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INEQUALITY AND POVERTY IN
THE UNITED STATES: 1900 TO
1990

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Inequality and Poverty in the United States: 1900 to 1990

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Abstract

Over the period from 1900 to 1990 there was no trend in income inequality. Inequality was high and rising during the first three decades of the century and peaked during the Depression. It fell sharply during World War II and remained at the lower level in the 1950s and 1960s. In the 1970s and 1980s it rose rapidly to pre-WWII levels. The rate of poverty exhibited a long-run downward trend from about 80 percent in 1900 to the 12 to 14 percent range in recent years. There was considerable fluctuation around this secular trend. Changes in inequality were largely produced by demographic changes, the growth and decline of various industries, changes in patterns of international trade, and World War II. Economic growth, demographic change, unemployment, and inflation were the primary drivers of the rate of poverty. Public policy has reduced the market-generated level of inequality, but since 1950 has had little effect on the trend in inequality. Prior to 1950, the growth of government, and particularly the introduction of a broadly based income tax during World War II, coincided with and partly produced the sharp downward shift in inequality of that era. Government had little effect on poverty rates until 1950. Public income transfer programs have reduced poverty rates appreciably in recent decades. Since World War II, when it has been on a large enough scale to matter, public policy has tended to reinforce market-generated trends in inequality and poverty rather than offset them.

Inequality and Poverty in the United States: 1900 to 1990

"The recent history of Western nations reveals an increasingly widespread adoption of the idea that substantial equality of social and economic conditions among individuals is a good thing. The roots of egalitarian thought are deep in Western civilization."

Robert Lampman, *Ends and Means of Reducing Income Poverty* (1971)

When the twentieth century opened, there was an unusually high level of interest in the economic well-being of the working poor. The Bureau of Labor Statistics in Washington, D.C., the Statistics Bureau in Massachusetts, and the Heller Commission in San Francisco were conducting the first quantitative studies of U.S. workers' living standards. Robert Hunter, inspired by Europeans such as Booth, Rowntree, and Engel, was soon to give us our first important sociological study of poverty. The upper end of the income distribution was the object of no less scrutiny, as the Progressives fixed their eye on the monopolies and the new class of rich industrialists and professionals, whom they believed wielded disproportionate political and economic power.

As the century draws to a close, there is renewed attention to these same issues. Almost two decades without economic progress for the working class, accompanied by highly visible accumulations of financial wealth by the top one-half of 1 percent of the income distribution, has turned the routine publication of an income distribution report by a congressional committee into a political event.[1] Article upon article detailing the recent rise in inequality must make it seem unprecedented to all but the most knowledgeable specialists. In fact, with regard to inequality at least, we are probably replaying the statistical record of a century ago.

While Robert Lampman is undoubtedly correct that "The egalitarian question is different for every generation" (1957, p. 235), inequality in the distribution of income and wealth and special concern for the welfare of persons in the lower tail of those distributions are persistent claimants of attention from citizens, statesmen, and scholars. Since the emergence of capitalism and the
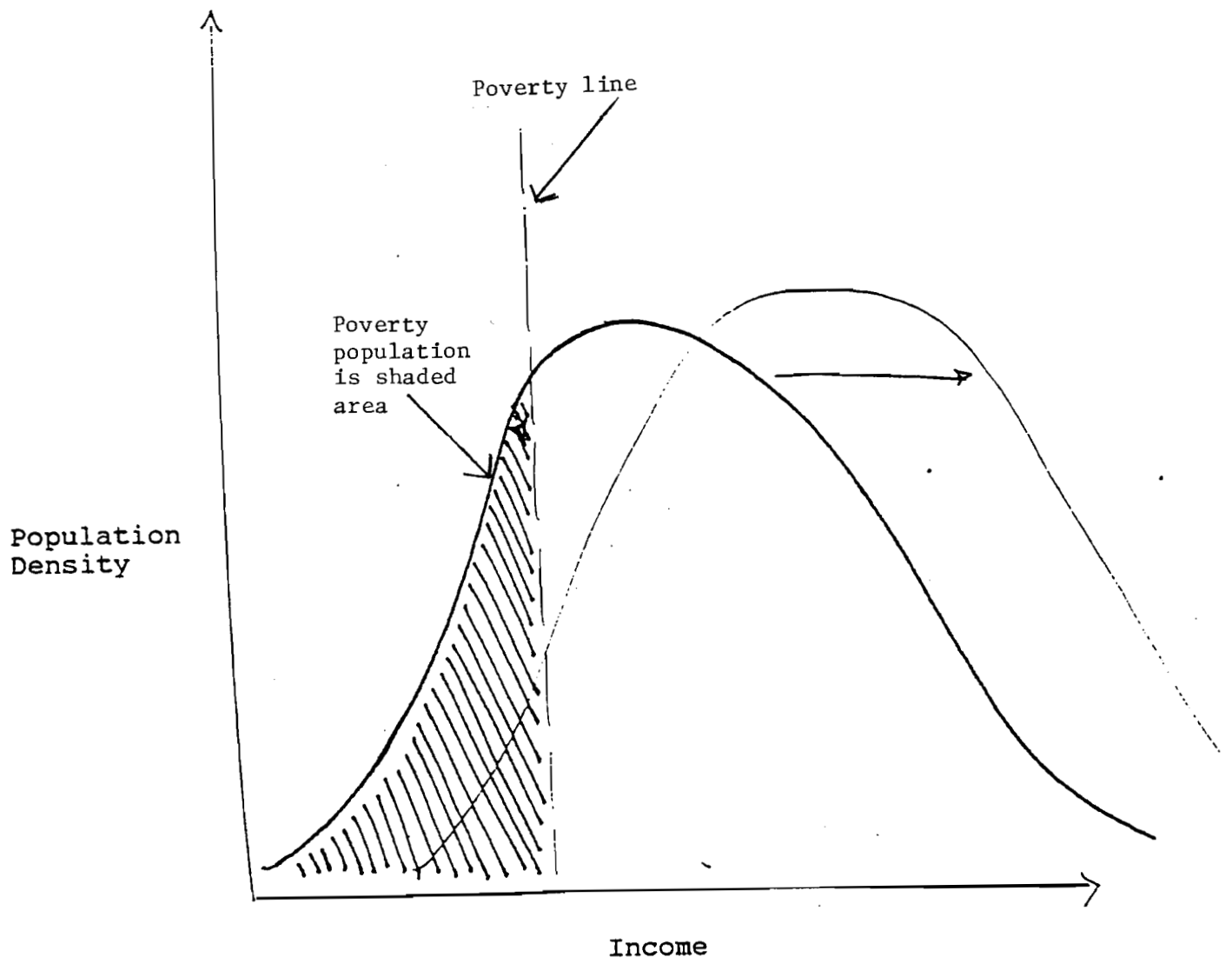
beginnings of economics as a discipline, the distribution of well-being has contended with the sources of economic growth for primacy of attention. Although many lament the consequences for growth that concern with equality may generate, concern will not go away. Equality and fairness are as closely linked in our minds as growth and progress.

In this paper, the "poverty rate" (or "incidence of poverty") measures the proportion of the population with incomes below a particular income level fixed in real terms--a poverty line or poverty threshold. "Inequality" refers to the way income is distributed among the whole population.

While poverty and inequality may be highly correlated over a short period, they are distinct concepts. Figure 1 illustrates the distinction. A measure of income inequality characterizes the shape of the depicted distribution. The poverty rate corresponds to the area under the curve to the left of the poverty threshold. If the shape of the distribution were invariant, that is, if inequality did not change, the poverty rate would nevertheless fall as economic growth shifted the distribution rightward over time. This is the story, in gross terms, of the past ninety years: While there has been no clear overall trend in inequality, or the distribution of economic well-being, the average level of well-being has risen and the poverty rate has declined.

That we do not observe a clear overall trend in inequality should not lead us to conclude that nothing happened during the course of the century to affect inequality. Wars, technological advances, demographic changes, changes in the openness of the economy, and public policy are among the many forces that have altered the shape of the U.S. income distribution. This paper first describes and suggests reasons for the changes in measured income inequality during the past ninety years. It then describes the reduction in poverty during the same period, particularly since World War II, and analyzes why the decline occurred. The third part discusses the ways in which public policy has shaped and been shaped by the historical record. Part four assesses the robustness of the story told in the first three parts, and the fifth sums up.

FIGURE 1

Poverty line

Poverty
population
is shaded
area

Population
Density

Income

The historical analysis of inequality and poverty is complicated by the lack of long, strictly comparable time series for both social indicators. Rather than reviewing the past ninety years in chronological order, we put our best foot forward by beginning with the most recent period and working back. The past quarter-century has the most data and has been the most intensively studied. We do not have the same wealth of information for the preceding two decades, and the raw data are much harder to work with, but we do have some series from 1947 to the present. For the years before World War II we must rely on a hodgepodge of indicators, none of them available in very long or complete series.

PART 1: INEQUALITY

What Has Been the Behavior of Measured Inequality?

When the century is viewed as a whole, there is no clear trend in income inequality. Despite the uncertainty surrounding the data prior to 1947, we think it safe to say that inequality was greater in the first three or four decades than any period since. The 1950s and 1960s were the decades of least inequality. During the 1970s and 1980s inequality steadily increased, with no sign, as of this writing, that it has peaked.

Ten years ago many economists would probably have agreed that U.S. experience was confirming Simon Kuznets's (1955) conjecture that inequality tends to increase in the early stages of economic development and to decrease later. This was easy to believe: inequality had declined significantly from the Great Depression until 1970, and though it rose during the 1970s, the rise was slight in comparison to the decline during the preceding three decades. The 1980s, when inequality rose sharply, now make it harder to accept unreservedly Kuznets's "inverted U" hypothesis.

Inequality from 1947 to 1990. A decade ago the conventional wisdom among economists was that income inequality had been basically constant since World War II.[2] Researchers mostly studied

the short-term cyclical behavior of the income distribution rather than the long-term trend. Articles written in the 1960s and 1970s took different approaches but came to a similar conclusion: income inequality declines in good times and rises in bad.[3]

Unemployment and inflation rates, the variables most often used to characterize U.S. economic fluctuations, are both correlated with almost any measure of inequality, inflation negatively and unemployment positively. When we modeled inequality from 1947 to 1989 as short-term, business-cycle-related movements around some long-term trend, we found, as Blank and Blinder (1985) and others have, that inequality is more sensitive to unemployment than inflation.[4]

Our simple regression analysis also suggested that, net of cyclical factors, the post-war secular trend in inequality falls into two separate periods. From 1947 until 1967 or thereabouts, inequality declined, there was a secular downward trend in inequality. After 1967, and especially after 1979, the trend reversed. This pattern holds for several different inequality measures. The movement of the Gini ratio during the post-war period is shown in Figure 2. The increase in the Gini ratio from 0.394 in 1968 to 0.447 in 1989 is equivalent to altering the 1968 income distribution by transferring $1,230 (in 1989 dollars) from each person below the median to each person above it (Blackburn, 1989).
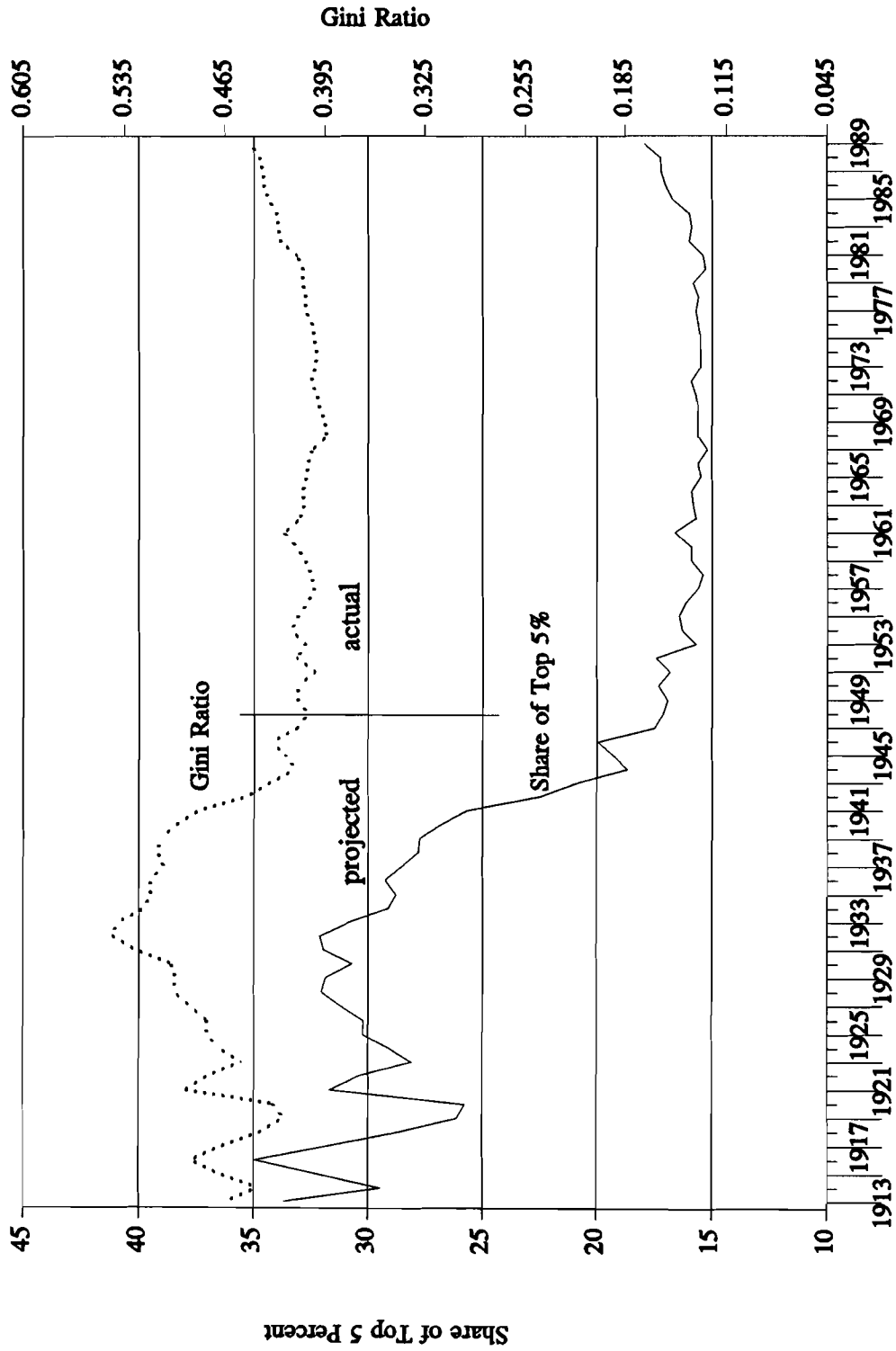
The rise in inequality during the past two decades has sparked renewed interest in the longer-term behavior of the U.S. income distribution. Most studies consider the period since 1963, the first year for which the U.S. Census Bureau provides microdata files of the March Current Population Survey (CPS). The March CPSs provide demographic and income information for samples of 50,000 to 60,000 households. Initially, most researchers analyzed whether inequality was in fact increasing. There are now many studies documenting this rise. We report the findings of Karoly (1993).[5]

Karoly analyzed "adjusted family income" (family income divided by the official poverty line) and found that, between 1963 and 1988, inequality increased among families as well as among all

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Figure 2

Gini Ratio Versus Income Share of Top 5 Percent, 1913-1989

Sources: Gini ratio: 1913-1947 estimated by authors; 1948-1966 from Danziger and Smolensky (1977, p. 112); 1967-1989 from U.S. Bureau of the Census (1990b). Income share of top 5 percent: 1913-1947 from Kuznets (1953); 1948-1989 from U.S. Bureau of the Census (1990a).

persons (with each person assigned his family's adjusted income). Among persons, adjusted family

incomes in the lower tail of the distribution rose more slowly than median adjusted family income,

and those in the upper tail rose more rapidly. Adjusted family income at the 10th percentile, for

example, was 37 percent of the median value in 1967, and had fallen to only 29 percent by 1989.

Adjusted family income at the 90th percentile, conversely, rose from 209 percent of the median in

1967 to 226 percent in 1989. Adjusted income at the 90th percentile was 10 percent higher. Among

all persons inequality began increasing in 1967; among families, in 1977. For both families and

persons, dispersion increased first in the lower tail of the distribution then later spread to the upper

tail.

Among workers, earnings inequality appears to have been level between 1963 and 1979, then

began to increase. Underlying this overall pattern were different trends for men and women.

Inequality among working men increased throughout the 1963-1988 period. Among working women

it fell until 1980 and then began to rise.

Inequality from 1900 to 1946. For the first half of the century, income distribution data are

much sparser. One must rely on a collage of partial indicators. We nonetheless have some

confidence in our account of inequality because the diverse time series tell a fairly consistent story.

Williamson and Lindert (1980) provide the most comprehensive survey of the time series on U.S.

income inequality during the relevant period. For the period 1900-1947 the main time series they

present are estimates of the share of national income going to the richest 1 percent and the richest 5

percent of taxpayers, indices of inequality among the richest taxpayers, and various skilled/unskilled

wage ratios.[6] Many of these series are based on income tax data, and so begin in 1913, when a

federal income tax was reinstituted. The picture is less clear prior to 1913 than in later years.

The chronology of income inequality suggested by this assortment of time series is as follows.

From the turn of the century until World War I, inequality was higher than in the latter half of the

century. The war had a brief equalizing effect. Starting about 1920 inequality began to rise, reaching its pre-World War I level by 1929. From 1929 through 1951, inequality fell substantially. The share of income going to the top 1 percent of families fell from 15 to around 8 percent, and the share of the top 5 percent fell from 32 to about 20 percent.[7] Perhaps it was this remarkable decline, first measured by Kuznets, that prompted his conjecture that incomes become more equal late in the process of economic development. Arthur Burns hailed the decline as "one of the great social revolutions of history" (cited in Williamson and Lindert, p. 83).

A minority of economists disputes the 1929-1951 "income revolution" altogether, arguing that the apparent decline in inequality merely reflects more skillful tax avoidance by the rich, or citing income distribution statistics that suggest income was not much more evenly distributed in 1959 than in 1910.[8] Williamson and Lindert (pp. 86-92) address both issues. They conclude that, even if the rich had significantly improved their ability to avoid taxation, more than half of the 1929-1951 decline in inequality would remain to be explained. They also call into question the early statistics used by those who claim there was no significant narrowing in the income distribution between 1910 and the early 1950s.

The evidence assembled by Williamson and Lindert makes a strong case that, by 1951, inequality had fallen well below its 1929 level. What is debatable is exactly when the upward trend that began shortly after World War I reversed. Measures of inequality computed from income tax returns show the reversal started in 1929. But such measures reflect change only in the uppermost tail of the income distribution. They may not be sensitive to changes in unemployment that more strongly affect the lower tail and middle of the distribution and, hence, may not capture what was happening to overall inequality.

To see how considering unemployment changes the chronology, we first examine the period 1947-1989. The comparatively rich data for this later period permit the calculation of summary

measures of inequality such as the Gini ratio. Suppose the relationship between the Gini ratio, on one hand, and the unemployment rate and the income share of the top 5 percent, on the other, has been stable during the twentieth century. Then by estimating that relationship for 1947-1989 and projecting it backward, we can obtain Gini ratios for the first half of the century.[9] The principal difference between our projected Gini series and the picture given by the usual series is that the projected Gini ratio rose sharply after 1929 to its peak in 1932, and did not regain its 1929 level until 1940 (see Figure 2). After 1940 it fell rapidly to its post-World War II level.

The slightly modified chronology shows that the century's peak of inequality appeared not in 1913 or 1916 as before but at the depths of the Great Depression, when a record number of people were unemployed. It also suggests that inequality peaked not immediately before the Wall Street crash but three or four years later. Unlike the standard series, it does not present the awkward puzzle of why inequality should fall more or less steadily throughout both a severe depression and a war-induced boom. Thus, the modified series is more consistent with what we have learned from post-war data about major drivers of income inequality and may more accurately portray the earlier record.[10]

Whatever the precise timing, it seems clear that a substantial decline in inequality took place by mid-century. Much and maybe most of the decrease took place during World War II. One can sum up the chronology of income inequality during the twentieth century as follows: high during the first three decades, falling substantially by the late 1940s, stable during the 1950s and 1960s, edging upward during the 1970s, and rising sharply during the 1980s. Whether inequality will reach the higher levels of the earlier part of the century remains to be seen.

What Factors Underlie the Behavior of Inequality?

Explaining changes in measured income inequality is an even more uncertain enterprise than identifying them. No single factor has governed the evolution of inequality. Because it is impossible

to confidently assign causality to the many factors affecting inequality, the story is one of correlations: movements of certain variables are correlated with the movement of inequality.

This section discusses the four basic social and economic factors that have probably had the greatest impact on the pattern of income inequality: certain demographic changes, technological changes, international trade, and war. It also briefly considers the role of labor unions, the one institution besides government that appears to have had an independent impact on this pattern. Demographic and technological changes have acted throughout the century. Unionization has been significant since the mid-1930s. International trade has mattered only during the past twenty years. Wars acted even more briefly, though perhaps with lasting effect, on the income distribution.

These factors have affected inequality largely through the way they shifted labor supply and labor demand functions. Demographic changes have primarily affected labor supply. Technological change, international trade, and war have mainly affected demand.

We begin with labor supply. The supply of labor and its quality are among the principal determinants of the level and dispersion of earnings, the principal determinant of income inequality. Because new members of the labor force typically have less experience and therefore fewer job-specific skills than the average member, rapid labor force growth increases the relative supply of less-skilled workers. In response the skilled/unskilled wage gap increases, other things equal. Williamson and Lindert (1980, Figure 9.1) show such a relationship for the 1900-1973 period. A larger skilled wage premium, in turn, increases earnings and income inequality. Moreover, a rise in the growth rate of the labor force reduces wages relative to land rents and the returns from capital. Because wages are more evenly distributed than these other types of income, a further increase in income inequality ensues.[11]

Increasing inequality in wage rates has been identified as a major component of the rise in income inequality since 1967. Changes in the relative supply of skilled workers have recently

received attention as a potential cause of rising wage rate inequality. The difficulty of measuring skill has led many researchers to use education and work experience as proxies for it.[12] This approach has been partly successful, for changes in the "college premium" (the annual earnings differential between college-educated workers and workers with only a high school education) are correlated with changes in the relative supply of college graduates. The baby boomers began to enter the labor force in 1967. Between 1971 and 1979 the number of 25- to 34-year-old male college graduates increased by 90 percent while the number of high-school-only men of the same age increased by only 19 percent. For women, the analogous numbers are 159 percent and 44 percent (Levy and Murnane, forthcoming). This sharp increase in the relative supply of college graduates was accompanied by a decline in the annual college premium from 22 to 13 percent for young men and from 40 to 21 percent for young women. During the same period the return to experience rose.

During the 1980s this trend reversed. The supply of young college graduates grew more slowly than the supply of high school graduates, and the college premium climbed from 13 to 38 percent for young men and from 21 to 45 percent for young women. It is worth noting that the college premium also rose among older workers. This makes it hard to accept the thesis that the rise in the college premium during the 1980s reflected the deterioration of America's primary and secondary schools during the 1970s. The return to experience rose as well.

The 1950s and early 1960s saw a rapid increase in the supply of college graduates, which might have been expected to reduce inequality. Yet in these years inequality was basically stable. As Williamson and Lindert point out, however, the labor force participation of women increased steadily during the post-war years. The combination of sex discrimination and limited labor force experience meant that most of these women were competing for relatively poor paying jobs. By further depressing already low wages, the entry of women worked against the leveling effect of increased schooling.

In the earlier part of the century there appears to be a rough correlation between the growth of average labor force quality and the size of the skilled/unskilled wage gap. Denison's (1974) index of labor quality during the 1909-1969 period rises most rapidly between 1930 and 1950, the period of falling inequality. The index grew more slowly during 1948-1969, an era when inequality was basically stable.[13]

It should be emphasized that the growth of average education levels across age cohorts and the increased labor force participation of women only partly explain changes in earnings inequality. Recent studies find that one-half to two-thirds of the recent rise in inequality is due to increased inequality within the groups defined by age, education, and experience. Levy and Murnane (forthcoming) suggest that the increase in within-group inequality is due to demand rather than supply factors.

Other demographic changes have altered the distribution of household incomes rather than that of wage rates (and hence are not labor supply effects, but for convenience we include them here). The increased proportion of single-parent families and the changed age structure of families are of particular importance. Between 1940 and 1970 the proportion of families with a single parent was fairly stable. The near doubling of that proportion since 1970 has had a disequalizing effect on the distribution of household incomes. The great majority of single-parent families are mother-only families. Child support payments are generally small or nonexistent, so where there was formerly one household living on a man's and perhaps a woman's (usually lower) income, there are now two households, a man living alone on his income, and a woman and children living on hers.[14] In such a circumstance, virtually any measure of inequality will rise, although taking taxes and transfers into account usually dampens the inequality-increasing effect.

The other major demographic change has been the changing age structure of families. Fertility patterns and increased longevity produced an increase in the proportions of families with

young and old householders. Further, as real incomes rose, so did the proportion of elderly people choosing to live apart from their children. Even if lifetime earnings profiles were unchanged, these two developments would result in a more unequal distribution of annual household income.[15]

We turn now to labor demand. Changes in inequality can also be linked to changed patterns of labor demand. In recent years, demand for skilled U.S. labor appears to have increased more rapidly than demand for unskilled U.S. labor (Bamezai, 1989). Moreover, the dispersion of skill requirements, as measured by changes in the occupation mix, increased in manufacturing. These findings are consistent with the fact that wage inequality has risen more in manufacturing than in the service industry.

Rising skill requirements are only a proximate cause of higher earnings inequality. Two factors that seem to underlie the rising demand for skill are changes in the pattern of consumer expenditures (and thus in the composition of output) and technological change. The principal change in the composition of output during the past twenty years has been the shift from manufactured goods toward services. This has produced a decline in the number of manufacturing jobs and an increase in the number of service jobs. Young workers with only high school educations have born the brunt of the fall in demand for manufactures because older workers have often been protected by seniority. Declining job opportunities in manufacturing helps explain why the real wages of young high school graduates fell 14 percent between 1979 and 1987, while the wages of older high school graduates fell only 2 percent (Levy and Murnane, forthcoming).

Because there is less wage inequality in the manufacturing sector than the service sector, the movement of workers from manufacturing to services has contributed to increased earnings inequality. In addition, a change in output mix within manufacturing has further contributed to inequality because the expanding industries have mostly been those that traditionally use college graduates intensively.

Many forces have driven the changing composition of output, but the most important one in recent years appears to be international trade. Increased trade has weakened the link between what Americans consume and what they produce. Between 1970 and 1985 the share of imports in the U.S. supply of manufactured goods (imports divided by the sum of imports plus U.S. output) rose from 5.4 percent to 13.1 percent, with three-fifths of that increase occurring since 1980 (Brauer, 1990). Import competition sharply reduced the demand facing American manufacturers.

One reason the share of imports in consumption rose so quickly was U.S. macroeconomic policy in the 1980s. The sharp appreciation of the U.S. dollar starting in 1982 reduced foreign as well as domestic demand for American manufactures. Another is the accumulation of physical and human capital that has occurred abroad, particularly in the "newly industrialized countries," which have been the source of much competition for American industry. Moreover, in addition to competing with American producers in the market for finished goods, many foreign companies are now paid by American manufacturers to assume some of the intermediate stages of the production process. This practice of "outsourcing" further reduces demand for less-skilled domestic production workers.

Blackburn (1990) concludes that changes in labor demand due to the changed composition of output account for 20 to 30 percent of the rise in the college premium and 15 percent of the rise in within-group earnings inequality. This is consistent with Bezdek et al.'s (1987) finding that only half of the growth of engineers and scientists in manufacturing can be explained by the expansion of manufacturing sectors most reliant on that type of labor (cited in Bamezai, 1989, p. 12).

Technological change that is biased toward skilled labor and more rapid in some sectors than others also seems partly responsible for the recent rise in earnings inequality. Despite the increased relative wages of college graduates, many sectors have been hiring proportionally more of them. Industries in which the college premium has risen most are those with the fastest rise in the

percentage of their work force with a college education.[16] This change appears to be spread unevenly across sectors. Bartel and Lichtenberg (cited in Levy and Murnane) find that the college premium and the use of college graduates are highest in industries with the newest technologies. Also, the increased reliance on college graduates has been more marked in manufacturing than in the service industry.

Before World War II, the volume of international trade by the United States was too small to significantly affect trends in labor supply or demand (with the brief exception perhaps of the post-World War I collapse of European demand for American grain). Demand-driven shifts from agricultural to industrial employment seem to be associated with the observed behavior of inequality.[17] Technological change principally spurred this shift. The stylized fact emerging from studies of technological change is that, in the aggregate, such change had a strong labor-saving bias during the first three decades, while it was neutral during the next two decades--the era of declining inequality.

Changes in the sectoral composition of output can explain the history of labor-saving technological change followed by neutral aggregate technological change. Between 1900 and 1930, industrial sectors, which were relatively intensive in their use of skilled labor, grew much faster than the agricultural sector. Agriculture was badly depressed during the 1920s, which further depressed incomes already lower than average. From 1930 to 1955, however, the difference in sectoral growth rates was less extreme. These changes in output mix correspond to the sectoral pattern of productivity growth. The 1900 to 1930 period was one of unbalanced growth, with industrial sectors experiencing much faster productivity gains than agriculture. During the following two decades productivity grew fastest in the agricultural sector. Because demand for agricultural products is relatively inelastic with respect to income or price changes, demand for labor in the agricultural sector declined. As people left agriculture for industrial employment, their average wages rose, as did the

average wages of those remaining in the agricultural sector. Between 1920 and 1950, 14 percent of the country's labor force left agriculture for other employment. This inter-sector flow of labor was large enough to noticeably affect wage inequality. After 1950, productivity again rose faster in industry than agriculture, but the productivity gap stayed much smaller than the pre-1930 gap. The smaller gap, together with agriculture's declining share of the total labor force, implies that differences between agricultural and industrial wages have contributed less to overall inequality since 1950.

Income effects are another, though secondary, reason for changes in output mix. If goods consumed by the rich incorporate less unskilled labor than goods consumed by the poor, then income growth leads to greater inequality, and any redistribution of income from poor to rich is slightly self-amplifying. Williamson and Lindert (1980) analyze the unskilled-labor-intensity of consumption by income classes and conclude that, in 1919, income effects did appear to contribute to greater inequality. They also find that, by 1961-1963, the reverse was true: income growth appeared to shift demand toward consumption that was slightly more intensive in unskilled labor, thereby reducing wage inequality.

During the first decade of the century, the pattern of capital accumulation appears to have contributed to inequality. For the late nineteenth and early twentieth centuries, Williamson and Lindert find that capital formation, which increases the relative demand for skilled labor, proceeded most rapidly during periods of increasing inequality. They believe that after 1910, however, capital formation had little role in fostering inequality, because it was no longer concentrated in skill-intensive sectors, and sectors were more alike in terms of capital intensity. Agriculture had become much more capital-intensive, and industry had begun shifting away from capital intensity toward greater reliance on skilled labor (p. 288).

War is another force that has acted on the income distribution by affecting labor demand. Both world wars sharply increased relative demand for unskilled labor, lowering unemployment and raising wages at the lower end of the wage scale. The decline in inequality wrought by World War I was fleeting, however, and by the end of the 1920s inequality was higher than before the war. World War II had a more lasting impact on the wage structure. A key difference was that demand for unskilled labor did not abate after the war. The war-induced boost to aggregate demand was sustained during the early post-war period by foreign demand for U.S. goods. After the war, the United States faced little competition from Europe in world markets and, under the Marshall Plan, Europe abruptly increased its imports from the United States. As a result, demand for unskilled labor remained strong, and the skilled/unskilled wage gap continued to fall throughout the rest of the 1940s, as Goldin and Margo (1991) demonstrate.

We believe WWII produced a structural change that helps explain why the 1950 wage structure did not revert to the pre-WWII structure, but instead persisted more or less intact until the late 1960s. Our view is that, by 1950, firms had adapted their production technologies in response to the prolonged period of higher wages for unskilled labor. The increased capital-intensiveness of the economy left U.S. industry well positioned to take advantage of American economic dominance abroad and of a richer consumer class at home.

There were no sharp changes in the pattern of labor demand during the 1950s and 1960s, the period when inequality was lowest and most stable. The composition of output was also fairly stable, and U.S. producers faced comparatively little competition from abroad. Technological change occurred, but to date there is little evidence that it was significantly slower than in later decades. This suggests that perhaps the major factor behind changing labor demand patterns since World War II has been the rapid expansion of international trade. If this conjecture is correct, then labor demand during the twentieth century reduces to a three-part story about (1) the shift from agriculture to

industry between 1920 and 1950, (2) the surge in demand for unskilled labor during World War II and the post-war boom, and (3) the increasing openness of the economy since 1970 and the concomitant shrinking of the manufacturing sector.

Finally, the role of labor unions deserves mention. The unionized share of the labor force was less than 10 percent before the Depression, grew rapidly between 1935 and 1946, reached a plateau during the 1950s and 1960s, then declined moderately in the 1970s and precipitously in the 1980s. This pattern closely matches the pattern of income inequality. Given that Freeman (1980, 1982) has demonstrated that labor unions reduce earnings inequality, the principal determinant of income inequality, an inverse causal connection between unionization and income inequality is plausible (Freeman, 1993).[18]

The complexity of the inequality story during the past two decades, and our disproportionate attention to that period, reflect the greater availability of data for recent decades, and suggest that because our early data are infrequent and sporadic our characterization of earlier periods may be greatly simplified. We have also simplified matters by discussing labor supply and labor demand effects as though they are separable. Over time, labor supply and demand respond to each other, and the response of one moderates the wage change resulting from a shift in the other.

PART 2: POVERTY

What Has Been the Behavior of Poverty Rates?

If the income distribution's shape is fairly constant over time, then as economic growth shifts its mean rightward, a persistent fall in the poverty rate will occur (recall Figure 1). In the broadest terms, this is the story of poverty over the course of the century. Unlike inequality, the poverty rate has displayed a clear downward trend. The decline was most rapid in periods of rapid growth. Interruptions in that decline almost invariably occurred during recessions.

Our analysis relies on the federal government's official measure of poverty. This measure was developed in the mid-1960s (Orshansky, 1963), but not officially adopted until 1969.[19] The official measure is based on a set of poverty lines which vary by household size, the age of the householder, and the number of children under age eighteen. (Until 1981, sex of the householder and farm/nonfarm residence were other distinctions.) The poverty lines change in step with the rate of inflation to remain fixed in real terms. If a family's annual cash income falls below its poverty line, its members are counted as poor. In 1990, the poverty line for a family of four was $13,359.

Quantifying poverty is a delicate matter. Data are scanty before 1947. The validity of poverty rates generated by applying an unchanging real poverty threshold over a long period can be challenged.[20] With this warning, we turn to the numbers.

The Census Bureau provides the longest, consistent poverty-rate series based on the official measure. According to this series, 22 percent of all persons were living below the official poverty line in 1959. This fraction fell fairly steadily until reaching a historic low of 11 percent in 1973. The poverty rate bounced between 11 and 12 percent for the rest of the decade, and then began a rapid rise to 15.3 percent by 1983. The 1990 poverty rate was 13.5 percent.

Fisher (1986) extended the Census Bureau's poverty-rate series back to 1947 in a consistent way. His estimated poverty rate for individuals was 34 percent in 1949 and 32 percent in 1947. Table 1 presents Fisher's estimates together with those of the Census Bureau.

Reflecting the tight connection between economic growth and declines in poverty, since 1947 there have been only seven years (1948, '57, '70, '74, '79, '81, and '83) in which the poverty rate failed to move in the opposite direction of real mean income.
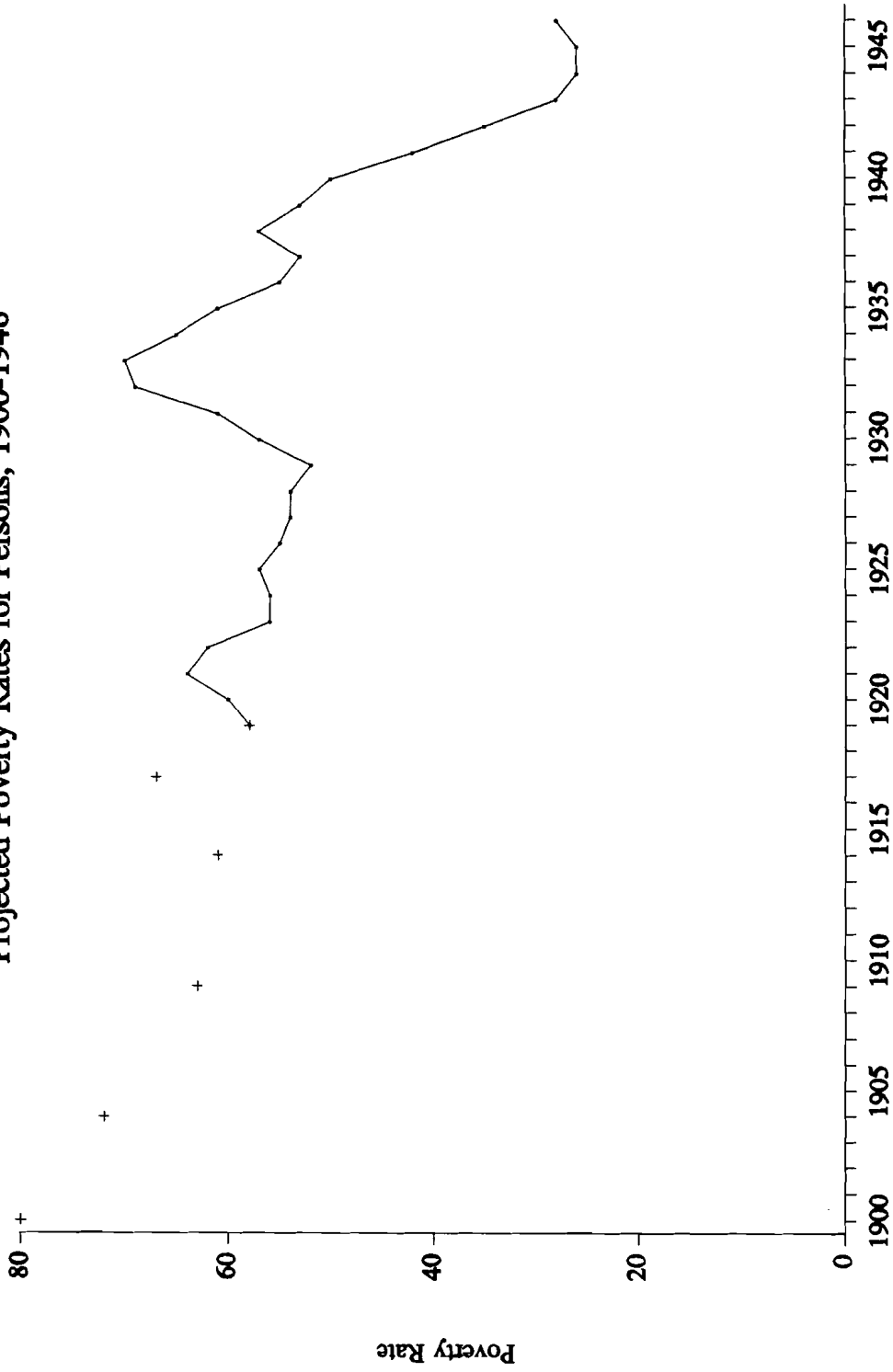
We used a simple procedure to develop comparable poverty rates for the years before 1947 based on the official poverty lines.[21] Figure 3 depicts the projected poverty rates. A long term decline in poverty during the first half of the century is apparent. Poverty rates exceeded 60 or 70

TABLE 1
Poverty Rates for Persons, 1948-1990

Year	Actual Rate
1948	32.8
1949	34.3
1950	32.2
1951	30.2
1952	29.3
1953	--
1954	--
1955	26.2
1956	23.4
1957	23.8
1958	24.3
1959	22.4
1960	22.2
1961	21.9
1962	21.0
1963	19.5
1964	19.0
1965	17.3
1966	14.7
1967	14.2
1968	12.8
1969	12.1
1970	12.6
1971	12.5
1972	11.9
1973	11.1
1974	11.2
1975	12.3
1976	11.8
1977	11.6
1978	11.4
1979	11.7
1980	13.0
1981	14.0
1982	15.0
1983	15.2
1984	14.4
1985	14.0
1986	13.6
1987	13.4
1988	13.0
1989	12.8
1990	13.5

Sources: Poverty rates for persons, 1948-1958, from Fisher (1986); 1959-1990, from U.S. Bureau of the Census (1991a).

Figure 3

Projected Poverty Rates for Persons, 1900-1946

Source: Computations based on mean personal income data from U.S. Bureau of the Census (1975).

percent at the beginning of the century. They fell erratically to around 50 percent by the end of the 1920s. The Great Depression drove millions into poverty and progress against poverty halted for a decade. The World War II boom then rapidly lowered the poverty rate to below 30 percent. Variation around the trend reflects the impact of business cycles.

Applying the current official poverty line to an earlier era appears problematic, for it strikes us as unreasonable to assert that 60 percent of Americans were poor in 1920, or that 70 or 80 percent were poor at the turn of the century. Similarly, if Robert Hunter's 1904 poverty line for an urban family of five were applied today, one would be led to the unreasonable conclusion that poverty has been eliminated, for there are very few urban families of five subsisting on an annual (posttransfer) income of less than $5,000 (the approximate value in 1990 dollars of Hunter's $460 poverty line).[22]

A fixed real poverty line, useful in discussions with a short-term perspective, has somewhat limited value for historical analysis. Society in practice appears to care ultimately about relative poverty rather than absolute poverty. This is reflected in the well-documented tendency for poverty lines to rise in real terms as mean real income rises. For example, in 1949 a congressional investigation set the poverty line at $2,000, whereas the poverty line put into use thirteen years later after a period of sustained economic growth was 20 percent higher in real terms (Miller, 1967). Smolensky (1965) finds that, in real terms, the New York City "minimum comfort" budget of 1947 was 40 percent higher than the 1935 budget and nearly 80 percent higher than that of 1903-1905. Most analyses of the Gallup poll question "What is the smallest amount of money a family of four (husband, wife, two children) needs each week to get along in this community?" conclude that the "get along" amount has risen by between 0.6 and 1.0 percent for each 1.0 percent rise in average income.[23]

Strictly speaking, no absolute measure of poverty is possible once we depart from purely biological requirements. This does not mean that efforts to assess the long-term trend in poverty are

pointless. We can safely assert at least two things. First, the periodic upward revisions of poverty definitions suggest that economic growth has produced a higher material standard of living for even the poorest segment of society. (Today, for example, we rarely hear accounts of children unable to attend school for lack of shoes or an overcoat, a common enough plight at the turn of the century.)

Second, even admitting that poverty is a relative notion in practice, the reduction in the poverty rate is not a mere statistical artifact generated by applying an absolute poverty line over an inappropriately long interval. The use of an unchanging standard may exaggerate the long-term decline in poverty, especially as one moves further from the period in which the standard was adopted, but a substantial decline has nevertheless occurred. Smolensky (1965) compares different periods using contemporary judgments of the income needed for a "minimally decent" standard of living. He concludes that from the turn of the century until the Depression, the proportion of the population considered poor hovered around one-third; between mid-Depression and 1960, that proportion fell to about one-fifth. One decade later, the proportion had fallen to little more than one-tenth. During the 1980s, the poverty rate rose relative to its 1970 level. If one believes the current official poverty lines to be increasingly outdated, the estimate of 13.5 percent poor in 1990 is perhaps best viewed as a lower bound on the proportion of people in poverty today.

What Explains the Behavior of Poverty Rates?

The incidence of poverty is itself a measure of inequality, and thus it is not surprising that some of the factors driving inequality trends should also explain poverty trends. The weighting of the factors is different, however. Economic growth, demographic change, unemployment, and inflation are of primary importance in determining poverty rates. War and international trade are much less important, except as they affect unemployment and inflation. The composition of output has become much less important for the simple reason that very few full-time, year-round workers are classified

as poor no matter what their occupation, industry, or region. This was not so during the first half of the century.

The official poverty threshold varies with family size. Because earnings and family size vary systematically with age, living arrangements, and the sex of the householder, those demographic attributes are powerful proximate determinants of the incidence of poverty. Demographic changes affect the incidence of poverty in an indirect manner as well. Low earnings qualify a household for one or more transfer programs. The level of benefits it receives depends on the kinds of programs for which it qualifies, which in turn partly depend on household demographic characteristics. Transfers to the elderly, for example, are generally larger than transfers to younger female household heads, despite the latter's larger family size. This is one reason poverty is higher among single mothers with children than among the elderly. Also, some transfer programs are indexed to the price level while others are not, which means that the chain from household attributes to earnings, to type of transfer, to real level of transfer is also affected by inflation rates. To continue the prior example, Old Age, Survivors, and Disability Insurance benefits are now indexed to inflation while benefits from Aid to Families with Dependent Children (AFDC) are not.

This section discusses the effect of macroeconomic and demographic factors on the level and trend of poverty. The role of income transfer policy is only briefly noted and is taken up in the discussion of the impact of public policy on inequality and poverty in the twentieth century.

1965 to 1990. Other chapters have discussed the trend in economic activity since the current official poverty line was developed. Here we need only a few stylized facts. From 1965 to 1973 growth was rapid and inflation moderate. From 1973 to 1982, growth was negligible, unemployment high, and inflation explosive (relative to U.S. experience). From 1982 to 1990, growth and inflation were both modest, and unemployment declined from its 1982 peak. From these facts alone we would expect the poverty rate to fall during the first period, rise during the second, and fall during the third.

And so it did, although it fell less in the 1980s than previous experience might have led one to expect.

During the fifteen years following President Johnson's 1964 declaration of war on poverty, rising real incomes flowing from economic growth accounted for much of the decline in poverty. Higher market incomes lowered poverty rates for almost every type of family. Among nonwhite, two-parent families with children it fell sharply from 41.2 to 17.9 percent, and among white, two-parent families with children it fell from 10.6 to 7.9 percent.

The responsiveness of poverty to economic growth (the "trickle down" effect) declined after the 1970s. Blank (1991) shows that a 1 percent rise in real GNP was associated with a 2.5 percent decline in the poverty rate in the 1960s, but with only a 1.7 percent decline during the 1983-1989 expansion. The primary cause was declining real wages in the bottom two deciles of the income distribution. In terms of Figure 1, the widening of the income distribution largely offset the poverty-reducing impact of a rightward shift in its mean. Thus, despite modest growth, the 1989 pretransfer poverty rate was 19.9 percent, compared to 19.1 percent ten years earlier.[24]

The main demographic changes since 1965 were continuations of trends begun at least as early as World War II. These were the rising proportion of households that contained either a single person or a single mother with children, or were headed by the elderly. Because such households were generally poorer than average, their relative increase retarded progress against poverty throughout the 1965-1990 period.[25] Blank (1991) estimates that these demographic shifts raised the poverty rate by 0.9 percentage points between 1963 and 1969, by 1.4 points between 1969 and 1979, and by 0.5 points between 1979 and 1989.

The poverty-reducing effectiveness of income transfer policy, like that of economic growth, waxed and waned between 1965 and 1990. During the first half of the period cash transfers rose in real terms, and during the second half they fell. The exception during the second half was transfers

to the elderly, which were indexed to inflation. Thus the relative fortunes of the elderly continued to improve during the 1980s.

1900 to 1965. The two decades following World War II were ones of modest growth. Inflation rates were high judged by earlier periods, but were merely a hint of what was to come. Other things equal, one would expect the incidence of poverty to decline rather slowly, as it did. This decline was even slower than one might have expected, however. The elderly were growing in importance and increasingly living apart from their children, while Social Security benefits still left many of them below the poverty line. The proportion of single-parent households edged upward. Benefits under the AFDC program were beginning their historic rise, but the effect this had on poverty rates was more than offset by the increased proportion of households headed by a single mother.

Prior to 1947, the only poverty rates we have are the ones we constructed, which simply reflect the growth of mean income from 1900 to 1947. Growth is certainly not the whole story behind the ups and downs of the actual poverty rate, but it is most of it. Perhaps the most important omitted factor is overall inequality; during periods of increasing inequality, the actual poverty rate probably rose more (or fell less) than Figure 3 suggests. Demographic factors that affected the trend in poverty rates after WWII, such as changes in the proportion of single-parent or elderly households, were much less important between 1900 and WWII. Similarly, public transfers to the poor were too limited during the first four decades to have had much effect on the poverty rate.

PART 3: PUBLIC POLICY AND THE DISTRIBUTION OF INCOME

Governments have pervasive effects on the income distribution. Regulation, counter-cyclical fiscal policy, deciding whether to invest in education or roads, whether to restrict imports by using tariffs or quotas, whether to set transfer levels for the elderly poor at the county or federal level, and

many other policy choices affect the distribution of income and the incidence of poverty. We could not possibly consider all the various influences of government policy on the distribution of market incomes. What we can consider, albeit roughly, are the consequences following rather directly from the taxing and spending behavior of the government: the effect of the fisc. Included in the fisc are transfers both to individuals and firms. Among transfers we include in-kind transfers such as food distribution programs but not in-kind taxes such as imprisonment, simply because this is the convention and to right it here would be too difficult. We can consider the size of interest payments due to public deficits, but not the effects of a Federal Reserve policy of tight money. In brief, we can evaluate the roles of transfer payments, taxes, changes in the relative importance of government spending categories, the size of government relative to the private sector, and the size of the federal government relative to state and local governments. Our purpose is not to evaluate government as a driver of observed trends nor to detail a record of responses to those trends. We have the less ambitious aim of reporting whether public policy has complemented or counteracted how market forces have affected the levels of poverty and inequality.

Changes in the Fisc since World War II

The post-World War II period is basically all of one piece until 1982, when the Reagan administration altered the prevailing trends. To understand the factors affecting inequality, the following stylized facts suffice. First, government grew at all levels relative to the private sector. Expenditures grew more rapidly than revenues, and so public debt grew. Between 1950 and 1987, the ratio of all government revenues to GNP rose from 23.1 to 37.1 percent, while the ratio of public debt to GNP grew from 33.4 to 67.9 percent.[26] Second, the federal government expanded relative to state and local governments, but more on the revenue than the expenditure side. Grants from the federal government to the states expanded dramatically, as did other transfers from higher- to lower-level governments, particularly from federal to municipal governments. The Carter administration

slowed this growth trend; the Reagan administration succeeded in reducing federal grants to states.

Third, cash and in-kind transfer programs grew relative to government purchases of goods and

services, particularly relative to defense (except in actual war periods). Finally, social insurance

transfers (transfers to the elderly, primarily) grew most rapidly of all, and there were some periods of

rapid growth in needs-based transfers until about 1974.

Impact of the Fisc on Inequality since World War II

Despite these substantial changes in the level and composition of government spending, over

the whole of the post-World War II period the fisc has not produced a detectable trend in inequality.

It has, however, affected the level of inequality. Distributions that explicitly allocate the entire fisc to

households are significantly closer to equality than those based only on market-generated incomes.

Reynolds and Smolensky (1977, p. 67) find that the net effect of the fisc reduced inequality by 17

percent in 1950 and 24 percent in 1978. There are no subsequent empirical studies of the

distributional impact of the fisc at all levels of government, but several investigations have concluded

that, on a priori grounds, there is little reason to suspect significant change since 1970.[27]

In any given year, the progressivity of the tax structure and, especially, transfer benefits has

been the principal factor affecting inequality. This is as true now as in 1950: the gradual erosion of

income tax progressivity since then has been offset by rapid growth in transfer benefits, particularly

to the elderly.

There has been much speculation about the redistributive consequences of the dramatic

changes in the composition of the fisc during the Reagan era. Analysts generally conclude that the

impact was, at most, modest.[28] The regressive effects of changes in tax policy offset generally

progressive changes on the expenditure side. Government expenditures are more equally distributed

than private expenditures, which means that the vast Reagan budget deficits worked to reduce

inequality, even after one takes account of the subsequent increase in interest payments. The

continued rise in the ratio of government to private expenditures, despite the Reagan administration's struggle to achieve the opposite, also worked to reduce inequality. The increase in defense spending tended to reduce inequality, according to conventional analyses of the fisc, because the benefits of a public good are more equally distributed than is cash income. Social Security programs, including Medicare, continued to expand rapidly. These equalizing changes offset the more visible regressive changes on the tax side: reduced progressivity of the income tax, growth of the regressive social security tax, the virtual demise of progressive taxes on estates and corporate profits, and increases in state and local revenues, particularly by means of user charges, which are less progressive than federal taxes.

Antipoverty Policy since World War II

In evaluating the antipoverty effects of the fisc, we consider only transfers that are close substitutes for consumer purchases (e.g., food and housing). There is no accepted approach for assessing how an individual's poverty status is affected by public spending on such things as highways or defense, and we do not propose to correct this deficiency.

The impact of the fisc on poverty has been much more important than its impact on inequality. In the United States, poverty had traditionally been the responsibility of local, particularly county, governments. The Social Security Act of 1935 created what eventually became the most powerful antipoverty programs: Old Age and Survivors Insurance (OASI) for the elderly, unemployment insurance for the jobless, and Aid to Dependent Children (ADC) for needy children without fathers. These programs clearly laid the foundation for a social safety net, though they were not explicitly called "antipoverty" programs. Disability Insurance was added in 1956 (hence OASI became OASDI). These programs established two federalist models that became precedents for other programs. OASDI is federally administered and funded. ADC (now AFDC) is jointly funded and regulated by federal and state governments, and administered by state or county agencies. They also

created another important dichotomy that has persisted: AFDC is means-tested (benefits depend on current income and assets) while OASDI is not.

Before 1972, OASDI benefits were repeatedly raised in real terms. In 1972 they were indexed to inflation with the intention, ironically, of slowing the growth of benefit levels. AFDC's real benefit levels grew rapidly between 1965 and 1970, and participation in the program by single mothers with children continued to rise until 1973. Since 1970 state legislatures have not raised benefit levels enough to keep up with inflation, virtually eliminating AFDC's antipoverty effectiveness.[29]

The enactment of the Economic Opportunity Act of 1964, which created the Office of Economic Opportunity (OEO), ushered in an explicit antipoverty role for the federal government. Its modest initial appropriation of $800 million was spread over a large number of programs such as the Community Action Program, Head Start, Upward Bound, Legal Services, Neighborhood Youth Corps, Job Corps, and VISTA. As their names suggest, these programs sought to reduce poverty not through short-term handouts but through training and empowerment programs that gave a "hand up."

Though the programs begun by the OEO received much attention and generated heated controversy, their funding has always been modest and they have always accounted for a tiny share of government social welfare expenditures. After 1964 quieter but far more consequential growth occurred in both cash and non-cash income support programs. In 1974 Supplemental Security Income (SSI) replaced state-funded needs-tested aid to the aged, blind, and disabled with a federally funded, federally administered program with a uniform, indexed minimum benefit. Congress enacted the earned income tax credit in 1975 to provide refundable tax credits to low-income families with children. Food stamps, a minor program available to few families and costing only $36 million in 1965, expanded nationwide by 1974. By 1980 outlays were 110 times higher in real terms, and amounted to 0.37 percent of GNP; in 1990, they were still 0.33 percent. Medicare and Medicaid

were enacted in 1965. In 1980, outlays were 1.9 percent of GNP; in 1990, 3.3 percent.[30]
Means-tested housing assistance and nutrition programs also grew substantially.

Public policy since 1950 has generally reinforced the effects of macroeconomic trends on the
poverty rate. During the 1940s and 1950s, the emergence of the affluent society sharply reduced the
incidence of poverty, as we have seen. OASI benefits, which began in 1940 and grew substantially
between 1950 and 1960, reinforced this trend. For example, between 1950 and 1960 the average
Social Security benefit rose from 57 to 81 percent of the poverty line (Smolensky, Danziger, and
Gottschalk, 1988, p. 44).

Between 1965 and 1978, rising market incomes lowered the poverty rate by 2.8 percentage
points. Again public policy and market forces were mutually reinforcing: Increased coverage and
higher benefit levels of cash transfers further lowered the poverty rate by 3.0 points. In 1965, cash
transfers pulled 27 percent of the pretransfer poor out of poverty; by 1978, that figure had risen to 44
percent (Danziger, Haveman, and Plotnick, 1986, pp. 68-69).

From 1979 to 1990, public policy contributed strongly to the slowness of progress against
poverty. The decline in real wages in the lower tail of the distribution was compounded by a decline
in real AFDC benefits and stricter eligibility rules for AFDC and unemployment insurance. Thus, by
1989, cash transfers were taking only 36 percent of the pretransfer poor out of poverty (Committee
on Ways and Means, 1991, p. 1164).

Public Policy and Inequality before World War II

If the net effect of the fisc has been to reduce inequality by 15 to 25 percent each year since
World War II, the question naturally arises as to when that wedge was driven between market-
generated inequality and post-fisc inequality. Our best guess is that it occurred during World War
II.[31] Consider the three factors determining the size of the wedge: the size of government relative
to the private sector, the distribution of expenditure benefits, and the distribution of tax burdens.

From the perspective of their potential impact on inequality, three important changes in these factors occurred during the first half of the century. First, in the 1920s the ratio of government spending to GNP doubled to around 12 percent, driven by growth in education expenditures at the state and local levels. Second, this ratio rose to 20 percent during the 1930s with increased spending on agricultural programs and for welfare and other relief. Finally, the federal income tax was established during World War I and became much more significant during World War II.

These major changes in the level and composition of the fisc worked to reduce inequality. The progressivity of the tax system, an important factor after 1950, was either irrelevant (in most years) or an increasingly equalizing force (during World War II). In 1950, the relative size of government, the progressivity of the income tax, and transfers to agriculture were primarily responsible for the wedge between pre- and post-fisc inequality; by 1970 the importance of income tax progressivity and transfers to agriculture were vastly outweighed by transfers to the elderly (Reynolds and Smolensky, 1977).

Government was too small to matter before the 1920s and barely large enough to matter during the 1920s. Thus, as with the pre-fisc income distribution, we are left with some uncertainty whether the increase in the distributional importance of the fisc occurred near the end of the Depression or during World War II. The dominant effect of the income tax in the 1950 data suggests that the change took place during the war years.

Antipoverty Policy before World War II

Before World War II, means-tested transfers were confined to "relief" payments and aid to "paupers." Then as now, transfers appeared to have changed in response to, and in the same direction as, cyclical fluctuations in the market. And then as now, popular interest in helping the poor appeared to have been associated with periods of economic optimism, such as the 1920s.[32] However, the fraction of government resources aimed at alleviating poverty was probably never large

enough to have a significant impact on the poverty rate, with the possible exception of a brief period during the Depression.

In 1929, direct transfers to persons from all levels of government were a mere 1 percent of GNP.[33] Four-fifths of that consisted of veterans' benefits and pensions to retired government employees. Direct relief was only a twentieth of the total. By 1940, direct transfers to persons had risen to 3.2 percent of GNP. (This partly reflects a 6 percent decline in GNP itself, though). Veterans' benefits and government pensions were only a third of the total, while the share of GNP going to direct relief (including the new ADC program) had grown twentyfold, to 1.2 percent, even though the Roosevelt administration had begun, in 1935, to move away from cash relief toward social insurance and work relief.

Clearly government responded to the poverty induced by the Great Depression, but it seems likely that the response did little to reduce the poverty rate. The social insurance and relief programs of 1935, while large compared to what preceded them, were too small to be effective. For purposes of comparison, direct transfers to persons in 1970 (by local, state, and federal governments) were about 8.2 percent of GNP. In a time when minimum subsistence was thought to be around $100 per month ($115 by the deflated 1964 official poverty line), the most generous program of the time--the Works Progress Administration--was only paying about $55 per month. No other program paid even half as much (Patterson, 1986, pp. 63-64). Today, OASDI benefits are about 134 percent of the poverty line.

The direct contribution of government transfers to poverty reduction, then, was quite small in 1939, negligible in 1929, and according to the rough estimates of Patterson, only half as large in 1913 as in 1929. "The federal government spent no money on relief in 1929, except for Indian wards, seamen, veterans, and some institutions and the states persisted in opposing outdoor assistance" (Patterson, p. 29). "Outdoor assistance" transferred cash, food, and fuel to poor people

living on their own, the alternative being police stations, foster institutions, and almshouses. In 1923, there were still 2,046 almshouses in the country, with custody of 85,899 inmates (ibid.). In 1914, total welfare spending, public and private, amounted to 0.45 percent of GNP. Contemporary observers appear to have been much impressed by the one-third increase in welfare spending in relation to GNP between the end of World War I and the onset of the Great Depression (Patterson, p. 28). It seems unlikely, however, that the increase took many persons out of poverty.

PART 4: ROBUSTNESS ISSUES

How robust is our story to alternative ways of measuring poverty and inequality? Their measurement has become something of a specialty in the past twenty-five years. The resulting literature clearly demonstrates that, in a given year, the level of poverty or inequality and the demographic composition of the poor are sensitive to choices about the index of economic well-being, the recipient unit, the length of accounting period, the inequality measure, or absolute versus relative definitions of poverty (see Taussig [1973], Ruggles [1990], and Coulter, Cowell, and Jenkins [1991]). But are long-run trends that are large enough to catch the interest of economic historians likely to be sensitive to subtle refinements in measurement? We conclude that they are not. Our conclusion rests mainly on research using post-1965 data, for earlier data are too sparse to allow many measurement refinements. Thus we have more confidence in our assessment of the past three or four decades than in that of the first five.

Consider first the measurement of economic well-being. Cutler and Katz (1991) find that using total expenditures or consumption to gauge well-being, rather than the usual measure of pretax, posttransfer money income, has little effect on the trend in poverty or inequality between 1960 and 1988. Similarly, including capital gains or public in-kind transfers in the definition of income does not alter the picture (see Blinder [1980] on capital gains, and Smolensky et al. [1977], U.S. Bureau of

the Census [1982], or Danziger, Haveman, and Plotnick [1986] on in-kind transfers). Although we have little information about private in-kind income, we speculate that its inclusion would dampen but not offset the mid-century decline in inequality. Because private in-kind income is more important in rural areas, including it would lower inequality, and the gradual contraction of the farm sector would therefore exert gentle upward pressure from this source on the overall trend in inequality.

Adjusting income for cost-of-living differences across income classes reinforces trends in inequality during the first half of the century, according to Williamson and Lindert (1980). During the post-war period, the distributional effect of price changes appears to have been neutral (Blank and Blinder, 1985).

Another possible income adjustment would be to include fringe benefits. Since World War II, fringe benefits have risen steadily as a proportion of overall compensation, especially for well-paying jobs. We know fringe benefits are highly correlated with cash earnings, but we do not know whether they are more or less evenly distributed than earnings or how their distribution has changed. Our best guess is that including fringe benefits would have little effect on trends in either inequality or poverty.

Adjusting income to reflect wealth (by converting the stock of wealth into a flow and adding it to current income) increases inequality (Taussig, 1973) and lowers the poverty rate (Danziger et al., 1984) but does not significantly alter the long-term trend in either. This is because wealth holdings are closely linked to income, the main determinant of poverty rates, and because the pattern of wealth inequality broadly matches that of income inequality. Wolff and Marley (1989) report that the concentration of wealth was highest in the 1920s and 1930s, fell substantially in the 1940s, and was roughly constant from 1949 to 1969. Unlike income inequality, wealth inequality declined during the 1970s. It rose by 1981 but was still below its 1949-1969 level.

Adjusting income to reflect the recipient unit's needs (which are mainly a function of family size and composition) has little effect on the trend in the poverty rate (Ruggles, 1990). Karoly (1993) finds similar patterns of inequality from 1965 to 1989 whether she uses family income or income divided by the appropriate official poverty line. There appears to be no research on how adopting an index of need other than that implicit in the official poverty lines might alter the trend in inequality in the United States. Jenkins (1991a) finds that a different index of needs does not alter conclusions about the British pattern of inequality during the 1970s and 1980s. We surmise the same would be found for the United States.

One must also settle on a recipient unit. It is typically the household, the family (which may include unrelated individuals as one-person families), or the individual. For analyzing trends in poverty or inequality, it hardly matters which is used. Poverty rates for families and for persons are almost perfectly correlated over the 1959-1990 period (r=0.999). Inequality rose since 1967 regardless of whether the unit is families or families plus unrelated individuals, and whether each unit has a weight of one or a weight equal to the number of persons in it (Karoly 1993). The availability of tax data suggest the tax-filing unit as another recipient analysis. Berliant and Strauss (1991) find little trend in inequality among tax-filing units from 1966 to 1979 and a sharp increase thereafter. The timing in the tax series differs only slightly from that for families or households.

The accounting period may also matter. Given the vicissitudes of economic life, the lumpiness of income, and systematic life-cycle differences in income, the level of inequality or poverty depends partly on the period over which income is measured.[34] As Blinder (1980) observes, however, our choice of accounting period will distort our reading of poverty and inequality trends only if life-cycle effects or the variability of income has changed over time. We have no evidence that either has changed.

The broad pattern of income inequality since 1950 also appears to be independent of which summary measure of inequality one uses. We deduce this by comparing Lorenz curves.[35] The Lorenz curves of the income distributions of the late 1980s are everywhere below the curves for the mid-1970s, which in turn are everywhere below the curves for the late 1960s. The curves for the late 1960s lie closer to the diagonal than those of the 1940s or 1950s. Thus almost any summary measure of inequality will show that inequality was lowest in the 1960s, began to rise in the 1970s, and continued rising during the 1980s.

We cannot make a similar claim for poverty trends. A variety of poverty measures go beyond the standard incidence rate (Foster, 1984), but to the best of our knowledge no one has produced a poverty time series for the United States based on these more esoteric measures.

Finally, one could choose a relative definition of poverty instead of an absolute one. A relative poverty line (e.g., half of median family income) rises in step with the standard of living, reflecting the notion that the poor are persons with living standards far below average who are therefore excluded from mainstream political and social life. Because such a measure responds to changes in the lower tail of the income distribution, it is essentially an inequality measure, albeit a crude one. Thus trends in relative poverty can be expected to resemble trends in inequality, and in fact they do (U.S. Bureau of the Census, 1991b).

PART 5: SUMMARY

In broad terms, the chronology of inequality is this: High and rising during the first three decades, it peaked at the worst of the Depression; fell gradually as America climbed out of the Depression; and then fell abruptly as America plunged into World War II. After World War II inequality remained at its lower level until around 1970. During the 1970s it began creeping upward,

and during the 1980s it shot upward, returning to its pre–World War II level. Whether inequality will reach its 1920s level remains to be seen.

What caused these trends and cycles in the level of inequality? Beyond the rhythm associated with business cycles (including the Great Depression), we propose three broad sets of explanatory factors: the distribution of growth across sectors, demographic changes, and World War II.

Unbalanced growth is associated with rising inequality. During the first two or three decades of this century, the sectors of the economy that already paid higher wages (industry) were experiencing greater productivity gains than the low-wage sectors (primarily agriculture), thereby enlarging the earnings gap between skilled and unskilled laborers. Similarly, the rise in wage inequality since 1970 has coincided with uneven sectoral growth, as manufacturing has contracted while the service sector has expanded. One cause of "deindustrialization" is increased competition from abroad. Another, perhaps related cause is technological change, which, as in the early part of the century, appears to be concentrated in the industries that are already the most technologically advanced and already employ a higher proportion of skilled workers. Both factors have reduced the relative demand for less-skilled workers.

The decline in inequality between 1930 and 1950 coincided with the convergence of sectoral growth rates as agriculture experienced faster productivity gains and employed a rapidly shrinking share of the total labor force. The 1950-1970 period of stable inequality was a period of fairly balanced sectoral growth.

The most important demographic changes have been fluctuations in the supply of skilled labor. Increases in the relative supply of college-educated labor have roughly coincided with periods of smaller wage gaps between skilled and unskilled workers, and hence lower inequality. During the 1950s and 1960s, when the supply of college graduates rose steadily, inequality stayed low, and during the late 1970s and the 1980s, when the relative supply of college graduates fell, inequality

rose. Similarly, during the first few decades of the century, and again in the 1980s, immigration
helped keep unskilled wages low.

The third major element of our story is World War II, which appears to have been associated
with a rather durable downward shift in inequality. The war effort sharply increased the demand for
unskilled labor, sopping up unemployment and raising wages at the bottom of the civilian pay scale.
After the war, demand for unskilled labor remained high as the United States re-equipped Europe and
benefited from Europe's absence from world markets. Thus WWII and its aftermath set the stage for
two decades of steady growth. Together with continued demand for American goods, the
combination of union strategy and bargaining power and technological change helped sustain the
relatively high wages for unskilled labor.

Our story about poverty rates is much simpler: Over the long term, economic growth has
unambiguously reduced poverty. Although the data do not allow us to be precise about the poverty
rate in a given year during the first half of the century, the long-term trend in the incidence of
poverty was clearly negative. For the second half of the century we can securely assert that for
poverty to decline, mean income had to rise. The story needs to be refined somewhat by noting that
increasing inequality can slow or offset the reduction in the poverty rate produced by rising mean
income, as the 1970s and especially the 1980s illustrate. Also, beginning at least as early as World
War II, a rise in the proportions of single-mother families and of elderly families living independently
has generally retarded progress against poverty.

Public policy has shaped more than it has been shaped by the patterns of inequality and
poverty. The impact of public policy has been to reduce the market-generated level of inequality in
any given year, but since 1950, public policy has had little to do, it seems, with the trend in
inequality. Prior to 1950, the growth of government, particularly the introduction of the universal

income tax during World War II, coincided with (and partly produced) the sharp downward shift in inequality of that era.

Government had little effect on poverty rates during the first half of the century. Public programs transferring income to the poor were very small compared to the programs of the second half of the century, which did reduce poverty rates appreciably. Some may find it paradoxical that since World War II, when it has been on a large enough scale to matter, public policy has tended to reinforce rather than offset market outcomes. Transfer levels rose during the 1950s and 1960s, when economic growth was most effective in lowering the poverty rate, and fell during the 1980s, when the bottom fifth of the population was not sharing in the nation's modest economic growth.

41

APPENDIX A: The Time Trend in Inequality, 1947-1989

For the period 1947 to 1989, we regressed four different indices of inequality on a constant, time trend, unemployment, and inflation. The inequality indices were the shares of income going to each of the lowest two quintiles, Q1 and Q2 (for "families and unrelated individuals," in Census Bureau terminology), and a Gini ratio and a Theil statistic, both computed from income quintiles for families (again, for "families and unrelated individuals"). Income was posttransfer, pretax money income. Unemployment was the official civilian unemployment rate, and inflation was the annual percentage change in the official Consumer Price Index (the Census Bureau's CPI-U index).

In the initial specification, the explanatory variables were a constant, a linear time trend, unemployment, and inflation. Corrected for first-order serial correlation, all coefficients were statistically significant, and the time trend was very slightly upward. Unemployment increased inequality, and inflation lessened it.

To consider nonlinear effects, we then added time squared. Corrected for first-order serial correlation, the regression's explanatory power was markedly higher and all coefficients were significant. The coefficients on time and time squared were of opposite sign, and described the same sort of trend for each of the inequality measures: falling inequality for the first half of the period and rising inequality during the second. The regression results are summarized below (t-statistics are in parentheses).

To further test the idea that the 1947-1989 period contained two quite distinct subperiods, we regressed the inequality measures on a constant, a dummy for post-1967, time, the dummy interacted with time, and unemployment. The results were independent of which inequality measure was used: all estimated coefficients were significant and implied twenty years of falling inequality followed by twenty years of increasing inequality.

TABLE A.1

Inequality Measure	Explanatory Variables					R^2 (adjusted)
	Constant	Time	Time squared	Unemploy-ment	Inflation	
First specification:						
Q1	6.17 (10.5)	-.0295 (1.7)	--	-.0614 (3.5)	.0408 (4.1)	0.51
Q2	13.90 (5.8)	-.0675	--	-.0659 (3.5)	.0227 (2.1)	0.57
Gini	.389 (37)	.0010 (3.3)	--	.0026 (3.4)	-.0013 (2.9)	0.49
Theil	.0995 (17)	.0006 (2.3)	--	.0016 (3.6)	-.0008 (3.3)	0.53
Second specification:						
Q1	4.41 (23)	.0968 (5.1)	-.0020 (5.6)	-.0711 (4.2)	.0354 (3.2)	0.69
Q2	12.33 (91)	.0413 (3.1)	-.0017 (6.6)	-.0657 (3.9)	.0288 (2.6)	0.89
Gini	.4336 (79)	-.0029 (6.2)	.8E-4 (6.8)	.0026 (3.7)	-.0015 (3.3)	0.76
Theil	.1264 (44)	-.0018 (7.5)	.5E-4 (8.0)	.0015 (4.0)	-.0010 (4.0)	0.80

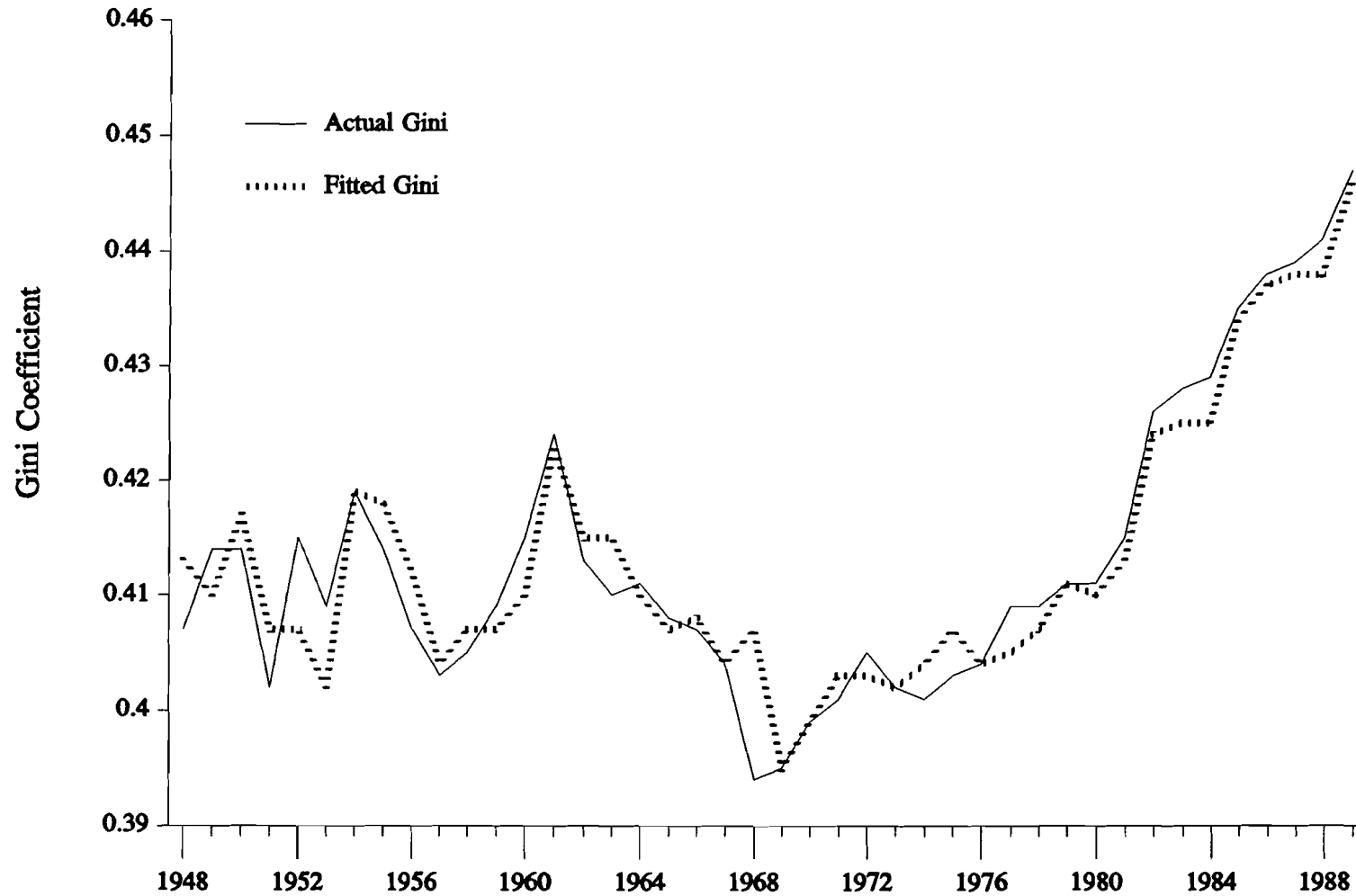## APPENDIX B: Projecting a Gini Series, 1913-1946

Our first step was to estimate, for the 1947-1989 period, the relationship between inequality

and unemployment and the income share of the top 5 percent. For inequality, we used the Gini ratios

reported in the U.S. Census Bureau's *Current Population Survey* (P-60, No. 168) for 1967-1989, and

those computed by Danziger and Smolensky (1977) for 1947-1966. Income is posttransfer, pretax

income, and the income share of the top 5 percent of families was taken from the Census Bureau's

CPS P-60, Nos. 167 and 168. Unemployment was the official civilian unemployment rate.

We regressed the Gini ratio on a constant, unemployment, the income share of the top 5

percent, and a dummy variable for pre-1967 (where we joined the two Gini ratio series). The

regression results, corrected for first-order serial correlation, are reported below (t-statistics are in

parentheses). Figure B.1 shows the actual and the fitted Gini ratios for 1948-1989.

Dependent Variable	Explanatory Variables				
	Constant	Share of top 5 %	Unemploy-ment	Pre-1967 Dummy	R^2 (adjusted)
Gini	.244 (9.6)	.0078 (5.8)	.0018 (3.3)	.046 (11)	0.83

The next step was to use this estimated relationship, together with data on unemployment and

the income share of the top 5 percent, to compute Gini ratios for the 1913-1946 period (see Figure 2).

Figure B.1

Actual and Fitted Gini Ratios, 1948-1989

Sources: 1948-1966 from Danziger and Smolensky (1977, p. 112); 1967-1989 from U.S. Bureau of the Census (1990b).

APPENDIX C: Projecting a Poverty-Rate Series, 1900-1946

Given real per-capita personal income and assuming that personal income is lognormally distributed with unchanging variance, we computed the fraction of the population with incomes below the official poverty line.

We first converted per-capita personal income data (from U.S. Bureau of the Census [1975], pp. 224-25, 301) into constant dollars using the consumer price index. Using quintile data, we obtained a crude estimate of the variance of the logarithm of family personal income in 1947. Assuming this variance was a good proxy for the variance of individual personal income, we derived mean log income from mean income for each year using the following formula (which holds for any lognormally distributed variable):
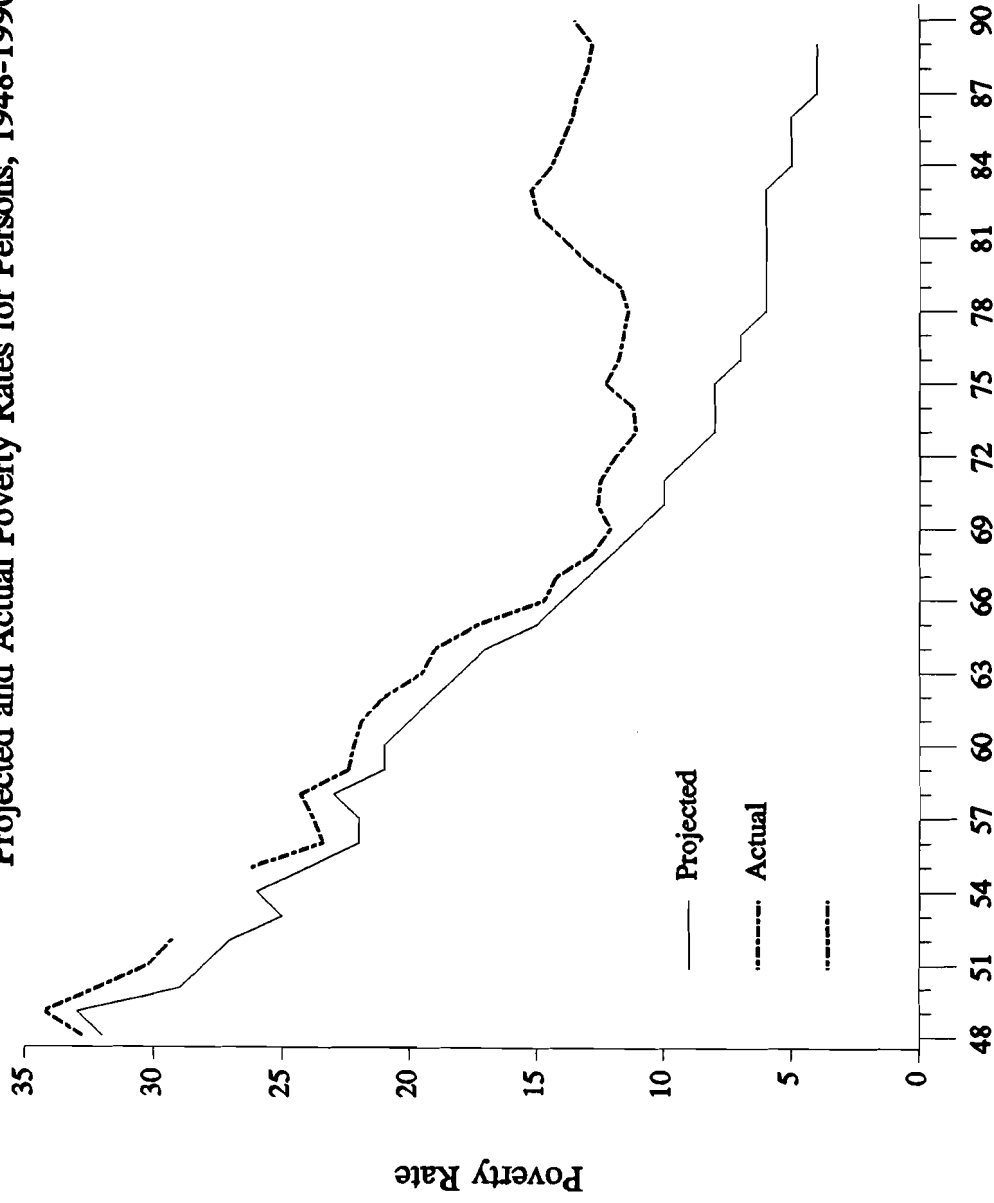
$$\text{mean logY} = \log(\text{mean Y}) - 0.5[\text{var(logY)}].$$

In 1947, 32 percent of persons were poor according to the official measure. The official poverty line, however, is defined in money income rather than personal income. We computed the level of personal income that would leave 32 percent of the population poor in 1947 if personal income were lognormally distributed, and took that level as our poverty line. This poverty line, together with mean log income for each year, permitted us to compute poverty rates for the years 1900-1946 (see Figure 3).

To judge the accuracy of this method, we projected poverty rates for 1948 to 1989 and compared them to actual poverty rates. As Figure C.1 shows, the prediction is reasonably good until 1970. Starting in 1970, actual poverty rates stayed significantly higher than the predicted rates. The gap increased in the 1980s. This underprediction mainly reflects the error introduced by our assumption of unchanging variance. Income inequality rose during the 1970s and especially the 1980s. Because income was more unequally distributed in the early part of the century than in 1947,

Figure C.1

Projected and Actual Poverty Rates for Persons, 1948-1990

Poverty Rate

35

30

25

20

15

10

5

0

48 51 54 57 60 63 66 69 72 75 78 81 84 87 90

Projected

Actual

Sources: Poverty rates for persons, 1948-1958, from Fisher (1986); 1959-1990 from U.S. Bureau of the Census (1991a).

our estimated poverty rates for the early period are probably on the low side. This is borne out in comparisons to estimates derived by different methods. Smolensky (1965) estimates that 59 percent of families were poor in 1929. Our estimate is 52 percent of persons (hence several percentage points lower for families). Because he uses a poverty threshold slightly higher than ours, he is likely to estimate a higher poverty rate. Thus the difference partly reflects the sensitivity of poverty rates to the choice of threshold, especially when the threshold is in a dense section of the income distribution. Tobin (1967), using a poverty threshold slightly lower than ours, however, estimates that two-thirds of families were poor in 1918, which is still higher than our estimate of two-thirds of persons (again, several points lower for families).

Notes

[1]See, for example, The New York Times, May 26, 1991, p. E2.

[2]See Blinder (1980), for example.

[3]Some examples of this literature are Metcalf (1969), Thurow (1970), Beach (1977), and Blinder and Esaki (1978).

[4]Appendix A discusses the regression analysis in greater detail.

[5]We cite Karoly because, in addition to demonstrating that the reported rise in inequality is not merely an artifact of a particular choice of measure, her unusually thorough work summarizes some of the commonly cited studies of U.S. income inequality and resolves many of their seemingly conflicting conclusions.

[6]The principal source for data on income shares of the top 1 and 5 percent is Kuznets (1953).

[7]These figures are based on the work of Kuznets (1953), who ranked taxpaying units by income per person.

[8]See, for example, Bronfenbrenner (1978) on the first issue and Heilbroner (1974) on the second.

[9]Three variables (a constant, unemployment rate, and the top 5 percent's income share) account for 83 percent of the fluctuation in the Gini ratio for the 1947-1989 period. Appendix B summarizes the regression analysis.

[10]According to Williamson and Lindert, the share of income going to the top 5 percent of employees (which peaked at the height of the Depression) returned to its 1929 level in 1940. This suggests that 1929 and 1940 were similar in terms of inequality and is consistent with the modified chronology.

Williamson and Lindert also report skilled/unskilled wage ratios, which partially reflect change in the lower end of the income distribution. Like their other measures of inequality, these

ratios decline after 1929, suggesting that inequality declined throughout the Depression. However, such ratios ignore the misfortune of the unemployed. The high unemployment of the 1930s implies that wage ratios understate inequality during those years.

[11]This has not always been true with respect to immigration. During the first half of the nineteenth century, immigrants to the United States were generally as skilled as earlier settlers. But during the twentieth century, most immigrants have been less skilled. In 1980, for example, 30 percent of native-born Americans had less than a high school education, compared to 47 percent of immigrants (Borjas, Freeman, and Katz, 1991).

[12]Katz and Revenga (1989) is an example. See Levy and Murnane (forthcoming) for a survey of work in this area.

[13]The slower growth of Denison's index during 1948-1969 reflects the entry of lower "quality" female workers, so its consistency with the record of inequality during 1948-1969 does not contradict the prior paragraph.

[14]Usually, a father's standard of living rises after divorce and that of mother and children falls (Weitzman, 1985; McLanahan, 1989).

[15]If living on their own improves the well-being of both the elderly and their children, then conventional inequality measures mislead us by implying that this shift in living arrangements reduced well-being when in fact well-being improved.

[16]See Bamezai (1989) or Grubb and Wilson (1989).

[17]See Smolensky (1963), for example.

[18]Because cyclical conditions influence union strength as well as inequality, we may be observing a spurious relationship. However, Freeman's and other findings strongly suggest that unions matter, ceteris paribus.

[19]See Fisher (1992) for a detailed discussion of federal poverty thresholds.

[20]We discuss in Part 4 how moving to a relative poverty line or expanding the concept of income changes the story.

[21]Given real per-capita personal income in each year and assuming that income was lognormally distributed with an unchanging variance, we computed the fraction of the population with incomes below the official poverty line. The estimates in Figure 3 are slightly lower than estimates derived by different methods. See Appendix C for details.

[22]Robert Hunter (1904), cited in Miller (1967).

[23]See Fisher (1988) for brief summaries of research on the income elasticity of the poverty line.

[24]A word of caution about "pretransfer" poverty rates: Strictly speaking, growth in pretransfer income and in transfer income are interdependent, for the level of transfer income affects work decisions. This interdependence probably matters most in the case of the elderly. Between 1965 and 1978, for example, the pretransfer poverty rate among seniors rose from 54 to 56 percent, despite growth in private pension income. This reflects the increased proportion of retirees among the elderly, which is partly a response to higher Social Security benefits.

[25]During the 1980s, the elderly's poverty rate fell below the overall rate. Thus their increased population share actually exerted downward pressure on the overall rate, but the other two demographic shifts exerted stronger upward pressure.

[26]Tax Foundation, *Facts and Figures on Government Finance, 1990 Edition*, pp. 5, 34.

[27]See Quigley and Smolensky (1990), for example.

[28]See Quigley and Smolensky (1990) or Gramlich, Kasten, and Sammartino (1993).

[29]Most AFDC families also receive food stamps and Medicaid. The introduction of food stamps and Medicaid in the late 1960s and early 1970s offset the decline in the cash benefit for several years. Real combined benefits from all three programs have fallen since the mid-1970s (Moffitt, 1990).

[30]Expenditure data from Committee on Ways and Means (1991, pp. 175, 1388, 1415, 1416).

[31]The argument here is from Reynolds and Smolensky (1978).

[32]See Patterson (1986).

[33]Unless otherwise noted, all figures in this paragraph and the next are from the 1973 Statistical Supplement to the *Social Security Bulletin*, p. 36.

[34]The poverty rate is 25 percent higher when based on a monthly rather than an annual accounting period (Ruggles, 1990). According to Hoffman and Podder (1976), a seven-year accounting period reduces the Gini coefficient by 9 percent.

[35]If two Lorenz curves do not intersect, the distribution whose curve lies closest to the diagonal is judged the less unequal, under quite general assumptions about the social welfare function. Most summary measures of inequality will agree with this ranking. Indeed, consistency with the "Lorenz-dominance" criterion is widely considered a necessary property of an acceptable inequality measure. Jenkins (1991b) summarizes the relevant literature.

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