TRENDS IN THE LEVEL AND DISTRIBUTION OF U.S. LIVING STANDARDS: 1973-1993

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By 2000, machines will be producing so much that everyone in the U.S. will, in effect, be independently wealthy. With Government benefits, even nonworking families will have an annual income of $123,000 to $164,000 [in 1993 dollars]. How to use leisure meaningfully will be a major problem...

— *TIME*, February 25, 1966

INTRODUCTION

After climbing briskly from World War II to 1973, U.S. living standards edged up sluggishly in the next two decades. The extent of the slowdown is debated among politicians and journalists, but few would quarrel with the conclusion that 1973 marked a turning point in post-war economic history.

From 1947 through 1973, annual output per civilian worker climbed 2.2 percent a year; in the twenty years after 1973, output per worker grew just 0.6 percent a year. The decline in the rate of improvement in output per worker was partially offset by a jump in the percentage of Americans at work: In spite of increased labor force participation, however, the United States saw a noticeable drop in the rate of growth of overall living standards. The broadest measure of output available for consumption and saving is gross domestic product. Measured in constant prices, GDP per capita rose 2.2 percent a year between 1947 and 1973. It increased only 1.3 percent a year from 1973 to 1993.

The slowdown in productivity growth has undoubtedly slowed progress in living standards, but there is intense debate over how much the improvement in living standards has slowed. Statistics on per capita consumption suggest that U.S. living standards continue to rise, although somewhat more slowly than in the decades immediately after World War II. Statistics on median family income suggest that living standards stagnated after 1973. This paper explains the striking discrepancy between the trends in per capita consumption and median income. Median income has grown much more slowly than per capita consumption for four main reasons: Private saving rates declined; employer and government payments for medical services rose strongly, increasing the gap between consumption and cash family incomes; average family size fell; and income inequality soared, causing a sharp divergence between the rates of growth in average and median household income.

TABLE 1
Alternative Measures of Change in
U.S. Living Standards: 1973-1993

Measure	Source of Data	% Change 1973-93[a]	Explanation for Difference
Per capita consumption expenditures	NIPA	37.3	
Per capita disposable income	NIPA	30.2	Decline in personal saving rate.
Per capita personal income, net of health purchases by employers and government[b]	NIPA	22.4	Increased health spending; growing importance of employer- and government-sponsored insurance.
Average money income, all persons	March CPS	22.9	
Average money income, persons who are members of families	March CPS	21.6	Shift in household composition toward unrelated individuals.
Income per person in median-income family	March CPS	7.4	Growth in inequality, resulting in sharp fall in median relative to average income.
Median family income	March CPS	0.0	Decline in average family size.

a. Price-adjusted change. NIPA statistics adjusted with personal consumption expenditure deflator; CPS statistics adjusted with CPI-U-X1 deflator.
b. Personal income minus (a) employer contributions to private worker health and welfare plans and (b) government transfers for Medicare and medical public assistance payments.
  Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, various issues; U.S. Bureau of the Census, Series P60 Reports, various issues.

In 1973 an American at the 95th percentile of the income distribution received slightly less than 12 times as much money income as an American at the 5th percentile of the distribution. By 1993 an American at the 95th percentile received more than 25 times as much as an American at the 5th percentile. This paper shows how the rise in U.S. inequality has contributed to the widespread view that income growth has not only slowed, it may have ceased altogether. For a large minority of Americans, growing inequality has meant that incomes have stagnated and even fallen in spite of the continued growth in average income.

The paper documents the sources of rising inequality. Not surprisingly, a big jump in labor earnings inequality has contributed to the increase in income inequality. More surprisingly, a steep increase in the correlation of husband and wife earnings has boosted the income gap between families with two highly paid working spouses and other types of families. Behind the growing correlation of husband and wife earnings are lower marriage rates among low-wage men, higher employment rates

among women who are married to highly paid men, and higher weekly earnings among the working wives of highly paid men.

The plan of the paper is as follows. The first section examines the relationship among a variety of measures of the trend in U.S. living standards. The apparent discrepancy among these measures is explained. The following section describes the trend in income inequality between 1973 and 1993 as reflected in the Census Bureau's Current Population Survey (CPS).[1] It shows how the rise in inequality has contributed to the perception that U.S. living standards have stagnated or declined, notwithstanding clear evidence that output per person continues to grow. The third section shows how trends in earnings inequality, family composition, and the correlation of husband and wife earnings have contributed to the trend in inequality. The paper ends with a brief summary.

THE TREND IN U.S. LIVING STANDARDS

Americans who want to know whether living standards have improved or stagnated during the past twenty years are faced with a puzzle. According to national income and product account (NIPA) statistics, personal consumption expenditures per person, adjusted to reflect changes in the price level, climbed 37.3 percent between 1973 and 1993. The Census Bureau's tabulations of the CPS suggest, however, that real median family income was essentially the same in both 1973 and 1993 (see Table 1). Thus, as measured by one popular indicator of well-being — real consumption per person — living standards improved more than a third. According to a second measure — real income received by the median family — living standards were unchanged. The first statistic has often been cited to demonstrate that the U.S. economy continues to grow vigorously. The second has been used to prove that living standards for typical families have stagnated. It is important to understand why the two measures offer such starkly contrasting pictures of the trend in U.S. living standards.

The first notable difference between the two statistics is that one refers to consumption while the second provides a measure of income. Consumption can climb more rapidly than income if households choose to set aside less of their current income as savings. This is precisely what occurred in the twenty years after 1973. In 1973, personal consumption expenditures represented 88.5 percent of disposable personal income; in 1993, consumption expenditures were 93.4 percent of disposable personal income. Personal saving fell from 9.0 percent to 4.1 percent of disposable personal income [U.S. Council of Economic Advisers, 1995, 306]. Even though real per capita personal consumption expenditures climbed 37.3 percent between 1973 and 1993, real per capita disposable income rose just 30.2 percent. Consumers' perceptions of their well-being may be more heavily influenced by the trend in their real income than by the trend in their consumption.

There is a second important difference between average consumption and the gross income reported by families on the CPS. Some consumption is not financed out of family income. A large percentage of family consumption of medical care is paid by employer-sponsored or government insurance plans rather than out of family cash

incomes. To be sure, families may be required to contribute to these plans. But much of the plans' costs are paid directly by employers, either as contributions to private insurance plans or as contributions to social insurance programs, such as Medicare and Workers' Compensation. Thus, a significant portion of consumption will not be reflected in the incomes that households report to the Census Bureau on the CPS.

NIPA statistics show that employer contributions to private health and welfare plans climbed from 4.5 percent to 6.6 percent of all personal income between 1973 and 1993. Medicare and Medicaid payments for the purchase of health services climbed from 1.8 percent to 5.2 percent of personal income during the same period. In other words, employer and government payments for reimbursement of medical services climbed from 6.2 percent of personal income in 1973 to 11.8 percent of personal income by 1993. If the employer- and government-purchased portion of personal income is subtracted from the NIPA estimate of gross personal income, we are left with an estimate of income that corresponds roughly to the income that most Americans report to a Census interviewer on the March CPS. According to NIPA estimates, this portion of per capita personal income grew just 22.4 percent in constant prices between 1973 and 1993.

That rate of growth is close to the increase in real per capita income reported in the CPS. The Census Bureau estimates that per capita income recorded on the March CPS climbed from $12,677 in 1973 to $15,574 in 1993 [U.S. Bureau of the Census, 1994, B-38; and U.S. Bureau of the Census, 1995, x].[2] The 22.9 percent increase corresponds closely to the NIPA estimate of the growth in real personal income net of employer and government payments for medical services. That rate of increase is substantially below the 30.2 percent increase shown in NIPA statistics on per capita real disposable income.

The consumption financed by employer contributions to health plans and by government payments for medical services contributes to the well-being of American families, even if it is not reflected in the cash income statements of U.S. households. Many families fail to recognize these employer contributions and government payments when making an assessment of their financial situation, however. There is a good reason for this. In spite of dramatic increases in employers' health contributions and public health care spending, U.S. households devote a larger fraction of their money income budgets to health care purchases today than they did in 1973. Households' out-of-pocket expenses for medical bills plus their payments for health insurance premiums accounted for a larger percentage of their gross cash income in 1993 than in 1973. Unless people feel that the quantity or quality of medical services consumed has improved dramatically since 1973, they may not sense that their incomes or real consumption expenditures have increased as fast as suggested by the NIPA statistics. Many may believe that their living standard is better reflected by the trend in their gross or after-tax *cash* income than by their personal income as measured in the national income and product accounts.

A third difference between the NIPA statistics on per capita consumption and the CPS statistics on median income is that the former are calculated on a *per person* basis whereas the latter are calculated on a *family* basis. Because family size has shrunk over time, a constant amount of real income per family translates into a grow-

ing amount of real income per person within families. Census statistics indicate that average family size declined from 3.44 persons in 1973 to 3.20 persons in 1993 [Bureau of Census, 1995, D-13]. The decline in family size implies that the median family income in 1993 provided 7.4 percent more real income per person than did median income in 1973.

In addition to a decline in family size, the United States also saw an increase in the percentage of its population living outside of families, that is, as unrelated individuals. The proportion of persons living alone climbed from 8.8 percent of the population in 1973 to 14.7 percent in 1993 [U.S. Bureau of the Census, 1995, D-13]. The experiences of unrelated individuals are not reflected by the Census Bureau's estimate of median family income. Because unrelated individuals typically receive higher incomes *per person* than individuals who live in families, the shift in household composition toward unrelated individuals means that part of the rise in living standards will be missed if analysts focus solely on the trend in income among persons who live in families. However, the effect of this distortion is small. Real incomes *per person* have actually been rising faster among persons who are members of families than among unrelated individuals.

A fourth and much more important reason that median income has appeared to stagnate even as per capita income and consumption continued to climb is that the family income distribution grew substantially more unequal. Census Bureau statistics on family income show that average real income *per family* climbed 13.2 percent between 1973 and 1993. Because average family size shrank during the same period, this is equivalent to a 21.6 percent increase in average real income *per person* in U.S. families — almost exactly the rate of improvement in real personal income after subtracting employer contributions to health and welfare plans and government transfers for medical services. In spite of the increase in average family income, families in the middle of the income distribution enjoyed very little gain. Adjusting for the drop in family size, the median family probably experienced a gain in income per person of about 7½ percent — far below the 21½ percent income gain enjoyed by the *average* family member. Virtually all of the income gains received by U.S. families between 1973 and 1993 were received by families in the top 40 percent of the income distribution, with an overwhelming share received by families in the top one-fifth of the distribution.

Table 1 summarizes trends in alternative measures of the change in living standards between 1973 and 1993. Entries in the fourth column provide brief explanations for the difference between growth rates of successive measures. The difference between the measures in the first two rows, for example, is explained by the decline in personal saving between 1973 and 1993.

U.S. living standards certainly improved after 1973. For typical American families, however, the improvement was far smaller than implied by the trend in per capita consumption expenditures. A member of the median family saw his or her money income climb just 7.4 percent. It is hard to believe that increased employer and public spending to pay families' medical bills could have raised the median family's living standard by more than 4 to 6 percent. The main reason that typical families do not believe they have shared in the general rise in living standards is that they have

not seen their incomes or consumption climb very fast. Even making a generous allowance for the value of employer- and government-financed health benefits, it is unlikely that the median family enjoyed income or consumption gains exceeding 0.7 percent a year after 1973. This rate of improvement is roughly one-quarter the pace of median income growth from 1947 through 1973.

CHANGES IN THE DISTRIBUTION OF INCOME

American incomes became strikingly less equal after 1973. The incomes received by poor and lower middle-class Americans shrank while the incomes received by affluent Americans continued to grow. The surge in inequality is evident in Census Bureau tabulations of the CPS data, which show a nearly continuous rise in the share of income received by high-income families since the late 1960s [U.S. Bureau of the Census, 1996]. Although the CPS data have limitations, they offer a reasonably accurate picture of the overall trend in personal and household incomes. The jump in income concentration reflected in the CPS files is mirrored by trends in gross income seen in the Internal Revenue Service tax files. Using a consistent definition of gross income, the share of all income received by the top 0.5 percent of taxpayers approximately doubled between 1973 and 1990 [Slemrod, 1996, 173].

In this section, I examine the trend in inequality using a concept of "adjusted personal income." This concept differs significantly from the cash income concept used to measure inequality in Census Bureau reports. Most Census measures of inequality are based on tabulations of the *un*adjusted cash incomes received by households or families. The adjusted income concept used in this paper makes a family-size correction to reflect economies of scale in consumption enjoyed by people who live in larger family units. People who are members of the same nuclear family are each treated as receiving an identical income. Inequality is measured by ranking all persons represented in the CPS file according to their adjusted income.

I calculate the amount of adjusted (or "equivalent") money income per person in each family unit by making a correction for the number of persons who live together and are presumed to share income and consumption. The definition of "adjusted income per person" is

$$Y_A = Y_U \, / \, (F/H \times H^\theta)$$

where Y_A = Adjusted money income per person,
　　　　Y_U = Unadjusted total family income,
　　　　F = Number of persons in nuclear family unit,
　　　　H = Number of persons in household, and
　　　　θ = Adjustment for family size.

(Note that one household can contain more than one family unit. Each nuclear family or unrelated individual is considered a separate "family unit.")

The implication of this definition of adjusted income is easy to understand if we assume for a moment that family size is identical to household size (that is, $F = H$). In that case, $Y_A = Y_U / F^\theta$. For a person in a single-person household, adjusted income under my definition will always be equal to unadjusted total income. For a person in a larger household or family, adjusted income will be less than unadjusted family income, depending on the assumed value of θ. In the following analysis I assume $\theta = 0.5$. This value is selected because it approximates the adjustment for family size implicit in the official poverty thresholds. As in the official U.S. poverty index, for example, a quadrupling of family size yields a doubling of income needed to sustain an equivalent consumption level.[3]

Unlike many Census Bureau statistics on inequality, the estimates that follow reflect the experiences of unrelated individuals as well as members of families. A meaningful measure of overall inequality must reflect the distribution of income among all persons in the CPS-covered population. Consequently, the estimates weight each family unit by the number of persons in it. Families containing eight members receive four times the weight of families containing just two members, for example. Persons, of whatever age, receive weights that sum to the total population represented by the CPS.

The most popular index of income inequality is the Gini coefficient. The Census Bureau's tabulations show a pattern of moderately rising inequality in the 1970s and sharply increased inequality since 1980. The Census series shows that income inequality among U.S. families climbed from 0.356 to 0.420 (18.0 percent) between 1973 and 1993 [U.S. Bureau of the Census, 1996]. Using the concept of adjusted personal income described above, I have calculated the 1973 and 1993 Gini coefficients for all persons represented in the CPS.[4] My estimate of the trend in inequality is similar to that reported by the Census Bureau. The Gini coefficient of adjusted personal income increased from 0.358 to 0.419 (17.0 percent) between 1973 and 1993.

Figure 1 illustrates the movements in adjusted personal income that caused the Gini coefficient to increase. Each bar in Figure 1 shows the percentage change in average adjusted real income for persons in successive deciles in the income distribution. On the left, in the bottom decile of the distribution, adjusted real income fell nearly 37 percent. In fact, after 1973 average income fell in each of the bottom four deciles. On the right, in the top decile of the distribution, average adjusted incomes rose almost 28 percent after 1973. This estimate of average income change in the top income decile understates the income improvement enjoyed by very high income Americans, since it excludes the income reports of persons in the top 3 percent of the income distribution. Unfortunately, public-use Census files lack accurate income information for most of these people.[5] Income statistics published by both the Census Bureau and the Internal Revenue Service suggest that incomes received by the top 3 percent of persons climbed even faster than incomes received by people in the 91st through the 97th percentiles.

Over a 20-year period, the differences in the rate of change in adjusted income imply dramatic movements in relative well-being. At the 5th percentile, adjusted income fell 40 percent; at the 38th percentile, income was unchanged; at the 50th

FIGURE 1
Change in Adjusted Real Personal Income
by Decile: 1973-1993
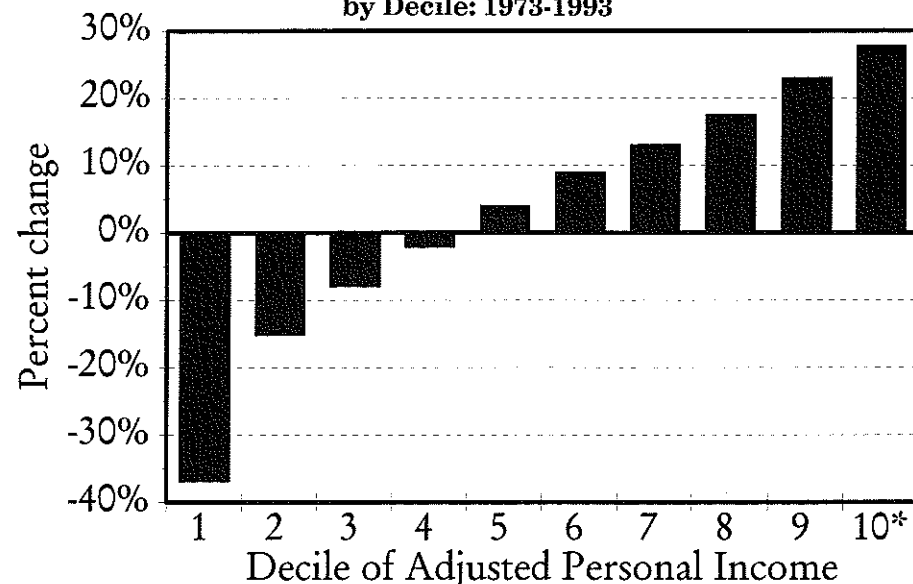
* 10th decile extends only through the 97th percentile.
Source: Author's tabulations of March 1974 and March 1994 CPS files.

percentile, income rose 6.4 percent; and at the 95th percentile, income rose 28 percent. In 1973, adjusted income at the 95th percentile was 11.8 times adjusted income at the 5th percentile. By 1993, income at the 95th percentile was 25.4 times income at the 5th percentile.

The disappointing performance of real adjusted income among families with average and below-average incomes is only partly explained by growing inequality. The shrinking average size of family units has meant that gains in unadjusted income per person have not translated into equal gains in adjusted income per person. Between 1973 and 1993 *unadjusted* income per capita grew 21.2 percent in the public-use CPS files.[6] In contrast, average *adjusted* income per person grew just 13.5 percent. Family unit size under my definition fell from 2.64 in 1973 to just 2.15 in 1993. Because families are smaller, they require more unadjusted income per member to achieve the same standard of living.

It might be argued, of course, that greater affluence has allowed Americans to live in smaller family units. Thus the change in the structure of households and families is partly a response to higher unadjusted incomes. For some families, especially very affluent ones or families headed by an old person, this logic is appealing. For other families it is not very convincing. Many young Americans have postponed marriage or childbearing because their earnings are too low to permit them to support families. They live as unrelated individuals or in small units because they cannot afford dependents. This is not a response to greater affluence; it is a sensible reaction to poor job prospects.

My tabulations of adjusted personal income exclude noncash sources of income, such as employer-financed health insurance and in-kind government benefits. The omission is unavoidable. CPS tapes do not include usable information about noncash incomes before 1979. It is obvious that income gains would appear larger if these sources of income were included. It is also clear that inequality in both 1973 and 1993 would appear smaller if noncash income could be accurately counted. In 1993, for example, the lowest quintile of households received just 3.5 percent of all income and the top quintile received 48.6 percent of total income when income is measured as pretax cash income. When the Census Bureau tabulated the net income distribution under its most inclusive definition of income, which includes noncash income sources and subtracts income and payroll tax payments, the income share of the bottom quintile rose to 4.9 percent while the share received the top quintile fell to 44.6 percent [Bureau of Census, 1995, xxi].

Even though inequality in both 1973 and 1993 is smaller under a more inclusive definition of income, it is not obvious that the trend in income inequality would appear very different if a better definition of income were used. Census Bureau tabulations of inequality under alternative income definitions indicate that the rise in inequality was essentially the same between 1979 and 1993 using the narrowest and the most inclusive definitions of income.[7] When thinking about long-term trends in inequality, what matters is the relative trend in noncash forms of income across the income distribution. Between 1979 and 1993, noncash income apparently grew very rapidly among families with high cash incomes. The trend in relative income has not been favorable for Americans with low and moderate incomes, whether or not the definition of income includes noncash benefits.

SOURCES OF INCREASED INEQUALITY

This section examines trends in U.S. income inequality over the period after 1973 and shows how demographic trends and changes in the distribution of individual earnings have affected the distribution of income across persons. The analysis represents an extension of earlier research that analyzed income trends among U.S. families headed by a working-age adult [Karoly and Burtless, 1995; Burtless, 1996].

Trends in Income by Income Source

Before attempting to account for the trends in inequality since 1973, it is useful to show how income from different sources has changed over the past two decades. Table 2 shows changes in adjusted real income by income source since 1973. I have divided family income into seven components: labor income of the male head, of the female head, and of other family members, plus four kinds of nonlabor cash income. The top panel in the table shows average income in the entire CPS sample. The second panel shows income amounts received by people in the bottom quintile of adjusted personal income. The lower two panels show incomes received by persons in higher income quintiles.

TABLE 2
Average Adjusted Income by Income Source among
Persons Ranked by Adjusted Income Quintile, 1973 and 1993

Year	1973	1993	1973-1993 Change (Percent)
All quintiles			
Male head earnings	$14,445	$13,076	-9
Female head earnings	3,699	6,680	81
Other family members' earnings	967	546	-44
Means-tested and other transfers	505	610	21
Public retirement	962	1,360	41
Private retirement	396	891	125
Capital and other income	1,009	1,787	77
Nonlabor income: Total	2,871	4,648	62
Total	**$21,982**	**$24,950**	**13.5**
Bottom quintile			
Male head earnings	$1,899	$1,090	-43
Female head earnings	830	947	14
Other family members' earnings	224	96	-57
Means-tested and other transfers	1,072	1,046	-2
Public retirement	1,467	960	-35
Private retirement	89	74	-17
Capital and other income	285	320	12
Nonlabor income: Total	2,914	2,400	-18
Total	**$5,867**	**$4,532**	**-22.7**
Middle three quintiles			
Male head earnings	$13,175	$10,624	-19
Female head earnings	3,168	5,740	81
Other family members' earnings	880	549	-38
Means-tested and other transfers	367	526	43
Public retirement	950	1,635	72
Private retirement	372	878	136
Capital and other income	646	1,146	78
Nonlabor income: Total	2,334	4,186	79
Total	**$19,556**	**$21,099**	**7.9**
Top quintile			
Male head earnings	$30,672	$32,297	5
Female head earnings	8,128	15,174	87
Other family members' earnings	1,963	981	-50
Means-tested and other transfers	356	431	21
Public retirement	495	935	89
Private retirement	774	1,739	125
Capital and other income	2,811	5,158	84
Nonlabor income: Total	4,436	8,263	86
Total	**$45,199**	**$56,715**	**25.5**

Source: Author's tabulations of March 1974 and March 1994 CPS.

Each row in the table shows adjusted income per person from a particular income source. For example, the first row in the table shows adjusted male-head labor earnings. In 1973 these earnings averaged $14,445 per person (1993 dollars).[8] (The average includes zeroes for persons in families where the male head did not work as well as for persons who are members of families without a male head.) The average person in the CPS sample thus lived in a family unit in which $14,445 of adjusted income was derived from the labor earnings of the male head. Total adjusted income for people in all quintiles averaged $21,982, implying that almost two-thirds of average adjusted personal income was derived from the earnings of the male head. The right-hand column in the table shows how fast adjusted income from each source increased between 1973 and 1993.

The earnings of male heads fell sharply in the bottom part of the income distribution and rose just 5 percent in the top quintile. In contrast, labor earnings rose among female heads of family in every part of the income distribution, but they rose in a very unequal pattern. Adjusted female head earnings jumped 87 percent in the top quintile but increased just 14 percent in the bottom quintile. (Wives in two-parent families as well as unmarried women who head families or live alone are classified as "female heads of families.") Part of the decline in male earnings at the bottom was due to shrinking real wages among low-income men who worked, but part was due to a decline in the share of low-income men who held jobs and to a decline in the proportion of low-income families where a male head was present. If an adult male is absent from a family, the contribution of male earnings to family income is zero, bringing down the average contribution of male earnings to family income. In 1973, 50 percent of Americans in the lowest quintile lived in families where there was only a single adult head present. By 1993, the proportion in single-head families had climbed to 64 percent, depriving many low-income children of the presence of a male breadwinner.

Statistics on nonlabor income growth in Table 2 show a striking pattern. Trends in unearned income growth tended to *reinforce* the disequalizing effects of earned income changes over the period. Unearned income grew 79 percent and 86 percent, respectively, in the middle quintiles and in the top quintile of the distribution. Nonlabor income actually *fell* 18 percent in the lowest quintile, largely because of a decline in government transfers (including public pensions). The substantial increase in unearned income in the top quintile was mainly due to a big gain in capital income. This source of income is rare among people with low adjusted incomes, so the rapid growth in income of this type had little effect on incomes near the bottom of the distribution.

The statistics in Table 2 highlight the contribution of different income sources to the trend in inequality, but they offer little direct evidence about the changing correlation among income sources over time. This kind of correlation can be important, as a simple illustration will show. Capital income is more commonly received by persons with high rank in the income distribution than by people further down the distribution. If capital income grew faster than other sources of income, it would be reasonable to expect incomes in the top tail of the distribution to grow faster than incomes further down. However, if the correlation between capital income and all other kinds of income increased, income inequality would also rise, even if capital

income grew no faster than other forms of income. Thus, the change in the correlation between different income sources can be an important determinant of inequality.

The two most important sources of income received by U.S. families are the earnings of the male and female heads (see the top two rows in each panel of Table 2). The changing correlation between these two income sources has had a major influence on the distribution of income over time. The percentage of persons in families with a working female head rose from 46 to 57 percent between 1973 and 1993. The marked increase in the percentage of women at work was matched by a growing correlation between the labor supply of male and female heads. In 1973 the correlation between male- and female-head earnings was negative. A person in a family with a working male head was less likely than average to receive labor earnings from a working female head. By 1993 the correlation between male- and female-head earnings had become significantly positive. Persons who lived in a family with a highly-compensated male earner were more likely than average to receive income from a well-paid female earner, too. Women in higher-income families were disproportionately drawn to enter the workforce and work longer hours notwithstanding the fact that their husbands enjoyed small earnings gains or suffered comparatively small losses as a result of labor market developments. The trend in labor force participation among higher-income women is probably explained by changing social attitudes toward work among women and reduced marginal tax rates on high-income wives.

In earlier research I have used an analytical framework proposed by Lerman and Yitzhaki [1985] to decompose changes in the distribution of equivalent income into separate components that help identify the separate contributions of earned and unearned income changes, changes in household structure, and trends in the correlation of different sources of income [Karoly and Burtless, 1995; Burtless, 1996]. This research focused on people in families containing a working-age adult (i.e., a person aged 25-64). When the analysis is extended to the entire population, the results are generally similar to those for working-age families. Four main factors account for the 17-percent rise in the Gini coefficient between 1973 and 1993:

- The sharp decline in the proportion of Americans who live in families where a potential male breadwinner is present;

- Increased earnings inequality among male heads of family;

- The growing positive correlation of female earnings and other sources of family income, particularly male head earnings; and

- The large increase in types of unearned income, such as interest and dividends and private retirement benefits, that are strongly and positively correlated with a family's rank in the overall income distribution.

The first three factors are particularly important in accounting for increased inequality among working-age families. The fourth factor becomes important if the analysis is extended to include families headed by people over 65.

Earnings Inequality

The remainder of this section focuses on trends in the distribution of the most important source of income received by U.S. families — labor earnings. The growth in earnings inequality has stimulated a vast amount of research by economists (see Levy and Murnane [1992] for a partial survey). Figure 2 shows changes in real labor earnings among workers at selected points in the male and female earnings distributions.[9] Men and women who are between 25 and 64 years old and who work year-round on a full-time schedule are included in the tabulations. The sample restrictions mean that the estimates reflect changes in the earnings distribution of prime-age workers who are fully engaged in the labor market. The figure shows 1973-1993 changes in real earnings at the 10th, 25th, 50th, 75th, 90th, and 95th percentiles of the male and female earnings distributions.

Women typically fared better than men during the period. Median full-year earnings rose 11 percent among women while they fell 7 percent among men. Earnings disparities soared among both male and female workers. Annual earnings shrank 21 percent among men at the 10th percentile and rose 14 percent at the 95th percentile. Earnings declined or edged up slowly through the 25th percentile of the female distribution, while they climbed almost one-third at the 95th percentile. The increased inequality of male earnings has played a larger part in the trend in overall income inequality, because male earnings represent a larger percentage of total income. However, female earnings accounted for a growing share of income in the 1973-93 period, when the percentage of all income earned by men declined (see Table 2).

Economists' main explanation for rising earned income inequality is that changes in technology have favored workers with advanced skills and have reduced the demand for workers with below-average skill. Many economists believe that autonomous developments in the technology of production have led employers to demand fewer unskilled and semi-skilled workers. Innovations such as the personal computer seem to be giving an edge to highly educated and technically adept workers. Although the proportion of highly trained and educated workers is not large, these workers have received a disproportionate share of all earnings gains since 1973. The introduction of new machines and new production processes may have conferred a significant advantage on workers who possess the skills and background needed to exploit them. Unskilled workers by definition do not fit this description.

An alternative explanation is that increased global trade has disproportionately affected workers with skills similar to those of overseas workers who are paid much lower wages. Because very poorly paid unskilled workers are abundant overseas, especially in newly industrializing countries, unskilled U.S. workers have suffered serious earnings losses in the new trade regime. Of course, the trade and technology explanations are not mutually exclusive. Industries in the traded-goods sector may adopt technologies that require advanced skill precisely because they face growing competition from countries where less-skilled labor is abundant and cheap.

Whatever the explanation for increased wage inequality, clearly the change in earnings disparities cannot by itself account for the jump in overall income inequality since 1973. Of equal significance has been the changing relationship between male

FIGURE 2.
Change in Real Earnings at Selected Points in Earnings Distribution, Year-Round Full-Time Workers, 1973-1993

(A) Males
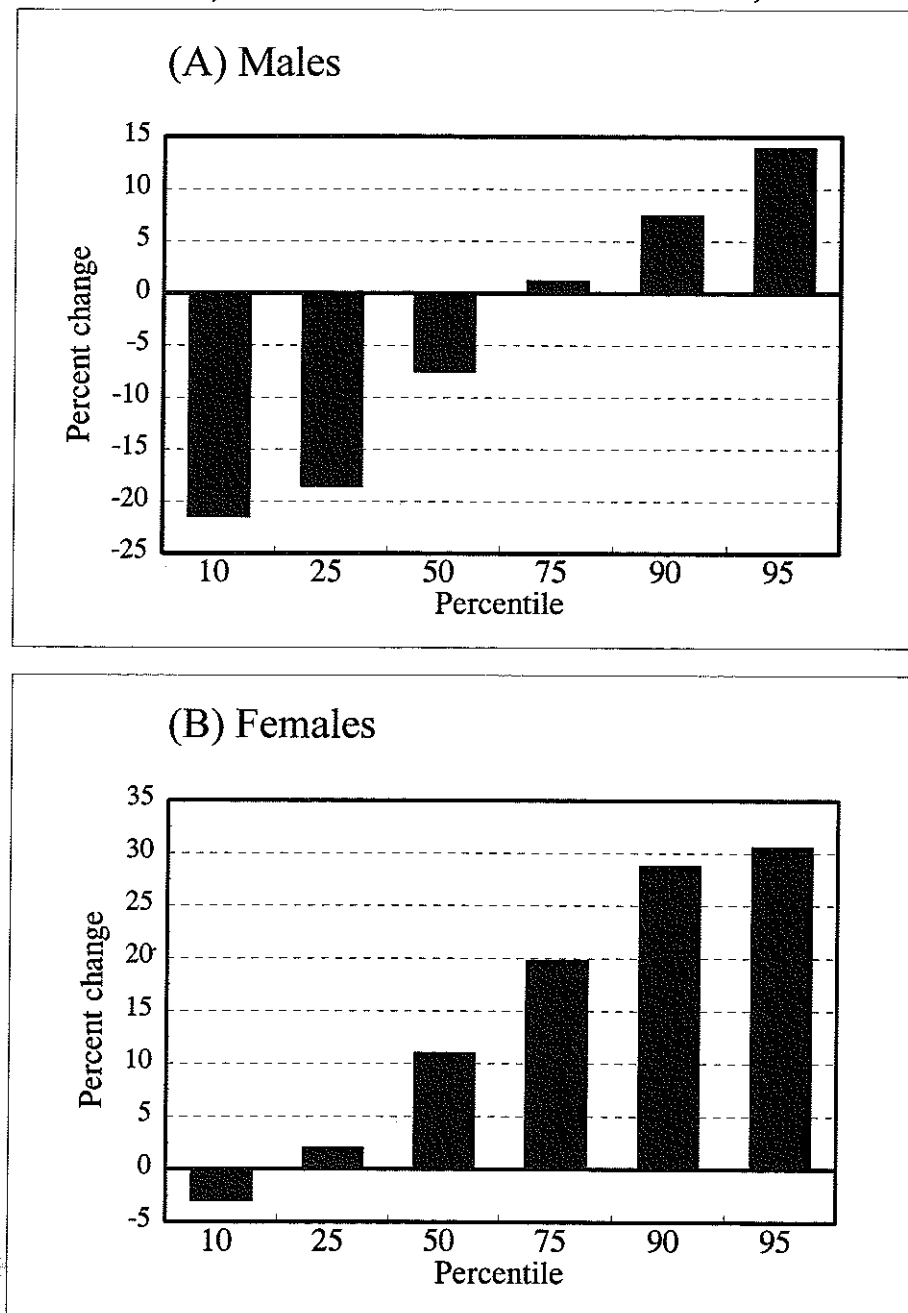
(B) Females

Note: Samples include all full-time, year-round workers aged 25-64.
Source: Author's tabulations of March 1974 and March 1994 CPS.

and female earnings within the family. Figure 3 provides some evidence about this development. All male workers aged 25 to 64 are ranked by their annual earnings. (This tabulation includes part-time and part-year workers as well as full-time, year-round earners.) The top panel in Figure 3 shows real annual earnings changes between 1973 and 1993, expressed as a percent of earnings in 1973, for males in each earnings decile.[10] As in Figure 2, men with a low rank in the earnings distribution experienced large losses in real earnings. Men with a high rank in the distribution enjoyed small gains.

The middle panel in Figure 3 shows the corresponding rate of change in average earnings received by the wives of men in each decile. Average (unconditional) spouse earnings is calculated by summing the total spouses' earnings in a decile and then dividing by the number of men in the decile. The decile is defined on the basis of *male* earnings; each decile, except the top one, includes one tenth of the men who have labor earnings. If a man is unmarried or has a wife who does not work, his spouse's earnings are considered to be zero. The change in spouse earnings is measured as the difference between wives' average earnings in 1973 and 1993, expressed as a percent of average 1973 earnings. Wives' earnings climbed in each decile, reflecting wives' increased employment rate and higher hourly wages. But whereas spouses' annual earnings grew $1,224 (31 percent) in the bottom decile, they soared $8,745 (157 percent) in the top decile.

The bottom panel shows the percent change in the sum of husband and wife earnings for men in each decile of the male earnings distribution. In the top decile, the modest gain in average male earnings combined with a dramatic rise in spouses' earnings yields an 18-percent increase in total husband and wife earnings. In the seventh and eighth deciles, large percentage increases in spouses' earnings more than offset small declines in male earnings to produce modest improvements in husband-wife combined earnings. In the bottom six deciles of the male distribution, the increases in wives' earnings were too small to offset male earnings losses, so combined husband-wife earnings fell.

Table 3 offers evidence about the source of change in wives' average (unconditional) earnings. Men and wives are once again ranked by the *man's* position in the male earnings distribution. (To reduce the number of entries in the table, I have divided men into quintiles rather than deciles.[11]) The table shows changes in male and spouse earnings, male marriage rates, and wives' employment rates within each quintile of the male earnings distribution. Data in the top panel refer to 1973; data in the second panel refer to 1993; and data in the third panel show changes from 1973 to 1993, expressed as a percent of the 1973 value of each variable.

The right-hand column shows the level and change in wives' unconditional earnings. The factors that caused wives' unconditional earnings to change can be seen in the next three columns to the left. Three factors determine average (unconditional) spouse earnings in a quintile: (a) The percentage of men who are married; (b) The percentage of *married* men who have working wives (in other words, the employment rate of women who are married to men in the quintile); and (c) The average earnings of wives who are employed. Consider each of these factors in turn.

FIGURE 3.
Change in Male and Spouse Earnings for Men with Earnings, by Decile of Male Earnings, 1973-1993
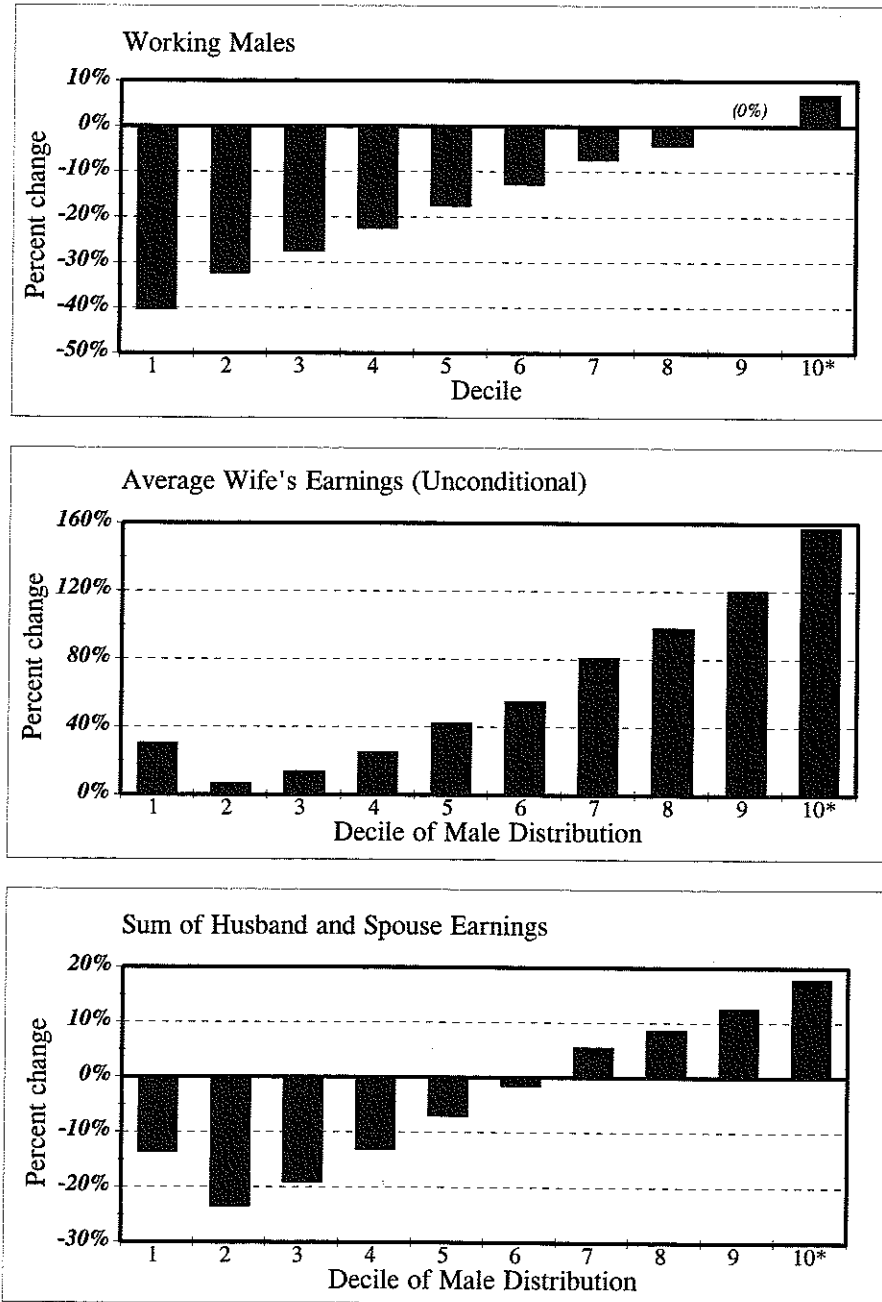
* Tenth decile excludes men with earnings in top 3 percentiles.

Note: Sample consists of males with positive earnings who are between 25 and 64, plus their spouses.

Source: Author's tabulations of March 1974 and March 1994 CPS.

TABLE 3
Earnings, Marital Status, and Wives' Earnings: Male Workers Ranked by Quintile of Male Annual Earnings, 1973-1993

Quintile	Average Male Earnings (1993 $)	Fraction of Men Who Are Married (Percent)	Wives' Employment Rate (Percent of Wives Present)	Average Earnings Among Wives Who Work (1993 $)	Wives' Unconditional Average Earnings (1993 $)
1973					
Bottom	$11,321	66	57	$11,476	$4,342
2nd	24,140	81	59	12,567	5,995
Middle	32,310	87	57	13,424	6,605
4th	41,318	88	53	13,907	6,485
Top*	60,617	92	45	14,385	5,940
1993					
Bottom	$7,395	47	71	$15,099	$5,112
2nd	18,170	61	76	15,639	7,201
Middle	27,469	69	78	18,382	9,844
4th	38,959	77	79	20,343	12,302
Top*	62,712	83	71	23,435	13,939
Percent Change, 1973-1993					
Bottom	-35	-29	25	32	18
2nd	-25	-25	28	24	20
Middle	-15	-21	37	37	49
4th	-6	-13	49	46	90
Top*	3	-10	59	63	135

Because of top-coding, top quintile excludes men with earnings above the 97th percentile.

Note: Sample consists of males with positive earnings, aged 25-64, and their spouses.

Source: Author's tabulations of March 1974 and March 1994 CPS.

The percentage of men who are married fell in every part of the male earnings distribution. If other factors remained constant, the decline in the male marriage rate would depress unconditional spouse earnings. However, the drop in the percentage of men who were married was much greater in the bottom quintile than in the top (-29 percent versus -10 percent). Other things equal, this should tend to widen the family income gap between high- and low-earnings males.

Increases in the percentage of wives who work should boost average (unconditional) spouse earnings. The percentage of wives who were at work increased in every quintile, but it increased much more slowly among women married to men in the bottom quintile than among wives of men in the top quintile (25 percent versus 59 percent). Increases in the earned incomes of wives who are actually at work will naturally increase unconditional earnings. Working wives in each quintile experienced a substantial gain in earnings, but earnings gains were fastest — both absolutely and in percentage terms — among women married to men in the top male earnings quintile. Gains were smallest among working wives in the bottom two quintiles.

In sum, each of the three factors tended to boost the gap in income between highly paid and poorly paid men. Men in the bottom of the wage distribution saw a faster drop in their marriage rates. Low-wage men who were married saw their wives enter the work force at a slower rate than the wives of more affluent husbands. And the wages of their employed wives climbed much more slowly than the earnings of working wives of high-wage husbands.

In part these developments reflect an important demographic trend. Men and women are delaying first marriage and are staying unmarried for a greater fraction of their lives, reducing the proportion of men who are married. In part the developments also reflect a major social development. Married women in all income classes are devoting a larger portion of their lives to paid market work. In recent years, this trend has had a larger impact on wives in affluent families, whose labor force participation rates were initially low, than on wives in lower income families, who were more likely to work in the early 1970s. An economic explanation for the trends is also apparent. Women who are married to highly paid men tend to share the educational and occupational characteristics that help their husbands earn good incomes [Becker, 1973]. The forces that make these skills more valuable to highly paid men also make them more valuable to married women.

CONCLUSION

American incomes and living standards have improved in the past two decades, but the improvement has been slow and uneven. The pace of average income growth has been sluggish in comparison with the growth that Americans enjoyed in the 1950s and 1960s. The tabulations in this paper also make it clear why rising income and wage inequality became a major focus of economic research in the 1990s. Because incomes have become much less equal, the growth in average income per person does not accurately reflect the gains enjoyed by families in the middle and at the bottom of the distribution. In 1993 almost 40 percent of Americans received "equivalent" real cash incomes that were smaller than the incomes they would have received, at the same position in the income distribution, in 1973.

The jump in male earnings inequality accounts for an important part of the growth in overall inequality between 1973 and 1993. One interpretation of the trend in male earnings is that the labor market became a much more hostile place for poorly paid men after 1973. While this interpretation is correct, it is incomplete. People at the bottom of the income distribution have derived smaller incomes from male earnings for reasons in addition to the shrinking hourly and weekly earnings paid to low-income men. Changes in family composition and declines in male participation have deprived an increasing percentage of families of the presence of a working male head. By definition, these families receive no income from male head earnings.

Less often noticed is the effect of rising labor force participation among married women. Female employment rates and hourly earnings have risen since 1973, but the growth in employment and earnings was particularly concentrated among women who are married to high-wage husbands, contributing to the sharp rise in inequality.

Trends in the distribution of unearned income have also played a role in boosting inequality. Increases in income from capital assets and from public and private pensions were especially common among families with a high rank in the income distribution. Government transfer programs had little effect in ameliorating the trend toward inequality. If anything, these programs became less effective in redistributing incomes to low-income families after 1979.

Recent American prosperity has been extremely uneven. Families and workers at the top of the economic ladder have enjoyed rising incomes. Families in the middle have seen see their incomes grow slowly or stagnate. Young families and workers stuck at the bottom have suffered the equivalent of an economic depression. Though the nation enjoyed decent economic growth in the first half of the 1990s, Census statistics provide no evidence that the trend toward wider inequality slowed. So long as the trend continues, a large minority — perhaps even a majority — of Americans will remain convinced that U.S. living standards are languishing.

NOTES

1. The CPS is a monthly survey of nationally representative households, used mainly to calculate the U.S. unemployment rate. The March survey contains additional detailed questions about household members' annual income, including net self-employment income, wage earnings, and nonlabor income, as well as work experience during the previous calendar year. Each annual file contains information from approximately 55,000 U.S. households.
2. The estimates are in constant 1993 dollars deflated using the CPI-U-X1 deflator [U.S. Bureau of the Census, 1995, A-3].
3. An alternative assumption is that θ =1.0. Under this assumption, adjusted income is equal to average income per person in the family. The assumption is equivalent to believing that there are no economies of scale in consumption. In contrast, the Census Bureau implicitly assumes that θ=0 when it calculates family income inequality.
4. The public-use files are top-coded to preserve the confidentiality of respondents. Unfortunately, the top-code values are not consistent over time. They move erratically whether measured in constant dollars or as a percentile rank in the income distribution. To make top coding consistent in 1973 and 1993, I top-coded male earnings at the 96.9th percentile of the male earnings distribution in both years and top-coded female earnings at the 99.5th percentile of the female earnings distribution.
5. The mismeasurement occurs because of top coding in the public use CPS files. Persons earning more than $99,999 per year in 1993 are recorded as earning $99,999 in wage and salary income, for example. Thus the CPS public use files offer a poor source of information about the incomes of very affluent Americans.
6. This is somewhat less than the 22.9 percent increase in unadjusted per capita income reported by the Census Bureau (see Table 1). The difference is due to the growth in the fraction of household income that is above the top code income values on the public use version of the CPS files (see notes 4 and 5). Much of this income will be reflected in Census Bureau tabulations, because the Census Bureau has access to CPS files where top coding is not such a serious problem.
7. In fact, inequality rose somewhat faster using the Bureau's most inclusive definition of net income. Using the standard gross cash income definition, the Gini coefficient of household income increased 11.2 percent between 1979 and 1993. Under the most inclusive net income definition, the Gini coefficient increased 12.2 percent [U.S. Bureau of the Census, 1992, xv; and U.S. Bureau of the Census, 1995, xxi]

8. For a person in a single-member household, this would be the exact amount of (unadjusted) earnings received by the household. For members of larger families, the amount of male earnings actually received was equivalent to $14,445 received by a single-member household. For a member of a 4-person family, for example, the average amount received was 2 x $14,445 or $28,890. Nominal income amounts in each year have been deflated using the CPI-U-X1 deflator.

9. The figure shows changes in unadjusted real earnings per worker. No adjustment is made to reflect the number of family members supported by the earnings.

10. The top decile excludes men in the top 3 percent of the earnings distribution. Because of top-coding, their earnings are not accurately measured on the CPS.

11. Again the top quintile excludes men in the highest 3 percent of the male earnings distribution.

REFERENCES

Becker, G. S. A Theory of Marriage: Part I. *Journal of Political Economy*, July/August 1973, 813-46.

Burtless, G. Widening U.S. Income Inequality and the Growth in World Trade. *Tokyo Club Papers*, 1996, 129-60.

Karoly, L. A., and Burtless, G. Demographic Change, Rising Earnings Inequality, and the Distribution of Personal Well-Being, 1959-1989. *Demography*, August 1995, 379-405.

Lerman, R. I., and Yitzhaki, S. Income Inequality Effects by Income Source: A New Approach and Applications to the United States. *Review of Economics and Statistics*, February 1985, 151-56.

Levy, F., and Murnane, R. J. U.S. Earnings Levels and Earnings Inequality: A Review of Recent Trends and Proposed Explanations. *Journal of Economic Literature*, September 1992, 1333-81.

Slemrod, J. High-Income Families and the Tax Changes of the 1980s: The Anatomy of Behavioral Response, in *Empirical Foundations of Household Taxation*, edited by M. Feldstein and J. M. Poterba. Chicago: University of Chicago Press, 1996, 169-89.

U.S. Bureau of the Census. *A Brief Look at Postwar U.S. Income Inequality*, Current Population Reports, Series P60-191. Washington, D.C.: U.S. Department of Commerce, 1996.

_____. *Income, Poverty, and Valuation of Noncash Benefits: 1993*, Current Population Reports, Series P60-188. Washington, D.C.: U.S. GPO, 1995.

_____. *Money Income of Households, Families, and Persons in the United States: 1992*, Current Population Reports, Series P60-184. Washington, D.C.: U.S. GPO, 1994.

_____. *Measuring the Effect of Benefits and Taxes on Income and Poverty: 1979 to 1991*, Current Population Reports Series P60-182-RD. Washington, D.C: U.S. GPO, 1992.

U.S. Council of Economic Advisers. *Economic Report of the President, 1995*. Washington, D.C.: U.S. GPO, 1995.