.6	21.5	2,062	1,025	1,744
1952	8,328	3,427	2,350	2,772	31.4	14.8	19.9	2,618	1,230	1,656
1947-52 average	***7,965***	***2,779***	***1,966***	***2,538***	***29.1***	***15.1***	***24.5***	***2,312***	***1,204***	***1,947***
1981	12,594	18,486	12,615	10,016	29.4	17.1	11.8	3,704	2,148	1,485
1982	13,039	18,273	12,482	10,556	26.8	15.4	11.9	3,496	2,010	1,557
1983	13,228	18,789	12,851	10,889	26.4	16.0	12.7	3,491	2,113	1,683
1984	13,259	20,095	13,706	11,460	26.7	16.1	12.8	3,538	2,135	1,693
1985	13,355	21,071	14,358	11,859	27.0	16.0	12.4	3,612	2,132	1,661
1986	13,620	22,008	14,983	12,010	25.6	15.0	11.2	3,487	2,039	1,529
1981-86 average	***13,183***	***19,787***	***13,499***	***11,132***	***27.0***	***15.9***	***12.1***	***3,555***	***2,096***	***1,601***
1989	14,026	25,131	16,786	13,175	25.3	14.4	10.5	3,554	2,018	1,475
Percentage change, 1947-52 to 1981-86 [5]	**65.5**	...	...	...	**-7.1**	**5.0**	**-50.5**	**53.7**	**74.0**	**-17.8**

Note: The symbol "..." denotes not calculated.

[1] As calculated from the before-tax income size distribution of four-person families using straight-line interpolation to estimate the number of families in the size category containing the standard that fall below the standard. The income size distributions for families of size four are taken from the appropriate Bureau of the Census, *Current Population Reports* (Series P-60) volume.

[2] Arithmetic means from Rainwater (1974 and 1990).

[3] Gallup poverty line for 1989 backdated assuming the ratio of the Gallup poverty line to the Gallup get-along amount in 1989 would hold throughout the post-World War II period.

[4] For 1981-86, the official weighted threshold for four-person families. For 1947-52, the official weighted threshold for 1959 deflated to the year in question using the consumer price index.

[5] Using the average for the earlier of the two periods as the base of the percentage change. Calculated on the basis of unrounded amounts.

[6] For 1947-52, the amount necessary to yield the corresponding after-tax standard, shown in the upper bank of the table, after meeting Federal income and FICA payroll tax. See text for discussion of methods used to estimate tax liability.

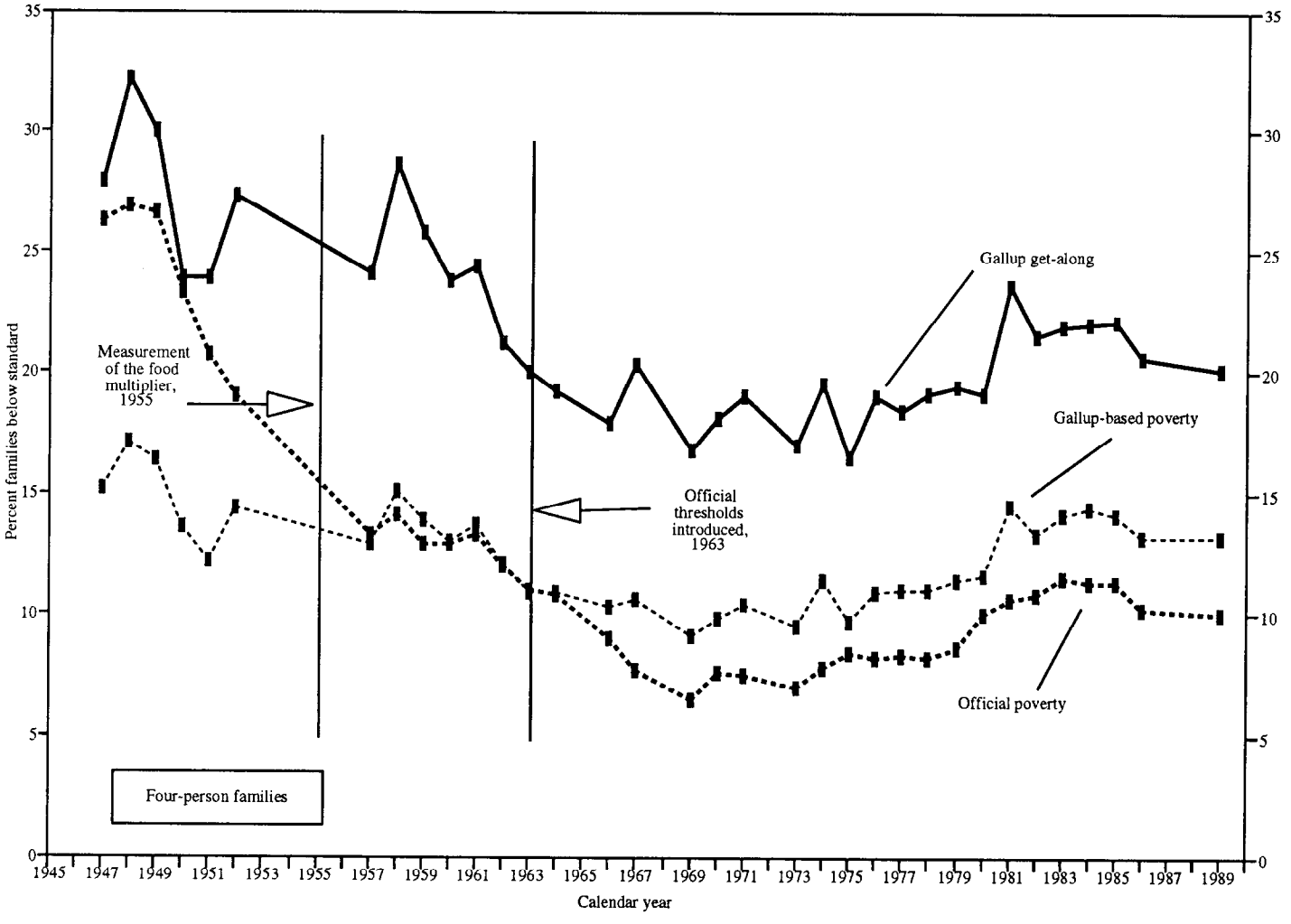
[7] For 1981-86 and 1989, the amount necessary to yield the corresponding after-tax standard, shown in the upper bank of the table, after meeting Federal and State income tax and FICA payroll tax liability. See text for discussion of methods used to estimate tax liability.

vs. 11.0 percent and 1.6 million vs. 1.4 million families poor) with a before-tax version of the official thresholds.[34] Given the significantly higher income level associated with the Gallup get-along threshold, it is not surprising that the effect of using before-tax cutoffs is even more marked; the 6-year average of the number and percent of families falling below the get-along threshold is more than 20 percent higher if a before-tax threshold is employed (27 percent vs. 22 percent of four-person families below the threshold and 3.6 million vs. 2.9 million families poor).

Turning to the issue of long-term trends in the proportion of families with incomes below the three needs standards, earlier impressions about the extent of change over the period based on comparisons of after-tax standards with before-tax income are by-and-large sustained except for the highest of the three needs standards. While the percentage of families below the get-along level declined by about 20 percent when the after-tax standard was compared with before-tax income (from an average of 28 percent for 1947-52 to an average of 22 percent by 1981-86), when needs and resource measures are consistently defined on a before-tax basis, the decline between the two periods is noticeably smaller (from 29 percent to 27 percent, or only about a 7-percent reduction). Considering the trend with respect to the Gallup-based poverty standard, the direction of change reversed from a modest decrease of about 6 percent in the poverty rate to a slight increase in the poverty rate of 5 percent. However, the basic impression stemming from both sets of comparisons with regard to rates associated with the Gallup-based poverty standard is one of little change (approximately 15 percent of four-person families fell below the standard in the immediate post-World War II years as well as in the most recent period). Concerning long-term changes in poverty rates as measured using the official threshold, use of either the before- or after-tax income measure indicates very substantial declines, on the order of 50 percent between the earliest and most recent period. Compared with this very marked decline in poverty rates over the period, the alternative treatment of taxes has only a very modest effect.

The basic pattern of changes of trends in the number of four-person families falling below the three needs standards is not changed when needs and resources are defined in a consistent manner with respect to taxes. Both Gallup standards show substantial increases in the number

Chart 2.--Percent of families below the Gallup get-along, the Gallup-based poverty, and the official poverty standards, based on comparison of before-tax income with after-tax standards, 1947-89



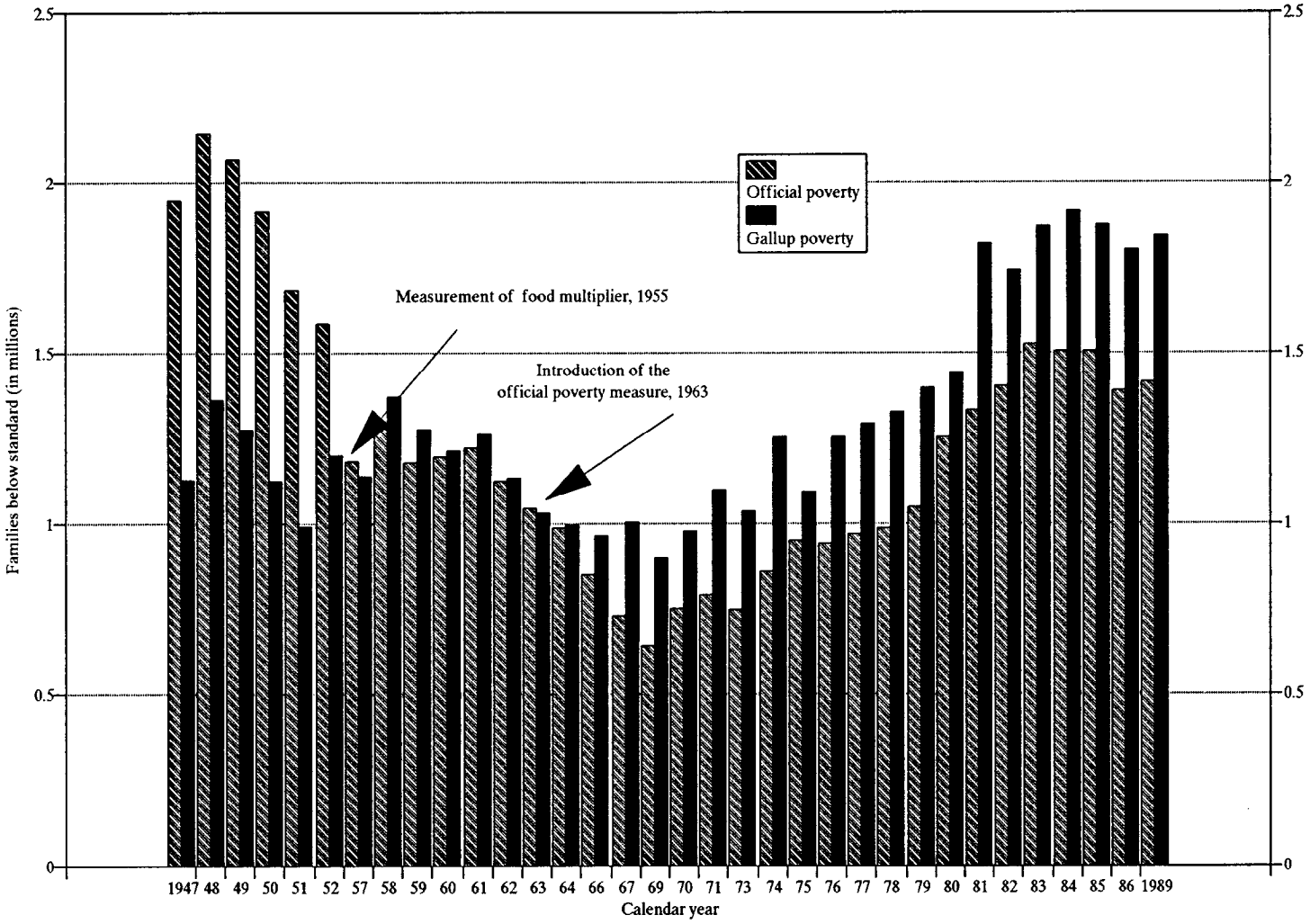
of families falling below the thresholds, while the number of families falling below the official standard drops a good deal. However, the increases in the number of families falling below the Gallup needs standards are considerably more marked when the needs standards and the resource measure treat taxes consistently. The impact of treating the needs standard and the resource measure consistently with respect to taxes on the estimate of the trend in the number of poor families is less marked for the official measure, although the decline in the number poor is somewhat muted when both needs and income are placed on a consistent before-tax basis.

Comparisons With Selected Alternative Standards

Variation in the level of the Gallup poverty line in relation to the official threshold for a family of four over the post-World War II period has been reviewed. Comparisons with six additional alternatives during the period since 1967 are provided in table 3. Three of the alternatives have been suggested by Ruggles (1990; those appearing in columns (1), (2), and (6) of the table) and three other alternative standards are modified versions of those suggested by her and are shown in columns (3), (4), and (5). The official threshold and the Gallup-based poverty line are shown in columns (7) and (8) for purposes of comparison. Each of the alternatives is expressed as a threshold for a family of four in each of 5 years (1967, 1973, 1977, 1982, and 1986).[35] The six alternatives (and their respective column numbers in table 3) are:

- The official threshold indexed by the CPI-X1, a version of the CPI that incorporates revisions to ensure more appropriate treatment of housing costs (1);
- the official threshold indexed by change in the median income of families of size two or more, before tax (2);[36]
- the official threshold indexed by change in the median income of four-person families net of tax (3);
- the threshold for a family of four set at 50 percent of median income of families of size two or more, before tax, in each year (4);
- the same as alternative 4 but employing the median income of four-person families net of taxes (5); and
- the official standard updated by

Chart 3.--Number of four-person families below the official and the Gallup-based poverty standards, based on comparison of before-tax income with after-tax standards, 1947-89



employing food ratios based on the food weights used in the CPI as the multiplier in conjunction with the appropriate food plan cost for each of the years (6).

Alternative 3 is a modification of alternative 2—Ruggles' update on moving the official threshold forward according to changes in median income before tax of families or size two or more. Alternative 3 is similar to Ruggles' approach in that it is based on changes in median family income. However, the median income of families of size four rather than two or more is employed, and income is defined on an after- rather than a before-tax basis.

Alternative 4 differs principally from the corresponding Ruggles' alternative 3 because its level in the base year (1967) is set at 50 percent of median income of four-person families rather than at the median income of families of size two or more. Alternative 5 differs from alternative 4 in that income is defined on an after- rather than a before-tax basis.

The dollar values of the thresholds for each of the eight methods (the six alternative update procedures, the official thresholds, and the Gallup-based poverty standard) are given in the first bank of the table. In the second bank, each threshold is re-expressed in terms of an index for which 1967 = 1.00. The third bank provides an index in which each threshold is expressed in terms of constant CPI-X1 dollars with the 1967 value for each threshold being equal to 1.00. The bottom bank shows the ratio of each alternative to the official threshold in each of the 5 years.

Two basic factors affect how these alternatives compare with the official threshold: (1) the relative percentage change in dollar values over the period, and (2) the original value of the respective threshold in the first year considered (1967) compared with the value of the official threshold in that year.[37] Alternatives in columns (1), (2), and (3) are affected only by the first factor; alternatives in columns (4), (5), and (6) are affected by both factors, as is the Gallup-based poverty measure in column (8).

Considering change (from 1967 through 1986) in terms of nominal dollars (shown in the second bank), the updated multiplier standard (column 6) increased the most over this 19-year period (to about 4.3 times its original level). Next came the alternatives indexed by changes in median family income before tax (columns 2 and 4), which increased to about 3.9 times their 1967 values. After these were alternatives in columns (3) and (5) indexed by changes in after-tax median income of four-person families, which increased by

Table 3.--Alternative poverty thresholds for a four-person family at approximately 5-year intervals, 1967-86

Year	Official threshold indexed by the CPI-X1 (1)	Official threshold indexed by growth in median income of		Relative threshold, 50 percent of four-person family median income		Updated multiplier (6)	Official threshold (7)	Gallup-based poverty standard (8)
		Families of size two or more, before tax [1] (2)	Four-person families, after tax (3)	Before tax (4)	After tax (5)			
Dollar value in--								
1967	$3,410	$3,410	$3,410	$4,497	$3,881	$4,316	$3,410	[2] $3,862
1973	4,427	5,180	5,071	6,855	5,771	6,292	4,540	5,564
1977	5,932	6,881	6,830	9,362	7,774	8,185	6,191	7,431
1982	8,978	10,073	9,654	13,810	10,988	14,827	9,862	11,352
1986	10,272	13,262	12,098	17,358	13,769	[3] 18,633	11,203	13,592
Nominal dollars (1967=1.00)								
1967	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1973	1.30	1.52	1.49	1.52	1.49	1.46	1.33	1.44
1977	1.74	2.02	2.00	2.08	2.00	1.90	1.82	1.92
1982	2.63	2.95	2.83	3.07	2.83	3.44	2.89	2.94
1986	3.01	3.89	3.55	3.86	3.55	4.32	3.29	3.52
CPI-X1 dollars (1967=1.00)								
1967	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1973	1.00	1.17	1.15	1.17	1.15	1.12	1.03	1.11
1977	1.00	1.16	1.15	1.20	1.15	1.09	1.04	1.11
1982	1.00	1.12	1.08	1.17	1.08	1.30	1.10	1.12
1986	1.00	1.29	1.18	1.28	1.18	1.43	1.09	1.17
Official standard = 1.00								
1967	1.00	1.00	1.00	1.32	1.14	1.27	1.00	1.13
1973	0.98	1.14	1.12	1.51	1.27	1.39	1.00	1.23
1977	0.96	1.11	1.10	1.51	1.26	1.32	1.00	1.20
1982	0.91	1.02	0.98	1.40	1.11	1.50	1.00	1.15
1986	0.92	1.18	1.08	1.55	1.23	1.66	1.00	1.21

[1] Excludes unrelated individuals.

[2] Due to anomalies in the get-along estimate for 1967, an alternative value was substituted. See discussion provided in text note 36.

[3] 1987 CPI weight for food used as basis for the multiplier.

Source: Procedures to construct alternatives 1, 2, 4, and 6 taken from Ruggles (1990, appendix A). Additional explanation provided in text.

3.5-3.6 times their 1967 values. Next was the Gallup alternative (column 8), which increased by 3.5 times; then came the official threshold (column 7), which increased by about 3.3 times. The least changed was the CPI-X1 indexed alternative (column 1), which increased by about 3 times.

Increases in the alternative four-person family poverty thresholds stated in nominal dollars are dominated by the increase in prices. (As indicated in column (7) of the second bank, prices as measured by the CPI increased by more than 3 times.) The large price increase obscures other factors that should be considered in comparing alternative procedures for updating the poverty threshold, such as increases in the general standard of living. For example, an absolute threshold would typically be adjusted only for the increase in prices, while a relative threshold would, in addition, be adjusted for changes in the average standard of living. The evaluation of alternative methods for updating the poverty threshold in terms of changes in the U.S. standard of living is particularly relevant given the original intent of the official measure.[38]

The third bank of the table shows changes in terms of constant CPI-X1 dollars, and it facilitates comparison of the update alternatives net of the effects of price increases over the period since 1967. The CPI-X1 is chosen as the price deflator rather than the CPI because before 1983 the CPI incorporated a treatment of housing costs that produced excessive increases in the index, according to many analysts. This is reflected in the value of 1.09 in 1986 for the official threshold in the third bank of the table, indicating that the purchasing power of the official threshold as indexed by the CPI was 9 percent above its 1967 level assuming that the CPI-X1 provides the "correct" representation of price change over the period under consideration.[39] This increase represents fully half of the increase in the median income, after tax, of families of size four (see columns 3 and 5).

Although adjustment for price increases does not change the ranking of the update alternatives with regard to the degree of change over the period, it does help to clarify the differences between the various update procedures. For example, changes in alternatives 3 and 5 can then be more properly interpreted as reflecting changes in the material standard of living of four-person families with incomes at their family-size median. Since income for these alternatives is defined in after-tax terms, this change—an increase of about 18 percent—reflects, by and large, an increase in consumption power.

By contrast, alternatives 2 and 4, based on change in the median income before tax, increased by nearly 30 percent from 1967 through 1986. From a relative incomes perspective, the alternatives based on change in after-tax income at the median are preferred over those based on change in the before-tax median, because the after-tax alternatives more properly reflect change in living standards. This is because income that is taxed away will not contribute to increases in the private purchasing power of families.

The updated multiplier standard (alternative 6) increased by 43 percent, or more than twice as fast as the alternatives based on changes in the after-tax median income of four-person families. Consequently, the use of the updated multiplier alternative, as least as implemented by Ruggles and reproduced here, would yield a poverty threshold that likely increased much more rapidly than the general standard of living during the period from 1967 through 1986. This result would only be reasonable if the prices faced by the poor over the years since 1967 increased much more rapidly than those faced by all urban consumers. As noted by Ruggles (1990, note 13, p. 60), this has not been found to be the case. The final alternative, the Gallup-based poverty standard, increased by 17 percent during these years, or by about the same percentage as the income of four-person families after tax.[40]

More generally, a review of bank 3 of the table demonstrates how important it is to consider the role of taxation when evaluating the reasonableness of alternative procedures for updating poverty thresholds.

The update alternatives are compared with the official threshold for four-person families in each of the 5 years in the bottom bank of table 3. All but the alternative updated by the CPI-X1 (which is 92 percent of the official threshold at the end of the period, column 1) exceed the official threshold by 1986. The update based on indexing the official threshold from its value in the base year of 1967 by change in the after-tax median income of four-person families (column 3) is closest to the official measure, exceeding it by only 8 percent by 1986.

The two alternatives updated by change in before-tax family income yield quite different results. The one employing the official threshold in the base year (column 2) exceeded the official measure by 18 percent at the end of 1986, the period being considered, while the alternative, defined as 50 percent of median family income of families of size two or more before tax (column 4), initially exceeded the official threshold by 32 percent and by 1986 had further increased to 55 percent above the official threshold. The updated multiplier standard (column 6), initially 27 percent above the official threshold in 1967, exceeded it by 66 percent after the passage of 19 years.[41]

Finally, at the beginning of the period, the Gallup-based poverty standard (column 8) exceeded the official threshold by 13 percent; by 1986, the difference had increased to just over 20 percent above the official threshold value. Note that for the period as a whole, the Gallup-based standard follows the level and proportional change of the alternative based on one-half of the after-tax median income of four-person families very closely (column 5).

In general, these comparisons of alternative standards raise important questions about the reasonableness of updates based on median family income before tax and the version of the updated multiplier standard considered here. This concern would seem to be especially strong with regard to the updated multiplier standard because, as noted, it increased so much faster than income net of taxes. Starting in 1967, with a base only 12 percent above the Gallup-based

poverty measure ($4,316 vs. $3,862) over the succeeding 19 years, the updated multiplier rose to exceed the Gallup-based poverty threshold by more than one-third (table 3), and was virtually identical to the 1986 Gallup get-along amount shown in table 1 ($18,633 vs. $18,928). Here we see a pattern just the opposite of that noted earlier for the official measure that passed from an income level consistent with the social definition of "getting along" just after World War II, to a level more consistent with a socially defined poverty level in the late 1950's and early 1960's.[42] Based on this review of alternative update procedures, an update based on changes in after-tax income or on the Gallup social definition would be preferable to the updates tied to changes in before-tax median family income or the particular version of the updated food multiplier standard considered here.

Summary of Findings and Some Suggestions for Additional Research

This review of the trends in three needs standards in the post-World War II period suggests that needs standards based on the views of society's members have changed quite differently than the Federal Government's official measure of poverty. This difference arises because socially defined measures of need tend to respond to changes in the average level of economic resources available to society's members[43] while the official measure has remained fixed in real terms. In addition, use of this alternative approach to track the size of the poverty population over time, both in terms of rates and numbers of poor, yields a somewhat different view than that provided by the official measure and a strongly contrasting picture of trends over time.

The relationship of the Gallup-based poverty series to the median income after tax in the three decades since 1960 also lends some support to the practice of a number of researchers to set relative poverty thresholds at 50 percent of the median income.[44] Furthermore, if the interpretation of the Gallup-based standards presented here is valid, it lends further weight to the view that at the time the official Federal poverty standard was developed by Orshansky (1965a and 1965b), her procedure yielded thresholds that were generally consistent with then current societal notions of the poverty level. In addition, in light of the very likely change in societal notions about what constitutes a poverty-level income, there is the strong implication that the absence of a procedure for appropriately updating the official measure has resulted in a poverty threshold that is no longer fully consistent with the standards of the American people.

This analysis also underscores the importance of the consistent treatment of needs measures and resource measures. The use of change in before-tax resource measures to update needs standards defined on an after-tax basis can lead to serious distortions during periods when the ratio of after- to before-tax income is changing.

Additional research should be undertaken to exploit existing information about socially defined needs criteria. The nature of the Gallup get-along estimates deserves much closer scrutiny. In part, this would require more direct work with the appropriate Gallup data files available from the Roper Center Archives. Research that refines and expands on the themes taken up in this article would also be quite useful. It would also be worthwhile to examine the expenditure patterns associated with the income and consumption levels defined by socially defined needs standards in order to gain a more concrete understanding of the level of living that they imply. Similarly, comparisons with recent expert budget studies (Renwick and Bergman 1993, and Schwarz and Volgy 1992) would also be useful.

Finally, additional survey research focusing on both substantive and methodological questions regarding public judgments about minimum incomes in the U.S. context is very much needed. One hopes that at least some of this work might be undertaken in the near future in venues such as the Consumer Expenditure Survey or the Survey of Income and Program Participation.

Conclusion

It would be more than a little naive to focus on the technical aspects of poverty measurement without raising the question of why the current measure has undergone no major revision since its appearance nearly 30 years ago. Clearly, its hardy resilience over the past three decades is not due to wide agreement as to its technical merits or to the difficulty of updating it in a manner consistent with the principles used to first construct it (for example, Fendler and Orshansky 1979). However, there are at least two concerns that *have* contributed powerfully to the constancy of the official measure:

(1) Updating the statistical measure of poverty would tend to change our view of the size of the poverty population and thus affect our sense of the possible claim that poverty reduction, as a policy goal, has on national resources. Very powerful interests concerned with difficult questions about the use of scarce public funds are naturally attracted to the poverty debate. The resulting political sensitivity of the poverty issue has very obviously contributed to the difficulty of modifying the current measure.

(2) Perhaps of more fundamental importance is the explicit relationship between our statistical measure of poverty on the one hand, and eligibility criteria and benefit levels for a variety of transfer programs on the other hand. This linkage means that any change, including an adjustment over time, which leads to a change in the poverty line in terms of real income is seen as translating immediately into an increase or decrease in public expenditure. Thus, a discussion over technical issues becomes a much more difficult debate over the level of public expenditures and the scope of government activity.

As a close observer and sometime participant in this debate for more than two decades, I have observed that these concerns have strongly conditioned the consideration of technical issues involved in defining the statistical measure of poverty. This has been true from the first appearance of the official thresholds and is certain to be so in the future, as well. Such tensions and the resulting controversy are probably most constructively viewed as the natural outcome of a decision to have a single "official" measure of poverty. Maintaining an openness to the consideration of differing points of view regarding the ends and means of poverty measurement will, at times, undoubtedly present a most difficult challenge to policymakers, but is also a way to clarify and foster further consensus about poverty measurement issues.

Technical Appendix

This appendix deals with two issues: (1) derivation of consistent estimates of the dollar amounts for the two Gallup-based needs standards for calendar year 1989 and (2) an assessment of the implications of alternative Gallup-based poverty standards derived using elasticities of 0.5 and 0.85 instead of 1 to specify the relationship between changes in the poverty and get-along standards over the course of the post-World War II period.

Derivation of Consistent Estimates for the Gallup Get-Along and Poverty Standards for 1989

Responses to the get-along and poverty questions were obtained in separate Gallup surveys in 1989 (the get-along item in May and the poverty item in four separate surveys conducted in the months of July-October). The dollar value of the get-along standard as of May 1989, at the time of collection, has been published by O'Hare (1990). To the best of the present author's knowledge, the only published values for the Gallup poverty standard are those provided by O'Hare *et al.* (1990), and pertain to 1988. A get-along value for 1988 was also published in conjunction with the 1988 value for the poverty standard. Presumably O'Hare and his associates presented their discussions in terms of 1988 price levels[45] rather than the price levels at the time of collection by Gallup because they wanted to make comparisons with the latest available estimates based on the official poverty measure that, at the time of their publication, pertained to 1988. In addition to the lack of a published 1989 value for the Gallup poverty standard, comparison of the two levels is subject to the complication that arises when two different procedures for annualizing the weekly amounts obtained from the survey question have been employed. The first approach is very straightforward—multiplication of the weekly mean amount by 52. This was the approach used by O'Hare (1990) to annualize the weekly get-along amount obtained from the Gallup survey of May 1989 that yielded an annual get-along threshold of $21,788. Noting that an annualization on the basis of 52 weeks implies a year of only 364 days and an annual poverty standard at the 1988-price level just short of $15,000 ($14,976), O'Hare and his colleagues (1990, pp. 18-20) chose to annualize the weekly standard on the basis of a 365-day year for purposes of the Families USA Foundation report and obtained a value slightly exceeding $15,000 ($15,017); the corresponding get-along value based on a 365-day annualization is $20,913. For purposes of the present study, restatement of both standards in terms of 1989 price levels on the basis of consistent annualization was desirable. The 1989 dollar values reflecting annualization on the basis of 52 weeks and the average price level of May 1989 are given in row (2)b, columns (2) and (3) of table A1 (get-along, $21,788 and poverty, $15,646). The range of alternative annual values for both standards, published and unpublished, are also given in the table, together with the ratio of the poverty to the get-along standard for each pair of comparisons and each standard expressed as a percentage of median four-person family income net of Federal income and FICA tax.

Although some of the differences between the estimates presented in the table may seem trivial (for example, those due to the alternative modes of annualization), I developed the table principally as a means of reconciling the various published estimates and to ensure that the bases for their differences were understood. For example, the only way to reconcile the two published values for the annual get-along standards, the one reflecting July 1988 price levels ($20,913; row 1a, column 2) and the one reflecting price levels at the time of collection in May 1989 ($21,788; rows 2b and 2c, column 2) is to recognize that they were constructed using the alternative means of annualization—that is, the appropriate annual get-along value for May 1989 based on consistent annualization using the 365-day year approach is $21,848 and not the value published for May 1989 by O'Hare ($21,788), which is based on an annualization using the 52-week, 364-day procedure (see rows 2a-c, column 2, in table A1).

Alternative Gallup-Based Poverty Standards

Clearly, projecting the Gallup-poverty standard from 1989 back to 1947 by assuming it could be represented as a constant percentage of the corresponding get-along value is open to challenge. This assumption is equivalent to affirming an elasticity of the poverty standard with respect to the get-along standard of 1—that is, that the year-to-year percentage change in both standards was the same over the course of the post-World War II period. (Of course, since the poverty standard was only measured in 1-postwar year, when speaking of the poverty standard, the reference is to the unmeasured views of the population, which, if polled, would have resulted in a series for the poverty standard paralleling the get-along series). The question reduces to the following: *How would that unmeasured series have behaved with respect to the secular increase in family incomes since World War II?* Presumably, it would not have increased faster than real income. Would it have been less responsive than the get-along series?

Table A1.--Various estimates of Gallup get-along and poverty thresholds from the Gallup surveys of 1989

Estimate characteristic and CPI calendar period	CPI-U (1982-84 = 100) (1)	Get-along amount, four-person family (2)	Poverty income, four-person family (3)	Net median four-person family income[1] (4)	Poverty as a percent of-- Get along (5)	Poverty as a percent of-- Net family income (6)	Get-along as a percent of net family income (7)
(1) July, 1988							
a. As published, 365-day year annualization	[2] 118.5	[3,4] $20,913	[3,4,5] $15,017	$32,035	71.8	46.9	65.3
b. Weekly annualization[6] of the published version	[2] 118.5	[3,6] 20,856	[3,5,6] 14,976	32,035	71.8	46.7	65.1
1989							
(2) May[7]							
a. (1a) CPI adjusted from July 1988 through May 1989	123.8	[3,4] 21,848	[3,4] 15,689	33,566	71.8	46.7	65.1
b. (1b) CPI adjusted from July 1988 through May 1989	123.8	[6] 21,788	[6] 15,646	33,566	71.8	46.6	64.9
c. Unrounded version of get-along estimate published in *American Demographics* (July 1990)	123.8	[6] 21,788	...	33,566	...	...	64.9
(3) July[8]	124.4	...	...	...	...	...	...
(4) August[8]	124.6	...	...	...	...	...	...
(5) September[8]	125.0	...	...	...	...	...	...
(6) October[8]	125.6	...	...	...	...	...	...
(7) July-October average							
a. Annualized using 365-day year	124.9	[4,9] 22,042	[4,10] 15,828	33,566	71.8	47.2	65.7
b. Annualized using 52-week year	124.9	[6,9] 21,982	[6,10] 15,785	33,566	71.8	47.0	65.5
July 1988 CPI as a percent of--							
(8) May 1989 CPI	95.7	...	...	...	...	...	...
(9) July-October 1989 average CPI	94.9	...	...	...	...	...	...
(10) May as percent of July-October 1989 average CPI	99.1	...	...	...	...	...	...

Note: The symbol "..." denotes not applicable.

[1] Based on published median for four-person families from the March 1989 and March 1990 Current Population Survey net of FICA and Federal income tax as estimated by assuming four exemptions, all income from earnings and the standard deduction. See text for further explanation.

[2] Verified by Taynia Mann as included in her computer program.

[3] O'Hare, *et al.*, 1990, pp. 18,19, and 20.

[4] Annualized level derived from the weekly response by dividing the weekly amount by seven and multiplying by 365.

[5] CPI adjustment from months of collection (July-October 1989) back to July 1988 done at the micro level by respective month of collection.

[6] Annualized level derived on the basis of a 52-week year, implying a year of only 364 days--that is, (7 x 52 = 364).

[7] Month of get-along collection.

[8] Month of poverty collection.

[9] Estimate of July 1988 (see footnote 3) adjusted for change in prices between July 1988 and May 1989, when collected, and then forward again to the July-October 1989 period to be consistent with the collection of the Gallup poverty estimate.

[10] Published Families USA estimate of July 1988 (see footnote 3) adjusted for change in prices forward to the July-October 1989 period when actually collected.

If so, how much less responsive? Even though there would appear to be no way to arrive at a fully satisfactory answer to this question, a sensitivity analysis does prove instructive.

Considerations for the sensitivity analysis.—As noted earlier in the article, the only long-term series corresponding even approximately to poverty and get-along standards are those developed by Ornati (1966) on the basis of a review of expert budgets for the period from 1905 through 1960. The budget levels denoted by Ornati as *minimum subsistence* and *minimum adequacy* have been taken by other researchers (Rainwater 1974; Kilpatrick 1973) to correspond respectively to the *poverty* and *get-along* levels. Kilpatrick estimated the elasticity of each with respect to average income, finding the respective elasticities to be 0.75 and 0.88. Thus, based on Kilpatrick's estimates, the ratio of the two elasticities with respect to average income is (0.75/0.88) or about 0.852. Since the 95-percent confidence intervals of the two estimates overlap (Kilpatrick 1973, p. 332), one can hardly put a great deal of confidence in his estimate of the ratio of the two. In addition, as Kilpatrick notes, Ornati had to construct the series on the basis of "studies by various persons in the past who differed in purpose, values, competence, and resources for research." Still, 0.85 probably does represent as reasonable an alternative to the assumption of unitary elasticity of the poverty standard, with respect to the get-along standard, as can be found. Nonetheless, 0.85 is quite close to the one chosen for this study (1.0). Consequently, a third Gallup-based poverty standard was developed assuming an elasticity of the poverty standard with respect to the get-along standard of 0.5, an elasticity only one-half that implicit in the Gallup-based poverty series presented as the focal point of this study.

Constructing the alternative Gallup-based standard.—Since Kilpatrick estimated his elasticities on the basis of constant dollars and in double log form, in the present context, their ratio may be taken to represent the proportion of the average year-to-year percentage change in the get-along measure that is reflected in the corresponding poverty standard when both are expressed in constant dollars. The alternative threshold series were constructed by assuming that the elements of the unobserved Gallup poverty series (P_i) were related to the elements (G_i) of the observed get-along series in the following manner:

$$P_i = \alpha G_i^{\beta} \quad i = 47 \ldots, 89$$
$$\text{and} \quad \alpha = P_{89} \div G_{89}^{\beta}$$

and where β in both instances represents the assumed value of the elasticity of the unobserved poverty series with respect to the Gallup get-along series—that is, alternatively 0.85 or 0.5. The two alternative series are presented in table A2 together with the get-along series, the series for the official Federal Government poverty standard, and the Gallup-based poverty series presented in the body of this study. Each series is ex-

pressed in current as well as constant dollar terms to facilitate comparison to the official poverty thresholds, which are conventionally expressed in current dollars. All five series are depicted in chart A1, expressed as a percentage of the median four-person family income after tax. (The three Gallup-based poverty series are denoted as GPovE1.0, GPovE0.85, and GPovE0.5 in the chart).

Discussion.—The assumption of an elasticity of the poverty series with respect to the get-along series of 0.85 as opposed to 1.0 would not alter the central findings of the study, namely that the official standard was inconsistent with the Gallup-based standard at the beginning of the post-World War II period and at the present time. Of course, given that all three Gallup-based poverty standards (the one employed in the study and the two alternatives considered here) necessarily share the same value in 1989, assumptions about the elasticity of a socially defined poverty threshold with respect to the get-along level can have no effect on study findings as they pertain to the end of the period.

The Gallup-based poverty series constructed on the basis of an elasticity of

Table A2.--Alternative Gallup-based poverty series based on differing assumptions about the elasticity of the poverty standard with respect to the Gallup get-along standard, 1947-89

Year	Gallup get-along series		Gallup-based poverty series used in current study[1]		Gallup-based poverty standards assuming, $P = \alpha G^{\beta}$ with alternative β's[2]						Official standard (current dollars)
					1967 dollars			Current dollars			
	(1967 dols.)	(current dols.)	(1967 dols.)	(current dols.)	$\beta = 1.0$	$\beta = .85$	$\beta = 0.5$	$\beta = 1.0$	$\beta = .85$	$\beta = 0.5$	
1947	$3,411	$2,350	$2,449	$1,688	$2,449	$2,656	$3,211	$1,688	$1,830	$2,213	$2,278
1948	3,740	2,700	2,685	1,939	2,685	2,873	3,362	1,939	2,074	2,428	2,455
1949	3,622	2,586	2,601	1,857	2,601	2,796	3,309	1,857	1,996	2,363	2,432
1950	3,549	2,495	2,548	1,792	2,548	2,748	3,275	1,791	1,932	2,303	2,455
1951	3,673	2,860	2,637	2,054	2,637	2,829	3,332	2,053	2,203	2,595	2,649
1952	4,025	3,224	2,890	2,315	2,890	3,058	3,488	2,315	2,449	2,794	2,707
1953	3,907	3,110	2,805	2,233	2,805	2,981	3,437	2,233	2,373	2,735	2,728
1954	4,135	3,320	2,969	2,384	2,969	3,128	3,535	2,384	2,512	2,839	2,741
1957	4,563	3,888	3,277	2,792	3,277	3,402	3,714	2,792	2,899	3,165	2,871
1958	4,934	4,273	3,543	3,068	3,543	3,635	3,862	3,068	3,148	3,345	2,949
1959	4,938	4,316	3,546	3,099	3,546	3,638	3,864	3,099	3,180	3,377	2,973
1960	4,780	4,240	3,432	3,045	3,432	3,539	3,802	3,044	3,139	3,372	3,022
1961	4,847	4,328	3,480	3,108	3,480	3,581	3,828	3,107	3,198	3,418	3,054
1962	4,809	4,323	3,453	3,104	3,453	3,557	3,813	3,104	3,198	3,428	3,089
1963	4,741	4,328	3,404	3,108	3,404	3,514	3,786	3,108	3,209	3,456	3,128
1964	4,747	4,438	3,408	3,187	3,408	3,518	3,788	3,187	3,289	3,542	3,169
1966	5,187	5,044	3,724	3,622	3,724	3,793	3,960	3,622	3,689	3,851	3,335
1967	5,681	5,772	4,079	4,145	4,079	4,099	4,144	4,144	4,164	4,210	3,410
1969	5,729	6,136	4,113	4,406	4,113	4,128	4,162	4,406	4,421	4,457	3,743
1970	5,501	6,552	3,950	4,705	3,950	3,988	4,078	4,704	4,750	4,857	3,968
1971	5,768	7,072	4,142	5,078	4,142	4,152	4,176	5,078	5,090	5,120	4,137
1973	6,067	7,748	4,356	5,564	4,356	4,334	4,283	5,563	5,535	5,469	4,540
1974	6,211	8,788	4,459	6,311	4,459	4,421	4,333	6,310	6,256	6,131	5,038
1975	5,363	8,372	3,851	6,012	3,851	3,903	4,027	6,011	6,092	6,286	5,500
1976	5,833	9,724	4,188	6,983	4,188	4,192	4,199	6,982	6,987	7,000	5,815
1977	5,843	10,348	4,195	7,431	4,195	4,198	4,203	7,430	7,434	7,443	6,191
1978	5,950	11,388	4,272	8,178	4,272	4,263	4,241	8,177	8,159	8,117	6,662
1979	6,127	12,688	4,399	9,111	4,399	4,370	4,304	9,110	9,050	8,913	7,412
1980	5,497	13,000	3,947	9,335	3,947	3,985	4,077	9,334	9,425	9,641	8,414
1981	5,624	15,808	4,038	11,352	4,038	4,063	4,123	11,350	11,422	11,590	9,287
1982	5,588	15,808	4,012	11,352	4,012	4,041	4,110	11,350	11,433	11,627	9,862
1983	5,608	16,380	4,026	11,763	4,026	4,053	4,117	11,761	11,840	12,027	10,178
1984	5,738	17,368	4,120	12,472	4,120	4,133	4,165	12,470	12,511	12,607	10,609
1985	5,806	18,148	4,168	13,032	4,168	4,175	4,189	13,030	13,050	13,096	10,989
1986	5,856	18,928	4,205	13,592	4,205	4,206	4,208	13,590	13,593	13,599	11,203
1989	5,864	21,788	4,210	15,646	4,210	4,210	4,210	15,644	15,644	15,644	12,675

Note: All needs standards defined on an after-tax basis.

[1] Constructed by assuming the poverty standard to be $\cong 0.72$ of the get-along standard for each year of the get-along series--that is, that the ratio observed in 1989 held throughout the period.

[2] The values of α corresponding to the assumed elasticities of 1.0, 0.85, and 0.5 are 0.72, 2.64, and 54.98 respectively, where $\alpha = P + G^{\beta}$ and P and G are the Gallup poverty and get-along level incomes for 1989 expressed in constant 1967 dollars using the CPI; β is the assumed elasticity of the poverty standard with respect to the get-along standard. Differences between columns 4 and 8 due to rounding.

Source: Table 1 and computations by author.

the poverty standard with respect to the get-along standard of 0.50 does yield a poverty standard approximately the same level as the official threshold at the beginning of the period. But this is hardly credible, because it also would lie quite close to, if not within the general range of, the get-along standard. Since the substantial difference in the social meaning attached to the two levels has been well established by Rainwater (1974), the finding of a socially defined poverty level so close to the get-along range is not credible. In fact, the results of this sensitivity analysis serve to emphasize that the basic study findings are tied to three fundamental pieces of information that are wholly unaffected by the nature of the elasticity assumption used to create a Gallup-based poverty series—that is, the level of the get-along standard immediately after World War II, and the levels of the Gallup get-along and poverty standards in 1989. The context that they provide the poverty series consistent with the official measure strongly suggests that the "official" standard has changed its meaning over the past four decades. Starting at a level likely well above a socially defined poverty standard, it declined steadily as a fraction of the after-tax income of four-person families until reaching, at the present time, a level somewhat below a socially defined poverty threshold.

Notes

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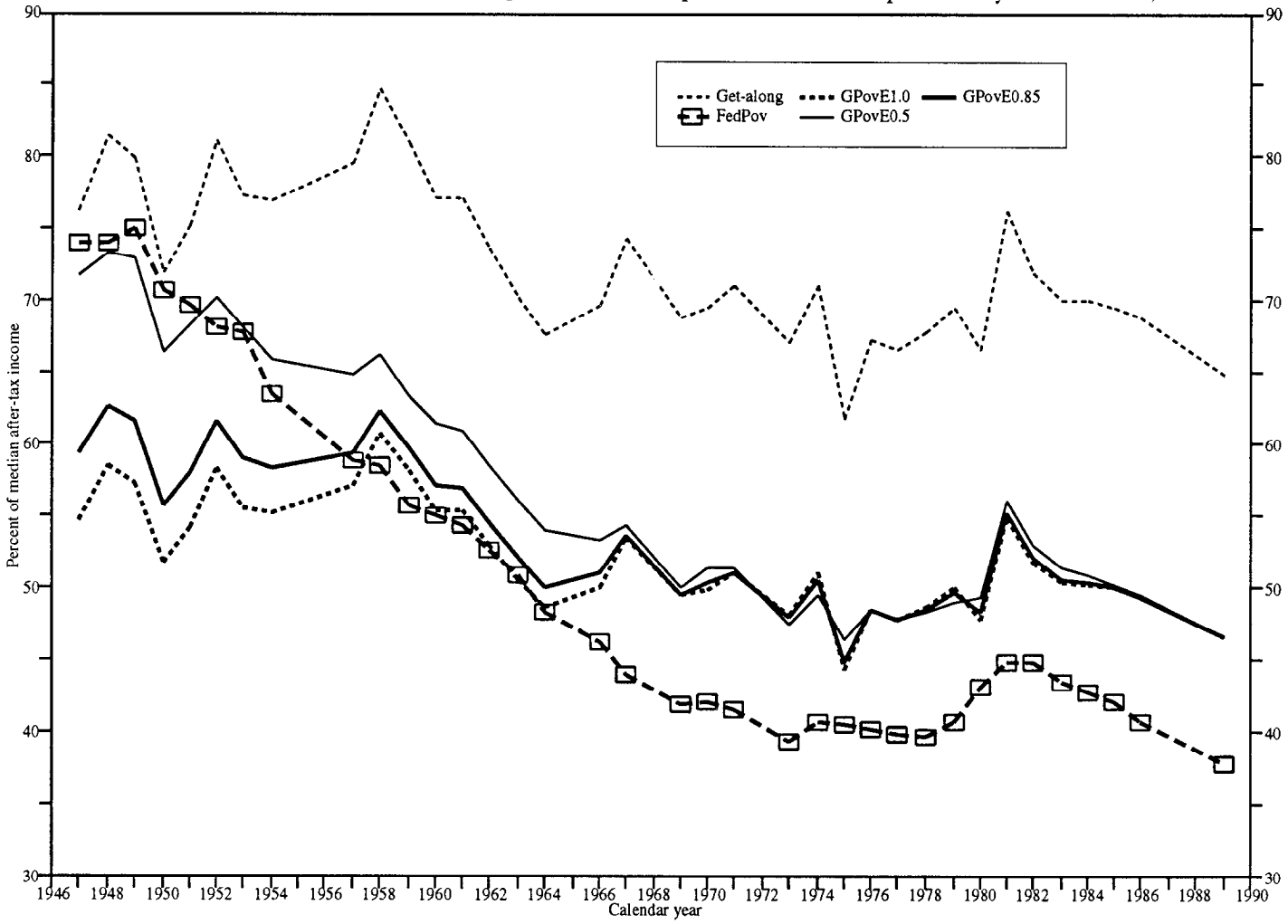
[1] Recently, the Committee on National Statistics (CNSTAT) has established a panel of experts to review the current implementation of the official Federal poverty measure. This article, originally drafted in response to an invitation for the present author to participate in a panel discussion on the measurement of poverty organized by Dr. Bruce Klein and held at the August 1991 meetings of the American Statistical Association, was also presented at the initial meeting of the CNSTAT panel in June 1992.

[2] For example, work by Garner and de Vos (1990 prepublication draft) demonstrates that an individual's assessment of minimum income needs tends to be higher if he or she

Chart A1.--Alternative after-tax needs standards for four-person families as a percent of median four-person family income after tax, 1947-89



personally experiences large fixed expenses attributable, for the most part, to housing costs. Thus, it could be argued that the "subjective" taste for housing leads to "spurious" increases in the assessment of minimum income needs. In the context of the expert budget approach to setting minimum income thresholds, the same sort of problem exists, but in a less tractable form. For example, Schwarz and Volgy (1992, p. 44) set a minimum housing expenditure standard for a family of four at the 45th percentile of all two-bedroom rentals (the current Department of Housing and Urban Development low cost standard). Renwick and Bergmann (1993, p. 7), however, selected the 25th percentile of the rental distribution of two-bedroom units. While the choices of the consumers with well-developed tastes for housing may, perhaps, be rationalized in terms of reference group theory (Alessie and Kapteyn 1988) or social communication processes and are appropriately weighted when captured in the context of representative samples of the adult population, no such rationalizations are available to account for the decisions of expert budgeteers.

[3] Although income-satisfaction measures and subjective needs standards have been shown to vary systematically by region and size of place, such variations may well reflect differences in expectations as well as in possible differences in living costs.

[4] The general approach taken by Rainwater might possibly be implemented using income satisfaction measures such as those experimented with by Vaughan and Lancaster (1979, 1980). If the condition of poverty is taken to represent a special case of the general decline in economic well-being associated with decreasing incomes below the median, then the rapid decline in satisfaction with family income that is clearly observable below the median income (Vaughan and Lancaster 1979) could be interpreted as a deprivation indicator and used to measure the increasing degree of poverty below any given threshold value.

[5] The question is worded as follows: *What is the smallest amount of money a family of four (husband, wife and two children) needs each each week to get along in this community?*

[6] As presented in Rainwater (1974), Ornati's (1966) data yield the following minimum subsistence to minimum adequacy budget ratios for the years 1945-60: 1945-49, 0.67; 1950-54, 0.70; and 1955-60, 0.63.

[7] While Kilpatrick proceeded on the assumption that changes in the get-along amount with respect to average income are a serviceable indicator of similar changes in a poverty line (1973, p. 327), he also notes that the income elasticity of the get-along level, being closer to average income, might be higher than that of a poverty line. He cites the results of his analysis of Ornati's budget figures that indicate relatively higher elasticities associated with higher as opposed to lower budget standards (1973, p. 329). He finds the ratio of the elasticities of minimum subsistence to minimum adequacy budgets to be 0.75/0.88 (or about 0.852.) However, the 95 percent confidence intervals for the elasticities overlap and Kilpatrick (1973, p. 332) notes that "the data are necessarily weak, for any series now put together has to be based on studies by various persons in the past who differed in purpose, values, competence, and resources for research." See the Technical Appendix for an assessment of the implication of alternative assumptions about the relative elasticities of these two living levels.

[8] In 1960, the year Leveson selected, the official threshold for a family of four was 48 percent of median four-person family income before tax and 55 percent of the median four-person family income net of estimated Federal income and Social Security payroll taxes. In 1963, the year for which the official measure was first fully implemented, the four-person threshold represented about 44 percent of the median before-tax income of four-person families. In 1955, the year in which the key one-to-three food-to-income ratio was measured, the four-person threshold backcast using the CPI amounted to about 60 percent of the four-person median income before tax. In 1989, the four-person threshold represented only 38 percent of the median four-person family income after tax (see table 1 for the source of these percentages).

[9] The May 1989 poll included 1,073 adults (O'Hare 1990, p. 38). The four polls from July through October 1989 included approximately 1,000 adults each and yielded 3,511 usable responses (O'Hare *et al.*, 1990, p. 18).

[10] My estimates for the elasticity of the get-along series with respect to the median income of four-person families provide, at best, only equivocal support for this view. Using get-along means estimated directly from publicly available files (Rainwater 1974 and 1990) expressed in constant dollars (see table 1 in this article for the corresponding means expressed in current dollars; both current and the constant dollar versions of the series are provided in the Technical Appendix table A2) and a double log specification, I did find that the estimated elasticity is somewhat higher when using median four-person family income net of Federal income and FICA payroll taxes as opposed to the corresponding median gross of tax (0.80 vs. 0.65). However, the fit is no better when the net-of-tax variable is used for family income; actually the R^2 is very slightly lower on a net basis (0.946 vs. 0.951). In both instances, income and the get-along values were expressed in constant 1967 dollars using the Consumer Price Index.

[11] Unpublished estimates of simulated tax liability of four-person households by before-tax income class provided by the Bureau of the Census suggest that a four-person family with a before-tax income at the Gallup poverty standard ($15,646) would have an after-tax income of about $14,750 (using a definition of taxes that includes Federal and State income and Federal payroll taxes but excludes property taxes and Federal civilian employee retirement contributions). Thus, were the Gallup poverty level to represent income before tax, placing it on an after-tax basis using the preceding estimate would lower the ratio of the Gallup poverty to the get-along level slightly, to about 0.68. This ratio would still be quite consistent with that found for Boston in the late 1960's by Rainwater (1974, pp. 94-117) and very similar to that found by Ornati (0.67) for 1945-49 immediately following World War II (as derived from Rainwater's analysis of Ornati's data (Rainwater 1974, table 3-1, p.46)).

[12] A subsidiary of the Yale University Social Science Library, Special Collections section.

[13] In his more recent work, Rainwater provides medians and geometric means, in addition to arithmetic means, for 23 observations. He argues that the frequency of rounded responses produces instability in the medians that is avoided by using means (Rainwater 1990, p. 5). He notes that the median averages 95.1 percent of the arithmetic mean and the geometric mean averages 90.3 percent of the arithmetic mean for the 23 observations included in his appendix. Obviously, use of either of the two alternatives would result in a get-along estimate that was somewhat lower, and by inference, a lower Gallup-based poverty standard as well. However, since the focus of the current study is on the relationship between the Gallup social standards and the official threshold, means are likely the preferred representation

of the social-needs standards in any case. This is because the official thresholds themselves, given the way in which they were constructed, are essentially means—that is, the food-to-income ratio was derived as the *ratio of mean food expenditures* to mean income.

[14] There is generally more than one source for the value of the Gallup get-along standard in any given year. The Gallup Organization itself is the most convenient source and has routinely published values for nearly the entire series several times during the 1970's and 1980's (for example, *The Gallup Report*, No. 248, p. 3). However, there are a number of difficulties with the series published by Gallup. First, the Gallup medians apparently exclude farm households. On occasion, this fact is noted in *The Gallup Report*. According to Alec Gallup (personal communication, August 1991), estimates published by the Gallup Organization have always been based on the responses of nonfarm households only. While farm households were reportedly always asked the get-along question, they were always excluded before the median was derived. In addition, certain conventions for dealing with the pervasive rounding of responses were developed when the get-along levels were quite modest. Apparently, these procedures did not perform as well when the average level climbed a good deal higher in the late 1970's and 1980's. This problem was related to an at least temporary suspension of the series after 1986 (Diane Colasanto, former chief methodologist for the Gallup Organization, personal communication). Incidentally, which get-along values are chosen can make quite a bit of difference analytically. Initial estimates of the elasticity of the get-along series with respect to the median income net of taxes of four-person families using a double log specification yielded a point estimate of 0.68 when the series was constructed using Rainwater's (1974) estimates through 1969, values from *The Gallup Report* for the remaining years prior to 1986, and O'Hare's (1990) estimate for 1989. Substituting the means that Rainwater (1990) provides for the later years, when available, raised the point estimate to 0.78, and dropping the remaining five medians published only in *The Gallup Reportt* further increased the estimated elasticity to 0.80.

[15] An additional aspect of the Gallup measurement procedures ought to be noted. The month of collection was not fixed. And in some years it was asked more than once. Information on month of collection is provided in column 2 of table 1.

[16] Of course, there is certainly more than one procedure for measuring poverty standards based on the views of society's members. Two promising alternatives to the approach taken by the Gallup Organization are those of Rainwater (1974, pp. 94-117), in which judgments about the poverty standard are elicited in the context of judgments about a range of living levels, and an approach developed by the Leyden Group (Goedhart; Halberstadt; Kapteyn; and van Praag 1977) and most recently experimented with by Statistics Canada (Morissette and Poulin 1991). Although the procedures of the Leyden Group are frequently said to yield estimates of a poverty-level threshold, to my knowledge, with only one exception (Dubnoff 1985), respondents have not been expressly asked to estimate the income level associated with poverty. In the two instances in which their general procedure has been administered to nationally representative samples in the United States (Danziger *et al.* 1984; Garner and de Vos 1990), the resulting thresholds have been well above what would be considered to be a poverty standard. Results of the recent Canadian experiments suggest that they may have developed a question wording that yields a level in the general poverty range, but as the question did not make reference to poverty *per se*, there is uncertainty about how the resulting resource level actually relates to a poverty-level standard. (The wording of the question is: *In your opinion, how much would you have to SPEND each year in order to provide the BASIC necessities for your family? By basic necessities, I mean barely adequate food, shelter, clothing and other essential items required for daily living.)* In any case, even if a number of the methodological issues surrounding these different procedures could be put to rest, it is not clear that they would yield wholly similar results. Until the necessary research is undertaken to settle such questions, it would be premature to embrace the recent Gallup results uncritically.

[17] Although the assumption of unitary elasticity of the two series is not unreasonable, it is clearly arguable. Consideration of two alternative Gallup-based poverty series using elasticities of 0.85 and 0.5 in the Technical Appendix tends to support the general findings stemming from a series constructed on the basis of unitary elasticity.

[18] Prior to 1969, when the Social Security Administration's (SSA's) poverty thresholds were adopted as the official Federal statistical measure of poverty, the lines had been updated annually based on changes in the cost of the Department of Agriculture's economy food plan. With the adoption of the SSA thresholds as the official measure, the lines were adjusted forward from the 1963 base year for price change based on the CPI rather than on change in the cost of the economy food plan, and the official set of thresholds was projected back to 1959 on the basis of the CPI (Bureau of the Census 1969, p. 11). Prior to 1978, the CPI was estimated for Urban Wage Earners and Clerical Workers (CPI-W). In January 1978, the Bureau of Labor Statistics introduced a second version, the Consumer Price Index for all Urban Consumers (CPI-U). From 1979 to the present, the poverty thresholds were adjusted for price changes using the CPI-U (Fisher 1993, p. 10). Unless specifically noted, in this study, mention of the CPI after that date denotes the CPI-U.

[19] Food share was taken by Orshansky (1965a, 1965b) as a useful indicator of economic well-being. As she noted (1965a, p. 7): *A declining percentage has been associated with prosperity and higher income, and the rising percentage associated with lower income has been taken as an indicator of stringency.* Loosely speaking, the total poverty budget was originally estimated as the product of the reciprocal of the food share (the so-called food multiplier) and the amount of the economy food plan, by family size.

[20] The same information is also available for 1946, the first year that Gallup administered the get-along question. However, it excludes the rural farm population.

[21] The Bureau of the Census did not publish these statistics by family size for 1953 and 1954. Medians for families with two related children under age 18 were released, and four-person family medians for these 2 years were estimated based on the relationship between the median income of four-person families and the median income for families with two related children under age 18 in adjacent years (1947-52 and 1955-60). However, no attempt was made to estimate the distribution of four-person families by amount of money income for these years.

[22] Although there is a great deal of controversy surrounding the comparison of an expanded resource measure including the value of publicly provided noncash benefits to the official poverty thresholds, it is probably true that the social science community would hold that the official measure represents, by and large, a money income requirement. While the Gallup get-along threshold clearly refers to a cash income concept—that is, the question refers explicitly to *money*, the

Gallup poverty item refers only to *income*. Were it to be found that the answers of respondents who were receiving noncash benefits were systematically lower than the answers of respondents in otherwise similar circumstances, it might be argued that the resulting Gallup threshold at least partially reflected the value of noncash benefits. However, at present there is no direct evidence with regard to the Gallup measures that this is the case, so for purposes of this study, the Gallup threshold is treated as representing a strictly cash income requirement.

[23] However, to the extent that eligibility criteria are directly or indirectly linked to the "reigning" statistical measure, a linkage present in the current environment, after a period of adjustment following the introduction of a set of higher "updated" thresholds, the pattern associated with the existing thresholds and the impact of noncash benefits would likely reappear.

[24] In effect, the current version of the official measure was originally defined on an after-tax basis because the denominator of the food ratio was after-tax money income. And while it is true that until the past 10 years or so the official threshold has been applied in conjunction with income defined on a before-tax basis, this practice has been the subject of strong criticism (Ellwood and Summers 1986, pp. 12-14). Beginning in the early 1980's, the Bureau of the Census developed the ability to produce after-tax income estimates and recently introduced experimental estimates of poverty that do provide comparisons of the official threshold to income defined on an after-tax basis (1988). The first published Bureau of the Census estimates of poverty based on a comparison of after-tax income to the official thresholds appeared in 1983 (Bureau of the Census 1983) and pertained to income year 1980.

[25] Even if the microdata were available, the task of creating after-tax estimates would obviously have been well beyond the resources available for this study.

[26] The Federal Insurance Contributions Act (FICA) refers to the law authorizing payroll taxes.

[27] Analysis of table 1 indicates that the value for 1961, at 77 percent of median income net of tax, ought to be placed in the first period.

[28] Recall that for the 1945-49 period, Ornati's minimum subsistence (poverty) series averaged 67 percent of the minimum adequacy (get-along) series (see note 6).

[29] Note that with respect to both Gallup standards, the years with the highest percent ages are 1975 and 1980, 2 years based on the median amounts as published by Gallup.

[30] As noted earlier, the current official measure was originally constructed on an after-tax basis, but until relatively recently, in the CPS context it has consistently been compared with income before tax.

[31] The Bureau of the Census' estimates of tax liability include, in addition to Federal income and FICA payroll taxes, State income taxes, mandatory Federal employee retirement contributions, and property taxes. Adjustments were made to exclude retirement contributions and property taxes from estimates of tax liability before construction of the before-tax needs standards for the 1980's. Because the Bureau of the Census has released the microdata files that contain detailed tax liability estimates for individual households, it would have been technically possible and preferable to use the microdata files to directly determine tax liability of four-person units with incomes corresponding to the three needs levels. However, that approach was not possible given the time and computer processing resources available for the study. The decision to include State income taxes in the definition of taxes for the recent period but to ignore them for the years immediately after World War II does make for a formal inconsistency between the definition of taxes employed to construct the before-tax needs standards for the two periods under consideration. The practical effect of the failure to account for the impact of State income taxes in the immediate post-World War II period is likely to be negligible given the rarity of State income taxation at that time. However, including them for the later period is clearly preferable because they represent income not available to meet minimum consumption needs (according to published Bureau of the Census estimates, State income taxes during the 1980's amounted to 2-3 percent of the before-tax income of four-person families with incomes at the four-person family median).

[32] When the study was undertaken, a distribution of four-person families by income level for 1989 had not been published. Since the distribution of families by income level is required to derive poverty counts and rates, 1986, the last year for which the Gallup measures and distributional estimates were available, was chosen as the endpoint for the "current" time period. The necessary distributional information is now available for 1989 (Bureau of the Census 1991) and has been used to add poverty counts and rates for 1989 as shown in table 1. Estimates of before-tax needs standards for 1989 were also developed and are included in table 2. However, the ending 6-year span was still defined as the period from 1981 through 1986 because get-along observations are available for only 4 of the 6 years from 1984 through 1989.

[33] As the rates are derived from before-tax income distributions using straight-line interpolation, they often differ slightly from the official estimates for years since 1959 that were produced on the basis of comparison of the CPS microdata to the full poverty matrix. Generally speaking, when the rates shown here differ from the official published rates, they do so only by 0.1 or 0.2 percentage points.

[34] Unpublished data made available by the Bureau of the Census after the before-tax versions of the thresholds were constructed indicate that the adjustments used for this study to exclude property taxes and Federal civilian employee retirement contributions from estimated tax liability resulted in an overestimate of the share of tax liability attributable to property tax. Incorporation of this new information into the estimation process would probably increase the level of the before-tax thresholds slightly.

[35] Ruggles presents much the same information for the three-person family threshold in her table 3.3 (1990, p. 53). The present author has substituted the years 1973 and 1986 for 1972 and 1987 because the basic Gallup question was not asked in the latter years. Details on the construction of the alternative thresholds corresponding to those presented in columns (1), (2), and (6) of table 3 of this article are given in appendix A of Ruggles' book. Those same procedures, with appropriate modifications to account for the difference in family size, were used to construct the updated thresholds for four-person families. The small differences in threshold change over the period between the estimates she provides and those given for the corresponding alternatives in columns (2) and (6) of table 3 are attributable almost wholly to the use of the different years in the table, particularly the substitution of 1986 for 1987 as the period endpoint.

[36] Note that the median employed here and by Ruggles pertains to families of two or more persons—that is, it excludes unrelated individuals. A median based on a universe of families including unrelated individuals would be noticeably lower.

[37] The Gallup-based poverty threshold derived directly from the annual get-along amount obtained for 1967 was not used. An alternative was constructed by multiplying

the 1967 median income net of tax for a family of four times the average of the Gallup-based poverty standards for 1966 and 1969 as percentages of the corresponding after-tax medians for those years. This procedure was employed in favor of using the observed get-along level for 1967 because the standard lies 4-5 percentage points closer to the after-tax median income in 1967 than in 1966 and 1969, the two most adjacent years with get-along observations. This anomaly may be due to the collection of the get-along responses for 1967 in December, at the end of the year, when they would likely reflect the full effect of the large 7-percent increase in after-tax income for 1966-67.

[38] For example, as early as 1965, Orshansky (1965b, p. 8) asserted that the "new poverty index represents an attempt to specify the minimum money income . . . consistent with the standards of living prevailing in this country." Ruggles (1991, p. 38) has recently argued that the wide-spread acceptance of the Orshansky threshold at the time of its appearance strongly suggests that Orshansky succeeded in this regard.

[39] The basic CPI-X1 procedures for treatment of housing costs were incorporated in the CPI revision introduced in the late 1980's. However, the distortions introduced during the period of rapidly rising housing prices in the late 1970's and early 1980's by the earlier procedures are reflected in the base-year values of the revised series.

[40] Of course, this is as would be expected if, over time, changes in socially defined income minima are closely linked, in a pro portional sense, to changes in the average level of "disposable" economic resources available to society's families. This will be true if the elasticity of the income minima with respect to after-tax income is close to 1.0.

[41] The Fendler/Orshansky update of the original poverty threshold yielded a 1977 weighted threshold for four-person families of $7,442 with a corresponding poverty rate for four-person families of 11.1 and a poverty count of 1.31 million (Fendler and Orshansky 1979, tables 2 and 3). This compares with a threshold of $7,431, a poverty rate of 11.0, and a count of 1.29 million families using the Gallup-based poverty line for that year. The corresponding threshold associated with Ruggles' (1990) updated multiplier standard is $8,185, or about 10 percent higher than the Fendler/Orshansky update threshold. Thus, the thresholds for all three of these poverty thresholds were relatively close in 1977. It is only with the introduction of decreasing food weights after 1977 that the food multiplier update begins to rapidly diverge from most of the other approaches. In fact, by 1986, it had climbed to within $300 of the get-along level.

[42] Ruggles (1990, appendix A and table A.5) also constructed an update based on housing needs. In 1977, the first year for which she was able to implement the standard, at $8,976, it was 20 percent above the Gallup poverty level and 13 percent below the Gallup get-along income. This update's 1987 level ($17,920) was about 32 percent above the 1986 Gallup poverty level and only 5 percent below the 1986 Gallup get-along amount.

[43] Obviously in this regard, the findings reported here only serve to reiterate the results of previous research, for example, Kilpatrick (1973); Leveson (1978); and Rainwater (1974, 1990).

[44] The analysis shows that this relationship is apparent only if income is stated in after-tax terms. Fuchs (1965, 1967) introduced the notion of the 50th percentile in a very informal fashion and did not explicitly raise the issue of the income definition. However, his discussion was cast in terms of income before tax.

[45] The original price indexing from point of collection back to 1988 was done at the micro level—that is, the value given by each respondent was multiplied by the CPI factor appropriate for the month of interview. The reversal of that process was implemented on the published median value and so will likely differ slightly from a directly tabulated median for the values obtained at time of collection.

References

Alessie, Rob J. M. and Arie Kapteyn. 1988. "Preference Formation, Incomes, and the Distribution of Welfare," *Journal of Behavioral Economics*, Vol. 17, No. 1, pp. 77-96.

American Institute of Public Opinion. 1985. "Family of Four Needs $302 per Week to Get By," *The Gallup Report*, No. 234, pp. 17-18.

_____.1986. "Family of Four Needs $349 per Week to Get By," *The Gallup Report*, No. 248, pp. 2-4.

Bradbury, Bruce. 1989. "Family Size Equivalence Scales and Survey Evaluations of Income and Well-Being," *Journal of Social Policy*, Vol. 18, No. 3, pp. 383-408.

Bureau of the Census. 1968. "Income in 1967 of Families in the United States: 1968," *Current Population Reports* (Series P-60, No. 59). Washington, DC: U.S. Government Printing Office.

_____. 1969. "Poverty in the United States: 1959-1968," *Current Population Reports* (Series P-60, No. 68). Washington, DC: U.S. Government Printing Office.

_____. 1983. "Estimating After-Tax Money Income Distributions Using Data From the March Current Population Survey," *Current Population Reports* (Series P-23, No. 126). Washington, DC: U.S. Government Printing Office.

_____. 1987. "Money Income of Households, Families, and Persons in the United States: 1986," *Current Population Reports* (Series P-60, No. 159). Washington, DC: U.S. Government Printing Office.

_____. 1988. "Measuring the Effect of Benefits and Taxes on Income and Poverty: 1986," *Current Population Reports* (Series P-60, No. 164-RD-1). Washington, DC: U.S. Government Printing Office.

_____. 1989. "Money Income and Poverty Status in the United States: 1988." *Current Population Reports*, (Series P-60, No. 166: advance data from the March 1989 Current Population Survey). Washington, DC: U.S. Government Printing Office.

_____. 1991. "Money Income of Households, Families, and Persons in the United States: 1988 and 1989," *Current Population Reports* (Series P-60, No. 172). Washington, DC: U.S. Government Printing Office.

Colasanto, Diane; Arie Kapteyn; and Jacques van der Gaag. 1984. "Two Subjective Definitions of Poverty: Results from the Wisconsin Basic Needs Study," *Journal of Human Resources*, Vol. 28, No. 1, pp. 127-138.

Danziger, Sheldon; Jacques van der Gaag; Michael Taussig; and Eugene Smolensky. 1984. "The Direct Measurement of Welfare Levels: How Much Does It Cost to Make Ends Meet?" *Review of Economics and Statistics*, Vol. 66, No. 3. pp. 500-505.

Dubnoff, Steven. 1985. "How Much Income Is Enough? Measuring Public Judgments," *Public Opinion Quarterly*, Vol. 49, No. 3, pp. 285-299.

_____; Denton R. Vaughan; and Clarise Lancaster. 1981. "Income Satisfaction Measures in Equivalence Scale Application," *American Statistical Association*

1981 Proceedings of the Business and Economic Statistics Section. Washington, DC. pp. 348-352.

Duesenberry, James S. 1949. *Income, Savings, and the Theory of Consumer Behavior*. Cambridge, MA: Harvard University Press.

Ellwood, David T. and Lawrence H. Summers. 1986. "Measuring Income: What Kind Should Be In?" in Bureau of the Census' *Conference on the Measurement of Noncash Benefits*, pp. 8-27.

Fendler, Carol and Mollie Orshansky. 1979. "Improving the Poverty Definition," *American Statistical Association 1979 Proceedings of the Social Statistics Section*. Washington, DC. pp. 640-645.

Fisher, Gordon. 1993. "The Development and History of the Poverty Thresholds," *Social Security Bulletin*, Vol. 55, No. 4 (Winter), pp. 3-14.

Fuchs, Victor R. 1965. "Toward a Theory of Poverty," in *The Concept of Poverty*. Washington, DC: Chamber of Commerce. pp. 74-77.

_____. 1967. "Redefining Poverty and Redistributing Income," *Public Interest*, Vol. 8 (Summer), pp. 88-95.

Garner, Thesia I. and Klass de Vos. 1990. "Income Sufficiency, Expenditures, and Subjective Poverty: Results from the United States and the Netherlands," a paper presented at the Fifth Karlsruhe Seminar on Models and Measurement of Welfare and Inequality, August 12-19. Karlsruhe, Federal Republic of Germany. (Revised version, December 1990.)

Goedhart, Theo; Victor Halberstadt; Arie Kapteyn; and Bernard M. S. van Praag. 1977. "The Poverty Line: Concept and Measurement," *Journal of Human Resources*, Vol. 12, No. 4, pp. 503-520.

Kapteyn, Arie, and Bernard M. S. van Praag. 1976. "A New Approach to the Construction of Family Equivalence Scales," *European Economic Review*, Vol. 7, pp. 313-335.

Kilpatrick, Robert W. 1973. "The Income Elasticity of the Poverty Line," *Review of Economics and Statistics*, Vol. 55, No. 3, pp. 327-332.

_____. (n.d.) Unpublished appendices to Kilpatrick (1973 above), type script.

Leveson, Irving. 1978. "Updating Poverty Standards and Program Benefits," *Growth and Change*. January. pp. 14-22.

Miller, Herman P. 1965. "Changes in the Number and Composition of the Poor," in *Poverty in America*, Margaret S. Gordon, (ed.). San Francisco, CA: Chandler Publishing. pp. 81-101.

Morissette, René and Susan Poulin. 1991. *Income Satisfaction Supplement: Summary of Four Survey Years*. Ottawa, Canada: Statistics Canada, Labour and Household Surveys Analysis Division.

O'Hare, William; Taynia Mann; Kathryn Porter; and Robert Greenstein. 1990. *Real Life Poverty in America: Where the American Public Would Set the Poverty Line*. Washington, DC: The Center on Budget and Policy Priorities and the Families USA Foundation. July.

O'Hare, William. 1990. "What Does It Take to Get-Along?" *American Demographics*, Vol. 12, No. 5 (May), pp. 36-39.

Ornati, Oscar. 1966. *Poverty Amid Affluence*. New York: Twentieth Century Fund.

Orshansky, Mollie. 1965a. "Counting the Poor: Another Look at the Poverty Profile," *Social Security Bulletin*, Vol. 28, No. 1, pp. 3-29.

_____. 1965b. "Who's Who Among the Poor: A Demographic View of Poverty," *Social Security Bulletin*, Vol. 28, No. 7, pp. 3-32.

Rainwater, Lee. 1974. *What Money Buys: The Social Meanings of Income*. New York: Basic Books.

_____. 1990. "Poverty and Equivalence as Social Constructions," a paper prepared for the Seminar on Families and Levels of Living: Observations and analysis, European Association for Population Studies, October 29-31. Barcelona, Spain. August 1990.

_____. 1992. "Family Equivalence as a Social Construction," a paper prepared for presentation at the 1992 Annual Meetings of the American Economics Association.

Renwick, Trudi J. and Barbara R. Bergmann. 1993. "Budget-Based Poverty Measurement," *Journal of Human Resources*, Vol. 28, No. 1, pp. 1-24.

Ruggles, Patricia. 1990. *Drawing the Line: Alternative Poverty Measures and Their Implications for Public Poverty*. Washington, DC: The Urban Institute Press.

Saunders, Peter and Bruce Bradbury. 1989. "Some Australian Evidence on the Consensual Approach to Poverty Measurement" (Discussion Paper No. 14). Australia: The University of New South Wales, Social Welfare Research Centre.

Schwarz, John E. and Thomas J. Volgy. 1992. *The Forgotten Americans*. New York: W. W. Norton and Company.

Smolensky, Eugene. 1965. "The Past and Present Poor," in *The Concept of Poverty*. Washington, DC: Chamber of Commerce, Task Force on Economic Growth and Opportunity.

Smeeding, Timothy; Barbara Torrey; and Martin Rein. 1988. "Levels of Well-Being and Poverty Among the Elderly and Children in the U.S. and Other Major Countries," in *The Vulnerable: America's Young and Old in the Industrial World*, J. Palmer; T. Smeeding; and B. Torrey (eds.). Washington, DC: The Urban Institute Press.

Statistics Canada. 1991. "Results of the Low Income Review" (Appendix), *Income distributions by size in Canada 1990*, Catalogue No. 13-207. Ottawa, Canada. pp. 167-174.

Vaughan, Denton R. 1984. "Using Subjective Assessments of Income to Estimate Family Equivalence Scales: A Report on Work in Progress," *American Statistical Association 1984 Proceedings of the Social Statistics Section*. Washington, DC. (A revised version of this paper, with corrections to the after-tax income algorithm, is available from the author.)

_____and Clarise Lancaster. 1979. "Income Levels and Their Impact on Two Subjective Measures of Well-Being: Some Early Speculations from Work in Progress," *American Statistical Association 1979 Proceedings of the Social Statistics Section*. Washington, DC. pp. 271-276.