

CHAPTER 16

THE AMERICAN ACHIEVEMENT

At the beginning of the 1990s, the communist economies of the Soviet Union and most of Eastern Europe collapsed. The Berlin Wall was torn down, and East and West Germany reunited. The Soviet Union and Czechoslovakia splintered into largely autonomous nation-states, while Poland, Hungary, and Rumania began a long march toward establishing market economies. Yugoslavia was torn apart by long submerged ethnic strife, and, on the other side of the world, China appeared to be taking a few tentative steps toward allowing some free markets to operate. Though dogmatic communist societies continued to exist, it appeared that the long experiment in establishing them was winding down.

The siren song of communism was always that it could establish a classless society—a society whose members produced up to and according to their ability while receiving what they needed independently of what they had produced. In practice, these societies were never able to divorce production and income, but they did eliminate private property in an attempt to equalize incomes. However, these changes required the creation of a police state and the reduction of individual freedom.

These societies failed because their citizens wanted more freedom and because they simply were not very good at producing consumer goods and services. Their output was low and grew slowly, and the quality of what was produced was, by any standard, shoddy. By Western standards many communist industrial areas were environmental disasters. Today there can be no question about the ability of a market-directed economy to out-produce other economic systems. By harnessing self-interest and initiative, market directed economies lead individuals and firms to produce more and better goods and services.

This continues to leave open the question of how market economies distribute income among their citizens. Did the United States, as a market-based economy, tend to create greater inequalities in the distribution of income? Another issue is the current economic status of the United States vis-à-vis other countries. Is the United States growing more slowly, and has it been surpassed in per capita incomes by other economically advanced countries, such as Japan and West Germany? These are the issues we will examine in this concluding chapter.

The Distribution of Income

Stanley Lebergott has noted that the distribution of “power, prestige, and pelf” has been a constant concern in almost all societies.¹ In the past this could be measured in fairly simple terms by counting the number of acres (or slaves) one owned, the number of serfs controlled, or the size of flocks or herds of livestock. Technological changes have created geographic and social mobility in modern industrial societies making such measures inadequate to determine status. Today one's money income relative to others is the primary indicator of status, and changes in the size (or personal) distribution of income the primary aggregate measure of changing equality.

The distribution of income can also be measured by examining the shares of income received by productive resources—the functional distribution of income. The concern with status and equality focuses the analysis on the size distribution of income. However, the two are not independent. The highest income households usually receive a larger share of their income as property income, because labor income tends to be much more equally distributed. If the share of property income in total income tends to, say, rise, then often this suggests increasing inequality in the size distribution of income.

The Functional Distribution of Income

In broad terms the shares that are of interest are the share of income received as compensation for labor services and the share of income received as compensation for nonhuman, or property, services. These two categories are usually termed *employee compensation* and *property income*. However, when examining functional income shares for more than the corporate business sector, there is a third category for the income of unincorporated enterprises—*entrepreneurial* or *proprietors income*. This represents returns to both property and labor, but the share of each cannot be separated from the total.²

Figure 16.1 presents shares of all national income received by resource owners for overlapping decadal averages since the beginning of this century.³ These data are available on an annual basis beginning in 1929 and are shown in Figure 16.2. There are similar long-term trends of a rising share of employee compensation and a declining share of proprietors' income. It is possible that these trends are influenced by the growing size of governments because they generate only employee compensation—no property income. To compensate, we can examine the

functional shares for national income originating in the domestic business sector. This excludes the income originating in government, households, nonprofit institutions, and in the rest of the world. These are shown in Figure 16.3.

Though the levels of the shares change somewhat the general trends are the same. Property income's share has varied around 20 percent with no trend, while labor's share has generally risen or fallen inversely to the proprietors' share. Property income is composed of corporate profits, rental income of persons, and net interest. Corporate profits as a share of all national income declined from 14.3 percent in 1950 to 8 percent in 1980 and to 7.2 percent in 1990. In contrast, net interest rose from 1.7 percent of all national income in 1950 to 9.1 percent in 1980 and 11 percent in 1990. Rental income of persons was 3 percent or more from 1950 to 1965 and then began falling to become a -0.2 percent in 1989. Therefore, though property income's share was roughly constant, its components' shares were not. For employee compensation, wages and salaries declined slightly from 62.2 percent of all national income in 1950 to 61.4 percent in 1990, while supplements to wages and salaries rose from 3.3 percent in 1950 to 12.4 percent of all national income in 1990. Within proprietors' income, farm proprietors' share of all national income fell from 5.8 percent in 1950 to 1 percent in 1990, while nonfarm proprietors' share fell somewhat less from 10.5 percent in 1950 to 7 percent in 1985 and then rose back to 7.4 percent in 1990. Unfortunately, proprietors' incomes (or the incomes of unincorporated enterprises) are actually composed of income going to property and to labor, and we have no idea how this was distributed between the two or if and how the distribution changed over time.

We can accurately say how the shares of income between labor and capital changed over time if we examine only the national income originating in the corporate business sector, and this is shown in Figure 16.4. During the Great Depression property income fell as low as zero, then rose sharply during the Second World War. After the war property income's share began to fall and generally fell through the mid-1970s. Since then property income's share has tended to rise. This increase to the mid-1970s in labor's share of national income originating in the corporate business sector suggests that, all else the same, there should have been some increase in the equality of the size distribution of income. The decline since the mid-1970s suggests that some increase in inequality in the size distribution of income should be seen.

The Size (or Personal) Distribution of Income

The size distribution of income is often used as a welfare measure. Frequently, an increase in equality in the income distribution is considered desirable even though we cannot, in fact, conclude this without agreed-upon measures for interpersonal utility comparisons.⁴ There are two usual methods to evaluate the size distribution of income. In the first, the federal government reports by quintiles the percentage share of money income received by families as well as the percentage of income received by the top 5 percent of the nation's families based on money income. If the data are less aggregated, another method can be used. A *Lorenz curve* shows the cumulative income share in summing over units from the lowest to the highest income units. The area between the Lorenz curve and the curve of perfect equality indicates the amount of inequality and can be used to assess changes in inequality in the personal income distribution. Because this is a visual measure, it is less precise and can yield ambiguous results. The *Gini coefficient* is a numerical, and more precise, measure of the area between a Lorenz curve and the curve of perfect equality. If one income unit receives all of the income in the society, the value of the Gini coefficient is 1. If all n income units in the society receive exactly $1/n$ share of the total income, or equal shares, then the Lorenz curve and the diagonal line of perfect equality match, and the Gini coefficient takes a value of zero. As the Gini coefficient increases toward 1 the inequality in the size distribution of income increases.

The Interwar Period Unfortunately the interwar data with which we can examine the size distribution of income are woefully weak. Most have concluded that there was growing inequality in the distribution of income in the twenties and growing equality during the thirties, but how much is still a debatable topic. The reported data on federal income taxes provide evidence on how income was distributed among the families and individuals who paid income taxes, but only a small percentage (7 to 15 percent) of families and individuals generally had incomes large enough to be subject to the federal income tax in this period. Thus, the evidence relates to only a small segment in the upper end of the income distribution.

There are two ways to use this data. First, the data can be used to construct *inverse Pareto coefficients*. These measure how the incomes varied among those who paid taxes. Lee Soltow has estimated these coefficients, and they are shown in Figure 16.5.⁵ These show that inequality *among the highest income recipients* declined from the 1913-19 to the 1920-24 period, rose in the late twenties, and fell through the 1930s. A similarly constructed measure for 1965 shows continued decline.

Fig. 16.1 Income Distribution by Functional Shares: All National Income (Overlapping Decadal Averages)

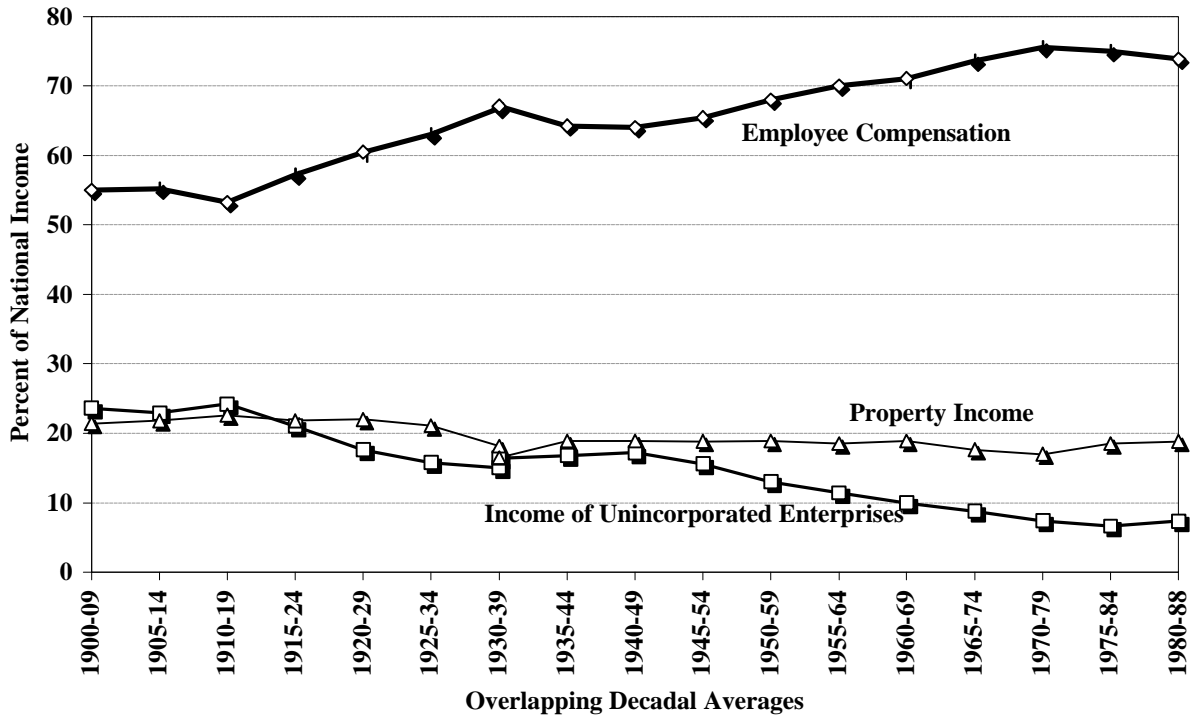


Fig. 16.2. Income Distribution by Functional Shares: All National Income

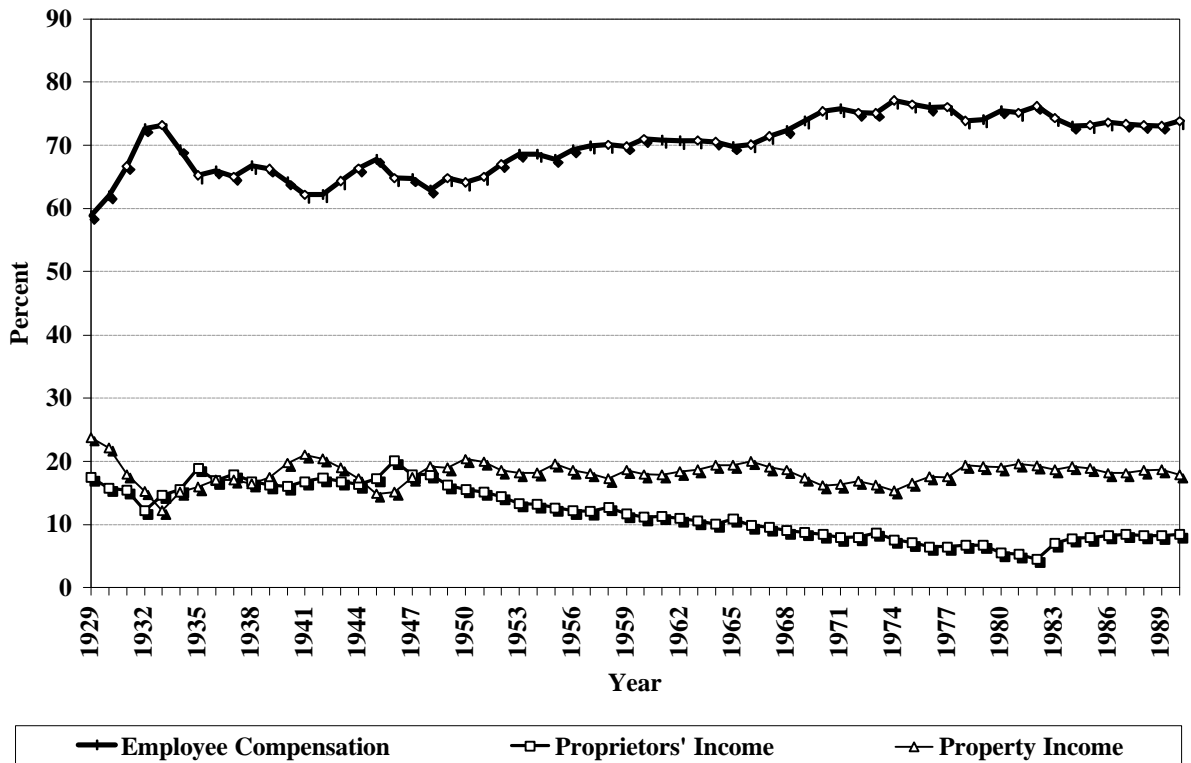


Fig. 16.3. Income Distribution by Functional Shares: National Income Originating in the Domestic Business Sector

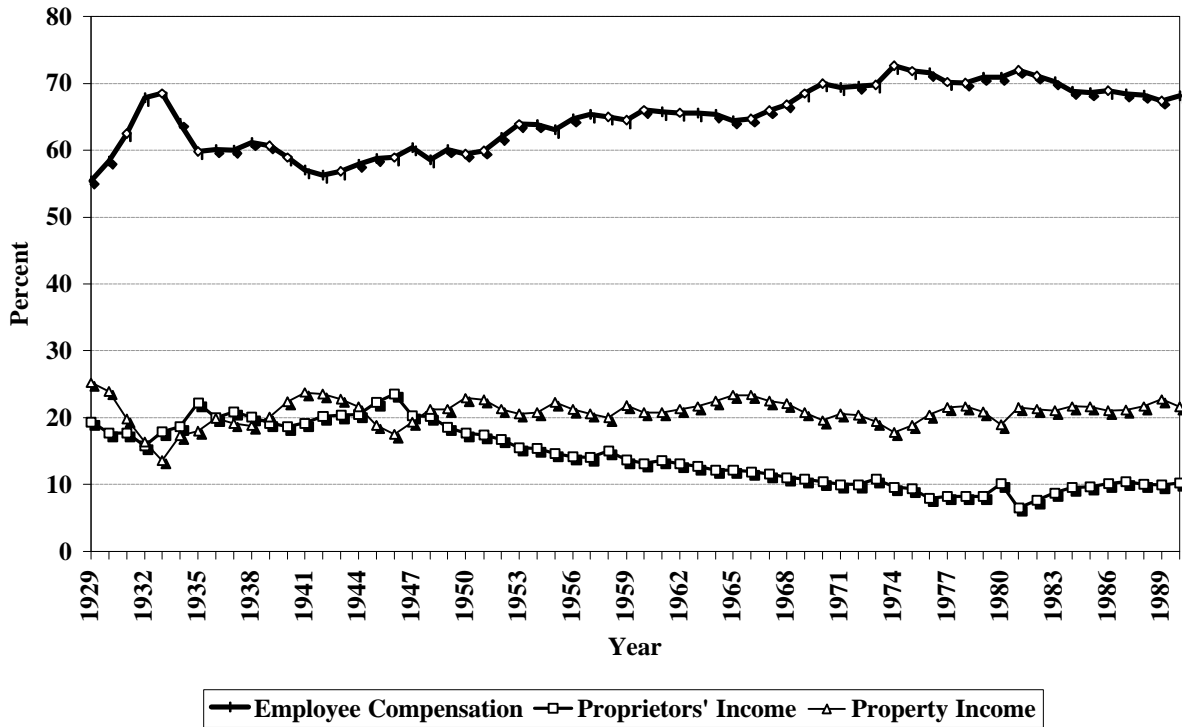


Fig. 16.4. Income Distribution by Functional Shares: National Income Originating in the Corporate Business Sector

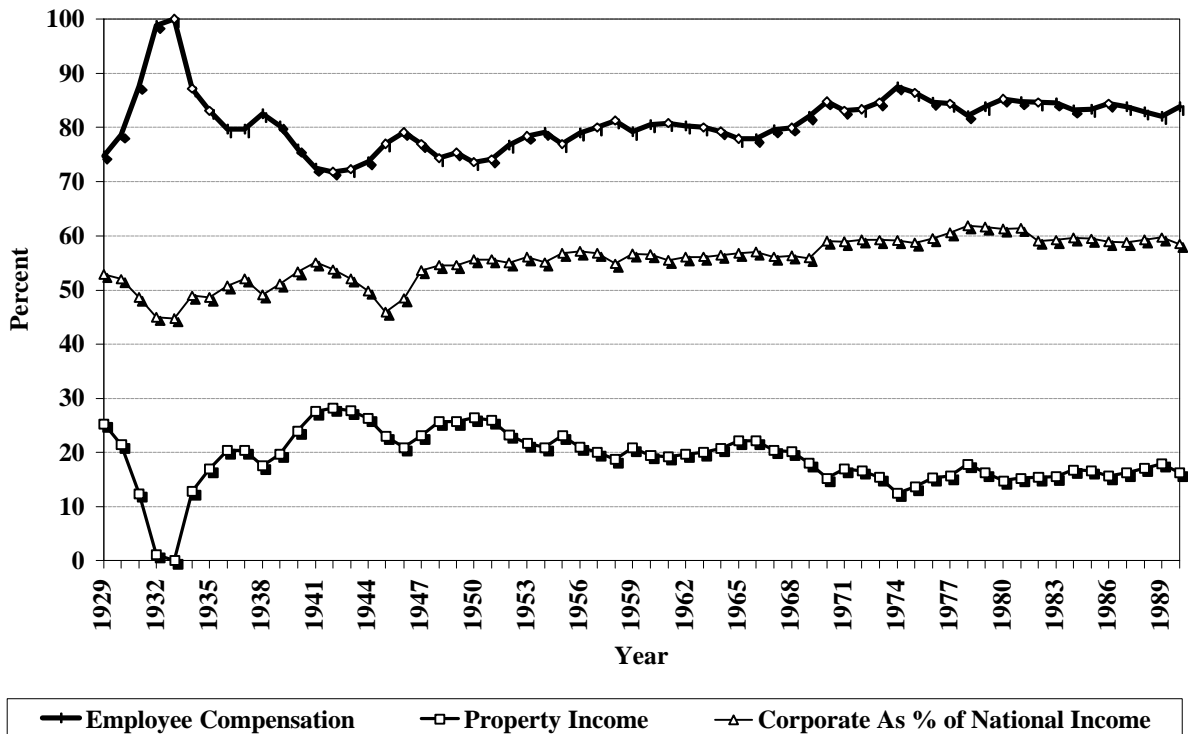


Fig. 16.5. Evidence on U.S. Income Inequality: Inverse Pareto Coefficients

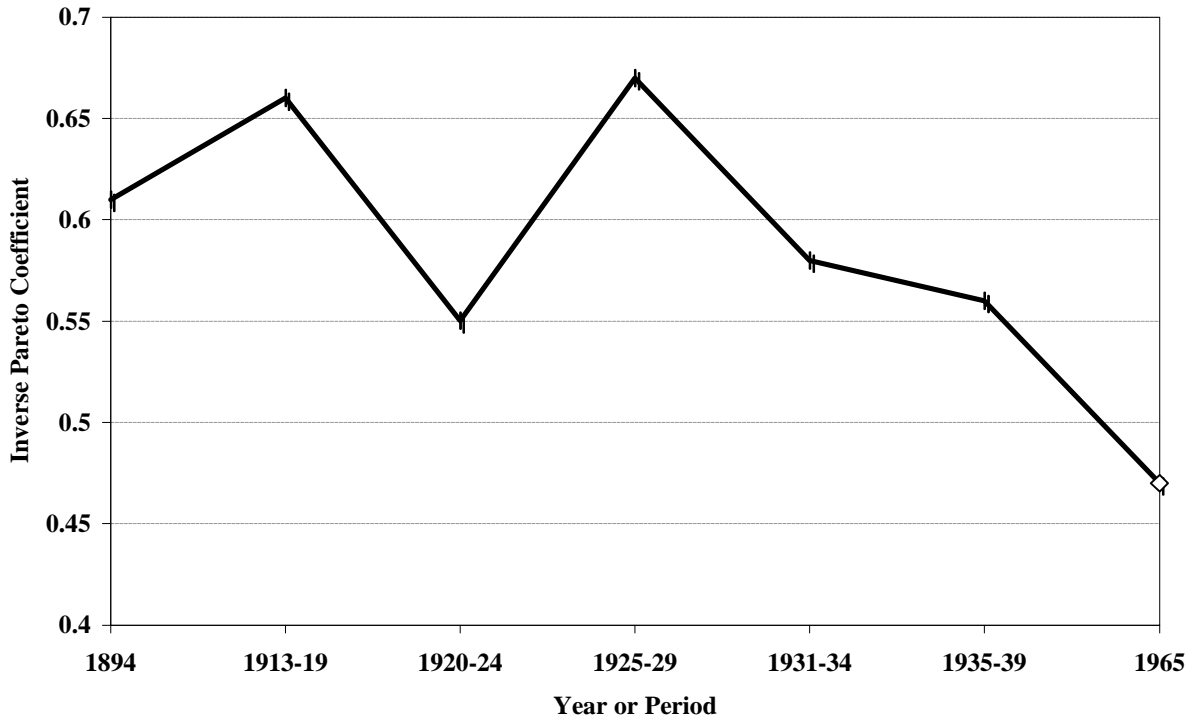


Fig. 16.6. Percentage Shares of Kuznets' Disposable Income for the Nonfarm Population

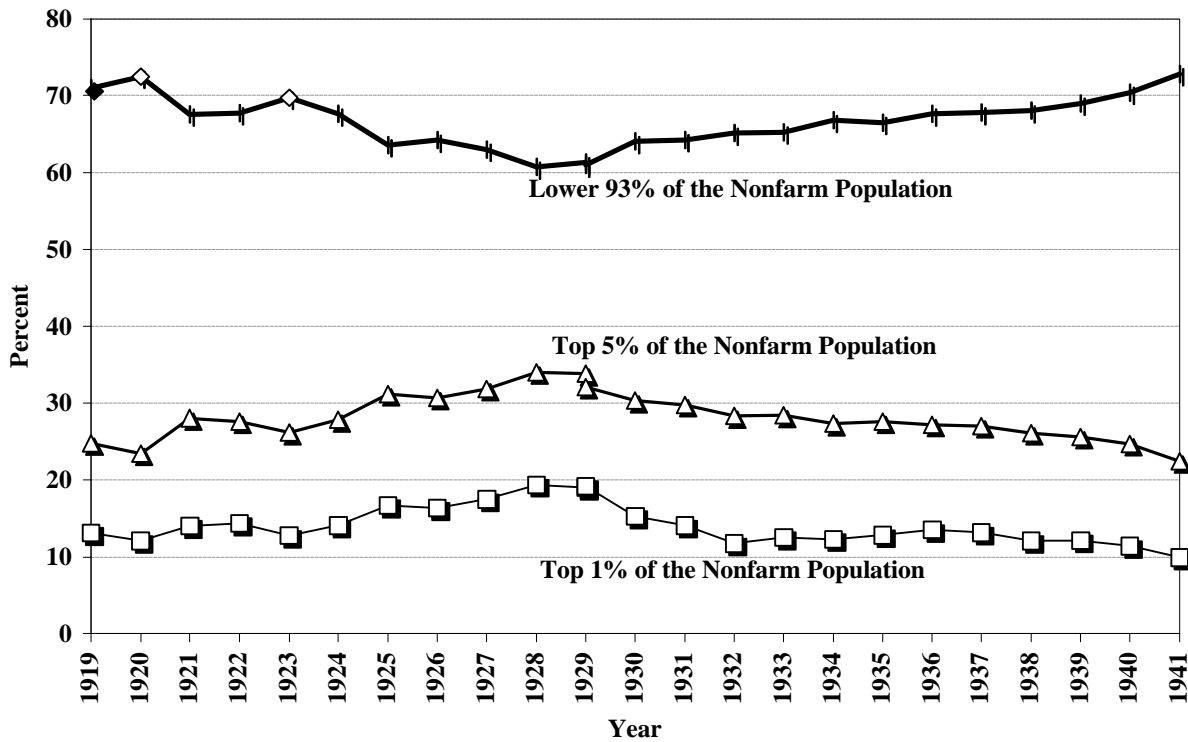


Fig. 16.7. Shares of Family Personal Income Received by Each Fifth of Families and Unattached Individuals

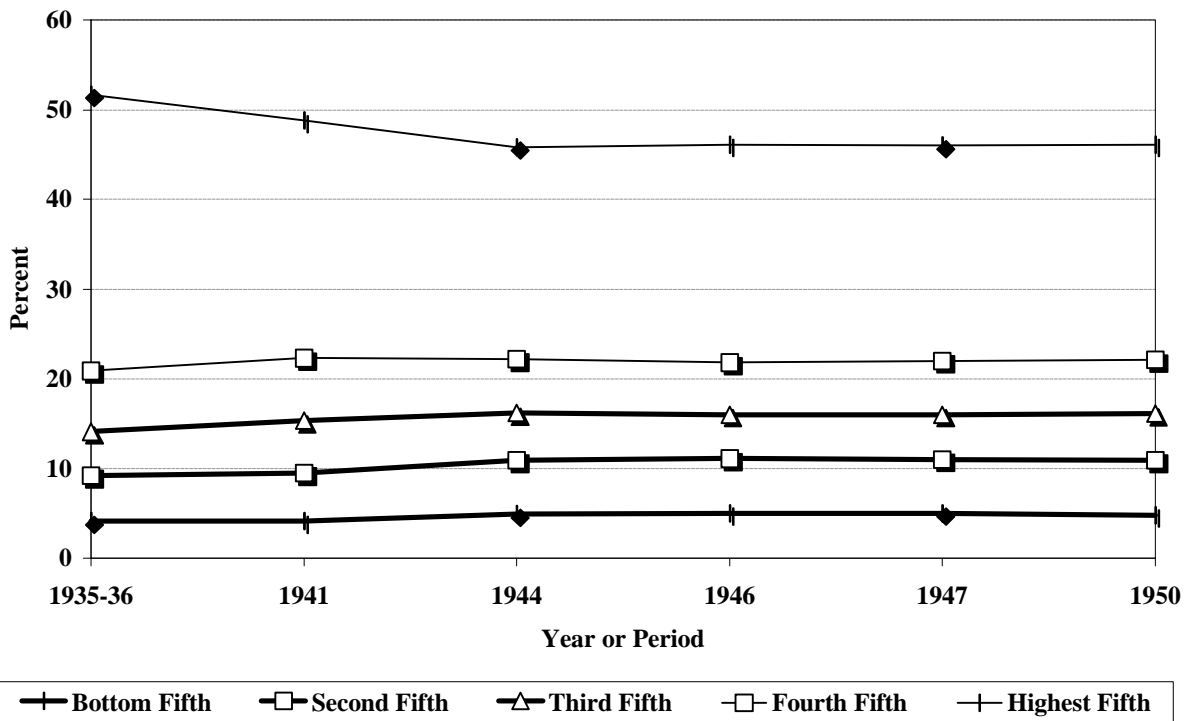


Fig. 16.8. Shares of Money Income for Families [Data for 1953 through 1962 are for Families and Unrelated Individuals; Data for 1963 Through 1990 are for Families Only]

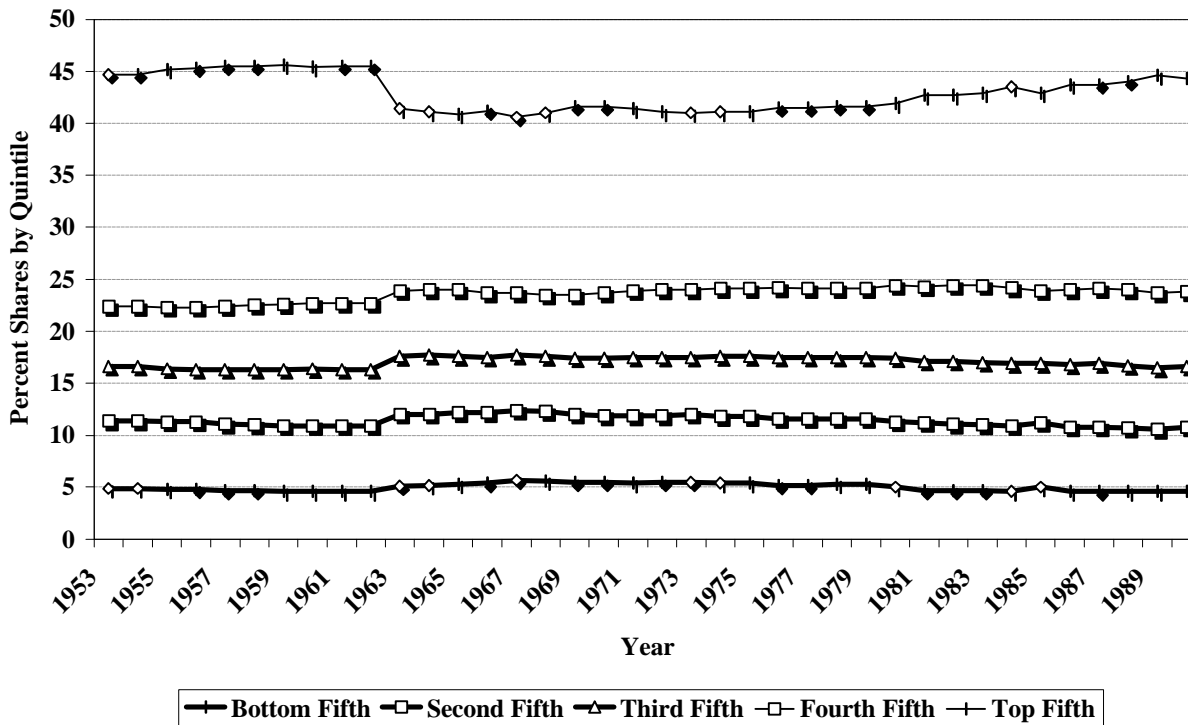


Fig. 16.9. Lorenz Gini Coefficients

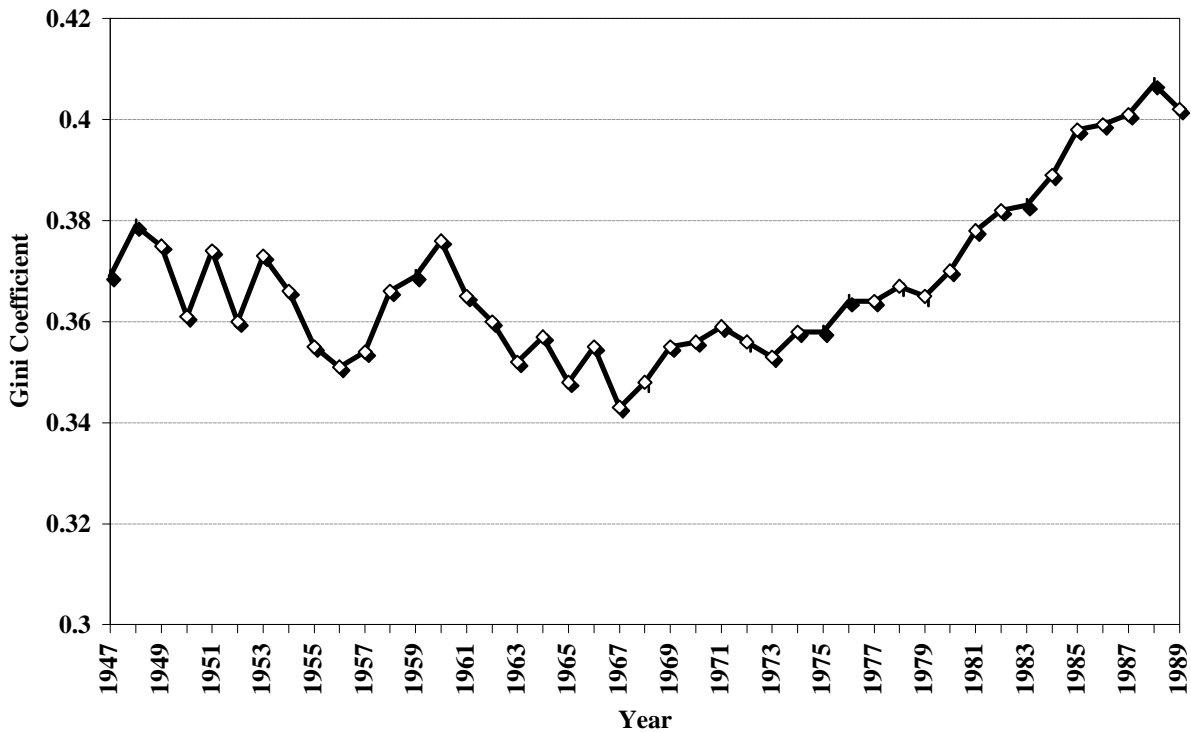


Fig. 16.10. Number and Percentage of All Individuals in Poverty

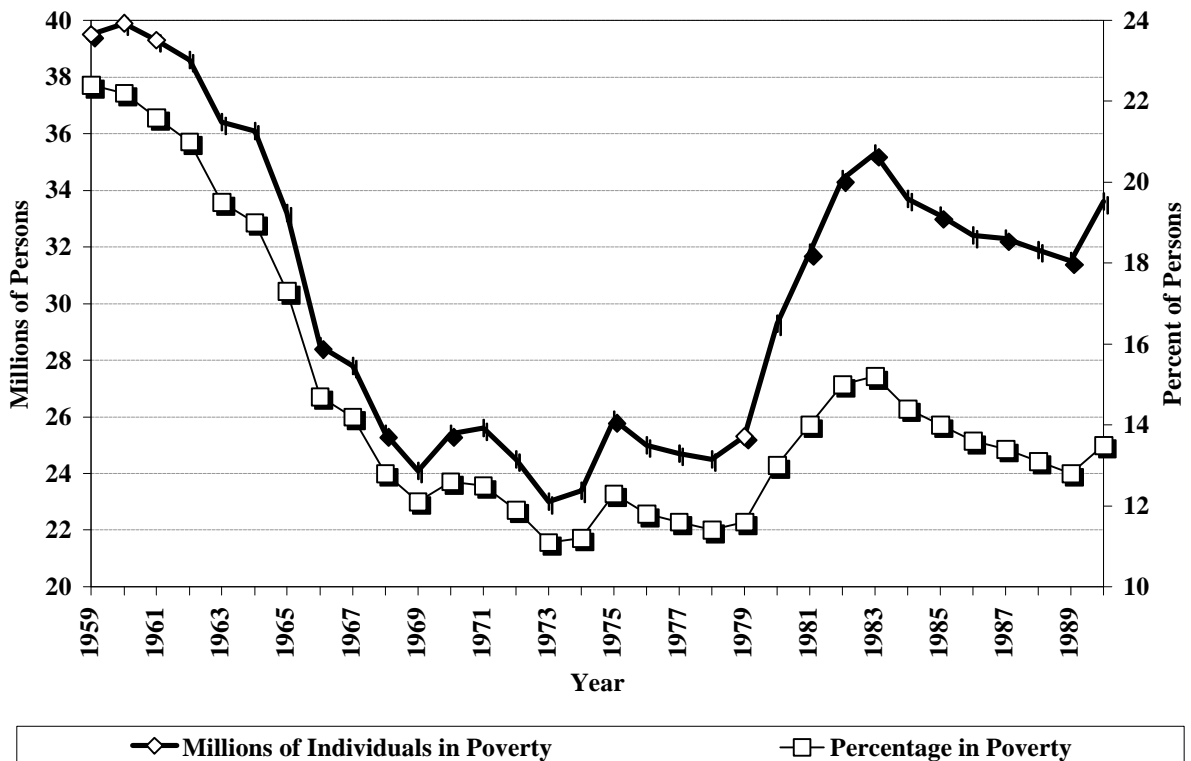


Fig. 16.11. Percentage of All Individuals in Poverty by Groups

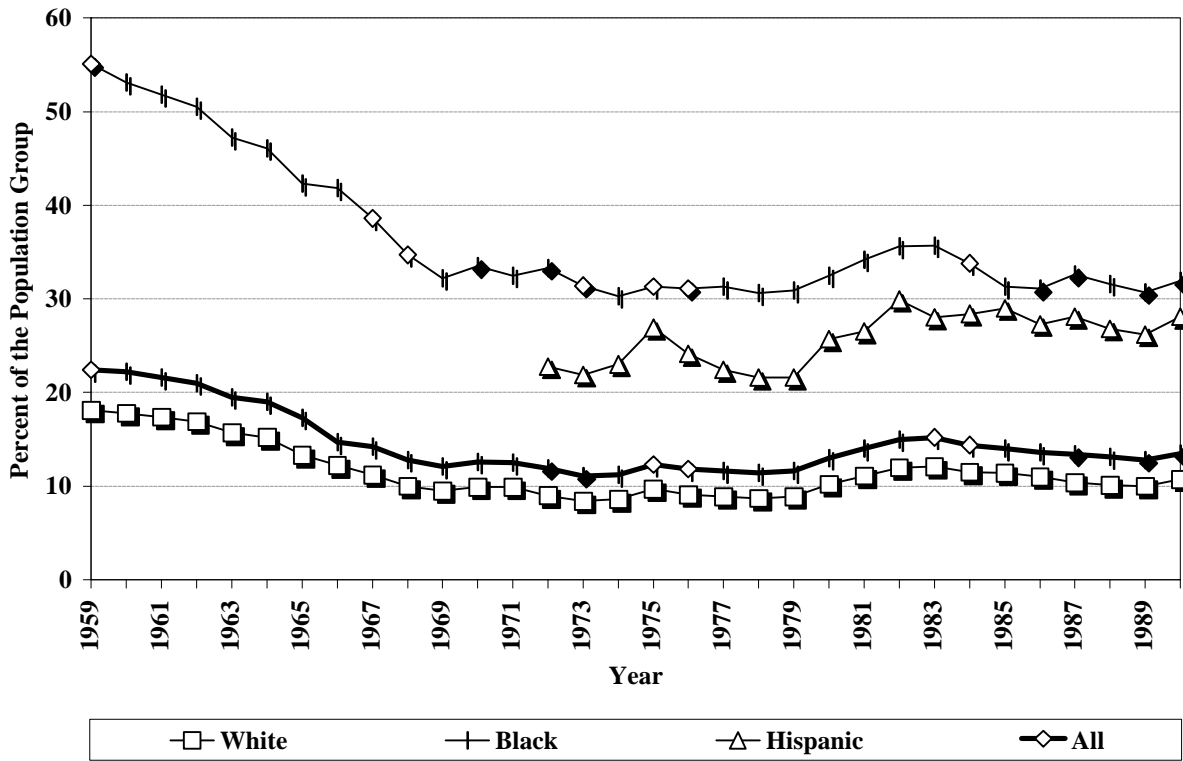
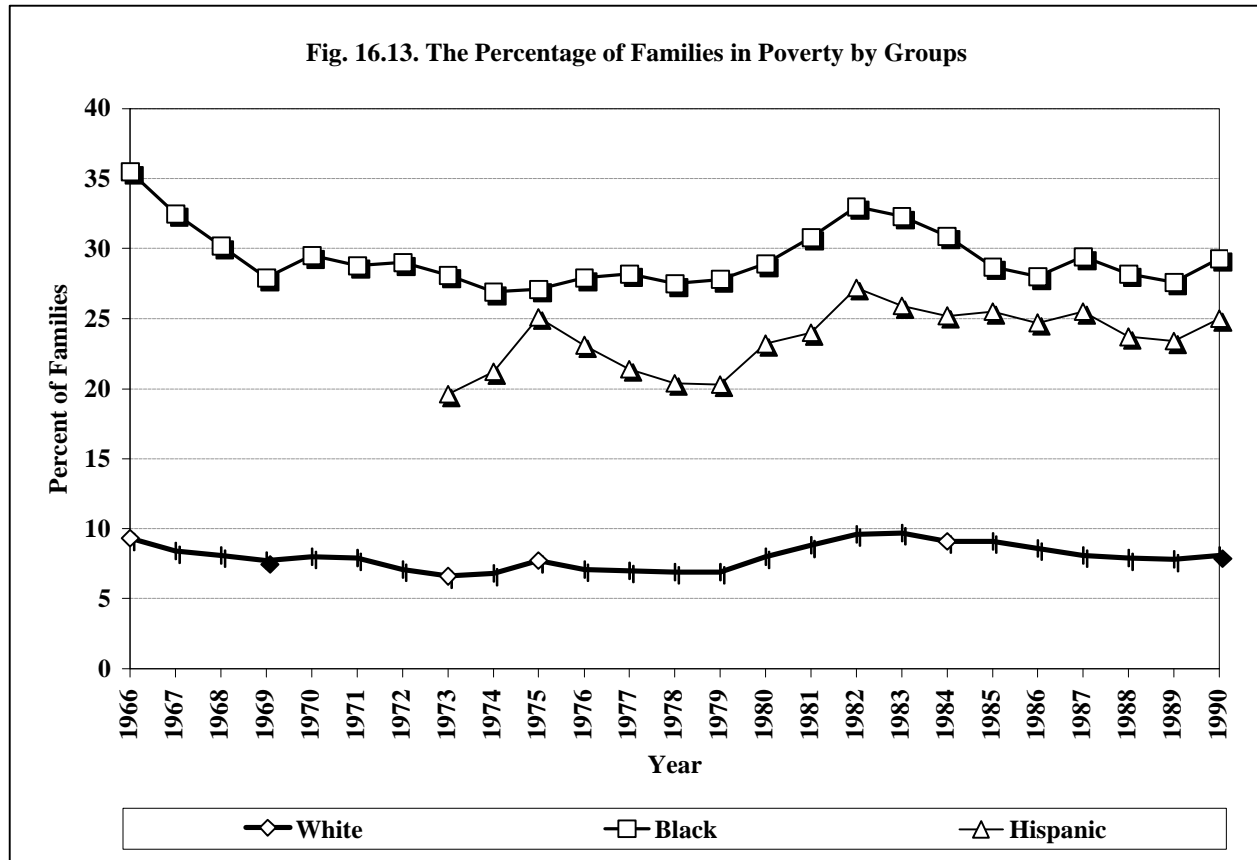


Fig. 16.12. The Number and Percentage of All Families in Poverty



Fig. 16.13. The Percentage of Families in Poverty by Groups



A second indicator of the interwar income distribution was constructed by Simon Kuznets.⁶ He constructed estimates of the shares of disposable income received by various nonfarm percentiles at the upper end of the income distribution and the share received by the lower 93 percent of the nonfarm population. These are shown in Figure 16.6. Kuznets' measure showed a surge in inequality during the prosperous twenties and a rising equality during the depressed thirties.⁷

Charles Holt used the percentile shares developed by Kuznets to construct estimates of nominal and real per capita income during the twenties for the percentiles.⁸ Holt found that these shares showed much greater inequality trends in the twenties because the nominal and real per capita incomes of the lower 93 percent of the population declined from 1923 to 1929. These results suggested that rather than just *more* of the increases in income going to the higher income recipients, the higher income recipients had received *all* of the income gains plus some of the income formerly received by the lower income households. However, as pointed out by Gene Smiley, these estimates are suspect because neither Soltow nor Kuznets corrected for tax avoidance behavior in response to huge variations in income tax rates between 1913 and 1925. As tax rates skyrocketed from 1913 through 1918, higher income

individuals sheltered their income from taxes, and as tax rates fell from 1921 through 1925, higher income individuals moved income back into taxable assets. Thus the increase in income reported by higher income taxpayers on their federal taxes overstates the actual increases.⁹

During the First World War there were temporary declines in the share of income going to owners of capital and temporary increases in the share of income going to labor. This would have resulted in more equality in the size distribution of income.¹⁰ The move back to more normal conditions in the twenties would certainly have led to an increase in inequality compared to the 1916-19 period. Although it is likely that there were increases in inequality in the size distribution of income during the twenties, the Soltow and Kuznets measures overstate the decline in inequality from 1913 through the beginning of the twenties and the rise in inequality during the twenties.

After the apparent rise in personal income inequality in the twenties, most studies agree that the depression of the thirties brought on a trend toward greater equality. Mark Schmitz and Price Fishback have applied Kuznets' procedure to state income estimates for 1929, 1933, and 1939 and found a similar, though much more variable, fall in the income share of the higher income

recipients.¹¹ However, as Louis Cain has pointed out, these equality trends are most likely overstated because they do not correct for the tax avoidance that almost certainly accompanied tax rate increases in the thirties.¹²

The dramatic increase in federal personal income tax rates in 1932 and the increase in the progressiveness of the income tax in 1936 were not major factors in redistributing income in a more equal fashion. Thomas Renaghan has found that the income distribution before and after taxes in 1933 were much the same, just as he has found for 1929.¹³ The “soak the rich” tax changes of Roosevelt in 1934, 1935, and 1936 tended to promote more equality in the after-tax income distribution compared to the pre-tax distribution. In 1938 congress repealed the undistributed corporate profits tax and lowered the capital gains tax, and Renaghan has found that the difference between the pre- and post-tax distribution of income was sharply reduced. He also argued that an increased regressivity in the taxes of the lower income classes largely offset the increased progressivity of the taxes on the higher income groups.

Income Distribution during the Forties.

Most analyses agree that the trend toward increasing equality in the size distribution of income continued in the forties.¹⁴ Figure 16.7 presents shares of family income by quintiles from 1935-36 to 1950. As can be seen, the share for the highest fifth fell from 1935-36 to 1944 and then was roughly constant, while the shares for lower fifths—especially the second and third fifths—rose. There was little apparent change from 1944 to 1950. In the thirties the equality trend was due to the decline in property incomes—the primary source of income for the highest income recipients. The forties were extremely prosperous rather than depressed, however, due to price controls and increased business taxes, property incomes probably did not rise as much as labor incomes. The high employment and scarcity of labor due to the massive conscription of men of prime working ages meant most jobs were full-time. Wage rate increases were greater for the lowest paying jobs so that incomes rose more for those in the lowest income brackets, where employment and income was much more uncertain during the thirties. Finally, during the war farmers enjoyed much higher real incomes than during the twenties and thirties. Because farmers typically have low cash incomes, this relative growth in their incomes during the war years also contributed to declining income inequality.

Income Distribution in the Postwar Period.

The trend of increasing equality in the size distribution of income did not continue throughout the postwar period. The quintile shares in Figure 16.8

show little change until the late 1970s, when it appears that inequality began increasing. The Gini coefficients in Figure 16.9 are much more accurate measures of these changes. From 1947 through the end of the 1960s, there is a mild trend of increasing equality, though with considerable variation. From the end of the 1960s through the end of the 1980s, there is a stronger trend of increasing inequality. By the late 1980s, the Gini coefficients show more inequality than existed in 1950.

Poverty measures generally reflect these trends. Poverty was declining during the late 1940s and 1950s.¹⁵ Since 1959, the government has kept measures of poverty in the United States, which are shown in Figures 16.10 through 16.13. The percentage of all individuals in poverty declined sharply from 1959 through the end of the 1960s, declined little during the 1970s, rose from 1979 through 1983—the period of the sharpest postwar recession—and has since declined, though in 1990 the percentage of individuals in poverty was higher than in the 1970s. The trends for white, black, and Hispanic individuals were similar, although the percentages of individuals in poverty were higher for blacks than for Hispanics and whites. The trends for families, shown in Figures 16.12 and 16.13, are similar to that for individuals.

Several explanations of this trend have been proposed. Nan Maxwell argues that the increases in economic inequality since the 1970s have several sources.¹⁶ She found that the income distribution has become more “polarized” since the early 1970s. The decrease in higher paying manufacturing employment, the rising proportion of households headed by females, and, to a smaller extent, increased population dependency arising from the baby boom contributed to growing inequality. Offsetting the forces promoting inequality were the increased female labor force participation and, although weaker, the increased social-insurance expenditures. Maxwell argued that “the equalizing impact from female labor force participation weakened after 1980.”¹⁷ Not unexpectedly, the “feminization of poverty” as well as differential employment and demographic impacts associated with race increased inequality.

Frank Levy has found that the most important determinant of these trends was overall productivity growth. Productivity increases during the 1945-73 period allowed real income to grow and slowly equalized the size distribution of money income. Over the 1974-82 period, Levy notes that productivity grew much more slowly, about 0.8 percent annually compared to 3.3 percent per year during 1945-83. The oil supply shocks of the early 1970s and the rapid entrance of baby boomers and

women of all ages into the labor force in this period effectively lowered the amount of capital per worker, thus reducing productivity. Government regulations diverted business research efforts toward increasing safety and reducing pollution. Other factors were also listed, such as the slower growth of overseas markets after 1973 and increasing competition in the domestic markets from foreign producers.¹⁸ Levy argues that the shift away from manufacturing is not important because this shift has been occurring for a long time and did not accelerate around 1973, when an abrupt, and worldwide, reduction in productivity growth began.¹⁹ The majority of the sources of the decline in productivity growth have not been determined.

Limitations on Analyzing the Size Distribution of Income. Simon Kuznets has presented five specifications that should be adhered to when measuring the size distribution of income.²⁰ First, Kuznets argues, incomes should be recorded and grouped for family expenditure units rather than for individuals with the family expenditure units properly adjusted for the number of persons in each. Second, the measures of the distribution of incomes should cover all of the family expenditure units in a country rather than just a segment at either the upper or lower end of the distribution. Third, when possible, the units whose main income earners are in the learning or retired stages of their life cycles should not be considered in such analyses to avoid complicating the picture by including incomes not associated with full-time, full-fledged participation in economic activity. Fourth, Kuznets proposes that income should be defined in the same manner in which national income in the United States currently is. It should be the income received by individuals, including income in kind, before and after direct taxes and excluding capital gains. Fifth, the family expenditure units should be grouped by secular levels of income, free of cyclical and other transient disturbances. These mature family expenditure units should be arrayed in fixed ordinal groups, for example deciles or quintiles, and classified by average income levels for a long enough period, say, 25 years, so as to form “income-status groups.” In this way each group will only contain “residents” and not some “migrants” who temporarily have higher or lower incomes. Kuznets argues that “without such a long period of reference and the resulting separation between ‘resident’ and ‘migrant’ units at different relative income levels, the very distinction between ‘low’ and ‘high’ income classes loses its meaning, particularly in a study of long-term changes in shares and in inequalities in the distribution.”²¹ We can only say that the lower income classes lost (or gained) in their share of income over, say, the last 5, 10, or 20 years if the

family expenditure units in those lower income classes have been members of that class throughout those years. According to Kuznets, for family expenditure units that might have moved into or out of the lower classes during that time period, such a statement has no significance.

The lack of data that meet these requirements limits the assessments of changes in the size distribution of income. Stanley Lebergott has noted other practical problems with this data.²² First, incomes measured before taxes will be substantially more skewed or unequal than incomes measured on an after-tax basis. Second, expenditures by governments, whether local, state, and/or federal, will not benefit all families equally. Third, even if the incomes are equal, this does not necessarily translate into an equal command over goods and services because of discrimination and differing transportation costs of going to market. Finally, governments have been providing more goods and services without direct user charges so that all citizens can have “full access” to those critical goods and services. However, this means that the actual distribution of goods and services available to families will be less skewed than what the size distribution of income would otherwise indicate.

Generally, size distributions of income are constructed and measured so as to evaluate changes in that distribution over time, but this raises a new set of problems. First, changes in economic activity can have social and demographic consequences. An economic expansion that brings a macroeconomic move toward lower unemployment levels can actually cause an increase in measured, or reported, income inequality as those becoming reemployed will report more rapid growth in their incomes. The rise of income from the 1930s to the 1940s led elderly persons to move out of their children’s homes into their own homes and apartments. Though it presumably represented a real increase in “welfare,” it was reported as an increase in inequality due to the increase in the number of “low-income” families. The stronger the labor market, the earlier that young people enter the labor market, move out of their parents’ homes, and establish their own homes, with similar results for measured inequality. The growing and widening scope of income taxation has increased the incentives to receive income in forms such as capital gains and stock options so as to escape the tax on current income receipts. However, these are typically excluded in tabulations of the income distribution. Much of the growth in taxation is due to government attempts to redistribute income, so the impact of this meandering pattern of government taxation and benefits should be evaluated before we can interpret simple changes in the size distribution

TABLE 16.1 MONEY INCOME OF HOUSEHOLDS: PERCENT DISTRIBUTION BY QUINTILE AND INDEX OF INCOME CONCENTRATION, BY DEFINITION OF INCOME, 1986

Def. No.	Definition of Income	Gini ¹ Index		
		1986	1989	1990
		<i>Income Before Taxes</i>		
1	Money Income Excluding Capital Gains (Current) Measure ²	.420	.429	.426
2	Definition 1 Less Government Money Transfers	.473	.481	.480
3	Definition 2 Plus Capital Gains	.503	.496	.491
4	Definition 3 Plus Health Insurance Supplements to Wage or Salary Income ³	.500	.495	.490
		<i>Income After Taxes</i>		
5	Definition 4 Less Federal & State Income Taxes & Social Security Payroll Taxes	.483	.467	.463
8	Definition 7 Plus Nonmeans-Tested Gov't. Cash Transfers ⁴	.434	.417	.412
9	Definition 8 Plus Nonmeans-Tested Gov't. Noncash Transfers ⁵	.424	.407	.402
10	Definition 9 Plus Means-Tested Gov't. Cash Transfers ⁶	.417	.407	.394
11	Definition 10 Plus Means-Tested Gov't. Noncash Transfers ⁷	.408	.391	.384
12	Definition 11 Plus Net Imputed Return on Equity in Own Home ⁸	.404	.392	.383

Source: *Statistical Abstract of the United States* (Washington, D.C.: U.S. Government Printing Office, various years).

¹A statistical measure of income equality ranging from 0 to 1. A measure of 1 indicates perfect inequality (i.e., one person having all the wealth and the rest having none). A measure of 0 indicates perfect equality (i.e., all persons having equal shares of wealth).

²Official definition of income based on money income before taxes and including government cash transfers.

³Employer contributions to the health insurance plans of employees.

⁴Includes Social Security and Railroad Retirement, Veterans payments, and unemployment and workers' compensation.

⁵Includes Medicare and subsidies from regular price school lunches.

⁶Includes AFDC or other assistance or welfare payments and Supplemental Security income. Households must meet certain eligibility requirements in order to qualify for these benefits.

⁷Includes Medicaid, food stamps, subsidies from free or reduced-price school lunches, and rent subsidies.

⁸Estimated amount of income a household would receive if it chose to shift amount held as home equity into an interest-bearing account.

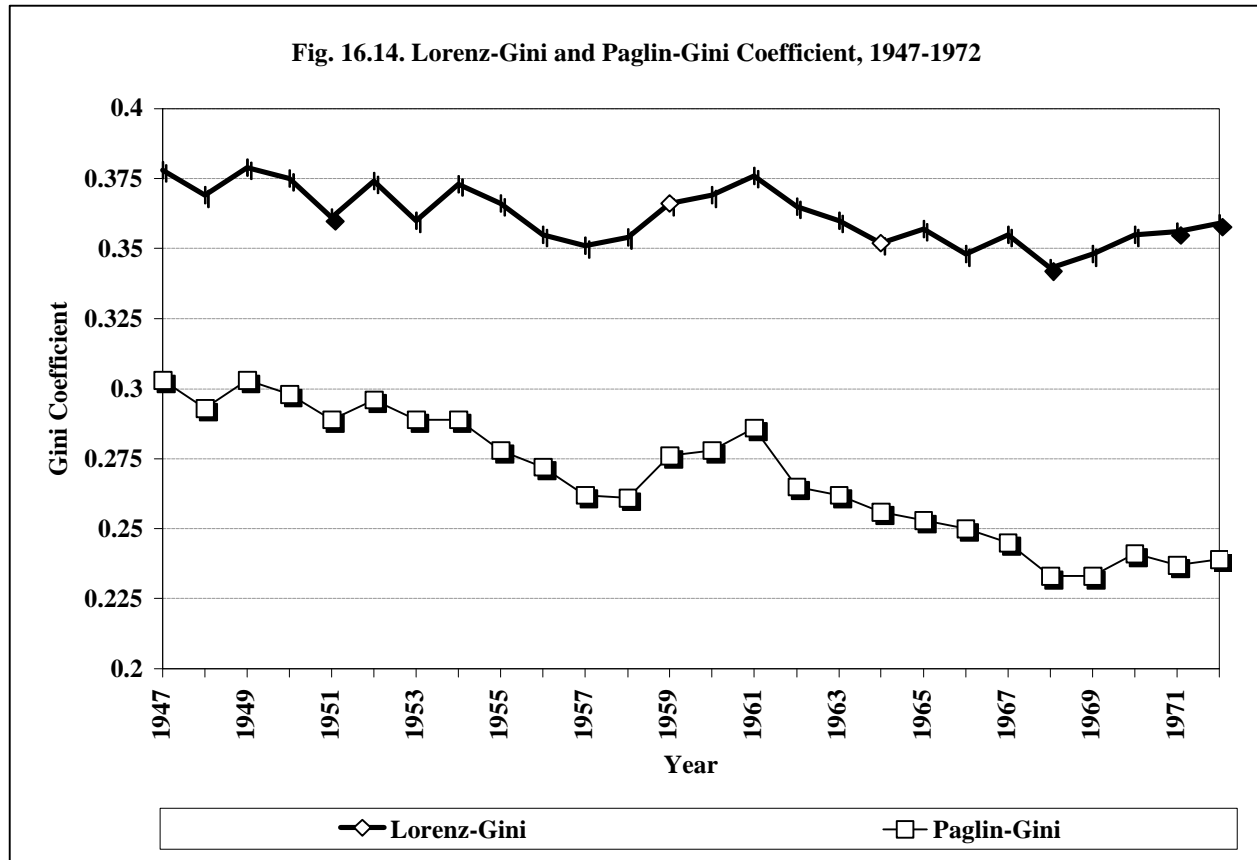
of income through time. As tax rates and types of taxes have grown, individuals and families have increasingly resorted to tax avoidance. The growth in tax avoidance raises questions about the statistics for the size distribution of income because these statistics are primarily constructed from tax data such as income tax returns.

The available data are seriously deficient by these standards. First, these data are calculated only for the money income received by individuals. Though there were few noncash transfers in the 1940s, their numbers began to grow in the 1950s and, particularly, in the 1960s after President Johnson initiated the War on Poverty. Noncash transfers have continued to rise in the 1970s and 1980s. Because we are interested in a household's command over valuable goods and resources, the failure to include noncash transfers to lower income households understates the trend toward greater equality—or overstates the trend toward greater inequality.

In the last few years, the Census Bureau has presented some estimates adjusting for this. Table 16.1 presents such estimates for 1986, 1989, and 1990. Among other things, the adjustments count capital gains, employer contributions to health insurance plans that supplement wages or salaries, the net imputed return on the equity in the homes owned by households, and noncash transfers. They also make adjustments for the effect of federal and state income taxes and Social Security payroll taxes. Generally federal and state taxes should contribute to greater equality, while Social Security payroll taxes may not due to the fixed rate and maximum dollar contributions.

The before-tax adjustments to income subtract government money transfers (negative taxes) and add in capital gains and health insurance supplements. As can be seen, these increased inequality in each of these years. The after-tax adjustments subtract federal and state income taxes and social security payroll taxes. They add in means-

Fig. 16.14. Lorenz-Gini and Paglin-Gini Coefficient, 1947-1972

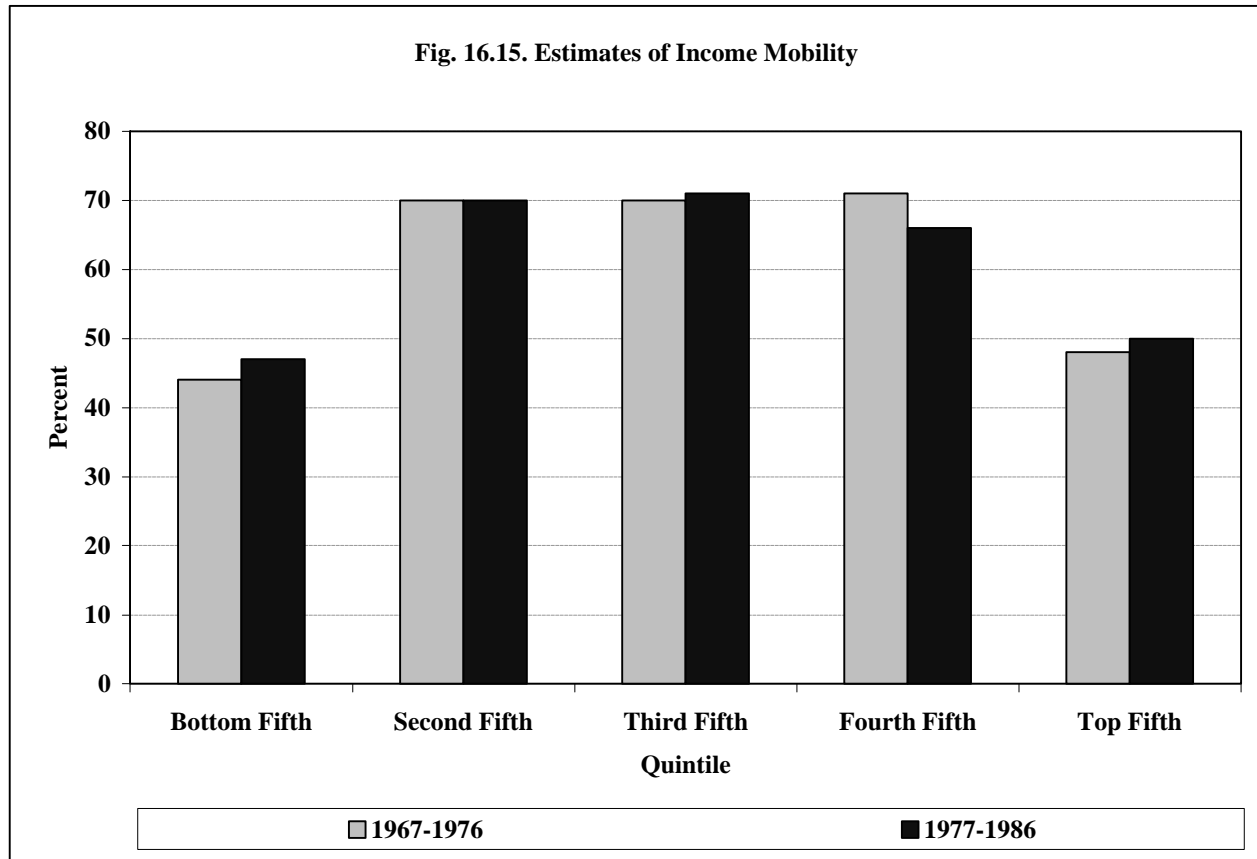


and nonmeans-tested government cash and noncash transfers and the net imputed return on homeowners' equity in their homes. The result is that in all three years the Gini coefficient drops sharply, showing less inequality. Just as importantly, the change from the unadjusted to the adjusted Gini coefficients differs for these three years. The lowest unadjusted Gini coefficient is for 1986, and the highest is for 1989. The lowest adjusted Gini coefficient is for 1990, and the highest adjusted coefficient is for 1986. Thus, we cannot simply take the Gini coefficients of earlier years and adjust them downward by a constant amount (or percentage) to make the adjustments shown in Table 16.1. Because cash and noncash transfers have grown in real terms over the postwar period, this suggests that the Gini coefficients shown in Figure 16.10 understate the increases in equality in the size distribution of income.

As previously mentioned one of Kuznets' points is that the analysis should concentrate on incomes of those engaged in full-time, full-fledged participation in economic activity. Morton Paglin has considered this criticism. The Gini coefficient takes as its standard perfect intergenerational equality as well as perfect interfamily equality. This requires equal lifetime incomes as well as equal incomes across families at the same stage of life. In other words, as Morton Paglin notes, families that are in

the period of child rearing are required to have the same incomes as families in the retirement stage of their life cycle, "when they have minimum economic responsibilities and maximum assets."²³ However, at any point in time some significant part of the income inequalities arise due to the differing ages and thus earning powers of individuals. Carolyn Shaw Bell says, "We do not expect young school graduates to receive as much income as their parents, or as they themselves will 20 years later. And we expect the senior citizen's pension income (much of which is tax-free) to be less than peak earnings."²⁴ Paglin adjusted the Gini coefficient by subtracting the income inequality due solely to the variation in the families' ages. This revised standard of equality, which he termed the *Paglin-Gini*, can be used to assess changes in income inequality without the complicating factor of changing income inequality due solely to the changing age structure of American families. In his 1975 study, Paglin adjusted the data for the years 1947 through 1972 to more correctly measure inequality. The Paglin-Gini in Figure 16.14 shows less income concentration in 1947 compared to the Gini requiring perfect intergenerational equality (which he termed the *Lorenz-Gini*), and it declines much more sharply. The Lorenz-Gini that Paglin used declined from 0.378 in 1947 to 0.359 in 1972, or by 5 percentage points. The Paglin-Gini

Fig. 16.15. Estimates of Income Mobility



declined from 0.303 in 1947 to 0.239 in 1972, or by 21.2 percentage points.

No calculations of Paglin-Gini coefficients (eliminating the requirement of intergenerational equality) have been made for the years since 1972. Paglin's adjustments understated the increase in equality because he used money income without adjusting for noncash transfers and the other financial items shown in Table 16.1. Since 1972, the ending of the baby boom has reduced the number of young adult households, but the graying of the population has been increasing the number of retired households. It seems likely that if both adjustments were made, a much clearer trend of equality in the distribution of income since 1947 would be found. Unfortunately such calculations have yet to be made.

A particularly important requirement set forth by Kuznets was to construct family expenditure units by secular levels of income over long enough periods of time to form income-status groups. If this is done, then one can accurately discuss changes in the share of income going to each quintile of family expenditure units. This is not how the data reported by the federal government are organized. We know that some of the individuals in the lowest quintile are just beginning their working lives and will move up from that quintile, and some of the people fall into

the lowest quintile because as they retire, their money income drops. There is movement into and out of all of the quintiles. Thus, the families in, say, the lowest quintile change over time, and we cannot discuss changes in income for the families in the lowest quintiles because these families change due to this mobility. How important is this mobility?

Several recent examinations have provided concrete evidence on this. Isabel Sawhill and Mark Condon have examined mobility for individuals who were 25 to 54 years old in the starting year. The two periods examined were 1967-76 and 1977-86.²⁵ Figure 16.15 summarizes the results of their findings. In both ten-year periods, nearly half of the individuals in the lowest quintile had moved to a higher quintile at the end of the period. For the three middle quintiles, about 70 percent of the individuals had moved to a higher or lower quintile by the end of the period, while for the highest quintile, about half who began the period there fell to a lower quintile by its end. Because of this mobility, in both periods those starting in the lowest quintile experienced large increases in real average incomes—72 percent in the first decade and 77 percent in the second. In contrast the real average family incomes of those starting in the top quintile grew much more slowly—6 percent in the first decade and 5 percent in the second.²⁶

Table 16.2. Income Group Mobility Between 1979 and 1988

Status in 1979	Status in 1998					
	Top 1%	Top 2% to 20%	Next Richest 20%	Middle 20%	Next Poorest 20%	Poorest 20%
Top 1%	47.3	38.6	7.7	3.8	0.4	2.2
Top 20%	5.3	59.4	20.3	9.4	4.4	1.1
Next Richest 20%	0.6	34.8	37.5	14.8	9.3	3.1
Middle 20%	0.4	14.6	32.3	33.0	14.0	5.7
Next Poorest 20%	0.3	10.8	19.5	29.6	29.0	10.9
Poorest 20%	0.3	14.4	25.3	25.0	20.7	14.2

Source: David Wessel, "Low-Income Mobility Was High in the 1980s: Treasury Also Finds Those at the Top Tended to Stay There," *The Wall Street Journal*, June 2, 1992.

The Treasury's Office of Tax Analysis undertook a study of income mobility during the 1980s.²⁷ Their findings are reported in Table 16.2. Between 1979 and 1988, only 14.2 percent of the taxpayers who began in the lowest quintile were still there in 1988. A larger percentage, 14.4 percent, moved all the way into the highest quintile, and 0.3 percent moved into the top 1 percent of income recipients. Only in the highest quintile did more than half of those there at the beginning of the period remain there throughout the period. As Table 16.2 shows, there was considerable mobility for all of these quintiles.²⁸

Even on a yearly basis it appears that there is considerable income mobility. In recent years the Census Bureau has measured income mobility with a program called the Survey of Income and Program Participation, which tracks specific families over time.²⁹ They found that between 1984 and 1985, 18.2 percent of the families in the lowest income quintile moved up one or more quintiles, 18.4 percent moved up between 1985 and 1986, and 17.0 percent moved up between 1987 and 1988. In the highest quintile 19.5 percent moved down one or more quintiles between 1984 and 1985, 23.7 percent moved down between 1985 and 1986, and 24.3 percent moved down between 1987 and 1988.

Overall, these criticisms make it clear that the generally cited data considerably overstate the inequality in the distribution of income. If we had data that did not require perfect intergenerational income equality as the standard, included all income—not just money income—and focused on family expenditure units over long periods of time, we could accurately measure and trace the size distribution of income. Whether the more pronounced trend of increasing equality that Morton Paglin found for the 1947-1972 period would have continued is not known.

The Recent Rise in Inequality The Gini coefficients in Figure 16.9 suggest that income inequality began to increase in the 1970s and increased much more in the 1980s. The quintile income shares and the poverty measures also show increasing inequality in the 1980s. Though we know that the levels of inequality are overstated, it is not necessarily the case that the changes over time differ. Sawhill and Condon's Urban Institute study of income mobility did not show large differences in mobility in any quintile between the 1970s and the 1980s. (See Figure 16.15.) Let us suppose, for now, that adjustments for generational changes and changes in noncash transfers, taxes, and the net imputed return on equity in owner-occupied homes would not significantly alter the trend of rising income inequality in the 1980s.³⁰ How can we explain the increased inequality?

There are two leading explanations for the rising income inequality in the 1980s. First, property incomes rose more than labor incomes. During the 1970s, nominal stock prices rose little, and they fell in real terms. In the 1980s nominal and real stock prices both rose dramatically. Real ex post interest rates in the 1970s were quite low and sometimes negative. In the 1980s nominal and real interest rates rose dramatically, and, though nominal interest rates fell as inflation declined, real interest rates remained relatively high. These trends increased the share of income received by property and decreased the share of income received by labor in the 1980s. All else the same, this would increase income inequality.³¹

A changing wage structure is the most generally cited explanation for the rising inequality in the 1980s.³² Workers with more education saw sharp increases in their wage rates relative to those with less education. Real wage rates for high school dropouts with zero to nine years experience fell sharply during the 1980s, while real wage rates for

college graduates with the same experience rose. The ratio of the college to dropout wage went from 1.688 in 1973 to 1.581 in 1979 to 2.195 in 1988.³³ For workers who had not completed college, the wage rates of older workers rose relative to the wage rates of younger workers, and the average wage rate of women rose by 8 percent compared to the average wage rate of men. The decline in the real wage rates of younger workers with less education was quite pronounced. This appears to have been the primary factor driving the increase in income inequality during the 1980s.

John Bound and George Johnson have recently examined the reasons for these differential changes in real wage rates in the 1990s.³⁴ They considered several common explanations. Some have argued that the declines in manufacturing employment and union power were a cause, but union membership had been declining for two decades prior to the 1980s, and they have found that this was, at best, a minor influence. They have also examined the suggestion that the decline in manufacturing employment may have increased the relative demand for better educated workers and have concluded that the changes were actually unfavorable to highly educated labor. Similarly, the changes in the industrial structure from higher wage industries toward lower wage industries was not an important part of the explanation. In their analysis they have found that the most powerful force driving the wage rate changes was technological change. Changes in technology were biased toward skilled labor and away from unskilled labor.

These demand shifts drove up the wage rates of skilled (more highly educated) labor and drove down the wage rates for unskilled (less highly educated) labor. Though the same shifts were occurring in the 1970s, “they did not cause major changes in the wage structure in the 1970’s because of the abnormally large increases in the relative supply of educated labor during that time.”³⁵ The primary determinant of this shift has been the growing use of computers and associated high-tech capital such as communications and photocopy equipment and instruments. Continuing growth in the use of high-tech equipment has led Bound and Johnson to speculate that unless college attendance and completion rates rise sharply, the wage differentials may widen, and income inequality may continue to increase.³⁶

The Overall Picture The unfortunate truth is that we do not know nearly as much about the size distribution of income as we would like to. We know that the conventional measures certainly overstate the amount of inequality, but we can’t say exactly by how much. Neither do we have a good picture of the

trend of changes in income inequality. Because the conventional measures include only money income and because nonmoney income transfers have steadily grown throughout the postwar period, we would expect that there has been a stronger increase in equality than the measures show. Similarly, when we eliminate the standard of perfect intergenerational equality, a stronger trend of equality is found, but whether this continued past the early 1970s is also not known. Finally, the failure to correct for the substantial income mobility that recent studies have shown to exist means that we cannot say what changes have occurred in the share of income received by the lowest fifth, second fifth, and so on, of the population. It is not very satisfactory to say that we still cannot answer the question of whether market economies like the United States generate greater inequalities in the distribution of income, but that is our current state of knowledge. The one thing we can say, with some certainty, is that market-oriented economies are much better at generating income.

Fig. 16.16. Selected Nations' GDP Per Capita as a Percent of U.S. GDP Per Capita

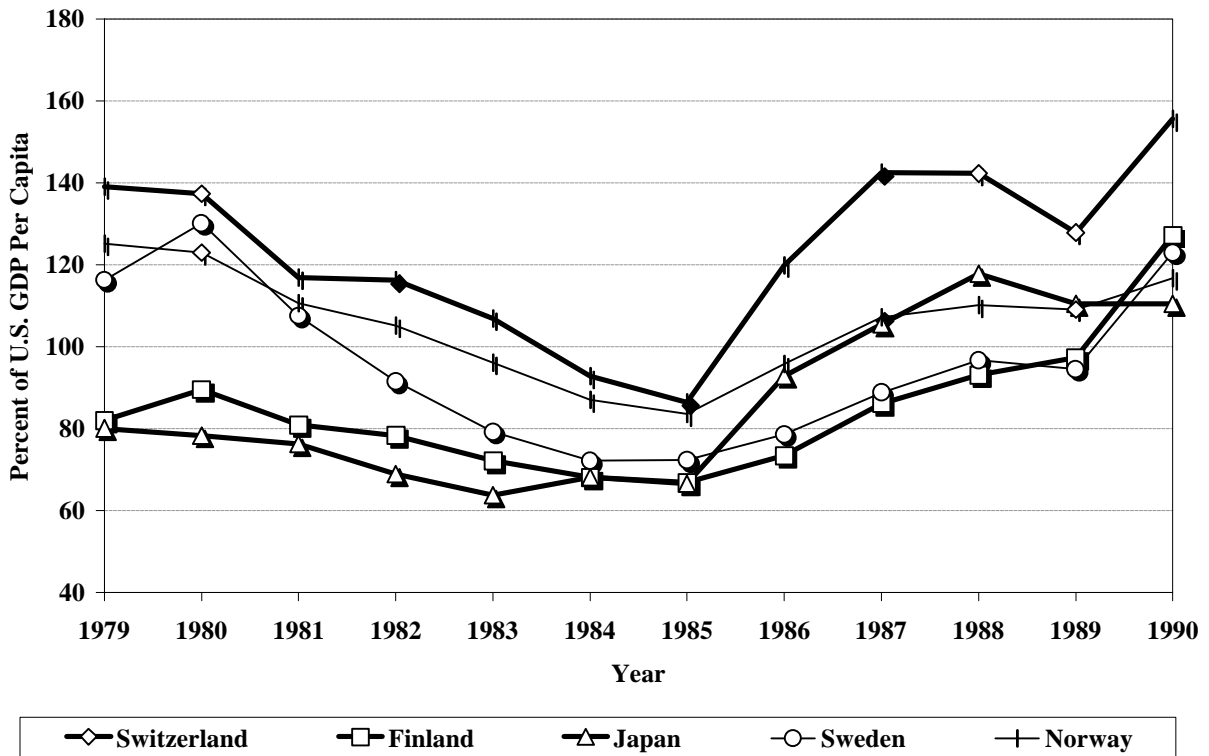


Fig. 16.17. Selected Nations' GDP Per Capita as a Percent of U.S. GDP Per Capita

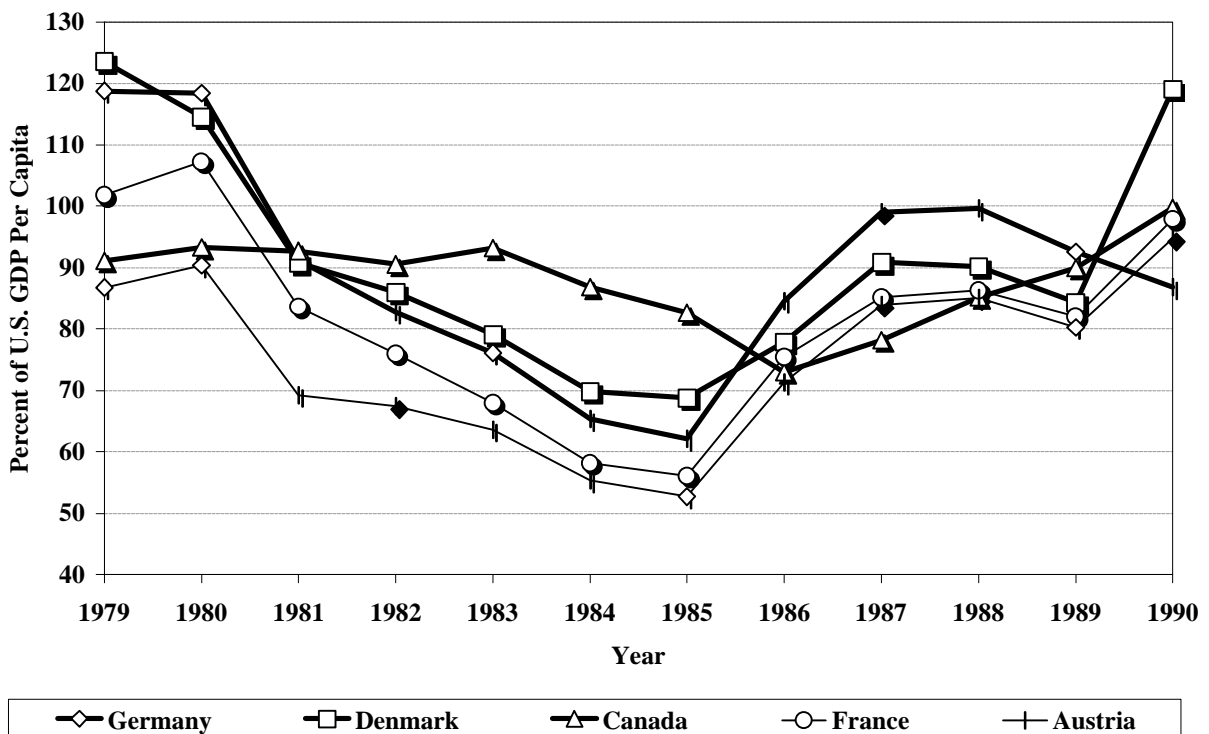


Fig. 16.18. Percentage Change of Industry's Share of GDP for Selected Countries, 1960 to 1989

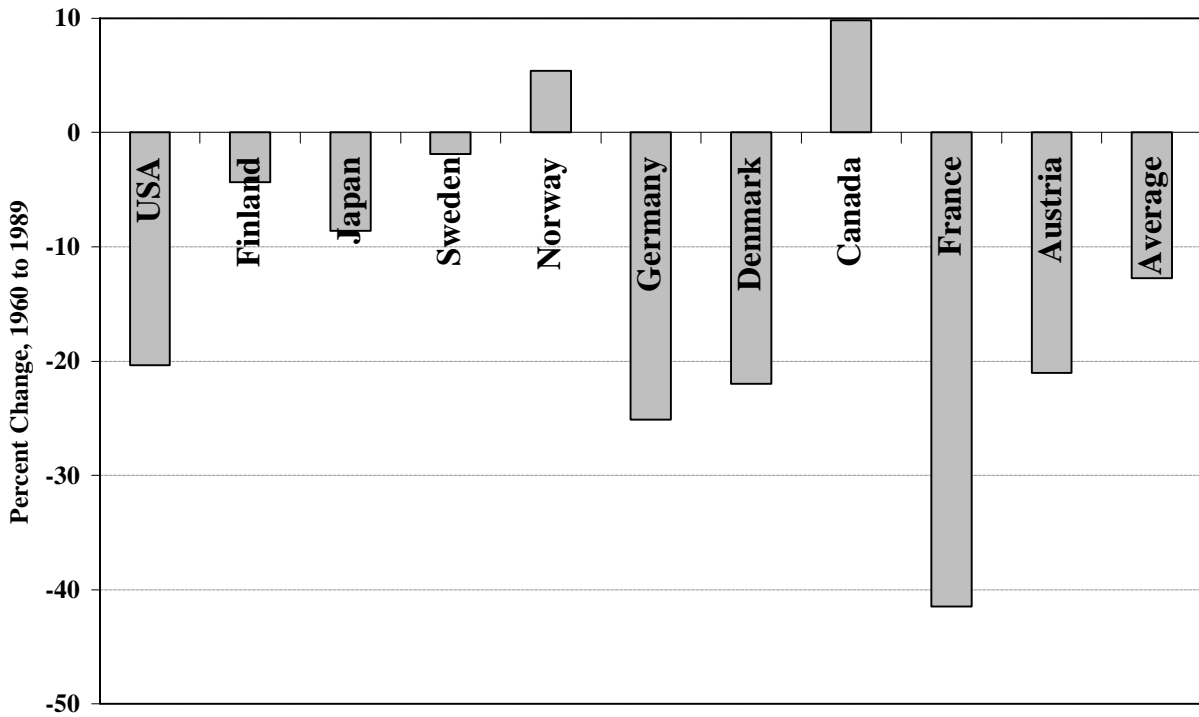


Fig. 16.19. Percentage Change of Manufacturing's Share of GDP for Selected Countries, 1960 to 1989

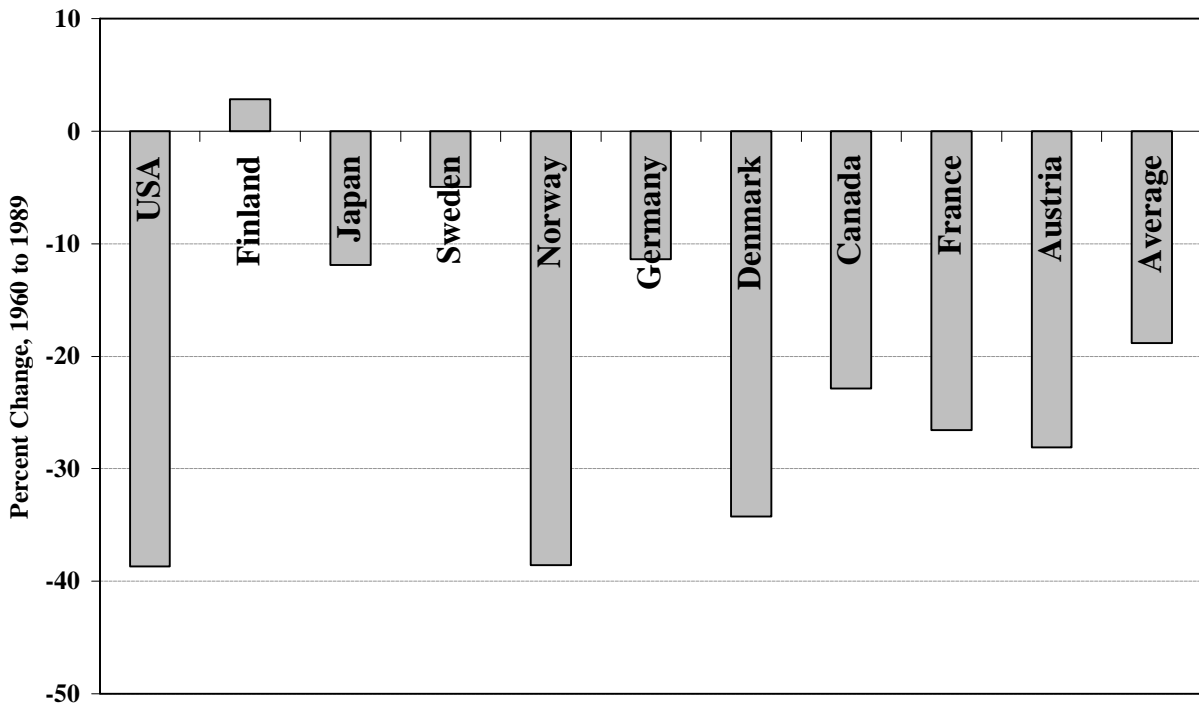


Fig. 16.20. Real GDP Per Capita Adjusted for Changing Terms of Trade for Selected Countries

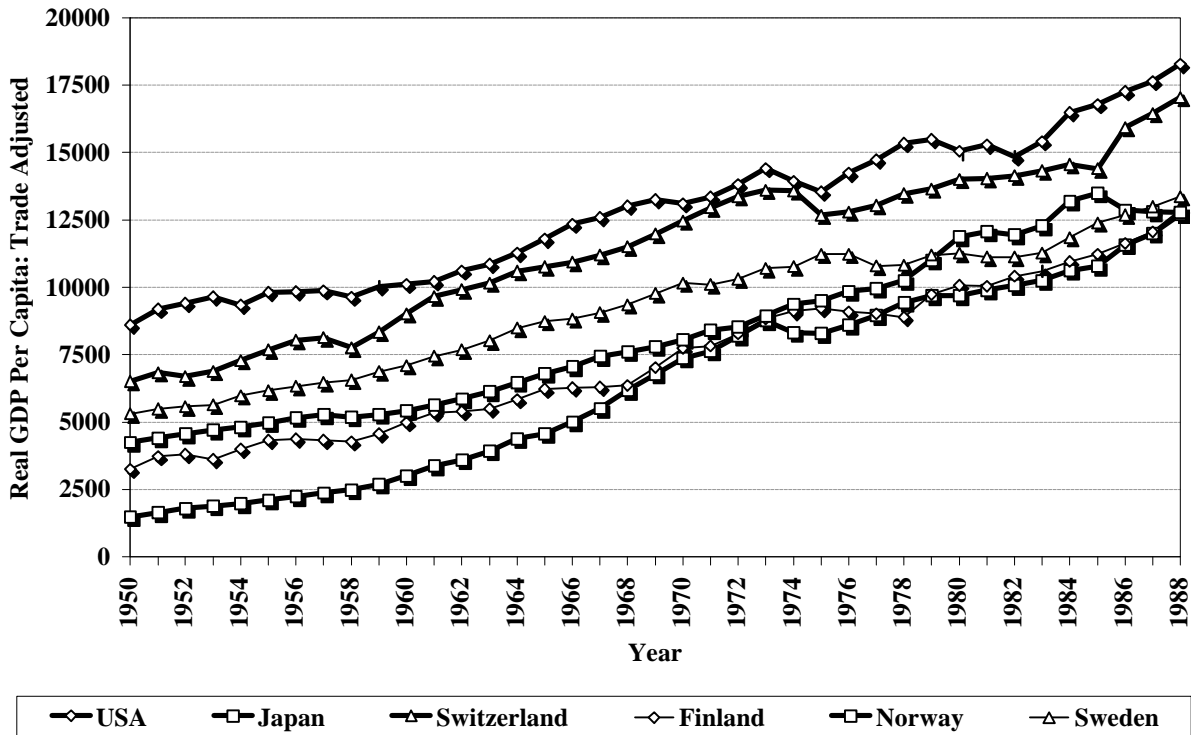


Fig. 16.21. Real GDP Per Capita Adjusted for Changing Terms of Trade for Selected Countries

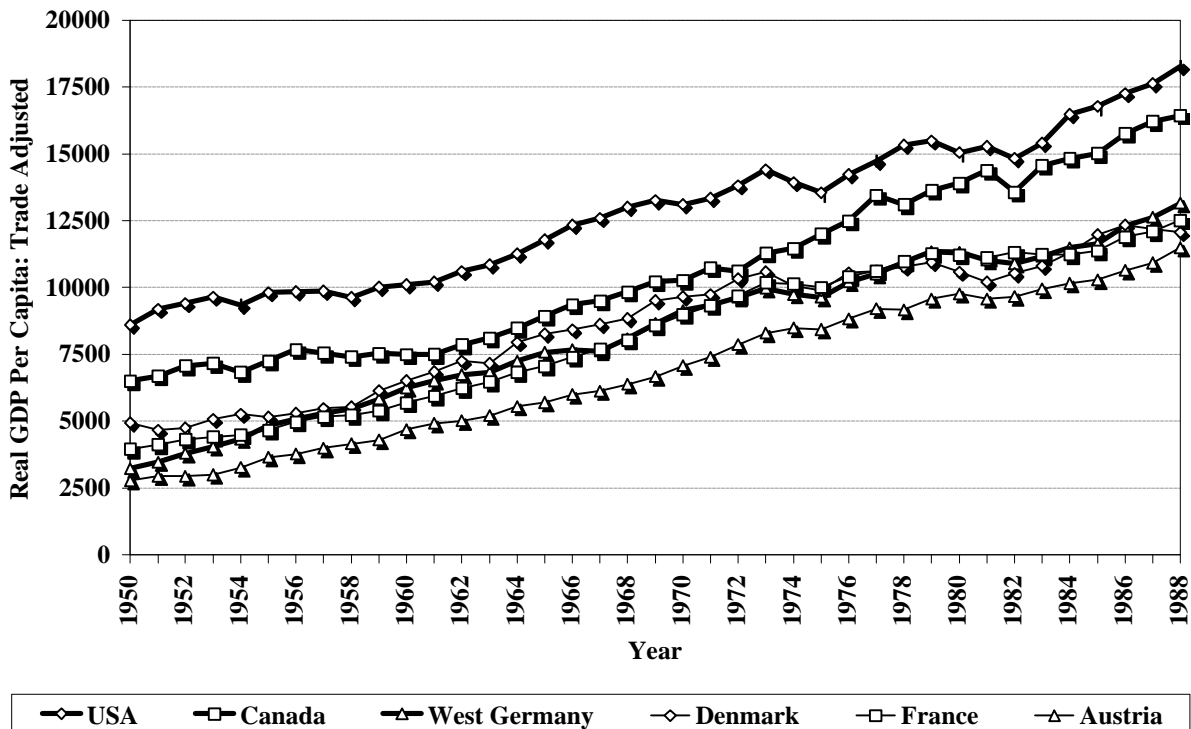
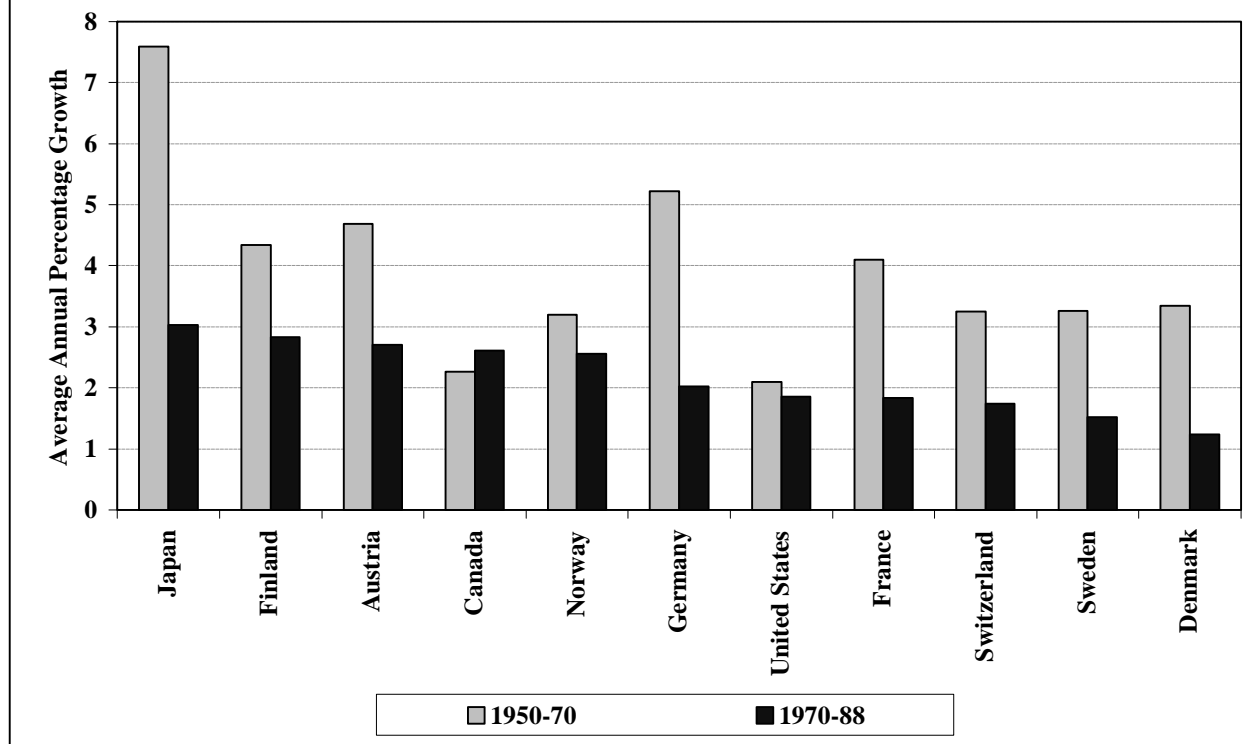


Fig. 16.22. Average Annual Growth Rates of Real GDP Per Capita Adjusted for Changing Terms of Trade for Selected Countries



The United States' Place In The World Economy

As early as the Revolutionary War, average incomes in the United States were among the highest in the world. By the beginning of the Civil War, the United States had *the* highest per capita incomes in the world, a position it retained through the 1960s. In the 1970s and 1980s the rate of economic growth slowed down, and imports into the United States—as well as exports—began to grow faster. Japanese automobile companies increasingly took a larger share of the American new car market, and foreign firms began to produce most of our television sets, radios, and stereo components. Real wages grew slowly in the 1970s and the 1980s. By the late 1980s the United States no longer had the highest per capita incomes in the world. “Deindustrialization” became the newest phrase, and politicians attempted to formulate policies to restore both the industrial vigor of the United States’ manufacturing sector and the higher paying industrial jobs that they thought had gone overseas.

Figures 16.16 and 16.17 present selected countries’ GDP (Gross Domestic Product) per capita as a percent of the United States’ GDP per capita.³⁷ These are the countries with the highest per capita GDPs in the world in 1990. In 1979 Switzerland and

Norway had per capita incomes higher than the United States. As the international value of the dollar rose through 1985, other countries’ per capita GDPs fell relative to the United States, and by 1985 the United States once again had the highest per capita income. The international exchange value of the dollar fell from 1985 through 1990, and by 1990 six countries had per capita GDPs higher than the United States.

A general contention is that industrial activity has been exported out of the United States and replaced with service activity. Because manufacturing jobs generally have been among the highest paying jobs, this substitution has reduced (or eliminated) real wage growth and been one of the factors allowing the GDPs per capita of other industrialized countries to surpass the United States’ GDP per capita. World Bank data report the share of industry and the share of manufacturing originating in GDP for 1960 and for 1989.³⁸ The changes in these shares are shown in Figures 16.18 and 16.19. In each figure the entry for “Average” refers to an average of all of the countries shown, excluding the United States. Though in each case the United States’ share declined more than the average, it declined for most of the other countries too. The percentage decline in industry’s share of GDP was larger for Germany, Denmark, France, and Austria than for the United

States. For manufacturing's share, Norway's decline was as large as for the United States, and the declines for Denmark, Canada, France, and Austria were also quite large. The decline in industry's share of GDP is common to most of the high-income industrial economies, rather than being unique to the United States.

As Figures 16.16 and 16.17 show, there is great variation in the per capita incomes of other countries relative to the United States. To compare a country's income to the United States, it must be converted to dollar terms to provide purchasing power parity. "Purchasing Power Parity (PPP) is defined as the number of units of a country's currency required to buy the same amounts of goods and services in the domestic market as one dollar would buy in the United States."³⁹ For each of these years, the currencies of other countries are converted to U.S. dollars, using the current exchange rate. The variation in the per capita income ratios is clearly inverse to the variation in the international value of the dollar. The exchange rate is used for conversions to a common currency because it is readily available and because "the strong version of the Casselian Purchasing Power Parity Doctrine asserts that the equilibrium exchange rate at which the currencies of two countries will trade will be determined by the relative price levels of the countries."⁴⁰ Not only are the exchange rates not necessarily equilibrium rates, but there is clear evidence that this doctrine does not hold. Robert Summers and Alan Heston argue that exchange rates differ in a systematic and significant way from purchasing power parity (PPP). They have found that the price level of a nation, "defined as the ratio of its PPP to its exchange rate, is a rising function of the level of its income or stage of development."⁴¹ Because this strong version of the purchasing power parity doctrine fails, it invalidates the use of exchange rates as quick, easy estimates of purchasing power parity.

The United Nations has been developing a set of studies called the International Comparison Program (ICP), which develops price comparisons among countries. Using these benchmark studies, Summers and Heston have developed alternative series that are comparable across time and space.⁴² Because these series use the ICP data instead of exchange rates to estimate purchasing power parity, they provide a superior means of international comparisons. Figures 16.20 and 16.21 show real GDP per capita adjusted for changes in the terms of trade for the same set of countries as used above. A very different picture emerges. The United States remains the highest income country in the world throughout the 1950-88 period.

It appears that the decline of the United States has been overstated. The United States has continued to have the highest per capita incomes in the world, and its industrial decline in the 1980s is not out of line with that of other industrial nations. Figure 16.22 presents average annual growth rates for 1950-70 and 1970-88 for the countries we have been comparing in this section. Except for Canada, the rate of growth for every country was slower in the latter period. For the 1970-88 period, the United States grew faster than France, Switzerland, Sweden, and Denmark—hardly the performance of a nation that has passed its peak.

Prospects Through economic growth, the American standard of living has risen to and remained the highest in the world. Over time, economic growth has been the most important factor in reducing the incidence of poverty. There are always costs and benefits that accompany such growth. New products and services create new jobs, but some workers are displaced from jobs producing products and services that are declining in demand. Innovations—more frequent during periods of rapid growth—create the possibility of substantial wealth for successful innovators, so it is not clear that economic growth will promote equality in the size distribution of income.⁴³ But economic growth does open up the possibility that almost anyone can quickly move up the income levels. Will that growth continue?

There can never be a firm answer to such a question. But we can find a few clues. Economic growth does not appear to be associated with abundant natural resources.⁴⁴ An educated population and skilled labor force are much more important determinants. Though worries have surfaced about a decline in the quality of education in the United States, we still have one of the most highly skilled labor forces in the world, and this provides a foundation for growth.⁴⁵ As the evidence has shown, there is still considerable income mobility in the United States. Individuals who build the proverbial "better mousetrap" can expect to be rewarded for their efforts, and this is a great stimulus to finding better, lower cost ways to accomplish tasks and to develop new products and services—and these are the foundations of economic growth. Finally, the United States continues to have a strong system of private property rights and institutions to maintain and enforce those rights. These rights are the bedrock of a market-oriented system. As the former communist societies will learn, without private property rights, free markets cannot arise, and the productive outpouring of goods and services will never appear. As long as the United States has institutions devoted to free choice, private property

rights securely embedded in law, and economic and social mobility, then it will maintain an environment that fosters economic growth.

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NOTES

- ¹ Stanley Lebergott, "Income Distribution: Size," in David L. Sills, ed., *International Encyclopedia of the Social Sciences* vol. 7 (New York: Macmillan, 1968), 145. See also the discussions in Stanley Lebergott, *The American Economy: Income, Wealth, and Want* (Princeton: Princeton University Press, 1976).
- ² Employee compensation includes wages and salaries and supplements to wages and salaries. Proprietors' income includes the income received by farm and nonfarm proprietors. Property income includes the rental income of persons, corporate profits before taxes and after the inventory valuation and capital consumption adjustments, and net interest. Rental income, received by individuals, is difficult to link up with any particular factor. The government sector has no capital account, so the income generated in the government sector is attributed solely to labor inputs (as if capital inputs were not used or as if capital were completely unproductive). Net interest figures, along with proprietors' income and rental incomes, are also less dependable. The figures for net interest measure the excess of interest payments of the domestic business system over its interest receipts. Also included are net interest payments received from abroad. Questions about the accuracy of these figures are raised by the imputations. Included in the figures are imputed interest arising in connection with the operations of financial intermediaries. The National Income accounts assume that all interest payments received by all financial institutions are completely paid out to the depositors, bondholders, and so on, of the institutions. The depositors, and so on, then use some of the interest income to purchase checking services, savings account services, and so on. Thus, in the national income accounts, the amount of interest income received by those who have assets issued by financial intermediaries is substantially greater than what is actually received. If the financial markets actually operated this way, the interest rates and costs

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- of providing these financial services might differ considerably from what they currently are. Therefore, there are serious questions about the accuracy of the imputations.
 - ³ The data prior to 1930 were developed by D. Gale Johnson and are slightly different from the post-1930 data developed by the Bureau of Economic Analysis. This is the reason for the slight break in the series at the 1930-39 period.
 - ⁴ Lebergott, "Income Distribution: Size."
 - ⁵ Lee Soltow, "Evidence of Income Inequality in the United States, 1866-1965," *The Journal of Economic History* 29 (June 1969): 279-86.
 - ⁶ Simon Kuznets, *Shares of Upper Income Groups in Income and Savings* (New York: National Bureau of Economic Research, 1953).
 - ⁷ J. G. Williamson used the ratio of unskilled to skilled wages as an indicator of the distribution of income. He found that this ratio tracked Kuznets' share of the lower 93 percent of the nonfarm population relatively well, providing confirmation of the usefulness of his measure. See Jeffrey G. Williamson, "The Sources of American Inequality, 1896-1948," *The Review of Economics and Statistics* 58 (November 1976): 387-97.
 - ⁸ Charles F. Holt, "Who Benefited from the Prosperity of the Twenties?" *Explorations in Economic History* 14 (July 1977): 277-89.
 - ⁹ Gene Smiley, "Did Incomes for Most of the Population Fall from 1923 Through 1929?" *The Journal of Economic History* 43 (March 1983): 209-16. See also Gene Smiley, "Tax Rate Changes and Tax Avoidance: The 1915-1929 Era," Working Paper, College of Business Administration, Marquette University, Milwaukee, Wisconsin, July 1988.
 - ¹⁰ For a more extensive discussion of changes in the *functional* distribution of income, primarily in the twenties, see Robert Keller, "Factor Income Distribution in the United States During the 1920's: A Re-examination of Fact and Theory," *The Journal of Economic History* 33 (March 1973): 252-73.
 - ¹¹ Mark Schmitz and Price V. Fishback, "The Distribution of Income in the Great Depression: Preliminary State Estimates," *The Journal of Economic History* 43 (March 1983): 217-30.
 - ¹² Louis P. Cain, "Discussion," *The Journal of Economic History* 43 (March 1983): 241-42.
 - ¹³ Thomas M. Renaghan, "Distributional Effects of Federal Tax Policy, 1929-1933," *Explorations in Economic History* 21 (January 1984): 40-63.
 - ¹⁴ For example, see Geoffrey H. Moore, "Secular Changes in the Distribution of Income," *American Economic Review* 42 (May 1952): 528; Selma F. Goldsmith, "Statistical Information on the Distribution of Income by Size in the United States," *American Economic Review* 40 (May 1950): 334; Edward C. Budd, "Postwar Changes in the Size Distribution of Income in the U.S.," *American Economic Review* 60 (May 1970): 247-60; and Lars Osberg, *Economic Inequality in the United States* (Armonk, NY: M. E. Sharpe, Inc., 1984), table 2.2, p. 15.

¹⁵ See Chapter 15 for more discussion of this.

¹⁶ The following discussion draws on Nan Maxwell, *Economic Inequality in the United States, 1947-1985* (Westport, CT: Greenwood Press, 1990), chapter 8.

¹⁷ *Ibid.*, 121.

¹⁸ *Ibid.*, 62-64.

¹⁹ *Ibid.*, chapter 5.

²⁰ Simon Kuznets, "Economic Growth and Income Inequality," *American Economic Review* 45 (March 1955), reprinted in Simon Kuznets, *Economic Growth and Structure* (New York: W. W. Norton and Co., Inc., 1965), 257-87; See also Simon Kuznets, *Modern Economic Growth: Rate, Structure, and Spread* (New Haven, CT: Yale University Press, 1966), 195-206.

²¹ Kuznets, "Economic Growth and Income Inequality," 258.

²² Lebergott, "Income Distribution: Size," 145-47.

²³ Morton Paglin, "The Measurement and Trend of Inequality: A Basic Revision," *American Economic Review* 65 (September 1975): 598.

²⁴ Carolyn Shaw Bell, "Another Look at Distribution of Income," *The Wall Street Journal*, 23 November, 1976, 12.

²⁵ The Urban Institute, *Policy Bites* (June 1992), as cited in Cindy Kelly, "Moving Up—and Down—the U.S. Income Ladder," *The Margin* 8 (Spring 1993): 25.

²⁶ Kelly, "Moving Up—and Down—the U.S. Income Ladder," 25.

²⁷ David Wessel, "Low-Income Mobility Was High in 1980s: Treasury Study Also Finds Those at Top Tended to Stay There," *The Wall Street Journal*, 2 June, 1992. The study used a sample of 14,351 taxpayers.

²⁸ It should be noted that this study does not shed much light on the very poorest Americans, those who have incomes so low that they pay no income taxes at all.

²⁹ Bruce Bartlett, "A Class Structure That Won't Stay Put," *The Wall Street Journal*, 20 November, 1991.

³⁰ Though we can make this assumption, it is questionable. As discussed in Chapter 9, the share of the population that is elderly and largely retired has continued to increase along with a decline in the age at which workers retire. This should have brought about a greater trend of increasing income equality after making adjustments to eliminate the requirement of perfect intergenerational equality. The income tax cuts of the 1980s reduced the absolute tax rates more for higher income taxpayers, but the *share* of income taxes paid by the higher income taxpayers rose, while the share paid by the lowest income taxpayers fell as a result of these tax cuts. This should have increased the after-tax equality trend. In contrast, Social Security tax rates and the maximum levels of income subject to Social Security taxation both rose. This tended to affect more directly the lower income taxpayers and should have increased the inequality after taxes. At present we have no way to assess the net effect of all of these adjustments on the trend of inequality in the 1970s and 1980s.

³¹ For a related discussion of this in the context of wealth inequality, see Edward N. Wolff, "Changing

Inequality of Wealth," *American Economic Review* 82 (May 1992): 552-58.

³² See the following: John Bound and George Johnson, "Changes in the Structure of Wages in the 1980's: An Evaluation of Alternative Explanations," *American Economic Review* 82 (June 1992): 371-92; Kevin M. Murphy and Finis Welch, "Wage Premiums for College Graduates: Recent Growth and Possible Explanations," *Educational Researcher* 18 (May 1989): 17-26; Kevin M. Murphy and Finis Welch, "The Role of International Trade in Wage Differentials," in Marvin Kosters, ed., *Workers and Their Wages* (Washington, D.C.: American Enterprise Institute, 1991); McKinley L. Blackburn, David E. Bloom, and Richard B. Freeman, "An Era of Falling Earnings and Rising Inequality?" *Brookings Review* 9 (Winter 1990): 38-43; David M. Cutler and Lawrence F. Katz, "Macroeconomic Performance and the Disadvantaged," *Brookings Papers on Economic Activity* 2 (Winter 1991): 1-74; David M. Cutler and Lawrence F. Katz, "Untouched by the Rising Tide," *Brookings Review*, (Winter 1992): 41-45, reprinted in Don Cole, ed., *Annual Editions: Microeconomics* (Guiford, CT: The Dushkin Publishing Group, 1993); David M. Cutler and Lawrence F. Katz, "Rising Inequality? Changes in the Distribution of Income and Consumption in the 1980s," *American Economic Review* 82 (May 1992): 546-51.

³³ Bound and Johnson, "Changes in the Structure of Wages in the 1980's," table 1, p. 373.

³⁴ *Ibid.*, 371.

³⁵ *Ibid.*, 389.

³⁶ *Ibid.*, 389.

³⁷ In 1990 the U.S. Department of Commerce began to emphasize Gross Domestic Product (GDP) in place of Gross National Product (GNP). Though the two measures are closely related, Commerce officials argued that GDP is a better measure of the domestic production of goods and services. GNP and GDP differ by the amount of net factor payments. Net factor payments (NFP) equal the payments received from abroad (the earnings of domestic residents on foreign profits, loans, and worker remittances) minus the earnings of foreigners in the domestic economy.

$$\text{GNP} = \text{GDP} + \text{NFP} \text{ or}$$

$$\text{GDP} = \text{GNP} - \text{NFP}$$

Between 1980 and 1990, GNP exceeded GDP, but the difference declined throughout the decade. GNP was 1.77 percent larger than GDP in 1980 and 0.71 percent larger in 1990. The linear relationship between yearly GNP and GDP values from 1980 through 1990 was:

$$\text{GDP} = -69.5964 + 1.006833(\text{GNP})$$

$$(-13.07) \quad (543.35)$$

$$R^2 = 0.9997$$

(The t values are in parentheses.) The relationship between GNP and GDP is discussed in any recent Macroeconomics textbook.

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- ³⁸. The World Bank, *World Development Report* (New York: Oxford University Press, various years).
- ³⁹. The World Bank, *World Development Report, 1989* (New York: Oxford University Press, 1989), 300.
- ⁴⁰. Robert Summers and Alan Heston, "The Penn World Table (Mark 5): An Expanded Set of International Comparisons, 1950-1988," *Quarterly Journal of Economics* 106 (May 1991): 335.
- ⁴¹. Ibid. Extensive empirical work on this issue is reported in Irving B. Kravis and Robert Lipsey, *Toward an Explanation of National Price Levels* (Princeton, NJ: Princeton Studies in International Finance, no. 52, 1983).
- ⁴². Summers and Heston, "The Penn World Table (Mark 5)," 327-68.
- ⁴³. In the 1970s and 1980s large fortunes were created for young entrepreneurs in the new personal computer industry. For example, William Gates, Jr., dropped out of college in the mid-1970s to found the software company, Microsoft. Today Microsoft is a giant in the computer field, and he is one of the richest individuals in the United States.
- ⁴⁴. For example, Japan has little in the way of domestic natural resources, yet it has had one of the fastest growing economies in the postwar period.
- ⁴⁵. It was sometimes suggested in the late 1970s and 1980s that American workers, especially in such basic industries as automobiles, were less productive and too highly paid and that was the root of the industry's problems. However, Japanese companies that opened up American automobile plants used American labor and paid competitive wage rates. The cars produced in these plants were as high in quality as the imported Japanese cars and were produced at essentially the same costs. The problem with the American companies was not labor but management and the internal organization of the firms. By the early 1990s Ford and Chrysler had made impressive strides toward matching the Japanese companies in productive performance.