

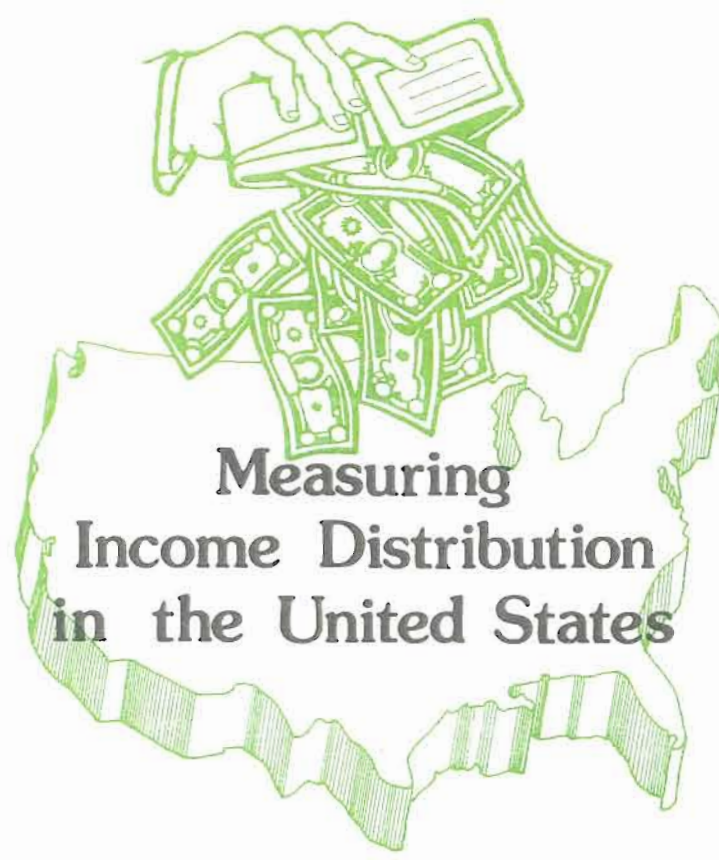
# BUSINESS REVIEW

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**Measuring  
Income Distribution  
in the United States**

and  
Housing Decay: Cause or  
Symptom of Urban Decline?

MARCH/APRIL 1978

**MEASURING INCOME DISTRIBUTION  
IN THE UNITED STATES**

*Timothy Hannan*

. . . . How evenly is income distributed? That depends on what you count as income, says the author.

**HOUSING DECAY: CAUSE OR SYMPTOM  
OF URBAN DECLINE?**

*Anthony M. Ruffolo*

. . . . Focusing on the economic sources of deterioration can help urban policymakers get the most out of the limited resources available for improved urban housing.

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## Measuring Income Distribution in the United States

*By Timothy Hannan\**

The decades since World War II have seen a good deal of legislation intended to make the incomes of Americans more nearly equal. Boosts in the minimum wage, job training programs, and tax changes have been focused on this goal, and income distribution has become one of the chief concerns of government policy as health, education, and welfare have come to absorb the largest part of the Federal budget.

While policymaking has gone forward at a record pace, however, the information on income distribution and its trend over time remains problematic. Some see only small gains in the relative income standing of the poor; the wealthy complain of tax revisions

that drain their wealth away; and the middle class has the not-so-vague feeling of being squeezed from both sides.

If ordinary citizens' views of income distribution are in conflict, they aren't much more at odds with one another than the findings of different researchers. The overall consensus of economists is that income distribution has remained more or less stable since the war. But some have claimed to find increasing inequality, while others have thought they saw a steady egalitarian trend.

In the past couple of years, the debate over incomes has heated up once again and the notion of unchanging income distribution has come under serious attack. Fortunately, some progress has been made on income measurement. Using figures on in-kind transfers and other adjustments to money income data, several economists have presented evidence that could improve our knowledge of

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income levels and trends and thus provide policymakers with a better base to work from.

#### **EQUALITY OF WHAT, AMONGST WHOM, AND FOR HOW LONG?**

Basic to measuring income distribution is deciding what to measure, but this is not as simple a matter as it might seem. Many different items can be identified as income. Also, incomes can be counted for individuals, families, or households, and for periods of time ranging all the way from a day to a lifetime. Picking the appropriate measure of income requires a decision on at least three points: the income concept, the income-receiving unit, and the income accounting period.

**The Income Concept.** Suppose that Mr. Smith and Mr. Brown earn the same money wages, but Mr. Brown works only one day a week, pays less in taxes, and gets an all-expense-paid martini lunch every working day. In addition, Mr. Brown (by some fluke) qualifies for Medicaid, while Mr. Smith does not, and Brown's house is appreciating in value faster than Smith's. A measure of income based solely on money earnings would count these two individuals as equal. But isn't Mr. Brown better off? If so, it would be preferable to use a more comprehensive concept of income. One such is the Haig-Simons concept, according to which income is the sum of consumption and change in net worth over the income accounting period. Appropriately enough, such an income concept would include Mr. Brown's rather impressive consumption of leisure, his consumption of martini lunches and medical care, and the appreciation in the value of his home. Such considerations can be important not only for gauging the distribution of income but also for estimating how many families fall below the official poverty level—a distinct but related issue (see HOW MANY AMERICANS ARE POOR?)

#### **HOW MANY AMERICANS ARE POOR?**

One popular index of the degree of poverty in America is the number of Americans officially classified as poor. Poverty is not easy to define. But settling on an unchanging definition of poverty, even if it's arbitrary, can be useful in assessing whatever progress is made against poverty over the years. Thus government analysts have attempted to determine the household's minimum needs for housing, food, and medical care and to estimate the cost of the package. The result is the poverty level, and families earning less than this figure are classified officially as poor. Each year, the poverty threshold is increased to reflect the rising costs of living. Thus in 1973 this threshold was \$4,540 for a non-farm family of four, while it is currently \$5,850.

The adjoining table indicates the number of Americans falling below the poverty level for each year since 1959, the first year this information was reported. The figures presented in this table are not the product of an unchanging methodology. Hence, the story that they tell should not be read too precisely. Nonetheless, it is clear that the number of people below the poverty level has declined significantly during the period covered, with almost 40 million people under the poverty level in 1959, and slightly less than 25 million in 1976.

There is good reason to believe that even these figures may understate the progress made against poverty over time, especially for the later years. One reason is that when the government computes the portion of the population that fails to reach the poverty level, it considers only cash income and disregards the value of in-kind transfers involved in programs such as rent supplements, food stamps, and Medicaid. Such programs have been expanded substantially in recent years as part of the effort to alleviate poverty. But because they do not and cannot raise money incomes, they are unable to move families out of poverty as defined. Thus the progress against poverty registered in this table excludes the impact of a good part of current government efforts to alleviate poverty.



**AS TOTAL POPULATION  
RISES, THE NUMBER BENEATH  
THE POVERTY LEVEL DECLINES**



SOURCES: Total population, including Armed Forces overseas, is an unadjusted fourth-quarter average for these years based on monthly figures of the U.S. Bureau of the Census. Poverty level figures are taken from *Current Population Reports*, Series P-60, No. 106.

**The Income Unit.** Determining the recipient unit represents another sticky issue. People live in various groupings that pool either income or consumption. Suppose that Mr. Brown is a bachelor but Mr. Smith has a wife who brings home part of the family income. Should Mr. Brown's income be compared with that of Mr. Smith and Mrs. Smith separately, or should it be compared with that of the entire Smith family? Most economists believe that incomes should be compared among units that share income or consumption. On this view, if the Smiths share income or consumption among themselves, then the Smith family is the appropriate income unit.

This does not mean that the Smiths' income should be given the same weight as Mr. Brown's income in comparing the two. There are, after all, more people in the Smith family, and many different schemes have been suggested to make the two incomes comparable. One would involve simply dividing the Smith family income by the number of family members, while others require more complicated procedures designed to account for the savings from living under the same roof. Whatever the weighting scheme, however, the idea is to have it based on units that share income or consumption.

**The Income Accounting Period.** A still tougher conceptual issue is the choice of the income accounting period, and on this point there is very little agreement among economists. To illustrate:

Suppose Mr. Brown earns one dollar during the first year and a million dollars during the second year, while Mr. Smith earns a million dollars during the first year and one dollar during the second. Does this represent significant income inequality? Clearly, the answer depends upon the accounting period. If either of these individuals is starving, then the relevant accounting period may well be a single day, but if an overall comparison is desired, then the lifetime accounting period

may be the better choice. Because individual incomes can vary widely over the course of a lifetime (usually starting out low, reaching a peak during middle age, and then declining), the accounting period can make a big difference in the degree of income equality discovered—a point that should be kept in mind in examining the available evidence.

These are the basic issues involved in interpreting the different studies of income distribution. What are those studies, and what can be learned from them?

**THE EVIDENCE FROM THE CENSUS BUREAU**

Perhaps the most commonly used estimates of the distribution of income in the United States are the estimates published each year by the Bureau of the Census. These estimates are based on information gathered annually in the Bureau's Current Population Survey (CPS). This survey is the only reasonably consistent source of information on the distribution of income which covers almost the whole population over nearly the entire postwar period.

Figure 1 shows a common way of presenting CPS data. It indicates for each of three years the share of money income received by each fifth of all families, ranked according to their income. For example, Figure 1 shows that in 1952, the lowest fifth of all families, ranked according to their incomes, received only 4.9 percent of defined money income, while the highest fifth received 42.2 percent.

The information in Figure 1 has two basic messages for us. First, it would appear that the income distribution has been far from equal in the postwar era, with the top fifth of all families receiving on average seven to eight times the income received by the bottom fifth. Second, it suggests that if the income distribution has moved toward equality since 1952, the trend can only be described as glacial. Thus, income shares differed only slightly in 1972 from what they were in 1952.

But can these figures be accepted as an accurate picture of income distribution? The answer is a rather clear No; they are deficient in several ways.

Perhaps the most important shortcoming is that the Current Population Survey is

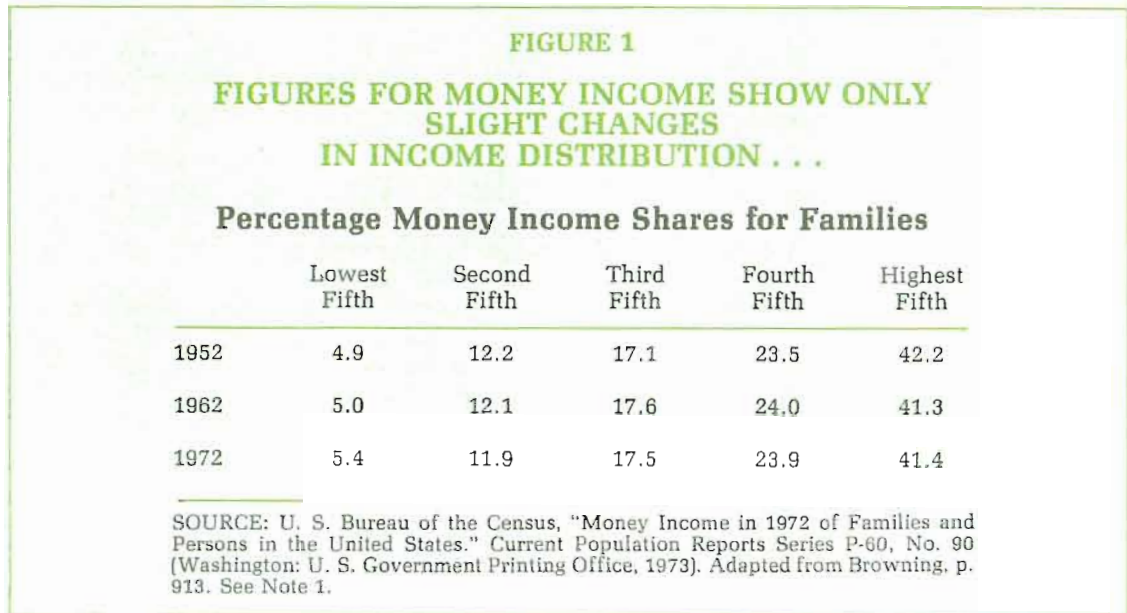


FIGURE 2

**... BUT FIGURES THAT COUNT IN-KIND  
TRANSFERS AND OTHER ITEMS  
MAY REVEAL MARKED TREND TOWARD  
INCOME EQUALITY**

**Percentage Adjusted Money Income Shares**

	Lowest Fifth	Second Fifth	Third Fifth	Fourth Fifth	Highest Fifth
1952	7.8	14.8	18.8	23.3	35.3
1962	9.0	15.1	19.1	22.9	34.0
1972	12.6	16.1	18.4	20.9	31.9

SOURCE: Browning, p. 919

designed to measure money income rather than consumption plus changes in net worth. Thus only sources of income associated with a money payment are covered by the CPS income definition. This means that much of what is relevant to economic well-being is not accounted for in Figure 1. In-kind transfers from public programs such as food stamps and public housing, for example, ordinarily are presumed to raise the level of economic well-being of the people who receive them, but such transfers are excluded from the income shares shown in Figure 1. Also excluded are work related non-cash fringe benefits such as group life insurance and vested pensions, and no account is made of changes in net worth through capital gains and losses. In addition, these figures do not account for differences in leisure, and since they reflect only before-tax income, they do not account for the fact that some families pay more in taxes than others.

The income unit employed also poses some difficulties. Any group of people that pools

income or consumption is an income unit. But the CPS series reports income only for families and unrelated individuals, and so other people who pool income or consumption within groups are not reflected in Figure 1. It could be important too that the family income shares reported in Figure 1 do not account for the different numbers of people in families.

Finally, the income accounting period employed in this data series is the calendar year. This choice is not necessarily inappropriate if equality in the short run is the major concern. But if equality in lifetime income is the primary interest, then Figure 1 may present a very distorted picture. It does not account for the sometimes substantial variability in income that can occur over a lifetime.

**ADJUSTING THE MEASURES: SOME RECENT APPROACHES**

The many difficulties involved in using this type of information to study income

distribution have been recognized by economists, and recently a number of significant attempts have been made to correct for at least some of them. The results of these adjustments are not universally agreed upon, but they do tell us something more about income distribution.

**Adjustments in the Income Concept and the Income Unit.** Several economists have introduced adjustments to reflect a more complete income concept and to improve treatment of the income unit. One of the most recent studies to make such adjustments has been reported by Edgar K. Browning.

Browning made five major adjustments to the basic CPS income data for each of the three years presented in Figure 1. Consistent with the view of income as consumption plus changes in net worth, he added to CPS money income an estimate of the market value of in-kind government transfers. Examples are the benefits received through Medicaid, Medicare, public housing, and food stamps. He also added an estimate of the cost of education services provided by government and an estimate of the value of leisure consumption. Further, he subtracted Federal individual income and Social Security employee taxes to get a measure of after-tax income. Finally, to account for the fact that some families are larger than others, he reported family income on a per capita basis.<sup>1</sup>

As can be seen from Figure 2, these adjustments result in a quite different picture of income distribution. While the original CPS money income data indicate a 5.9-percent income share for the bottom fifth and a 41.4-percent share for the top fifth in 1972, these figures become 12.6 percent and 31.9 percent, respectively, after Browning's adjustments are made. Even without the adjustments for the value of leisure consumption, recognized by Browning as his most unreliable estimate,

the resulting income distribution remains considerably more equal than that represented in Figure 1.<sup>2</sup>

Of even more interest than these numbers themselves is the trend toward greater income equality that they reflect. As seen in Figure 2, the share of income received by the bottom fifth of the income distribution increased from 7.8 percent in 1952 to 12.6 percent in 1972, while that received by the top fifth decreased from 35.3 percent to 31.9 percent during the same period. A major reason for this result is the inclusion of in-kind transfers. Benefits from programs such as public housing, Medicaid, and food stamps go predominantly to the poor, and the importance of such programs in relation to other sources of income has increased dramatically in recent years. Hence, according to Browning, failure to account for what such programs do for the poor masks the true trend toward equality in economic well-being.

In another recent study, Morgan Reynolds and Eugene Smolensky also find that including the impact of government tax and expenditure policies results in less measured income inequality. Unlike Browning, however, they find little evidence of a trend toward greater equality in income over time.<sup>3</sup>

The two studies are not directly comparable, since they look at different years and use different sources of data. But the divergence of their findings may well stem from distinct treatments of the impact of gov-

<sup>2</sup>Excluding the estimated value of leisure, the bottom fifth is estimated to receive 11.6 percent of adjusted 1972 income, which is a modest reduction in its income share. For 1972, Browning also calculated an estimate of realized and unrealized capital gains and an estimate of unreported income. Since he did not make similar estimates for earlier years, these estimates are not included in Figure 2. If they were, the 1972 income distribution would appear slightly less equal with the bottom fifth receiving 12.5 percent and the top fifth receiving 33.3 percent of adjusted money income.

<sup>3</sup>Morgan Reynolds and Eugene Smolensky, *Public Expenditures, Taxes and the Distribution of Income: the U. S., 1950, 1961, 1970* (New York: Academic Press, 1977).

<sup>1</sup>Edger K. Browning, "The Trend Toward Equality in the Distribution of Net Income," *Southern Economic Journal* 43 (1976), pp. 912-923.



ernment taxes and expenditures on the various income groups. Reynolds and Smolensky find evidence to indicate that, overall, tax rates have risen less for people with higher incomes than for those with lower ones. Thus their results indicate that even though the net effect of government is to reduce income inequality, and even though the size of government has increased markedly in the postwar era, changes in the overall tax system could result in an unchanged income distribution over time. Whether or not it is this or some other reason that is primarily responsible for the different results of the two studies, it is clear that alternate treatments of the problem can make quite a difference in results.

**Adjusting for the Income Accounting Period.** Other needed adjustments to the basic CPS income data presented in Figure 1 may involve the income accounting period. There is evidence of a good deal of churning around in people's income ranking from year to year,<sup>4</sup> and it is well known that a person's annual income can vary considerably over his lifetime. Hence, even if all the appropriate adjustments are made in the income concept and the income unit, the results still may not represent the true long-run distribution very faithfully if the calendar year is the accounting period.

One possible method of estimating long-run income distribution from annual income data has been developed by Morton Paglin.<sup>5</sup> To illustrate the justification for his methods, suppose for a moment that everyone in the country had the same lifetime income stream as John Doe. John receives little income when he is young, a much greater amount when he is middle aged, and a lesser amount again when he is retired. If everyone re-

ceived this same stream of income over his lifetime, then there would be perfect equality in lifetime incomes. Yet if we were to measure incomes for any one calendar year, we would find a considerable degree of inequality. This is because during the year, there would exist many young and old John Does receiving little income and many middle-aged John Does receiving a great deal of income.

Should this inequality of income occurring during a given year be considered real income inequality? Paglin argues that it should not, for it occurs only because we are looking at people at different stages in their lifetimes. Hence the measure of inequality that he employs is argued to be *net* of the yearly inequality that occurs simply because of differences in ages. In other words, Paglin starts with the income inequality expressed in Figure 1, but for each year he subtracts that part of the inequality which is determined to result solely from age differences.

The results of these adjustments are quite startling. Not only does Paglin find considerably more equality in economic well-being as a result of his corrections, but he also finds a marked trend towards greater equality over the entire postwar era. Where is this egalitarian trend supposed to come from? One source is the expansion of postsecondary education over the last 30 years. According to Paglin, this expansion has caused people to forego income earlier in life to get more later. When the increasing inequality in income because of age is netted out for each year, the true egalitarian trend is unmasked.

On several different counts, though, Paglin's methods have been the subject of much criticism. Some have argued that there is little justification for excluding age-induced inequality. Others argue that for a number of technical reasons, Paglin is not measuring what he says he is measuring. Still others note that his use of CPS money income data, seriously flawed in terms of the income concept and the income unit, distorts his measure of long-run income inequality. Thus there appears to be little agreement on the value of

<sup>4</sup>Bradley R. Schiller, "Equal Opportunity and the 'Good Job'," *The Public Interest* 43 (1976), pp. 111-120.

<sup>5</sup>Morton Paglin, "The Measurement and Trend of Inequality: A Basic Revision," *American Economic Review* 65 (1975), pp. 598-609.

**FIGURE 3**  
**WHY CPS DATA MAY NOT SHOW TRUE STATUS OF  
INCOME DISTRIBUTION**

Source of Bias	Bias Toward Equality (E), Inequality (I)	
	Income Level	Income Trend
Exclusion of in-kind transfers	I	I
Exclusion of work-related perquisites	E	E
Exclusion of realized and unrealized changes in net worth	E	I
Exclusion of taxes	I	E
Exclusion of the value of leisure, home production, and school attendance		
(a) of wives	E	E
(b) of the young and the old and of the female heads of households	I	I
Failure to adjust for the composition of living units	I	I
Underreporting of money income	?	I
Use of annual accounting period	I	?

SOURCE: Adopted from Sheldon Danziger, "Conference Overview: Conceptual Issues, Data Issues, and Policy Implications," in *Conference on the Trend in Income Inequality in the U.S.*, Special Report Series SR 11 (Madison: Institute for Research on Poverty, 1976), p. 89.

his attempt to correct for flaws associated with the income accounting period.

In a recent conference on income trends, some twenty experts attempted to catalogue the difficulties associated with the use of traditional money income data and to indicate the direction of the resulting bias. Figure 3 summarizes the collective best guesses of the conference in terms of each flaw and the bias that it introduces in measuring the level and trend of income distribution. More than half of the conference participants were reported to feel that, taking all these distortions together, the traditional CPS money income data probably tend to overstate inequality in income levels themselves and to understate slightly their trend toward equality over time. In other words, an unbiased source

of information probably would show more equality and a slightly greater trend toward equality than that indicated in Figure 1. Yet this is only a guess. Much remains to be done if knowledge is to replace educated guesses in outlining the true nature of American income patterns.<sup>6</sup>

#### INCOME DISTRIBUTION AND POLICY

Clearly, finding out the true nature of the

<sup>6</sup>For a discussion of this as well as of the biases indicated in Figure 3, see Sheldon Danziger, "Conference Overview: Conceptual Issues, Data Issues, and Policy Implications," in *Conference on the Trend in Income Inequality in the U. S.*, Special Report Series SR11 (Madison: Institute for Research on Poverty, 1976), pp. 85-105.

income distribution is a very difficult undertaking. The use of CPS income data—the traditional source—introduces biases that stem from deficiencies in the income concept, the income unit, and the income accounting period. And attempts to find an improved income measure haven't gone unchallenged.

Policymakers may differ over what income

distribution is most desirable. But until they're able to measure income more effectively, it won't be easy for them even to evaluate their overall results. Thus, while attempts to achieve a different distribution of income for the future may be expected to continue, they will proceed from what many would regard as an uncertain baseline in the present.



## TWO NEW ITEMS IN THE RESEARCH PAPER SERIES

The Federal Reserve Bank of Philadelphia recently published two additions to its series of RESEARCH PAPERS—No. 30, *The Decision to Withdraw: A Study of Why Banks Leave the Federal Reserve System*, by Ronald D. Watson, Donald A. Leonard, and Nariman Behraves; and No. 31, *Frequency and Time Domain Estimation of Dynamic Simultaneous Equations with Serially Correlated Errors: A Small Sample Comparison*, by Nariman Behraves. Both papers are relatively technical and are intended for professional researchers.

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