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THREE CENTURIES OF AMERICAN INEQUALITY

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THREE CENTURIES OF AMERICAN INEQUALITY

I. Growth Now–Equality Later?

Is increasing inequality an inevitable byproduct of modern economic growth? Indeed, can the investment requirements of early capitalist development only be satisfied by the surplus generated by rising inequality? Can only the advanced twentieth century economies afford the luxury of egalitarian trends?

Questions such as these have been at the heart of social and economic historical theory since Britain began the Industrial Revolution two centuries ago. The answers are slow in coming and the historical debate over the English worker's standard of living is as hot today as it was in the first half of the nineteenth century when England's Condition was being debated so vigorously. The issue is hardly academic since similar debates have warmed to the boiling point in almost all contemporary Third World nations. Yet, in spite of this long tradition which confronts the "growth now–equality later" issue, quantitative documentation of historical inequality experience remains inadequate. A little progress has been made since Kuznets's [1955] plea to the economics profession some twenty years ago, but a full scale attack on the documentation of historical inequality trends is only now beginning. Make no mistake about it: long-term historical documentation is essential to the formulation and testing of theories of capitalist growth and distribution. Knowing how inequality changed with economic development in the past is an essential step towards judging how closely inequality is linked either to rapid growth or to early stages of development.

United States experience is especially interesting and relevant if for no other reason because of de Tocqueville's famous hope that the New World could somehow avoid the classic conflict between modern growth and income equality, a conflict so painfully obvious in England and the European continent even as early as the 1830s when de Tocqueville made his famous visit to America. What does America's record now reveal a century and a half later?

By sifting through tax lists, probate records, payroll data, and manuscript censuses, a generation of social and economic historians can now supply us with considerable insight into the pre-1929 experience. The outstanding fact is that income inequality has displayed considerable variance since the seventeenth century. There is no eternal constancy to the degree of inequality in total income, in labor earnings, or in income from conventional nonhuman wealth, either before or after the effects of government taxes and spending. Nonhuman wealth steadily became more unequally distributed from the late seventeenth century to the late nineteenth. Income and earnings distributions are much more difficult to document but what data we have suggest no clear trend in earnings inequality from the late seventeenth century to the start of the nineteenth and the onset of modern industrialization. This general stability ended not too many years prior to de Tocqueville's visit. Throughout the antebellum period, starting around 1820, wide earnings gaps opened up, skill premia were on the rise, and wealth concentration accelerated. In short, skilled labor, professional groups, and urban wealth holders prospered much faster than farm hands and the urban unskilled. A

dramatic change in northeastern America's income distribution was largely complete by 1860 or 1880. After the Civil War, earnings and total income inequality fluctuated around historically high levels with one last secular inequality surge, at least in urban America, appearing from the 1890s to World War I. A brief and dramatic levelling of incomes during World War I was erased by the 1920s so that wide inequality was restored by 1929.

The 1920s represent a watershed in American inequality experience. With the appearance of new and far more detailed data, Simon Kuznets and others supplied estimates purporting to show that income inequality dropped dramatically between the late 1920s and the late 1940s.[1] Defenders and critics of capitalism alike picked up this new ammunition, and the perennial debate broke out once again. Arthur Burns viewed this levelling as solid evidence that private enterprise led to a just and equal distribution of economic rewards, and counted the transformation "as one of the great social revolutions of history. . ."[2] Burns was defending only mature capitalism as an income leveller, and even he might concur with the Kuznets conjecture[3] that incomes are equalized only late in the process of capitalist development following long episodes of increasing inequality. This invited the inference that if the poor in developing countries would only be patient ("growth now"), capitalism would eventually become a levelling force ("equality later").

The critics would not even accept this weak and tardy defense of capitalism. In fact some still deny that income has really become more equally distributed. They charge that Burn's "social revolution"

is based on statistical legerdemain. Since the 1920s the rich have become more adept at concealing their incomes. Social statisticians have, in turn, distorted the data even further to produce a false equalization of income. If the truth were known, say the critics, income inequality rises at the onset of capitalist development and fails to reverse thereafter. Furthermore, say the critics, aggregate inequality statistics hide more fundamental distribution indicators. In particular, the critics assert that class pay differentials have not collapsed since the 1920s.[4]

The issue being debated is an important one, even though neither side has answered such basic questions as: Just how unequal is too unequal? Once we reject the simple yardstick of absolute equality, rejected even by the People's Republic of China, then the level of politically acceptable inequality becomes vague. Indeed, injustice is a far more serious problem than inequality to some observers. Such complexities help explain why "No political party has [ever] adopted a slogan of 'A .300 Gini ratio, or fight!'"[5] Still, it is appropriate to debate what has happened if we are to understand why it happened.

When all the necessary adjustments to the raw data have been considered, it still appears that income and wealth were more evenly distributed just before the Korean War than in 1929. The "revolutionary" levelling was indeed as great as Kuznets's data first implied. Furthermore, the levelling in incomes before taxes and transfers was at least as great as the entire equalizing effect of government redistribution, the latter also occurring between 1929 and the Korean War. Income equality has shown little trend since Korea. There has been a slight

postwar trend toward income inequality before, but not after, government taxes and spending.

The entire history of inequality also highlights another important point: Inequality movements have not been the result of mere movements among demographic groups. Rather, they have followed trends in the basic occupational pay gaps as well as the level and dispersion in profit rates and rents. Any long-run income distribution theory must explain why profit rates and the whole factor rent or pay structure itself changes over time.

This essay surveys the detailed evidence that has revealed these broad patterns. It seeks primarily to clarify American inequality history. We pursue the tougher task of explanation elsewhere.[6]

II. Measuring Inequality

Any measure of inequality requires choosing an income concept, a recipient unit, a length of time over which income flows, and a summary statistic for quantifying "overall" inequality. Inequality of what kind of income? Among whom? Over a year or over a lifetime? Is inequality rising or falling when both the top 20 percent and the bottom 20 percent experience the same percentage gains relative to the middle income group?

Economists have revealed just how sensitive our perceptions of inequality are to these conceptual questions.[7] Yet there is more to gain from the available facts than just the knowledge that inequality measurement is a complicated business. Two concepts of aggregate inequality relate especially well to popular intuition, and both

can be traced through the historical data. One is the inequality of the pre-fisc distribution of real income among individuals. If we wish to document how an economy rewards individuals, we need a distributional index based on nominal incomes, before taxes and government spending, including capital gains and imputed rents and deflated by a class-specific cost-of-living index. This concept coincides with common notions of what is meant by the distribution of earning power, although the focus on individual labor force participants is blurred in the data since property incomes are often earned by families or by individuals outside the labor force.

The other workable concept of inequality followed here is the post-government (hereafter post-fisc) distribution of real income per person (or per adult-equivalent consumer unit) among households. This concept reflects our concern with the inequality of living standards after the effects of transfers and taxes have had their influence.

Regardless of the inequality measure one selects, its movements can always be decomposed into three distinct components relating to specific population groups or social classes:

(1) inequality trends due to relative changes in groups' average incomes;

(2) inequality trends due to changes in income inequality within groups; and

(3) inequality trends due to population shifts, or shifts in the shares of the overall population belonging to different groups.

This breakdown is relevant whatever the groups chosen: classes, occupations, age groups, or regions. Such decompositions can also be applied to income by source. For example, labor earnings can be separated from property incomes, so that aggregate inequality trends

can be decomposed into those due to (1) wage-stretching, high profit rates and thus to changes in the relative returns on human and nonhuman assets, (2) changes in human and nonhuman wealth distributions, and (3) shifts in the share of property income (nonhuman wealth) in total income (total wealth).

Decomposing inequality trends into these component parts is valuable for two reasons. First, it supplies additional clues about the sources of inequality change. Any hypothesis aimed at explaining overall inequality must be consistent with the ways in which each of these components has moved. Second, the breakdown serves to isolate those inequality movements that society seems to care about most. Many would be alarmed if increased inequality was explained solely by the fact that the average pay of executives and professionals rose relative to unskilled workers. Indeed, most of the shouting has been about movements in "class" pay rates. Increased inequality within groups may also generate social concern. We tend to get less excited, however, about movements in inequality produced by mere population shifts. For example, rising inequality might be viewed as spurious if it resulted merely from a voluntary shift in population from large-family households to separate living quarters for individuals and couples, or from the migration of workers off the farm. It is important, therefore, to separate true changes in pay structure from mere population shifts.

What follows is a historical chronology of inequality episodes. These long period phases are delineated notably by apparent changes in trend but, alas, also by changes in data availability. Each period

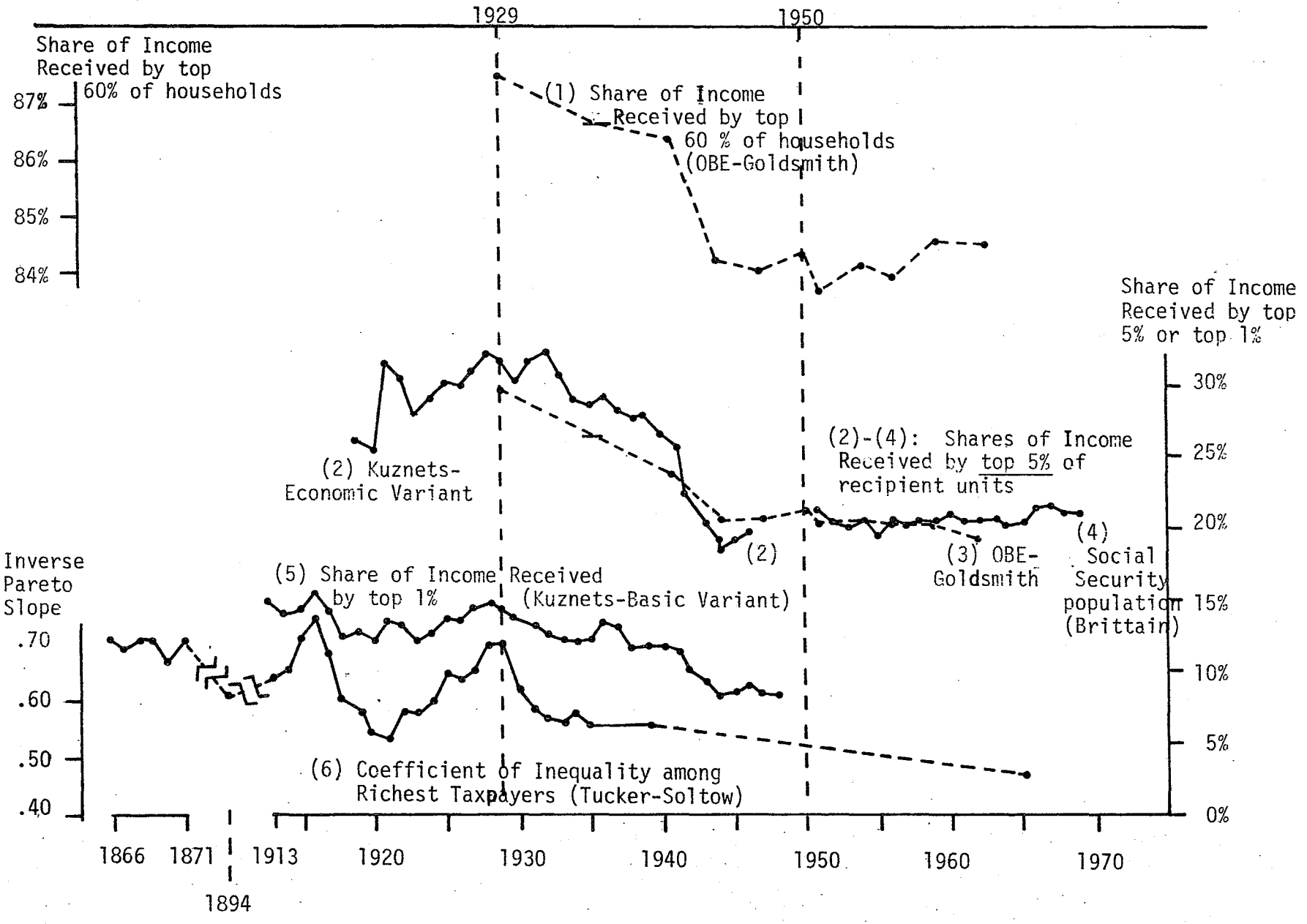
is introduced with an examination of the available inequality indicators. Each section also compares inequality movements with shifts in occupational pay ratios to judge the extent to which inequality changed because of a shift in the pay structure itself. Our chronology starts with the more abundant contemporary data, and extends backward toward Jamestown.

III. Postwar Stability

By almost any yardstick, inequality has changed little since the late 1940s. If there has been any trend, it is toward slightly more inequality in pre-fisc income and toward slightly less inequality in post-fisc income.

The data that yield this conclusion differ greatly from each other. Several series are available: the Statistics of Income reported by the Internal Revenue Service, the Survey of Consumer Finances, the Census Bureau's Current Population Survey, the income distributions of the Social Security Administration, and the benchmark consumer surveys of the Bureau of Labor Statistics. Apart from the fact that they are gathered for tax purposes, the IRS data stand out by their exclusion of transfer payments from money income. The anonymous survey data differ from each other in their coverage of income and especially in their definition of the recipient unit. One would expect such diversity to produce a variety in the estimates, but in fact none of the inequality measures exhibits any dramatic trend.[8] In other words, each available series shows the same stability displayed by the share of the top 5 percent of income recipients in the Social Security population, shown in Figure 1.

Figure 1. Selected Measures of Income Inequality in the United States, Since 1913 and in Seven Earlier Years



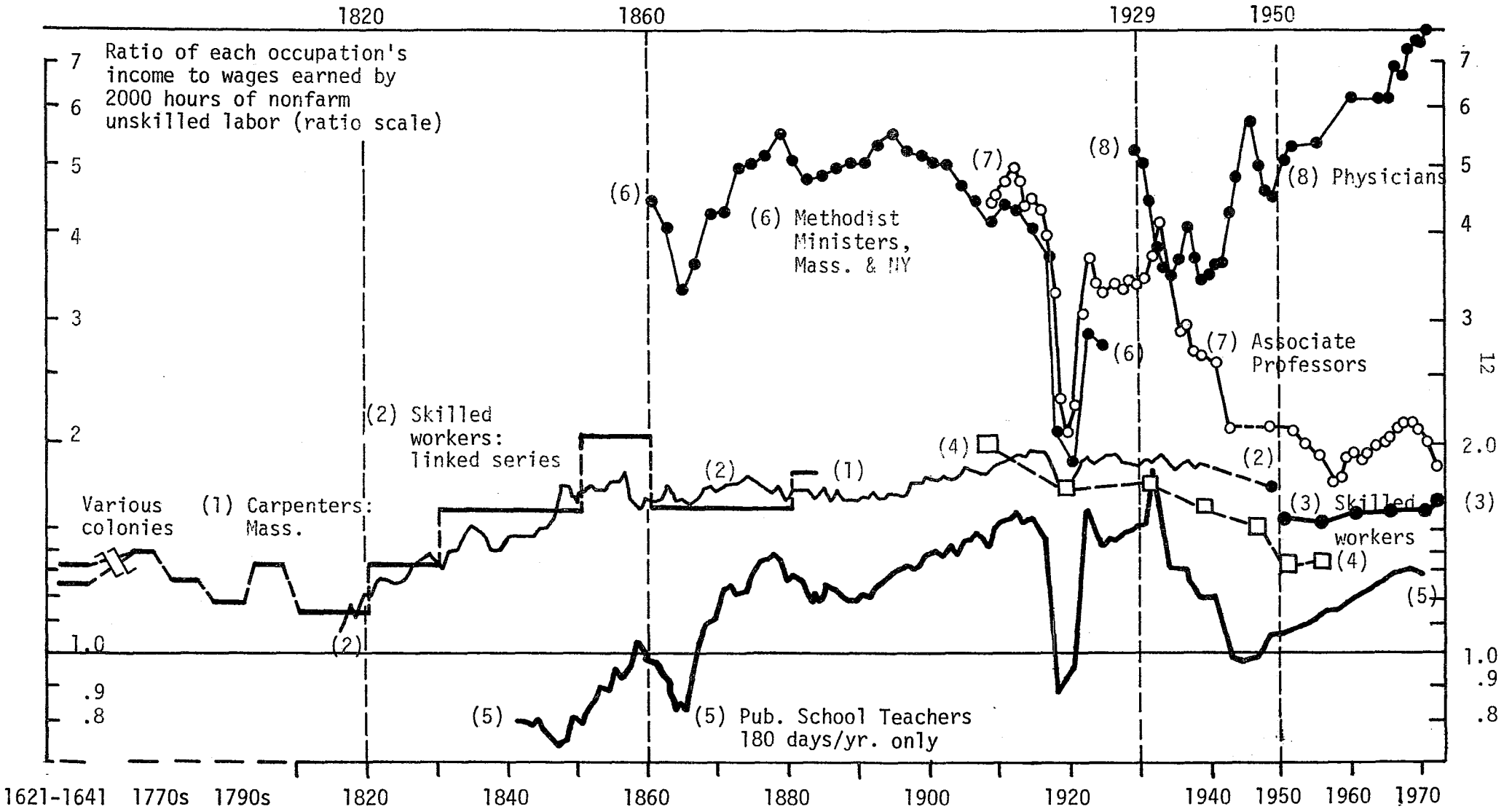
However, the main available series do not completely coincide with either of our concepts of income inequality. To see how the trend in the pre-fisc inequality among individuals would look, we must ask what changes would result if the original series were forced to conform to the above definition of pre-fisc distribution. If transfer payments were excluded from money income, then the resulting statistics documenting truly pre-governmental income inequality would rise a bit faster over the postwar years,[9] as in fact is the case with pre-fisc income as measured in the official IRS numbers. The trend toward more unequal incomes before the effects of government would be further reinforced by another adjustment: It has been argued that if we really knew what fringe benefits people received along with their regular paychecks, then the trend toward income equality would in fact be stronger than it appears in the numbers at hand.[10] In principle, one should also adjust for the fact that the rich and poor buy different items, with the poor spending a greater share of their incomes on necessities. If the price of food, housing, and medical care had risen faster than the prices of luxuries over the postwar era, then real income inequality would have been rising faster than nominal inequality. As it turned out, there was no significant change in these relative prices up to 1970. After that date, however, the relative prices of necessities have risen, reinforcing the most recent trends toward nominal inequality.[11] In summary, the adjustments considered have served only to underline the likelihood that the trend in pre-fisc income inequality was significantly but not dramatically upward.

It has been argued that what looks like a slight trend toward inequality may have been due just to population shifts, like the trend toward more fragmented households or the shift in age distributions. For example, Alice Rivlin has suggested that people have tended toward separate living arrangements, a development fostered by changes in attitudes towards work by women and also by such programs as Social Security and Aid to Dependent Children.[12] This may be, but correcting for changes in household type or in the share of earners who are women does not affect the inequality trend very much. Studies that have held demographic composition constant still have found a slight trend toward greater inequality of pre-fisc income. Similarly, holding the age distribution constant also fails to eliminate the slight trend toward more unequal incomes.[13]

The trend in income inequality after taxes , transfers, and the estimated effects of government purchases has been either steady or slightly toward equality between 1950 and 1970. In other words, the government has become a slightly more income-equalizing force across the 1950s and 1960s. While the tax system has had a less "progressive" effect, government purchases and transfers have had an increasingly equalizing effect.[14] The net result is a degree of income levelling through government that has risen, leaving the post-fisc inequality of income in 1970 almost as great as in 1950.

If demographic adjustments fail to influence the trend in inequality much, then the atability or slight rise in inequality should also show up in an examination of postwar trends in occupational pay ratios. The pay ratios in Figure 2 seem to confirm this

Figure 2. Occupational Pay Ratios in the Nonfarm United States since Colonial Times



hunch for the postwar years. One can doubt, of course, that pay ratios between two occupations can capture the complexity of overall distribution trends. After all, there are many skill categories and age-experience groups within each occupation. Furthermore, no one occupation can be trusted to reflect the same percentile position on the income spectrum year after year, even though some groups are always more highly paid than others. The nature of any one job also drifts with time--neither doctors nor the "unskilled" do the same things they did a century ago. In spite of all these reservations, pay ratios do indeed trace out trends that coincide with that of the "true" inequality measures. Figure 2 brings this out by comparing unskilled nonfarm workers to higher-paid occupations. Since the Korean War there has been no change in the pay advantage that industrial skilled workers (Figure 3, Series 3) have over unskilled workers.[15] Nor, in turn, was there any change in the pay advantage of these unskilled nonfarm workers over farm workers.[16] On the other hand, blue-collar and farm workers appear to have fallen a little further behind the higher-paid professional and nonfarm managerial groups.[17] The series relating to teachers, professors, and physicians in Figure 2 show some variations on this theme. Throughout the postwar period, physicians have succeeded in widening the income gap between themselves and all other major occupational groups. This privileged pay position was obviously maintained with the help of barriers to entry. The relative fortunes of teachers and professors peaked around 1967 but have sagged since then. In general, then, occupational pay ratios exhibit the same slight drift toward greater pre-fisc inequality displayed by the direct measures of overall inequality.

IV. The Levelling Era, 1929-1951

The Income Revolution

There appears to have been a dramatic and pervasive shift toward more equal incomes between the Wall Street Crash and the Korean War. The entire income spectrum seemed to converge. The greatest changes were the rise of the share received by the poorest fifth and the decline in the share received by the top fifth (especially the top 5 percent). In 1929, the average income of the richest fifth was 15.5 times that of the poorest fifth. By 1951 this ratio had dropped to 9.0.[18] An impressive levelling also occurred in regional inequality as revealed by estimates of personal income per capita derived from state production data. The North-South gap in average incomes dropped dramatically, in part due to the heavy migration of low-income workers from the South to northern urban centers.[19] As we shall see, in no other extended period of American history did the available indicators swing so sharply toward equality.

This levelling was remarkable in two respects. First, it spanned a 22-year period that was far from uniform. Between these two full employment dates, the U.S. sank into its Greatest Depression, surged back with the help of World War II, had a postwar boom, and then entered the Korean War. Such turbulent times might be expected to have brought reversals in inequality trends, but the levelling appears to have continued unabated throughout, although it seems to have accelerated during World War II. Second, the trends reported in Figure 1 are all the more remarkable since they document a levelling of incomes before the effects of government are included. Furthermore, this decrease

in pre-fisc inequality appears to have been as great as the entire equalization achieved by all government programs in 1950, and almost as great as the total equalizing effect of government programs in 1970.[20]

So say the main available series. Would the egalitarian trend be reinforced or eliminated by correcting the main series so that they correspond to our two concepts of inequality? The corrections run in both directions. One adjustment that would magnifiy the "income revolution" would be the inclusion of capital gains and losses in the definition of income. Professor Kuznets has estimated that the capital gains actually realized through the sales of assets would have raised the share of the top 5 percent by 3.60 percent in 1929, by 0.17 percent in 1940, and by 1.86 percent in 1946.[21] The top 5 percent so adjusted fell by 3.43 percentage points more across the 1930s, and 1.74 percentage points more over the entire period 1929-1946, than the shares plotted in Figure 1 would imply. The inclusion of capital gains magnifys the egalitarian trend for the whole period and shifts more of the levelling back to the 1930s.

The same changes would be repeated by adjusting for trend differences in class cost-of-living. The cost of purchasing a "low-income" bundle of goods and services dropped relative to the cost of a "high-income" bundle between 1929 and 1940. Most of this cost-of-living advantage for the low-income family was then lost across the 1940s.[22] The net effect of the cost-of-living correction is to shift the timing of the egalitarian trend back toward the 1930s, while slightly augmenting the apparent percentage decline for the entire period 1929-1951.

Adjustment for changes in the age composition would also reinforce the egalitarian trend. A population that has a higher average age will have a greater dispersion of incomes for any given set of life-cycle opportunities. Incomes rise steeply across the adult age groups until around age 50 and fall more gradually for those still in the labor force. Thus, an older population, which is a population with more widely varying ages, will show greater inequality for any one year. The aging of the population should tend to raise income inequality for another reason: The dispersion in incomes tends to be higher for higher age ranges. Since the adult population aged considerably between 1929 and 1951, the observed equalization tends to understate the equalization of life-cycle incomes.

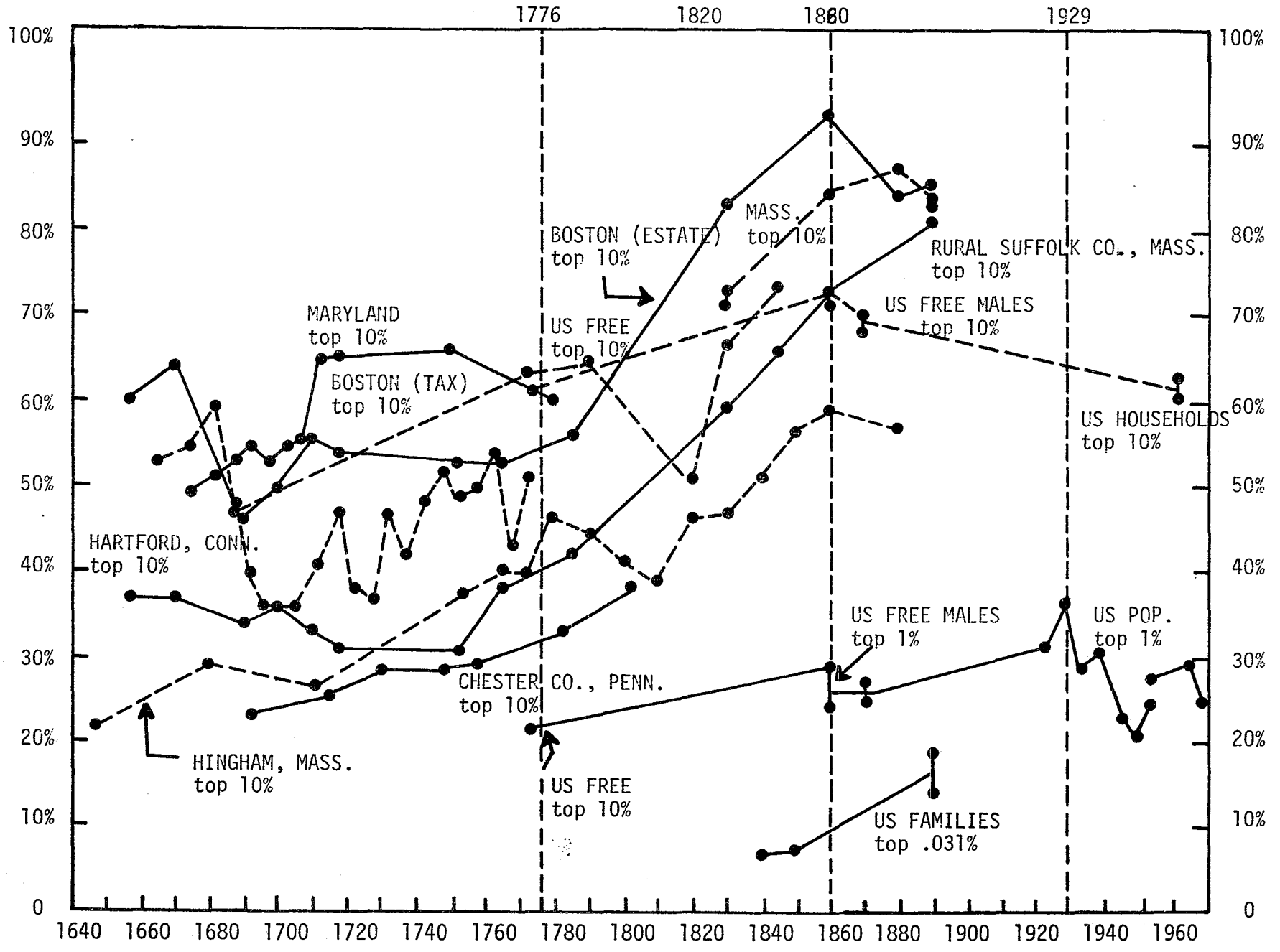
Two other adjustments would dampen the egalitarian trend. The first is an adjustment for the extent to which the rich hide a larger share of their incomes from their income-tax forms than do the poor. Such differences in the extent of underreporting are a serious matter for the judgment of inequality trends, since the OBE-Goldsmith series is a blend of official tax-return data and Census survey data, and the other series in Figure 1 rest squarely on tax returns. By its very nature, the successful underreporting of income is impossible to quantify with certainty. Yet the issue is not whether or not the rich underreport their incomes but whether the ratio of their underreporting to that of lower income groups has changed over time. There is no obvious reason to believe it has, since the same wartime surge in incomes that gave the rich higher income-tax rates to avoid also made the bulk of the population liable to income taxes for the first time. Furthermore, most of the tax evasion stressed by the critics

of Kuznets's study was not the outright concealing of income but a repackaging of parts of high incomes into capital gains and other categories that were taxed more lightly than ordinary income. Such repackaged incomes are visible, and Kuznets's original study seems to have captured much of their effect under adjustments for capital gains and unwarranted deductions. We do not believe that the underreporting of incomes could have risen so much faster in high-income groups than in lower-income groups between 1929 and 1951 as Perlo's counterestimates imply.[23]

The Convergence of Pay Ratios

Thus far, it appears that the levelling of pre-fisc income was nearly as great as the conventional estimates had implied all along, and that the levelling of post-fisc income was much greater. The direct measures of aggregate inequality are not the only kind of evidence of this levelling, however. The same impression could have been conveyed by data on wealth inequality or pay ratios. As for wealth inequality, the Lampman estimates given in Figure 3 show that the share of personal wealth held by the top 1 percent of adults dropped from 36.3 percent in 1929 to somewhere between 20 and 25 percent around mid-century. Occupational pay ratios like those in Figure 2 reveal the same levelling, even though they are drawn from different survey data from those used in measuring aggregate pre-fisc inequality. Between 1929 and 1951, unskilled nonfarm workers reaped far greater percentage gains in pay than all of the major groups above them on the income scale. Unskilled workers gained ground not

Figure 3. Shares of Wealth Held By Top Wealth-Holders in America, 1647-1969



Notes and Sources for Figure 3:

(1) Total US pop., 1922-1969: share of gross assets held by richest 1 percent of adult population of the U.S., from Robert Lampman, The Share of Top Wealthholders in National Wealth, 1922-1956 (Princeton: Princeton University Press, 1962), p. 204; and James D. Smith and Stephen D. Franklin, "The Concentration of Personal Wealth, 1922-1969," American Economic Review, vol. 64, no. 2(May 1974), p. 166. Lampman gives: 1922-31.6 percent, 1929-36.3, 1933-28.3, 1939-30.6, 1945-23.3, 1949-20.8, 1953-24.3. Smith and Franklin give: 1953-27.5 percent, 1965-29.2, 1969-24.9, using the total U.S. population as a base.

(2) US households, 1962: the shares of gross assets held by the top 10 percent and top 1 percent of households, calculated from the Federal Reserve survey results reported in Dorothy S. Projector and Gertrude A. Weiss, Survey of Financial Characteristics of Consumers (Washington: Federal Reserve Board, 1966), Federal Reserve Technical Paper, Table A2. Share of top 10 percent-between 60.41 percent and 62.71 percent; share of top 1 percent-between 30.10 percent and 31.10 percent. The results of a 1953 survey conducted by the Federal Reserve (Federal Reserve Bulletin, 1953) showed somewhat less inequality of holdings of total assets (Lampman, Share of Top Wealth-Holders, pp. 195-196), so that the 1953 distribution may have resembled that for 1962.

(3) US free males, 1860 and 1870: shares of gross assets held by richest 10 percent and richest 1 percent, from samples drawn from manuscript U.S. censuses. The upper dots for 1860 and the dots for 1870 give Lee Soltow's estimates for free males 20 and older, generously provided to the present authors by Professor Soltow in personal correspondence, These estimates are presented in greater detail in his Men and Wealth in the United States, 1850-1870 (New Haven: Yale University Press, 1975). In 1860 the top 10 percent and the top 1 percent held 73 percent and 29 percent of the personal wealth, respectively. In 1870 their respective shares were 68 percent and 25 percent for white adult males, or 70 percent and 27 percent among all adult males. The lower dots for the U.S. in 1860 are the shares of wealth held by the top decile and top percentile of families, as estimated from the manuscript census by Robert E. Gallman, "Trends in the Size Distribution of Wealth in the Nineteenth Century: Some Speculations," in Lee Soltow (ed.), Six Papers on the Size Distribution of Wealth and Income (New York: NBER, 1969), Table 1. The top decile held 71 or 72 percent, depending on whether one treats slaves as property or as penniless potential property owners, while the top percentile held 24 percent with slaves viewed as either property or penniless potential property owners (but not both).

(4) Top .031 percent of US families, 1840-1890: their shares of total national wealth, from Gallman, op. cit., Table 2, 1840: 6.9 percent, 1850-7.2 to 7.6 percent, 1890-14.3 to 19.1 percent.

(5) Massachusetts, 1829-1891: the shares of total estimated wealth held by the richest decile of adult males dying in Massachusetts in the periods 1829-31, 1859-61, 1879-81, and 1889-91. The values held at death show greater inequality than would the values held by living adult males at any point in time. The primary data on the values of probated estates are from Massachusetts Bureau of Statistics of Labor, Twenty-Fifth Annual Report (Boston, 1895), Mass. Public Documents for 1894, vol. XI, Doc. 15. The figures for the latter three periods were adjusted for estimated deaths of males without wealth and for assumed distributions of wealth among uninventoried estates by W. I. King, The Wealth and Income of the People of the United States (New York: MacMillan, 1915), Tables IX and X and accompanying text. A careful scrutiny of King's estimates revealed the specific assumptions he made. These assumptions were not given any careful justification but do not seem implausible. King's assumptions were also applied to the 1829-31 distribution of probated wealth. For 1829-31 it was assumed that the total number of adult male deaths was in the same ratio to the adult male population of Massachusetts as in 1859-61, an assumption based on a reading of Maris A. Vinovskis, "Mortality Rates and Trends in Massachusetts before 1860," Journal of Economic History, vol. 32, no. 1(March 1972), pp. 202-213. The top decile shares: 1829-31-71.27 to 73.11 percent, 1859-61-80.4 percent, 1879-81-87.15 percent, 1889-91-82.45 to 83.39 percent.

(6) Boston Taxpayers, 1687-1845: Allen Kulikoff, "The Progress of Inequality in Revolutionary Boston," William and Mary Quarterly, 3rd series, vol. 28, no. 3(July 1971), Table II, and James A. Henretta, "Economic Development and Social Structure in Revolutionary Boston," William and Mary Quarterly, 3rd series, vol. 22, no. 1 (January 1965), Tables I and II, p. 185. The shares held by the top 10 percent, adjusted to include adult males without wealth:

1687	1771	1790
46.60	63.46	64.70

In personal correspondence dated Nov. 20, 1975, Gerald B. Warden has warned that one takes great risks in trying to infer the level and trend of wealth inequality from Boston's tax assessments. His own work with the tax lists of 1681 and 1771 suggests that the undervaluation ratios varied greatly (e.g. 1:20 for some kinds of assets, 1:12 for others) while many assets escaped assessment altogether. His own adjustments yield top-decile shares of 42.3 percent for 1681 and 47.5 percent for 1771, but he presents these only as rough indications of how sensitive the estimates of wealth inequality are to possible biases in the tax lists.

The estimates for 1820, 1830 and 1845 were taken from Gloria Main, "Inequality in Early America: The Evidence of Probate Records from Massachusetts and Maryland," mimeo., 1975, Table II. She has reworked the original published data as it appeared in Edward Pessen, Riches, Class, and Power Before the Civil War (Lexington, Mass.: D.C. Heath, 1973), pp. 38-40 and in Lemuel Shattuck, Report to the Committee of the City Council Appointed to Obtain the Census of Boston for the Year 1845... (Boston: 1846), p. 95. Her adjusted decile shares of male taxables are: 1820-50.3 percent, 1830-66.2 percent, 1845-72.9 percent.

(7) Boston Inventoried Estates, 1650-1891: top decile of total wealth inventoried at time of death of adult males. See discussion in (5) above. The figures for 1650-1788 are from G. Main, "Inequality in Early America," Table IV. Those for 1829-1891 are "adjusted" and taken from the same source, Table VI. The top decile share are: 1650-64-60 percent, 1665-74-64 percent, 1685-94-46 percent, 1695-1704-50 percent, 1705-14-56 percent, 1715-19-54 percent, 1750-54-53 percent, 1760-69- 53 percent, 1782-88-56 percent, 1829-31-83 percent, 1859-61-93.75 percent, 1879-81-83.9 percent, 1889-91-85.8 percent.

(8) Rural Suffolk County, 1650-1891: top decile of total wealth inventoried at time of death of adult males. See discussion and sources listed in (7) above. This Massachusetts county is contiguous with, and south of, Boston.

(9) Hingham, Mass., 1647-1880: the share of total taxable wealth held by the top decile in Hingham property taxpayers plus adult males with zero property, from Daniel Scott Smith, "Population, Family, and Society in Hingham, Massachusetts, 1635-1880," Unpublished Ph.D dissertation, University of California, Berkeley, 1973, Table III-1 and Appendix Table III-2. Smith's samples from the Hingham tax lists ranged in size from 97 for 1711 up to 347 for 1790. His decile shares: 1647 - 22.06 percent, 1680 - 29.43, 1711 - 26.49, 1754 - 37.44, 1765 - 40.09, 1772 - 39.93, 1779 - 46.52, 1790 - 44.66, 1800 - 41.86, 1810 - 39.10, 1820 - 46.22, 1830 - 46.98, 1840 - 51.40, 1850 - 56.65, 1860 - 58.80, 1880 - 57.47.

(10) Chester Co., Penn., 1693-1802: James T. Lemon and Gary B. Nash, "The Distribution of Wealth in Eighteenth Century America: A Century of Changes in Chester County, Pennsylvania, 1693-1802," Journal of Social History, vol. 2, no. 1 (Fall 1968), Table 1. Their estimates of top decile shares among taxpayers: 1693 - 23.8 percent, 1715 - 25.9, 1730 - 28.6, 1748 - 28.7, 1760 - 29.9, 1782 - 33.6, 1800-02 - 38.3.

(11) Maryland, 1675-1788: top decile of inventories wealth at time of death, adult males. The figures up to 1754 are for personal wealth only. The figure for 1782-1788 is for real and personal wealth. G. Main, "Inequality in Early America," Table IV, lists the following: 1675- 79 to 49.5 percent, 1680-84 - 51, 1685-89 - 53, 1690-94 - 55, 1695-99 - 53, 1700-04 - 55, 1705-09 - 55, 1710-14 - 65, 1715-19 - 65.5, 1750-54 - 66, 1782-88 - 60.

(12) Hartford, Conn., 1660-1774: top decile of estate inventories, adjusted by tax list information, adult males. Real, not personal, wealth only. Based on probate records, but adjusted to apply to "living" male wealth distributions. Jackson Turner Main, "The Distribution of Property in Colonial Connecticut," in J. Kirby (ed.), The Human Dimensions of Nation Making (Madison, State Historical Society, 1976), p. 82. Main's data is supplied in graph form. There are no supporting tables.

(13) US free "potential" wealth-holders, 1774: the estimated share of net worth held by the richest ten percent of free potential wealth-holders for the thirteen colonies. The estimates are by Professor Alice Hanson Jones from her forthcoming books on Wealth of the Colonies on the Eve of the American Revolution (Columbia University Press) and American Colonial Wealth: Documents and Methods (Arno Press). Professor Jones converted regional wealth distributions for probated decedents into regional and all-colony distributions for living adult free wealth-holders using 1800 age distributions. She estimated the total population of potential wealth-holders as the number of adult free males plus ten percent of adult free females. Her methods have been described in her article "Wealth Estimates for the New England Colonies about 1770," Journal of Economic History, vol. 32, no. 1 (March 1972), pp. 98-127.

Professor Jones' estimates differ from those of J. T. Main, which were also developed from probate records and tax lists (The Social Structure of Revolutionary America, Princeton: Princeton University Press, 1965), p. 276, and his note on "Trends in Wealth Concentration before 1860," Journal of Economic History, vol. 31, no. 2 (June 1971), pp. 445-447. Main estimated that the top decile of wealth-holders held around half, and not more than 55 percent, of total wealth in the early 1770's. It is not clear, however, how he adjusted for differences in regional currencies, differences in regional average wealth, the difference between the age distribution of living adults and probated decedents, or the number of free potential wealth-holders having zero wealth.

only on skilled blue-collar workers but also on lawyers, dentists, engineers, army officers, teachers, professors, and even physicians.[24] What is true for the urban unskilled also seems to be true of farm labor, although the former may have slightly widened their real pay advantage over farm hands. In 1929 the ratio of the (NICB) hourly wage rate for unskilled nonfarm labor to the hourly farm wage rate (averaged across seasons) was 2.016; the 1951 ratio of janitorial to farm wage rates was virtually the same. The official series on the cost of living show that prices paid by farm families for consumer goods and services rose faster than the cost of living for urban workers.[25] If so, then unskilled nonfarm workers gained slightly in real terms over the lower-paid farm workers.

The message clearly emerging from an examination of pay ratios is the same as that from the aggregate direct measures of income inequality: the pay structure shifted toward greater equality between 1929 and 1951. Another message is also conveyed by both the pay ratios and the direct inequality measures: the egalitarian trend was not confined to World War II, but was spread over the entire era, with middle income groups losing less than the richest groups in the Depression and the lowest-paid groups gaining dramatically on all others across the 1940s.

The levelling also manifested another notable social change: the decline of the domestic servant, the barber, and the beautician. Repeating World War I experience, the numbers employed in each of these occupations dropped in World War II. What these occupations have in common is that buyers tend to be concentrated in the top

income groups, while the sellers are at the bottom. With incomes equalizing, the prosperity of the 1940s was accompanied by a drop in the quantities of these services consumed. Though several factors may have contributed to the decline, the main explanation seems to be simply that the top income groups could no longer afford so many servants, barbers, and beauticians now that the pay gap between rich and poor had narrowed. And after World War II, unlike the aftermath of World War I, the trend toward declining numbers and higher pay for domestic servants, like the greater equality of income, was not reversed.[26]

Origins of the Belief in No Twentieth Century Trend

The levelling seems so pervasive that we are led to ask how any scholar could have advanced the view that income inequality remained unchanged across this century. The answer seems to lie in their belief that income was generally more equally distributed very early in this century than it was by 1929. This view can be traced to the use of unreliable estimates for years before World War I. Once the drawbacks of these estimates are understood, it becomes apparent that income inequality just prior to World War I was closer to the high inequality of 1929 than to the more equal distributions after World War II.

In his much-cited book, Wealth and Power in America, Gabriel Kolko went out of his way to prove that "A radically unequal distribution of income has been characteristic of the American social structure since at least 1910, and...no trend toward income inequality has appeared.[27] He repeated Perlo's criticism of the Kuznets and OBE-Goldsmith estimates,

mixing the point that many reported incomes get lightly taxed with the assertion that some incomes go unreported altogether, while omitting any corrections that might reinforce the equalizing trend after 1929. He thought his case for no shift toward equality was clinched by presenting a table of distributions going back to 1910, when income looked even more equal than in 1959.[28] The distributions for 1941-1959 were taken from the Survey Research Center-Federal Reserve surveys and these show degrees of inequality very close to the other main series. The difficulty lies in Kolko's estimates of the early years, those covering the period 1910-1937.

When linking statistics drawn from different points in time, one must be sure they measure the same thing. One obvious way of checking the comparability of two series is to examine estimates for an overlapping year. Kolko could not do this, since the earlier series ended in 1937 and the new one picked up only with 1941. Kolko's early estimates can be compared, however, with the OBE-Goldsmith series, the latter yielding results like those of the Survey Research Center after Pearl Harbor. In 1929, Kolko's richest fifth of the population had an average income only 9.5 times as high as that of the poorest fifth, while the OBE-Goldsmith figures suggest a ratio of 15.5. Among the series available to him, Kolko seems to have selected early estimates that minimize the post-1929 income levelling. The 1929 figure he selects appears to document much greater equality than Figure 1 has plotted.

The source of the estimates Kolko used for 1910-1937 is a volume written by the National Industrial Conference Board to tell "the story

of the American Enterprise System and Its Contribution to Prosperity and Public Welfare."[29] Kolko did not criticize this source, sparing it any charges of having omitted capital gains or of having underreported high incomes. It is a mysterious set of estimates. The NICB notes under the key table: "Source: Data from Official Sources; Estimates by the Conference Board," and supplies no further information. It is hard to imagine what these official sources could have been. Income tax returns never covered more than the top 7 or 8 percent of the population until World War II, yet the NICB figures confidently stated the shares of each tenth of recipient units from top to bottom.

Doubts about "official sources" become most acute for Kolko's crucial year 1910, a year in which there was no national income or wealth tax, no official Bureau of Labor Statistics cost-of-living survey, and no decennial census of personal income or wealth. The only estimated distribution of income for 1910 is that of Willford I. King, who wove 1901 worker survey data, 1902 Chicago wages, 1914 tax returns on top incomes, Wisconsin state income tax returns, and other odds and ends into a detailed set of guesstimates, using methods that were "mainly graphic and ... too varied to describe here."[30] King's 1910 estimates cannot be accepted or criticized without knowing more about his underlying procedure. It should be noted, however, that King dropped these estimates from his later published work, and co-authored a volume in 1921 that gave figures showing considerably greater inequality around 1910 than his 1915 book had revealed.[31] It should also be noted that compared to King the NICB-Kolko figures give a lower share to the top 10 percent of families and a higher

share to the next 40 percent.[32] King himself probably understated the true 1910 inequality. Nevertheless, if King's estimates had been used in place of NICB's, Kolko would have found the 1910 income distribution more "radically unequal" than 1959. He would have seen a greater secular decline in the share of the top 10 percent during the half century following 1910.

Like Kolko, Irving Kravis also concluded that income inequality was no greater between 1900 and World War I than it had been since World War II.[33] Unlike Kolko, Kravis was critical of his sources. He distrusted King's 1910 numbers and reported some of them only "for whatever they are worth."[34] He also recognized that the income inequality implied by the Bureau of Labor Statistics' cost-of-living surveys for such early years as 1888-1890 and 1901 seriously understated the true inequality, since the surveys covered only a very narrow part of the income spectrum. He went to some length to search for subsamples from a 1950 survey that were comparably narrow in coverage, but we doubt that he succeeded.[35] More serious is the fact that Kravis then cast aside his own cautions and used raw King and early BLS numbers to splice together "indexes of inequality" spanning the period 1888/1890-1958.[36]

V. The Uneven Plateau, 1860-1929: Inequality Evidence

Income Inequality

What clues do we have about inequality before 1929 if King's 1910 estimates and the early cost-of-living surveys are not to be

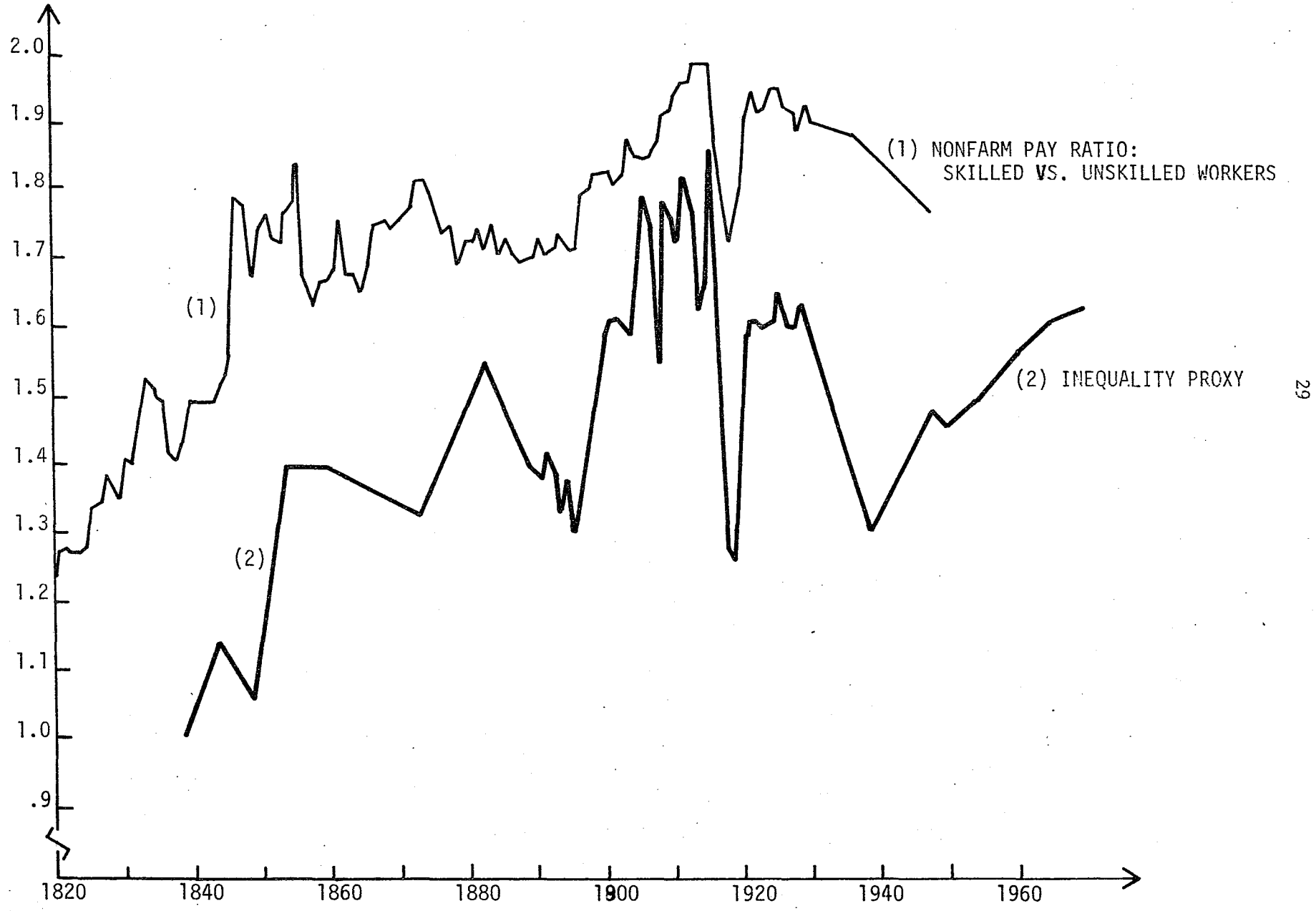
trusted? We suggest that the best information now available is summarized in Figures 1-4 combined with what we know about movements in prices and unemployment.

Our indicators seem to mark out the entire period from Civil War to Wall Street Crash as one of far greater income and wealth inequality than today. This plateau contains three periods that may have seen the highest inequalities in American history: (1) the eve of the Civil War, c.1860; (2) the eve of the First World War, especially 1913 and 1916; and (3) the eve of the Great Crash, or 1928 and the first three quarters of 1929. Let us first examine the evidence for high inequality at these three junctures, and then explore what may have happened in between.

The federal government collected income taxes from the very top income groups in and around each of these three periods of high inequality. The tax returns yield two kinds of income inequality measures, the shares of national income received by the very top income recipients (series (5), Figure 1) and an index of income inequality among those at the top (series (6), Figure 1).[37] Both measures show peak inequalities on the eve of America's entry into World War I and again just before the Great Crash. There was no federal income tax before the Civil War, but the tax returns do continue for the early Reconstruction Era (1866-1871).

These limited scraps of data on America's income distribution suggest a plateau of high inequality from the Civil War to 1929. Only after 1929 is there evidence of a secular and uninterrupted decline in inequality. Nevertheless, the data reveal some pronounced deviations around the "plateau" which deserve brief

Figure 4. Inequality Proxies, 1839-1970



Notes and Sources for Figure 4:

(1) Nonfarm Pay Ratio, 1820-1948: This series is taken directly from Figure 2, series (2), Williamson's linked skilled-unskilled urban pay ratio series. Note that Figure 2 is presented in logs while the present figure is in absolutes.

(2) Inequality Index, 1839-1970: The figures for 1839, 1844, 1849, 1854, 1859, and 1869-78 relate current price GNP per member of the labor force to annual earnings, current price, per unskilled worker, full time equivalent. The GNP data are taken from Robert E. Gallman, "Gross National Product in the United States, 1834-1909," in Output, Employment, and Productivity in the United States after 1800 (New York: NBER, 1966), Table A-1, p. 26. The labor force data from Stanley Lebergott, "Labor Force and Employment, 1800-1960," in ibid., Table 1, p. 118. The estimates of average unskilled earnings use the nominal hourly wage in Appendix Table A-1 times the following estimates of full-time hours per year in manufacturing:

1839(=1840)	3266.6
1849(=1850)	3302.4
1859(=1860)	3159.0
1869-78(=1870-80)	2967.2

The midpoints are simple averages, e.g., 1844 = 3284.5 and 1854 = 3230.7.

The figures for 1879-88 and beyond are linked on 1869-78. The index for the latter period, up to 1929, is constructed by taking the ratio of private GNP, current price, per private manhour input to the unskilled hourly wage given in Appendix Table A-1. GNP per manhour is computed from John W. Kendrick, Productivity Trends in the United States (New York: NBER, 1961), Tables A-X and A-IIb.

The figures for 1929-1970 are linked on 1929, and the series itself is constructed in the same way as with the 1879-88 to 1929 portion described above. Total GNP is taken, from Economic Report of the President, 1974, Table C-1, p. 249. Total manhours: 1929 and 1939 from Kendrick, Productivity Trends, Table A-X, pp. 312-313; 1948-1965 from John W. Kendrick, Postwar Productivity Trends in the United States, 1948-1969 (New York: NBER, 1973), Table A-10, p. 226; 1970 is calculated from BLS data reported in the Economic Report of the President, 1974, Table C-32, p. 286. The unskilled hourly wage can be found in Appendix Table A-1.

citation. While America drifted along at high inequality levels up to the 1890s, this period of quiescence was sharply reversed around the turn of the century: Inequality indices in Figure 2 are on the rise up to 1916. While World War I had a remarkable egalitarian impact on America, its influence was short lived, since by 1929 the high post Civil War inequality levels had been reestablished. As we shall see, these medium term "swings" appear in statistics on wealth concentration, pay ratios, regional inequality, and factor shares.

Wealth Inequality

Movements in (conventional) wealth distributions are likely to parallel movements in the distribution of property incomes being earned from that wealth. The available estimates of wealth concentration support the position that incomes were as unequally distributed in 1860 and 1929 as at any other time for which we have wealth distributions. As the numbers in Figure 3 stand, it appears that the top 1 percent of wealthholders controlled a greater share of total wealth in 1929 than in 1860. This may be misleading. If the top percentile wealth shares for 1860 and 1929 could be adjusted for differences in coverage, the wealth inequality of 1929 would probably prove no greater than that of 1860.[38] The wealth inequality of either 1860 or 1929 was clearly greater than after 1929. What is not clear is what happened to wealth inequality between 1860 and 1929, except that it was lower after the Civil War than before and lower in 1922 than it was to become by 1929.[39]

Regional Inequality

These wealth and income inequality trends are also reproduced by estimates of regional per capita income derived from state production data taken at census years. One such statistic of regional inequality (a weighted coefficient of variation) follows:[40]

1840	0.279	1919	0.276
1880	0.355	1920	0.331
1900	0.322	1921	0.373
1910	0.324	1929	0.369
		1948	0.214

No doubt the high regional inequality reached in 1880 is in part related to southern Civil War defeat and its economic consequences. Nonetheless, there is evidence of a slight egalitarian drift up to 1900 but the trend is interrupted prior to World War I. While the war itself seemed to favor poor agricultural states, the regional "convergence" was brief. By 1929, regional inequality levels had returned to, or perhaps even exceeded, the levels of 1880. Once again, a permanent egalitarian trend does not appear until after 1929.

VI. The Uneven Plateau, 1860-1929: Pay Ratios and Factor Shares

Pay Ratios and the Wage Structure

Information on taxed incomes and wealth before 1929 relate mainly to the top income groups. They tell us little about inequality among

the lower- and middle-income groups. Although we lack distributions covering these broader ranges of the income and earnings spectrum, we do have information on how rates of pay at lower classes moved over time, and from these we can follow trends in occupational pay ratios. As long as the groups whose rates of pay are being compared were large and separated by fairly stable percentage points in the total income distribution, then occupational pay ratios should be fair proxies for the degree of income inequality.[41] We have already seen that after 1929 pay ratios essentially parallel direct measures of income inequality. Pay ratios are of interest in their own right. Since they may also reveal what is happening to overall income inequality when direct observations on the latter are limited, it might be useful to explore more carefully the correlation in time periods when both series are available.

The correlation between simple pay ratios and direct measures of income inequality can be tested for the period 1913 to 1934, the first date marking the 20th century income tax era and the second date preceding the first truly adequate income survey in America (1935/1936).[42] During World War I unskilled nonfarm workers, and to a lesser extent farm hands, gained greatly on higher-paid occupations. The war effort made unskilled labor especially scarce, and its wage rates jumped. The wages of skilled and professional groups, by contrast, were bid up much less, partly because contracts in these occupations are always longer-term and slower to adjust to unanticipated inflation. The net result was an unprecedented contraction of

pay scales between 1916 and 1920. This levelling was then undone in the 1920s with higher paid groups increasing their pay advantage over both the urban unskilled and farm labor. By 1929, the gaps between traditionally high-paid and low-paid jobs were almost as wide as in 1916, when the widest gaps in American history seem to have prevailed. This is exactly the same chronology that one finds in the fortunes of the top income recipients in Figure 1. The shares of total income going to the top 1 percent (series (5)) dropped between 1916 and 1920 and rebounded strongly across the 1920s. The return to inequality was so great that, according to one recent calculation, the real income gains for the top 7 percent of the nonfarm population alone matched the increase in real personal income, leaving no apparent net gain for the rest of the population.[43] The parallelism between simple pay ratios and income inequality measures even extends to the dispersion in incomes among the very rich, as shown in Series (6) of Figure 1. Before viewing the data, one would not have guessed that the pay ratios of machinists to unskilled urban workers should have followed the same time path as the dispersions of income among the top 5 or even the top .05 percent of families. Yet it turns out that way. The available data for the years since 1913 clearly show that occupational pay ratios can be very good proxy indices for overall inequality, especially during full employment periods.

This striking parallelism between pay ratios and income inequality suggests that we could use the former to suggest how inequality moved between 1860 and America's entry into World War I. The pay ratios

imply a chronology that closely conforms to that told by the regional data as well as the federal income tax reports: Income gaps narrowed a bit during the Civil War, returned to something like their prewar levels by about 1873, drifted slowly towards convergence up to 1896, and then widened dramatically--at least in urban areas--from 1896 to 1916. This pattern is suggested by the skilled-unskilled wage differential series (Figure 2, Series (2)), by other wage-differential series, and by the relationship of teachers' earnings to unskilled wages. What we know about movements in living costs facing different groups serves to reinforce the same chronology. Periods in which the nominal pay gaps were narrowing (widening) were periods in which the cost of living for low-income families fell (rose) relative to the cost of living index for high-income families.[44] It thus appears that the inequality of <u>real</u> income tended, even more than nominal inequality, to fall in the Civil War, rise to about 1873, fall to about 1896, and then rise to historic peaks around 1916.

This chronology must be modified slightly by what we know about movements in the rate of unemployment. Unskilled labor tends to have unemployment rates twice or three times the average rate in nonfarm sectors. This means that the relative income position of bottom groups will be worse in periods of high unemployment than one would have gathered by looking just at ratios of pay per unit of time worked among those who remained employed. It also means that recovery from serious depression will register egalitarian trends as the unskilled become fully employed, in much the same way that Kuznets argued that

perhaps a third of the observed trend towards equality from 1939 to 1944 might be explained by the sharp elimination of unemployment.[45] Between 1860 and World War I nonfarm unemployment was apparently most severe in the periods 1874-1879 and 1893-1897.[46] Knowing this, one should be prepared for the possibility that the period of modest income levelling now dated from 1873 to 1896 should perhaps be dated from the end of the 1870s to the turn of the century.

These seven decades of mature American capitalism thus emerge as a plateau of high income inequality. The plateau is interrupted with jagged peaks, the highest of which seem to be 1916 and 1929. That is, if any trend is to be identified it appears to be toward increased inequality after 1865. If there was an earlier era of equality among Americans matching that since 1929, it must have come before the Civil War.

The Income Share of the Working Poor: An Inequality Proxy

Since nonfarm occupational pay ratios, using urban unskilled wages as a base, seem to replicate long-term U.S. inequality experience fairly well, it seems sensible to consider also the behavior of unskilled labor's share in national income. Let there be no mistaking our intent: we do not propose to construct yet another index of "labor's share." Only the unskilled group-the "working poor" if you like-is of interest to us here. We believe that this group's share in total income tells us a great deal about inequality trends in history. We also feel that the relative economic fortunes of the working poor are well approximated by the share of unskilled wage

payments in national income or by its inverse. The latter is plotted in Figure 4. To be more precise, the "Inequality Index" is the ratio of GNP per manhour to unskilled (urban) hourly wage rates.

No doubt our Inequality Index badly approximates distribution realities during recession, depression, and recovery, since the unskilled have always had unemployment rates far exceeding the skilled during "hard times." Since its emphasis is on the pay of the working poor, the inequality proxy in Figure 4 is effective primarily in accounting for long term trends. The Inequality Index has another peculiarity that must be emphasized: its trend has an upward bias which becomes especially pronounced during the 20th century. It might even be argued that after World War I, deviations around the trend in the Inequality Index are probably more relevant than the trend itself. The explanation for the upward bias is quite simple. The index relates GNP per manhour to the unskilled hourly wage and the facts are that the "unskilled" have found their relative position in the American incomes hierarchy steadily eroding since 1839. Current price GNP per laborer was $281 in 1839 while the average annual earnings of a fully employed unskilled urban worker was about the same, $278. In other words, a fully employed urban unskilled worker could not have been very far below the middle of the American income distribution in the late 1839s. No doubt the farm laborer was much lower in the hierarchy, partly because cost-of-living differences produced large (nominal) rural-urban "wage gaps." For this reason alone, the urban common laborer would have been far lower in the urban than in the economy-wide incomes hierarchy. This was so even in 1929 when the farm sector was a far smaller

share of American employment than in 1839. (See footnote 41 for the economy-wide and nonfarm comparison for 1929.)

Judging by Macauley's wartime size distribution data for 1918, the urban unskilled underwent a steady but surprisingly gentle erosion in their relative position in the 19th century economy-wide distribution. Between 1839 and 1918, the average urban common laborer had drifted downward from a little below the 50th percentile to the 43rd percentile. Both of these figures apply to a healthy worker, not engaged in voluntary job search, nor involuntarily unemployed. To the extent that common laborers worked less than "full time," then of course each would have fallen below these uppermost percentile cut-offs. But the point remains: in spite of rapid urbanization and the relative demise of farm employment, the American common laborer moved downward in the incomes hierarchy by only 6 or 7 percentiles during the 19th century. For a period as long as eight decades, this evidence seems to us consistent with remarkable stability of the unskilled worker's rank in the social hierarchy.

Things change very abruptly, however, following World War I. The downward drift continues during the interwar period, but at an accelerated pace. The data cited in footnote 41 show an extraordinary decline in the unskilled common laborer's incomes position from the 43rd percentile in 1918, to the 34th percentile in 1929, and finally to the 27th percentile in 1950. Stability has apparently resumed during the postwar period, but it should be clear that our Inequality Index has a very strong upward bias following 1918.

In spite of these weaknesses, the Inequality Index supplies another valuable piece of scarce evidence to help establish American inequality experience. What does it tell us? The index is highly correlated with our pay ratio series, the latter reproduced from Figure 2. It follows that the proxy correlates well with the extant twentieth century income distribution data from 1913 onwards. The proxy suggests that there was a surge in American inequality from 1839 to the early 1880s. The Civil War interrupted this steep inequality trend, but only temporarily, because the long term impact of nineteenth century growth on inequality is quite apparent in the series almost two full decades after the war ended. The series also captures (but exaggerates) the drama of the last major inequality surge in America, from the turn of the century to World War I. The abrupt cessation of the century-long trend following 1916 or 1929 conforms with the egalitarian "levelling" documented by size distribution data.

The inequality proxy in Figure 4 highlights a finding of major importance: the onset of extensive inequality in America must be sought prior to the Civil War. How far back in U.S. history must one go to date the start of this inequality trend? 1812? 1776? 1607? The next section takes this quest into colonial history.

VII. Wealth Inequality Trends Before the Civil War[47]

Although reliable size distributions of income do not exist for the years before World War I, wealth distributions can be calculated from several source materials and such data should serve as useful proxies for income distributions. After all, it certainly seems

reasonable to expect a correspondence between the inequality trends for property income and property values. True, there is contemporary evidence that shows that property income may be more highly concentrated than wealth since the most wealthy earn higher returns, but a temporal correlation between the two seems inevitable. Furthermore, there are at least two reasons to expect wealth distributions to parallel total, rather than simply property, income distributions. In early stages of growth, conventional property income is a larger share of total income since human capital, and thus labor earnings above "subsistence," is relatively unimportant. Thus, the distribution of conventional wealth is more important in determining total wealth and income distribution early in national growth experience than late. It may also be argued that wealth inequality is likely to follow earlier trends in income inequality as long as the distribution of saving rates and rates of capital gain across all classes are relatively stable over time.

The wealth data are abundant but not without blemish. The most serious difficulty is that prior to 1860 hardly any nation-wide estimates exist. The manuscript censuses for 1860 and 1870 yield returns on total personal wealth for America as a whole and her major regions. Prior to that date, we are almost exclusively limited to "local histories." A town like Hingham, Massachusetts, is hardly America, but if we have enough local observations exhibiting consistent long term behavior, perhaps national inequality trends can be inferred with confidence.

The main sources of wealth data are probate inventories and tax assessments. These local sources, of course, are not without flaws

either. Probate inventories can reveal the inequality of wealthholding among the recently deceased. Used with care, they can also yield estimates of wealth inequality among living heads of households. The probate results must be adjusted for incomplete coverage of assets and decedents. They also must be adjusted for the fact that living household heads are younger and have less unequal wealthholding distributions, but the adjustment is different from period to period. Tax assessment lists provide additional data but the assessments often failed to cover all wealth, and probably underassessed the wealthiest households most. They can reveal wealth inequality trends if such biases can be shown to be about constant over time.

What, then, do these imperfect sources tell us about American inequality experience prior to the Civil War?

Colonial Inequality Trends

If one were to take 1690 or 1700 as a base, the wealth inequality series reported in Figure 3 would suggest a persistent drift toward greater wealth concentration for the seven or eight decades prior to the Revolution. This characterization holds for rural Connecticut as well as Hartford, for rural Massachusetts as well as Boston and Portsmouth, New Hampshire, for Philadelphia as well as nearby Chester County, Pennsylvania and all of Maryland. Indeed, New York City is the only exception to this rule since it had a stable wealth distribution between 1695 and 1789.[48] Yet when the colonial benchmark is shifted back in time to, say, 1660 or 1670 most of the inequality drift disappears and New York City becomes the rule rather than the

exception. Stability in wealth distribution seems to characterize the century prior to 1776.

Hartford is an excellent example. Jackson T. Main's recent finding[49] of stability of wealth distribution for the Hartford probate district can be seen quite clearly in Figure 3. Main's finding for Hartford is confirmed by Bruce Daniels,[50] but, in apparent contrast, Daniels finds that elsewhere in Connecticut wealth inequality was on the rise after the early 1700s. Daniels reports a very steep trend in wealth concentration in Danbury, Waterbury, Windham, and the smaller towns in Litchfield County. Main's data reproduced in Figure 3 show that the contrast may only be apparent, not real. There are important and violent cycles in Hartford County fortunes, and the wealth inequality statistics certainly reveal them. Colonial wealth values were very sensitive to internal wars and external world market conditions for key staples. The externally oriented commercial centers were, of course, most sensitive to such exogenous conditions,[51] and those who gambled on foreign conditions-merchants, planters, traders, and shipowners-were always at the pinnacle of colonial wealth distributions. The state of the market for the key export staple determined in large part the size of wealth values at the top of the distribution, and thus overall inequality. In the Hartford case, these "cycles" in wealth distribution were such that pre Revolutionary inequality appears to have been on the rise if 1700-1709 is used as a benchmark. If instead 1660-1669 is used as a benchmark, a century of stability is the rule. Similar "cycles" in wealth inequality are reported by Gloria Main for Boston probated wealth.[52] Boston wealth concentration

rose after a trough in the 1680s and 1690s, but the highest inequality in the colonial era was recorded in the earliest returns, those from the 1650s and 1660s. Maryland also records a very sharp increase in inequality following 1703. Around that date tobacco fortunes suffered an extraordinary demise. These events produced capital losses at the top of the distribution, and thus a levelling in the wealth distribution. Subsequently, the rise of mercantile wealth eventually regained the inequality levels typical of Maryland in the late seventeenth century.

For those wealth inequality series that extend backwards before the 1690s, only the Hingham, Massachusetts observation reveals a clear secular drift towards inequality for the entire colonial period. To put it most cautiously, there appears to be little evidence of a uniform secular drift in colonial inequality. The secular increase in wealth concentration after 1700 seems to be more the result of "cycle" than trend. Wealth concentration was surprisingly stable in the pre Revolutionary Northeast when proper, earlier benchmarks are utilized.

Inequality During the First Century of Independence

The eighteenth century inequality drift begins to show more permanence following 1776. From the eve of the Revolution to the outbreak of the Civil War and even shortly beyond, our wealth inequality indicators are clearly on the rise. Those regions untouched by nineteenth century urbanization, industrialization, and foreign immigration did not, of course, get caught by the dramatic inequality trend after 1776. Thus, Lee Soltow finds no change in the concentration of southern

slaveholding from 1790 (and probably from 1770) to 1860.[53] Yet the northern trend toward concentrated wealth was strong enough to raise wealth inequality for the U.S. as a whole. The share of personal wealth held by the richest ten percent of potential wealthholders in the thirteen colonies in the early 1770s were in the low 60 percents to judge from the estimates by Alice Hanson Jones. By contrast, the samplings from the 1860 manuscript census by Lee Soltow and Robert Gallman show that the top decile of wealthholders then controlled over 70 percent of all wealth, regardless of how one treats slaves in the calculation. To judge from the Massachusetts probate returns and Gallman's estimates of the share of wealth held by the super-rich (the top .031 percent), wealth inequality may have reached its all-time peak still later, around the 1880s.

The sharpness of this post Revolutionary wealth inequality trend is very impressive. The figures suggest that the distribution of income from property may have drifted toward inequality for the two centuries preceding the Civil War, but the inequality trend rapidly accelerated during the 19th century.

Mirage or Reality?

Is the trend toward wealth concentration a real one? Does it really reflect growing wealth inequalities among Americans of given age and residential history? Is it instead a mirage created by a changing age distribution and by geographic shifts in population?

Movements in age distribution can change total wealth inequality even if it fails to change within any group. The elderly hold vastly greater average wealth than young adults, and whatever creates greater

dispersion in the ages of household heads can make inequality look greater. To judge what truly happened to life-cycle wealth inequality, one must attempt to hold the age distribution constant.

It turns out that changes in age distribution cannot explain away the observed drift toward wealth concentration before 1860. Lee Soltow's recent work on the 1870 manuscript census has compared the wealth inequality among all adult males with the wealth inequality within certain age groups. Not surprisingly, wealth was less unequally distributed among the 30-39 age group than among all males,[54] but experimentation shows that any aging or increased age dispersion among adult males would fall far short in accounting for the historic trend toward wealth concentration before the Civil War. In fact, it is not at all clear that the adult male population got any older or more dispersed in age from the 1690s to the Revolution. The age distribution of adult males (slave plus free) was not much older or more dispersed even in 1860 compared with colonial times.[55] Even if the adult male population did age and become more dispersed in ages, this process could not account for the observed rise in the share having no wealth at all, first within colonial cities after the early 1700s and then for the United States as a whole.

Geographic population shifts may create the impression of a drift toward inequality where there has been no change in the inequality of wealth for persons of given age and prior residence. We must consider several possible influences of geographic mobility, first at the national level between 1770 and 1860 and then with respect to the local data from the colonial period.

Possibly, the apparent drift toward wealth inequality between 1770 and 1860 could have been the result of changes in the share of the

population born abroad or changes in the share employed in agriculture. A rise in the foreign born share could have raised aggregate wealth inequality without any change in inequality among persons with given birthplace. The increasing share of foreign born in America could play a role in two ways: (i) Given a gap in average wealth between natives and foreign born, a rise in the foreign born share would raise total inequality without any wealth inequality change within either group. The gaps were indeed large. After standardizing for age, Soltow shows us that in 1860 and in the Northeast, those native Americans born in southern New England or the Middle Atlantic had average wealth holdings more than two times the male head born in Germany, and almost three times the Irish male head.[56] (ii) If the distribution of wealth was more unequal among the foreign born, their increased relative importance would also produce rising total inequality. In fact, wealth was no more heavily concentrated among the foreign born in 1870. Not only were native and foreign born wealth distributions alike but wealth inequality among native born was almost exactly the same as for all Americans, including foreign born.[57] Both forces listed above fail to have an important quantitative impact on the observed aggregate trends. Even if the entire population of adult males had been native born back in 1770, the rise in the foreign born share to its actual values in 1860 or 1870 could not account for much of the observed drift toward inequality.

Contrary to expectations, the shift of families out of agriculture also fails to help explain the drift toward inequality between 1770 and 1860. It is true that wealth was more equally distributed among farm families than among all families in the 1870 census sample drawn

by Lee Soltow.[58] Yet the difference is small enough so that even if the entire population had lived on farms back in 1770, with the same separate degrees of inequality in and out of agriculture as in 1870, the shift away from farms observed by 1870 could not have raised inequality as much as it actually rose. The post Revolutionary rise in wealth concentration was a real rise in the inequality of wealth outcomes for people for given age, nativity, and sector of residence. It was no mirage.

It is harder to judge whether geographic shifts might account for changes in wealth concentration during the colonial era. We have no aggregate inequality measures for the period. We have only isolated time series on a few cities, towns, and counties along the seaboard. Because of geographic migration, the apparent rise in aggregate wealth inequality dating from the early 1700s may be exaggerated, and even a portion of the trend within isolated areas may be spurious. Suppose, for example, that as Boston grew and the frontier moved westward, the rich and poor tended more and more to cluster in Boston, while a larger share of young persons of medium wealth and talent searched for new opportunities elsewhere. This selectivity in migration would cause inequality to rise in the city but not in the entire region.[59] Lack of information about migrants and these frontiers prevents firm conclusions about colonial wealth inequality trends economy-wide. It seems likely that inequality did not diminish between the late seventeenth century and the Revolutionary War. Whether or not it was rising remains to be established by future research.

Dating the Rise in Wealth Concentration

It seems clear that wealth inequality was on the rise between 1770 and 1860. In the late seventeenth century, wealth may have been more equally distributed among free households than it is today, though the distribution of wealth (including slave values) among all households, slave or free, was probably about the same as today. On the eve of the Revolution, wealth was probably distributed about as equally among free households as today. By the 1880s, wealth was clearly more concentrated than today. The key point, however, is that America's richest 10 percent increased their share of total wealth sometime during the century following 1776. Their share of total wealth may have increased by as much as 15 percentage points up to 1860. Furthermore, this upsurge in wealth concentration is likely to understate the true extent of the "inequality surge" associated with nineteenth century modern development in the North. Soltow's and Jones' research confirms that slaveholding and wealth distribution in the South were relatively stable over the century. Obviously, the aggregate wealth inequality trends must therefore understate the inequality surge in the North. Furthermore, the "local histories" documented in Figure 3 suggest that the inequality surge took place long after 1776. While the post Revolutionary shift to wealth inequality is clearly dramatic, when it happened is far less clear.

When did America fall from Grace and depart from the Jeffersonian Ideal? We tend to associate inequality trends with modern economic growth so there is a tendency to search for an acceleration in northeastern inequality trends shortly before 1820 and after the commercial

crisis following the War of 1812. The evidence presented in Figure 3 seems to confirm the thesis. While Boston estate records reveal an extraordinary increase in wealth concentration during the half century between the 1780s and 1830, tax assessment records from the same city suggest that the vast majority of the trend rise took place in the last decade. Indeed, an egalitarian "trend" from the 1780s to the 1820s can be inferred from the Boston tax data. The same "trend" (or cycle) can be seen for Hingham where wealth inequality reached a low around 1812-1816, a period of international conflict and hard times for traditional American exports and shipping. Data for New York City and Brooklyn also show jumps in wealth concentration after 1810 or 1820.[60] No doubt the steep rise in New York City, Brooklyn, and Boston wealth concentration prior to the Civil War is exaggerated by the fact that these cities were the major recipients of Europe's unskilled. Nonetheless, the evidence suggests that inequality trends were already a permanent feature of northeastern economic growth decades before the Irish floodgates open in the late 1840s.

It seems that most of the extraordinary rise in wealth concentration after independence was in fact compressed within the short span of the last four antebellum decades. The same impression of an inequality surge between about 1820 and 1860 reappears when we look at trends in the occupational pay structure.

VIII. The Antebellum Surge in Wage Inequality[61]

Shortly before World War I, the premium on skilled labor was extraordinarily high in America. Skills were very expensive even

by West European standards. Phelps-Brown notes that the ratio of skilled to unskilled wages in American building trades, for example, was 2.17 in 1909 while just two years earlier, the ratio was as low as 1.54 in the United Kingdom.[62] In contrast, and consistent with the data presented in Figure 2, English visitors a century earlier characterized America as a nation endowed with cheap skills and expensive "raw" labor. While Habakkuk supplied extensive contemporary comment on the abundance of skilled labor in America during the 1820s,[63] Rosenberg gave the characterization quantitative muscle. American unskilled wages were at least 20 percent higher than English in the 1820s. Yet, Rosenberg's wage data for "best machine makers" and "ordinary machine makers" reveal very little difference between the two economies.[64] In short, compared to England, skilled labor was relatively cheap in America at the start of modern industrialization. A century later, conditions had reversed and skilled labor was relatively expensive in America.

Figure 2 presents two long time series documenting movements in the pay structure. The first is a linked urban series (Figure 2, series (2)) that rises steeply from an all-time low in 1816 to an all-time antebellum high in 1856. Following the Civil War and up to the turn of the century, the series is relatively stable, more or less replicating the "uneven plateau" that is apparent in our late nineteenth century income distribution statistics. The second series-the ratio of public school teachers' salaries to unskilled pay-exhibits an even steeper rise after 1840 to the Civil War, and a continuation in the trend during the Reconstruction era to the late 1870s. As we shall see, abundant support for this characterization is supplied by other sources.

What is most remarkable about the series is the striking surge in the relative price of skills and an abrupt widening in the pay structure from 1816 to 1856. The movements after 1856 pale by comparison. In four short decades, the American Northeast was transformed from the Jeffersonian "Ideal" to a society more typical of developing economies with very wide pay differentials and, presumably, marked inequality in the distribution of wage income. Apparently, de Tocqueville's somber alarm was justified:

> "I am of the opinion. . .that the manufacturing aristocracy which is growing up under our eyes is one of the harshest that ever existed. . .the friends of democracy should keep their eyes anxiously fixed in this direction; for if even a permanent inequality of conditions and aristocracy again penetrates into the world, it may be predicted that this is the gate by which they will enter."[65]

From 1816 to 1856, the secular rise in the skilled-wage ratio was significantly interrupted only once-deep in the doldrums of the early forties. True, the sharp rise following 1816 must be exaggerated somewhat by our choice of 1816 as a base year. It was in the midst of hard times in the urban northeast following post War of 1812 readjustments. But the colonial and post Revolutionary wage structure was quickly regained by the early 1820s when social overhead construction and capital formation resumed and skilled labor was put back to work. In short, even if we select the 1820s as a base, a surge in antebellum pay differentials is still apparent in our series.

The linked series in Figure 2 is based primarily on manufacturing data from the Aldrich Report following 1840. Prior to that date, the series is even more limited, based as it is on payroll data from

iron-producing firms in eastern Pennsylvania.[66] Since the series suggests an inequality surge of such dramatic proportions even prior to the Irish immigrations in the late 1840s, it might be wise to pause and consider whether other evidence is consistent with our characterization of the widening in the early ante-bellum pay structure. We have only the sketchiest data for the 1830s, but none of it is inconsistent with the upward drift in the linked series in Figure 2. Indeed, we may have understated the rise. For example, when Layer computed daily earnings of cotton mill employees by department,[67] he found that the dressing department was consistently the highest paid in the ante-bellum period, while spinnners were the lowest. The pay differential rose by 13 percent from 1830-1834 to 1840-1844, while our index rose by 9 percent over the same period. Further confirmation can be found in Erie Canal payrolls and civil engineer earnings on internal improvements projects.[68] Between 1830 and 1845, the "skilled-wage premium" on internal improvement projects rose by 13.9 to 15 percent while our linked series registers a rise of 14.2 percent. While we encounter no difficulty in confirming a surge in pay differentials during the 1830s, how about the 1840s? Do other wage indicators confirm the epic spreading in pay differentials during the 1840s? Apparently so, since other data fragments from the Aldrich Report document the following:[69] Compared with common laborers, the daily rate for New York bricklayers rose by 18 percent from 1840 to 1850, while that of carpenters and joiners rose by 37 percent over the same period; compared with common laborers, "best" machinists wage relatives in New York increased by 37 percent, boilermakers' by 8 percent and iron

moulders by 13 percent; in Massachusetts, railroad conductors' wage relatives rose by 10 percent when common labor is used as a base, and by 14 percent when teamsters' are used as a base.

We have dwelt at length with the 1830s and 1840s since measures of pay differentials during these decades of early industrialization are likely to be crucial in dating the nineteenth century inequality surge in America and thus to economic interpretations of the sources of capitalist inequality. It seems appropriate, therefore, to conclude this section by examining some wage data drawn from a New England region where it all began, Massachusetts. Nathan Rosenberg's use of Zachariah Allen's data confirmed that in 1825 the average British machinist was paid a premium above common labor of some 105 percent while his American counterpart earned only a 50 percent premium. Cheap skills and expensive raw labor are consistent with relative earnings equality in America about 1825. However, the premium surged to 85 percent by 1837, to 90 percent during the 1840s and to 120 percent by the 1850s. That is, urban Massachusetts' wage structure in the 1850s was almost exactly like England's in 1825. It never again reached that height in the three decades that followed.[70]

IX. The Agenda

Our survey of American distribution experience has important implications for the study of inequality and economic growth.

The evidence, particularly for the twentieth century, strongly suggests that movements in the size distribution are paralleled by movements in the basic pay structure. When measures of overall

inequality were on the rise, so too were measures of dispersion in the rates of pay for occupational groups. If this correspondence stands up when the historical data from other countries are scrutinized, then future research on pre-capitalist and early capitalist experience with income inequality would be given a fresh new impetus. We may gain great insight into historical inequality experience by reviving some crude proxies which recent data-intensive sophistication has almost banished from the literature: for example, the ratio of a foreman's pay to the wage of ordinary workers, or the ratio of national income per manhour to the unskilled hourly wage rate. These proxies are available for earlier periods when direct tax or survey data on the size distribution of income are missing. If further research establishes their credentials as relevant surrogates, these proxies can greatly enrich the history of income inequality. We have only scratched the surface here. For example, there is a well-stocked store of time series on American rates of pay during the late nineteenth century and sources like the Aldrich Report could be used to develop far broader measures of pay dispersion than the simple occupational pay ratios used here. Our comparative ignorance regarding American wealth inequality experience during the half century between 1870 and 1922 warrants the construction of inequality indicators using probate inventories.

Our survey opens anew the issue of inequality's relation to economic growth. Income inequality rose sharply in America between about 1820 and 1860. After the Civil War, the upward drift in American inequality continues-although at a diminished rate-until the U.S.

enters World War I. Inequality fell between 1929 and the early years after World War II. It has changed little since. This long-run pattern seems to confirm Kuznets' 1955 conjecture that inequality first rises and then falls with modern economic growth. We stress "modern" since colonial and even early antebellum growth failed to generate any trends in American inequality. In any case, one wonders how well this "Kuznets-pattern" will hold up when the early Industrial Revolutions of England and the Continent are re-examined using the same research strategy applied here to America.

What does our chronology imply about the link between inequality and growth? Is modern economic growth either a necessary or a sufficient condition for trending inequality? We submit that the answers are far from obvious, although answers are nearer now that the chronology of the American case is better understood. One must first resist the simplistic and common conclusions that inequality must inevitably rise then fall with modern economic development; that inequality is an inevitable concommitent of capitalism; and that the levelling of incomes among mature capitalist economies is conditional on the rise of government. First, and as we have already pointed out, it is not clear that other countries have produced similar inequality histories. Confusions and contradictions that have emerged from past debates on the English "Condition" and living standards on the Continent must be dispelled. One of the first tasks in this regard is to distinguish carefully between the historical behavior of absolute standards of life, on the one hand, and relative standards of life, on the other. Income distribution focuses on the latter and all of

the statistics used in the present paper follow in that tradition. In the American case, these two measures do not move together consistently at all. During the antebellum inequality surge, for example, unskilled urban workers found their real wage rising at the impressive rate of 1.2 percent per annum. Exactly the opposite was true during the Civil War when northern real wages sagged but pay differentials contracted. To complicate matters further, real wages rose hardly at all during the inequality drift from turn of century to World War I, but surged during the war itself when inequality indicators were all sharply declining.[71] Any explanations of the inequality and growth correlation must simultaneously account, it seems to us, for the historical performance of both absolute and relative standards of life.

One must also resist the view that income inequality was "traded off" against faster economic growth. It is not at all clear from American trends that inequality was a prerequisite for high savings rates, high rates of capital accumulation, and rapid growth. If the classic growth-equity conflict is relevant in the American case, why is it that income per capita grew just as fast in the levelling era (1929-1951) as in earlier periods when income gaps were widening? Far more detailed analytical work must be done to address effectively the growth vs. equity issue.

In the absence of macroeconomic models which predict historical rates of accumulation, growth and distribution, we shall make no further progress on the growth vs. equity issue. Furthermore, such models must be equally adept at short run performance, the latter including the income levelling during wartime and subsequent inequality

retrenchment during peacetime, movements the American economy produced from Civil War to the end of Reconstruction, from World War I to 1929, and from World War II through the "curious stability" in postwar inequality.

Our own work has suggested that such models must, at a minimum, deal with two kinds of variables, variables that we now think are prime determinants of American inequality trends. The first include labor supply parameters. Inequality will be more on the rise when the labor force is growing more rapidly and when its quality (average skill) is growing more slowly. Distinguishing the relative roles of foreign immigration, domestic demographic forces, mobilization and demobilization is in itself an essential exercise. Only then will we be able to isolate the role of labor supply. Only then will we be able to distinguish what is "inevitable" about modern capitalistic development from the separate influence of demographic forces. The second set of variables is that governing relative factor demands. These long term demand forces, and in particular the degree of imbalance in technological progress between sectors using machines, skills and raw labor with varying intensity, have been understated as determinants of inequality trends. Indeed, such technological imbalance has not been well appreciated in explanations of accumulation and growth.

The time has come to model inequality histories. There is no longer any excuse for restricting our explanatory variables to income levels or growth rates in accounting for inequality, nor to fall back on ad hoc historical narratives of exogenous political or institutional events. It is our prediction that when demographic and technological

forces are examined as systematic influences on inequality, our view of history and of policy will be very different from current conventional wisdom.

Appendix Table A-1. Urban Unskilled Hourly Wage in America, 1816-1973 (Current Dollars)

Year	Hourly Wage	Year	Hourly Wage
1816	.064	1861	.088
1817	.084	1862	.091
1818	.084	1863	.102
1819	.075	1864	.120
1820	.069	1865	.134
1821	.059	1866	.137
1822	.058	1867	.136
1823	.057	1868	.139
1824	.057	1869	.146
1825	.058	1870	.152
1826	.058	1871	.145
1827	.058	1872	.145
1828	.058	1873	.144
1829	.058	1874	.143
1830	.064	1875	.143
1831	.058	1876	.142
1832	.067	1877	.122
1833	.071	1878	.116
1834	.071	1879	.116
1835	.081	1880	.117
1836	.084	1881	.123
1837	.085	1882	.135
1838	.079	1883	.137
1839	.085	1884	.137
1840	.082	1885	.136
1841	.081	1886	.136
1842	.077	1887	.139
1843	.075	1888	.138
1844	.073	1889	.137
1845	.075	1890	.140
1846	.078	1891	.142
1847	.079	1892	.140
1848	.084	1893	.141
1849	.083	1894	.138
1850	.083	1895	.139
1851	.079	1896	.139
1852	.080	1897	.140
1853	.081	1898	.142
1854	.084	1899	.142
1855	.085	1900	.144
1856	.092	1901	.150
1857	.093	1902	.149
1858	.088	1903	.155
1859	.088	1904	.159
1860	.086	1905	.159

Table A-1. (cont.)

Year	Hourly Wage	Year	Hourly Wage
1906	.163	1952/53	1.33
1907	.171	1953/54	1.40
1908	.182	1954/55	1.45
1909	.178	1955/56	1.52
1910	.181	1956/57	1.54
1911	.183	1957/58	1.65
1912	.184	1958/59	1.73
1913	.198	1959/60	1.78
1914	.203	1960/61	1.83
1915	.212	1961/62	1.88
1916	.231	1962/63	1.95
1917	.287	1963/64	2.00
1918	.426	1964/65	2.08
1919	.513	1965/66	2.15
1920	.529	1966/67	2.23
1921	.437	1967/68	2.34
1922	.402	1968/69	2.51
1923	.443	1969/70	2.69
1924	.458	1970/71	2.88
1925	.455	1971/72	3.10
1926	.461	1972/73	3.30
1927	.471		
1928	.474		
1929	.486		
1930	.478		
1931	.460		
1932	.400		
1933	.401		
1934	.479		
1935	.495		
1936	.501		
1937	.570		
1938	.586		
1939	.594		
1940	.611		
1941	.682		
1942	.773		
1943	.854		
1944	.892		
1945	.917		
1946	1.015		
1947	1.147		
1948	1.227		
1949	--		
1950/51	1.19		
1951/52	1.25		

Table A-1 (cont.)

Sources. 1816-1913: A nominal daily wage series is reported in Williamson, "Prices, Wages, and Urban Inequality Since 1820," Appendix Table. The daily wage series is divided by average hours worked daily in manufacturing found in the Aldrich Report and in Ethel B. Jones, "New Estimates of Hours of Work Per Week and Hourly Earnings, 1900-1957," Review of Economics and Statistics, vol. XLV, No. 2 (May 1963), pp. 374-385.

1914-1948: Except for 1915-1919, the figures are for unskilled males in manufacturing. These average hourly earnings are taken from Historical Statistics, Series D-663, p. 94, and they were constructed from twenty-five industries by the National Industrial Conference Board. The figures for 1915-1919 are interpolated using the average manufacturing weekly earnings series in Paul Douglas, Real Wages in the United States: 1891-1926 (Boston: Houghton Mifflin, 1930), divided by average weekly hours in manufacturing in Jones, "New Estimates," 1950/51-1972-73: Average hourly wages in six cities, unskilled custodial and maintenance, all industries, from various BLS occupational wage surveys.

Table A-2. Time Series Data on Income Inequality in the United States, since 1913 and in Seven Earlier Years

(1) Share of Income Received by Top 60 Percent of Households (OBE-Goldsmith).

1929-1935	87.5 percent	1950	84.3 percent
1936	86.7	1951	83.7
1941	86.4	1954	84.1
1944	84.2	1956	83.9
1947	84.0	1959	84.5
		1962	84.5

(2) Share of Income Received by Top 5 Percent of Recipients, Kuznets-Economic Variant.

1919	26.10	1929	31.88	1938	27.80
1920	25.76	1930	30.69	1939	27.77
1921	31.70	1931	31.96	1940	26.83
1922	30.39	1932	32.12	1941	25.67
1923	28.08	1933	30.83	1942	22.47
1924	29.06	1934	29.13	1943	20.86
1925	30.24	1935	28.77	1944	18.68
1926	30.21	1936	29.26	1945	19.27
1928	32.06	1937	28.51	1946	19.96

(3) Share of Income Received by Top 5 Percent of Recipients, OBE-Goldsmith.

1929-1935	30.0 percent	1951	20.7 percent
1936	26.5	1954	20.3
1941	24.0	1956	20.2
1944	20.7	1959	20.2
1947	20.9	1962	19.6
1950	21.4		

(4) Share of Income Received by Top 5 Percent of Recipients, Social Security Population (Brittain).

1951	21.15 percent	1961	20.50 percent
1952	20.52	1962	20.51
1953	20.03	1963	20.58
1954	20.54	1964	20.21
1955	19.51	1965	20.32
1956	20.74	1966	21.52
1957	20.36	1967	21.73
1958	20.63	1968	21.34
1959	20.70	1969	21.07
1960	20.80		

Table A-2. (cont.)

(5) Share of Income Received by Top 1 Percent (Kuznets-Basic Variant).

1913	14.98 percent	1926	13.93 percent	1939	11.80 percent
1914	13.07	1927	14.39	1940	11.89
1915	14.32	1928	14.94	1941	11.39
1916	15.58	1929	14.50	1942	10.06
1917	14.16	1930	13.82	1943	9.38
1918	12.69	1931	13.29	1944	8.58
1919	12.84	1932	12.90	1945	8.81
1920	12.34	1933	12.14	1946	8.98
1921	13.50	1934	12.03	1947	8.49
1922	13.38	1935	12.07	1948	8.38
1923	12.28	1936	13.37		
1924	12.91	1937	13.00		
1925	13.73	1938	11.53		

(6) Coefficient of Inequality (Inverse Pareto Slope) Among Richest Taxpayers (Tucker-Soltow).

1866	0.71 percent	1917	0.68 percent	1930	0.62 percent
1867	0.69	1918	0.61	1931	0.585
1868	0.71	1919	0.58	1932	0.57
1869	0.71	1920	0.55	1933	0.565
1870	0.67	1921	0.53	1934	0.57
1871	0.71	1922	0.58	1935-	
		1923	0.58	1939	0.56
1894	0.61	1924	0.60		
		1925	0.65	1965	0.47
1913	0.64	1926	0.645		
1914	0.65	1927	0.66		
1915	0.71	1928	0.70		
1916	0.75	1929	0.70		

(For Sources and further description of these series, see "Sources and Notes to Figure 1 and Table A-2" above.)

Table A-3. Time Series Data on Occupational Pay Ratios in the nonfarm United States since Colonial Times

(1) Carpenters, Massachusetts (ratio of carpenter's to unskilled daily wage without board).

1771-1780	1.388	1831-1840	1.606
1781-1790	1.259	1841-1850	1.608
1791-1800	1.181	1851-1860	2.082
1801-1810	1.334	1861-1880	1.635
1811-1820	1.242	1881-1883	1.840
1821-1830	1.244		

(2) Skilled Workers, 1816-1939, 1948.

1816	1.094	1850	1.736	1884	1.747
1817	1.176	1851	1.762	1885	1.703
1818	1.149	1852	1.738	1886	1.726
1819	1.218	1853	1.735	1887	1.705
1820	1.207	1854	1.769	1888	1.697
1821	1.278	1855	1.781	1889	1.700
1822	1.280	1856	1.836	1890	1.702
1823	1.271	1957	1.679	1891	1.732
1824	1.278	1858	1.630	1892	1.706
1825	1.287	1859	1.668	1893	1.717
1826	1.341	1860	1.668	1894	1.735
1827	1.355	1861	1.686	1895	1.718
1828	1.381	1862	1.758	1896	1.717
1829	1.368	1863	1.676	1897	1.797
1830	1.346	1864	1.677	1898	1.801
1831	1.361	1865	1.652	1899	1.825
1832	1.376	1866	1.684	1900	1.825
1833	1.392	1867	1.749	1901	1.829
1834	1.407	1868	1.753	1902	1.809
1835	1.422	1869	1.744	1903	1.826
1836	1.437	1870	1.754	1904	1.878
1837	1.452	1871	1.761	1905	1.857
1838	1.468	1872	1.774	1906	1.846
1839	1.483	1873	1.812	1907	1.849
1840	1.498	1874	1.810	1908	1.879
1841	1.498	1875	1.796	1909	1.909
1842	1.498	1876	1.762	1910	1.919
1843	1.498	1877	1.740	1911	1.949
1844	1.511	1878	1.745	1912	1.960
1845	1.537	1879	1.697	1913	1.960
1846	1.564	1880	1.734	1914	1.989
1847	1.784	1881	1.736	1915	1.989
1848	1.773	1882	1.741	1916	1.989
1849	1.673	1883	1.747	1917	1.876

Table A-3 (continued)

(2) Skilled Workers, 1816-1939, 1948 (continued).

1918	1.764	1927	1.922	1936	1.917
1919	1.722	1928	1.919	1937	1.893
1920	1.806	1929	1.893	1938	1.901
1921	1.904	1930	1.922	1939	1.888
1922	1.943	1931	1.903	1948	1.773
1923	1.917	1932	1.951		
1924	1.933	1933	1.912		
1925	1.952	1934	1.865		
1926	1.953	1935	1.880		

(3) Skilled Workers, 1950/51-1972/73: Data given in "Sources and Notes to Figure 2 and Table A-3" above.

(4) Skilled Workers in Manufacturing (Ober-Miller).

1907	2.05
1918-1919	1.75
1931-1932	1.80
1937-1940	1.65
1945-1947	1.55
1952-1953	1.37
1955-1956	1.38

(5) Public School Teachers, 1841-1972.

1841	.812	1860	.993	1879	1.280
1842	.813	1861	.958	1880	1.319
1843	.808	1862	.926	1881	1.290
1844	.820	1863	.849	1882	1.239
1845	.789	1864	.861	1883	1.220
1846	.766	1865	.856	1884	1.213
1847	.748	1866	.933	1885	1.268
1848	.762	1867	1.065	1886	1.255
1849	.820	1868	1.123	1887	1.231
1850	.810	1869	1.144	1888	1.208
1851	.843	1870	1.250	1889	1.209
1852	.871	1871	1.257	1890	1.222
1853	.910	1872	1.229	1891	1.233
1854	.903	1873	1.243	1892	1.268
1855	.963	1874	1.310	1893	1.293
1856	.942	1875	1.371	1894	1.323
1857	.989	1876	1.387	1895	1.341
1858	1.056	1877	1.410	1896	1.355
1859	1.007	1878	1.371	1897	1.349

Table A-3 (continued)

(5) Public School Teachers, 1841-1972 (continued).

1898	1.356	1918	.906	1956	1.167
1899	1.409	1920	.984	1958	1.172
1900	1.421	1922	1.622	1960	1.222
1901	1.407	1924	1.456	1962	1.256
1902	1.444	1926	1.473	1964	1.290
1903	1.409	1928	1.510	1966	1.338
1904	1.455	1930	1.548	1968	1.343
1905	1.470	1932	1.862	1970	1.305
1906	1.500	1934	1.343	1972	1.301
1907	1.494	1936	1.332		
1908	1.460	1938	1.213		
1909	1.550	1940	1.213		
1910	1.553	1942	1.004		
1911	1.596	1944	.993		
1912	1.638	1946	1.001		
1913	1.573	1948	1.090		
1914	1.576	1950	1.096		
1915	1.539	1952	1.119		
1916	1.470	1954	1.136		

(6) Methodist Ministers, Mass. and NY, 1860-1924.

1860	4.513	1882	4.861	1904	4.747
1862	4.114	1884	4.936	1906	4.580
1864	3.370	1886	5.021	1908	4.226
1866	3.696	1888	5.147	1910	4.458
1868	4.321	1890	5.163	1912	4.428
1870	4.340	1892	5.458	1914	4.147
1872	5.032	1894	5.665	1916	3.743
1874	5.105	1896	5.387	1918	2.114
1876	5.233	1898	5.284	1920	1.903
1878	5.684	1900	5.137	1922	2.932
1880	5.163	1902	5.094	1924	2.829

(7) Associate Professors, 1908-1972.

1908	4.522	1917	3.387	1926	3.427
1909	4.691	1918	2.362	1927	3.394
1910	4.798	1919	2.128	1928	3.479
1911	5.011	1920	2.313	1929	3.456
1912	4.867	1921	3.140	1930	3.499
1913	4.552	1922	3.740	1931	3.715
1914	4.586	1923	3.441	1932	4.224
1915	4.441	1924	3.367	1933	..
1916	4.050	1925	..	1934	..

Table A-3 (continued)

(7) Associate Professor, 1908-1972 (continued).

1935	2.932	..		1960	1.996
1936	2.976	1951	2.104	1961	1.943
1937	2.758	...		1962	1.964
1938	2.721	1953	2.025	1963	2.012
1939	..	1954	..	1964	2.053
1940	2.678	1955	1.952	1965	2.091
1941	..	1956	..	1966	2.155
1942	2.150	1957	1.808	1967	2.196
..		1958	1.838	1968	2.191
1948	2.178	1959	1.951	1969	2.158
				1970	2.047
				1971	2.053
				1972	1.928

(8) Physicians, 1929-1969.

1929	5.374	1948	4.616
1930	5.094	1949	..
1931	4.541	1950	5.178
1932	3.973	1951	5.373
1933	3.676	..	
1934	3.530	1955	5.412
1935	3.732	..	
1936	4.196	1959	6.341
1937	3.759	..	
1938	3.492	1962	6.364
1939	3.560	1963	6.397
1940	3.634	1964	6.968
1941	3.700	1965	6.879
1942	4.356	1966	7.368
1943	4.900	1967	7.580
1944	5.494	1968	7.655
1945	5.984	1969	7.699
1946	5.026		
1947	4.676		

Footnotes

[1]Simon Kuznets, The Share of Upper Income Groups in Income and Savings (New York: National Bureau of Economic Research, 1953); Selma Goldsmith, "Changes in the Size Distribution of Income," reprinted and revised in Edward C. Budd (ed.), Inequality and Poverty (New York; Harper and Row, 1967), pp. 65-79.

[2]Arthur F. Burns, The Frontiers of Economic Knowledge (Princeton: Princeton University Press, 1954), p. 137.

[3]Simon Kuznets, "Economic Growth and Income Inequality," American Economic Review, vol. 45, no. 1 (March 1955), pp. 1-28.

[4]Victor Perlo, The Income 'Revolution' (New York: International Publishers, 1954); Gabriel Kolko, Wealth and Power in America (New York: Praeger, 1962), chs. 1, 2.

[5]Robert J. Lampman, "Measured Inequality of Income: What Does It Mean and What Can It Tell Us?" Annals of the American Academy of Political and Social Science, vol. 409 (September 1973), p. 88.

[6]Preliminary findings from the authors' ongoing research into the determinants of inequality trends can be found in: Williamson, "Demand and the Distribution of Income: America, 1913-1929," paper presented to the Sixth International Congress on Economic History, Copenhagen, August 19-23, 1974; Lindert, "Fertility and the Macroeconomics of Inequality," University of Wisconsin-Madison, Institute for Research on Poverty, Discussion Paper 219-74 (November 1974); Lindert, Fertility and Scarcity in America (Princeton: Princeton University Press, forthcoming), Chs. 6, 7; Williamson, "The Sources of American

Inequality, 1896-1948," Review of Economics and Statistics (forthcoming 1976); Williamson, "The Relative Costs of American Men, Skills, and Machines: A Long View," University of Wisconsin-Madison, Institute for Research on Poverty, Discussion Paper 260-75 (July 1975). The authors are currently collaborating on a monograph that pulls this material together.

[7]Basic conceptual problems of inequality measures are discussed in Lampman, "Measured Inequality"; Harold F. Lydall, The Structure of Earnings (Oxford: Oxford University Press, 1968); Martin Bronfenbrenner, Income Distribution Theory (Chicago: Aldine, 1971), ch. 2; Anthony B. Atkinson, "On the Measurement of Inequality," Journal of Economic Theory, vol. 2, no. 3 (September 1970), pp. 244-263.

[8]In some cases a slight trend towards inequality is statistically significant. Two of our colleagues, Sheldon Danziger and Eugene Smolensky, are currently conducting a detailed examination of the available annual series on income inequality since 1947. In addition to their work and the sources cited in the notes to Figure 1, summary measures of postwar income inequality can be found in the following: Barry R. Chiswick and Jacob Mincer, "Time-Series Changes in Personal Income Inequality in the United States from 1939, with Projections to 1985," Journal of Political Economy, vol. 80, no. 3, Part II (May/June 1972), pp. S34-S66; T. Paul Schultz, "Long Term Changes in Personal Income Distribution: Theoretical Approaches, Evidence, and Explanations," Discussion Paper, RAND Corporation, Santa Monica, Calif., December 1971; Edward C. Budd, "Postwar Changes in the Size Distribution of Income in the U.S.," American Economic Review, vol. 50, no. 2 (May 1970), pp. 247-260; George Katona et al., 1970 Survey of Consumer

Finances (Ann Arbor: University of Michigan, 1971) and earlier annual volumes covering the years 1959-1969; Joseph L. Gastwirth, "The Estimation of the Lorenz Curve and Gini Index," Review of Economics and Statistics, vol. 54, no. 3 (August 1972), pp. 311-312, using IRS data for 1955-1969; and Peter Henle, "Exploring the Distribution of Earned Income," Monthly Labor Review, vol. 95, no. 12 (December 1972), pp. 16-27, for 1958-1970.

Danziger and Smolensky have found that the IRS data (1947-1971 or 1955-1969), Brittain's Social Security series, and Henle's subset of the CPS data show significant trends toward greater inequality, while the overall CPS series lack a significant trend.

[9]Morgan Reynolds and Eugene Smolensky have estimated that the income-equalizing effect of transfer payments has risen across the postwar period ("Post-Fisc Distribution of Income: 1950, 1961, and 1970," Discussion Paper 270-75, Institute for Research on Poverty, University of Wisconsin-Madison, May, 1975, Table 2). Removing that part of transfers included in some income distribution series would produce a steeper upward trend across the postwar years in pre-fisc income inequality.

[10]Henle, "Exploring the Distribution of Earned Income," p. 18.

[11]The evidence is summarized in Jeffrey G. Williamson, "Strategic Wage Goods, Prices, and Inequality," Discussion Paper 294-75, Institute for Research on Poverty, University of Wisconsin-Madison, September 1975.

[12]Alice Rivlin, "Income Distribution-Can Economists Help?" American Economic Review, vol. 65, no. 2 (May 1975), pp. 1-5.

[13]Henle found a similar slight upward inequality trend when restricting his view to full time adult male workers. T. Paul Schultz ("Long Term Changes") documented steady or modest trends in inequality for most age-sex groups, though less so than for all households in the aggregate. Sheldon Danziger and Robert Plotnick also found that the modest inequality drift between 1965 and 1972 remained even after they controlled for various demographic factors ("Demographic Change, Government Transfers, and the Distribution of Income," Discussion Paper no. 274-75, Institute for Research on Poverty, University of Wisconsin-Madison). These results contradict Paglin's recent assertion that when the effects of changes in age composition are subtracted out, a residual decline in life-cycle inequality is left between 1947 and 1972 (Morton Paglin, "The Measurement and Trend of Inequality: A Basic Revision," American Economic Review, vol. 65, no. 4 (September 1975), pp. 598-609). A sharp critique of Paglin's approach can be found in Sheldon Danziger, Robert Haveman, and Eugene Smolensky, "The Measurement and Trend of Inequality: A Basic Revision: Comment," mimeo., Madison, Wisconsin, February 1976.

[14]Reynolds and Smolensky, "Post-Fisc Distribution." The "impact of government purchases" is restricted to an assessment of the distribution of direct benfits from government expenditures. It does not include a full general equilibrium analysis of the induced production effects. On the pre-fisc-post-fisc demand influence see Jeffrey G. Williamson, "Who Buys the Services of the Working Poor?" Discussion Paper no. 334-76, Institute for Research on Poverty, University of Wisconsin-Madison, February 1976.

[15]A ratio of skilled to unskilled, based on union-prescribed pay scales in the building trades, shows a drop of 10 percent in the 1950s,

followed by stability thereafter. Lindert, "Fertility and the Macroeconomics of Inequality," Table 2.

[16]This sentence is based on a comparison of the hourly pay of janitors and custodians in the BLS occupational wage surveys with the USDA series on farm hourly wage rates. The former was consistently a little over twice the latter in the postwar period.

[17]Between 1951 and 1966 the median earnings of "professional, technical, and kindred workers" and those of managers, officials, and proprietors (nonfarm)" rose by 12.8 percent and 18.2 percent, respectively, relative to the wage rates for janitors and custodians. (See U.S. Bureau of the Census, Current Population Reports, Series P-60, various issues; and the unskilled wage rate series cited in Figure 2.)

[18]Edward C. Budd, "Introduction," to his Inequality and Poverty (New York: W.W. Norton, 1967), Table I, citing the same OBE-Goldsmith series used to plot Series (1) and (3) in Figure 2.

[19]For measures of the overall inequality of state and regional incomes per capita spanning this and other eras, see Jeffrey G. Williamson, "Regional Inequality and the Process of National Development," Economic Development and Cultural Change, vol. 13, no. 4, part II (July 1965), Table 4, p. 25; Henri Theil, Economics and Information Theory (Chicago: Rand McNally, 1967), p. 103; and Lindert, "Fertility and the Macroeconomics of Inequality," Table 1, Series (7).

[20]The Gini coefficient produced by the OBE-Goldsmith data seems to have dropped by about .110 between 1929 and 1951. By comparison, Reynolds and Smolensky have estimated that the total redistributive effect of all government spending and taxation was on the order of

.079 for 1950, and about .110 for 1970 (loc.cit.) To improve comparability, transfer payments should be subtracted from the OBE-Goldsmith data. Doing so would bring the pre-fisc equalization of 1929-1951 down to about the 1950 estimate of government redistribution.

[21]Kuznets, The Share of Upper Income Groups, Table 88.

[22]Williamson, "Strategic Wage Goods, Prices, and Inequality," p. 25.

[23]See Perlo, The Income 'Revolution', esp. pp. 12-33, 38-42. Another adjustment is to count all corporate profits, including those paid to the government in profits taxes, as part of the pre-tax incomes of shareholders. Doing so raises the share of income going to the top income groups, since corporate shares are much more unequally held than is total income received. Doing so also has the effect of dampening the decline in the share of income received by the top 5 percent of the population by about 3 percentage points, or about a third of the estimated decline. See Selma F. Goldsmith, "Changes in the Size Distribution of Income," in Edward C. Budd (ed.), Inequality and Poverty (New York: W.W. Norton, 1967), pp. 78-79.

[24]For time series on the pay of these professional groups, see George Stigler, Trends in Employment in the Service Industries (Princeton: Princeton University Press, 1956), NBER General Series, no. 59, Table 51; David M. Blank and George Stigler, The Demand and Supply of Scientific Personnel (Princeton: Princeton University Press, 1957), NBER General Series, no. 62, Table 11; George Stigler, Employment and Compensation in Education (New York: NBER, 1950), NBER Occasional Paper no. 33, Tables 28, 29, 46, and D; and the sources cited there. Pharmacists appear to have gained as fast in average income as did unskilled workers

for the decade 1939-1949, to judge from their income gains reported in Blank and Stigler, Table 12.

[25]The official USDA and BLS cost-of-living series imply that the farm family cost of living rose about 15 percent more than the cost of living for urban manual and clerical workers between 1940 and the early 1950s. This is consistent with the decline in urban-farm consumer price differentials implied by the studies of Koffsky for 1941 and Puterbaugh for 1955, yet we retain doubts about the comparability of the bundles priced in the two settings. See USDA, Statistical Reporting Service, Crop Reporting Board, Prices Paid by Farmers... 1910-1960 (Washington; GPO, 1963), USDA Statistical Bulletin no. 319, Table 3; US Bureau of Labor Statistics, Handbook of Labor Statistics-1974 (Washington: GPO, 1974), p. 301; Horace L. Puterbaugh, "Purchasing Power of Urban, Rural Nonfarm, and Rural Farm Income, 1955," Agricultural Economics Research, vol. 13, no. 3 (July 1961), pp. 89-94; and Nathan Koffsky, "Farm and Urban Purchasing Power," in NBER, Studies in Income and Wealth, vol. 11 (New York: NBER), pp. 151-178, and the following criticisms, pp. 179ff.

[26]See George Stigler, Trends in Employment in the Service Industries, pp. 93-105, and U.S. Bureau of the Census, Statistical Abstract of the United States-1974 (Washington: GPO, 1974), pp. 350, 351, 356, 754, 766, and earlier issues.

[27]Kolko, Wealth and Power in America, p. 13.

[28]Ibid., p. 14.

[29]National Industrial Conference Board, Studies in Enterprise and Social Progress (New York: NICB, 1939), Table 1, p. 125. The book's

forward elaborates on its intent: "The purpose was to focus the attention of the business community and the public upon the problems of preserving and improving the enterprise system, and to create a clear, common consciousness of its underlying principles, the condition of its effective operation and its past and potential accomplishments." (pp. v, vi.)

[30]Willford I. King, The Wealth and Income of the People of the United States (New York: Macmillan, 1915), p. 221.

[31]Greater inequality is implied at a couple of points in Wesley C. Mitchell, W.I. King, et.al., Income in the United States, 1909-1919 (New York: Harcourt Brace, 1921), vol. I, pp. 112, 116. There it was estimated that 96 percent received less than $2000 for 1910, versus only 94.86 percent in King's 1915 book. The 1921 study also estimated the 1913 share of income going to the top 5 percent at 33 percent, above their estimates for the rest of the decade and far enough above King's figure of about 27.6 percent for 1910 to make the latter look suspiciously low.

King made no mention of the pioneering 1910 estimates in his The National Income and Its Purchasing Power (New York: NBER, 1930). He did, however, continue making eclectic estimates of the entire income distribution. Two of his unpublished detailed estimates, one for 1921 and one for 1928, existed in the files of the National Bureau of Economic Research as of 1939 and may, if recovered, give important clues to his procedure. (See C.L. Merwin, Jr., "American Studies of the Distribution of Wealth and Income by Size," in NBER, Studies in Income and Wealth (New York: NBER, 1939), pp. 11n, 12n, 38-45.)

[32]King's Tables XLIII and XLIV place the top-decile share of income in the range 35.36 percent-35.42 percent, whereas the NICB and Kolko report only 33.9 percent. The King estimate is higher than all their top-decile shares for later years except those for 1921 and 1929.

[33]Irving B. Kravis, The Structure of Income (Philadelphia: University of Pennsylvania, 1962), pp. 202-236, Appendix 2.1. Martin Bronfenbrenner relied on Kravis and Kolko when summarizing income distribution trends in the U.S. (Income Distribution Theory, pp. 67-72).

[34]Ibid., pp. 208, 209. Actually, Kravis understated the inequality of income reported by King in one respect: He reported that the top 5 percent of recipients got 26.3 percent of the 1910 income, whereas King's own figures (Tables XLIII and XLIV) gave the top 5 percent about 27.6 percent.

[35]The prewar BLS surveys were designed to "be representative of the conditions as to cost of living of persons employed as wage workers and at small salaries." (U.S. Commissioner of Labor, Eighteenth Annual Report (Washington: GPO, 1904), p. 15.) The "normal family" subset picked up by Kravis consisted of families with husbands currently employed at nonprofessional jobs, with wives present, and with earnings below a cut-off point making them "representative" of working families. By contrast, Kravis's "comparable" 1950 groups included some professionals and managers. Kravis also seems to acknowledge that differences in the top income cutoffs and in earnings by secondary breadwinners made the earlier surveys still narrower in population coverage than his 1950 counterparts (The Structure of Income, pp. 34, 35).

[36]Ibid., pp. 213-216.

[37]This index, the inverse Pareto slope given in Figure 1, measures the percentage by which income must rise to achieve a one percent drop in the proportion of the population having more than that income in the year in question. It turns out in practice that this slope is virtually constant over most ranges above the mean income, but is not useful in describing inequality below the mean income.

[38]The comparison of top-percentile shares of wealth in 1860 and 1929 is affected by differences in coverage of the adult population and by the treatment of slaves in the 1860 estimates. While the 1860 estimates cover the wealth distribution among adult free males (Soltow) or among free families (Gallman's "1860A"), Lampman's estimate for 1929 gives the share by the top percentile of all adults, whether or not they are household heads. By excluding nonhousehold heads from the population base, one would find a lower top-percentile share of total wealth than is given by Lampman for 1922, 1929, and later dates. Furthermore, changing the treatment of slaves in the estimates may or may not raise the wealth inequality of 1860. The estimates cited by Soltow and Gallman treated slaves as property but not as part of the population of potential wealthholders. Gallman has shown that for 1860 the degree of inequality would not be changed at all by treating slaves as potential wealthholders rather than as property. The addition of population with zero wealth (which would raise inequality) is offset by the subtraction of slave wealth from the wealthy (which would lower inequality). Yet one could just as reasonably treat slaves as both the property of whites and as penniless potential wealthholders

in 1860, a procedure that would adjust the estimated wealth inequality in 1860 upward.

[40]Except for 1910, the regional inequality series is based on estimates by Richard A. Easterlin, "Inter-regional Differences in Per Capita Income, Population, and Total Income, 1840-1950," in Trends in the American Economy in the Nineteenth Century (Princeton: Princeton University Press, 1960) and Frank A. Hanna, State Income Differentials, 1919-1954 (Durham: Duke University Press, 1959) as reported in Williamson, "Regional Inequality and the Process of National Development," Table 4, p. 25. The weighted coefficient of variation uses state per capita income estimates weighted by state population. The 1910 estimate is from Lindert, Fertility and Scarcity in America, Table G-3, who constructed regional income estimates for 36 states in 1910 by interpolating on census production data between 1900 and 1920.

[41]The urban unskilled and skilled wage categories underlying our "linked" series in Figure 2 do occupy positions in the income distribution which are usually separated by fairly stable differences in percentiles. The term "usually" is stressed since the statement seems to hold from 1918 to 1929 and from 1950 to 1970. It does not hold during the levelling from 1929 to 1950, however. Unfortunately, we do not have adequate data for any of the years prior to World War I to extend this analysis backwards. What we do have is presented in the table which follows:

	1918 Macauley	1929 Brookings			1950 OBE	1970 CPS		
	(ex soldiers)	All Units	All Families	Non Farm Families	All Units	All Units	All Families	Non Farm Families
Annual Income Full Time of:								
Urban Unskilled	$1048	$1150	$1150	$1150	$2234	$5066	$5066	$5066
Urban Skilled	1849	2178	2178	2178	3529	8339	8339	8339
Farm Labor	401	378	378	378	1281	2133	2133	2133
Estimated Percentiles of:								
Urban Unskilled	42·66	33·88	27·75	19·19	27·04	27·77	16·90	16·50
Urban Skilled	83·02	68·98	63·68	58·04	49·01	45·34	34·20	33·60
Δ	40·36	35·10	35·93	38·85	21·97	17·57	17·30	16·70
Farm Labor	2·86	--	--	--	12·34	10·15	4·00	3·70

Sources: All hourly wage data are taken from sources listed in Appendix Tables A-1, and Figure 2, expect farm. Annual earnings of farm employees is taken from S. Lebergott, Manpower and Economic Growth (New York: McGraw Hill, 1964), Table A-18, p. 525. The urban skilled and unskilled are annual full time equivalents. Non-agriculture hours worked per year (full time) are based on E.B. Jones "New Estimates of Hours of Work per Week and Hourly Earnings," Review of Economics and Statistics, XLV, No. 4 (November 1963), pp. 374-385. The relevant figures are 1918-2460 hours per year, 1929-2367, 1950-1877, and 1970-1819.2. The distribution data are taken from the following sources:

1918 - W.C. Mitchell, W.I. King, F.R. Macauley and O.W. Knauth, Income in the United States: It's Amount and Distribution, 1909-1919 (New York: Harcourt, Brace and Company, 1921), Vol. I, pp. 132-134.

1929 - M. Leven, H.G. Moulton, and C. Warburton, America's Capacity to Consume (Washington, D.C.: The Brookings Institution, 1934), Table 38, p. 228. The income classes are not sufficiently detailed to warrant estimates of farm labor percentiles.

1950 - S.F. Goldsmith, "The Relation of Census Income Distribution Statistics to Other Income Data," in An Appraisal of the 1950 Census Income Data, Studies in Income and Wealth, Vol. 23 (New York: NBER, 1958), Table 8, p. 93.

1970 - U.S. Dept. of Commerce, Current Population Reports, Consumer Income. "Money Income in 1972 of Families and Persons in the United States," Series P-60, No. 90 (December 1973), Table 18, pp. 48-49.

[42]Regressions were run on annual data for the period 1913-1934. PARETO refers to the Tucker-Soltow inverse pareto slope among taxpayers, while TOPPER is Kuznets's basic variant, top 1 percent (series (6), Figure 1). WGP, or wage gap, refers to Williamson's linked series on the ratio of skilled to unskilled wages (series (2), Figure 2). The nonfarm civilian unemployment rate, u, is calcualted from Stanley Lebergott, Manpower and Economic Growth, Table A-3 for the 1913-1921 period. The remaining years are from Robert M. Coen, "Labor Force and Unemployment in the 1920s and 1930s: A Re-examination Based on Postwar Experience," Review of Economics and Statistics, 55 (February 1973), Table 2, p. 52:

$$\text{PARETO} = \underset{(.48370)}{-0.13422} + \underset{(2.87349)}{0.00422}[\text{WGP}] - \underset{(3.10692)}{0.00446}[u]$$

$$\bar{R}^2 = .3756, \quad DW = .5738$$

$$\text{PARETO} = \underset{(1.30677)}{-0.38302} + \underset{(3.63376)}{0.00588}[\text{WGP}] + \underset{(3.31096)}{0.12293}\log[1/u]$$

$$\bar{R}^2 = .4029, \quad DW = .6650$$

$$\text{TOPPER} = \underset{(.31006)}{-1.40900} + \underset{(3.41267)}{0.08208}[\text{WGP}] - \underset{(3.10375)}{0.07299}[u]$$

$$\bar{R}^2 = .4229, \quad DW = 1.2920$$

$$\text{TOPPER} = \underset{(.95174)}{-4.81580} + \underset{(3.75064)}{0.10470}[\text{WGP}] + \underset{(2.81846)}{1.80650}[1/u]$$

$$\bar{R}^2 = .3868, \quad DW = 1.2360$$

Figures in parentheses are t-statistics

[43]Charles F. Holt, "Size Distribution and the Prosperity of the Twenties," m.s. Duluth, Minnesota, 1972, converting data from Kuznets, Share of Upper Income Groups, into constant dollars.

[44]Williamson, "Prices and Urban Inequality: American Cost of Living by Socioeconomic Class, 1820-1948," Discussion Paper EH 74-26, Graduate Program in Economic History, University of Wisconsin-Madison (August 1974), pp. 22-23.

[45]Kuznets, The Shares of Upper Income Groups, Table 119, p. 607. See also Williamson, "Demand and the Distribution of Income," for similar calculations relating to World War I and its aftermath. Such calculations do little damage to our twentieth century chrnology cited earlier in this paper.

[46]Stanley Lebergott, Manpower in Economic Growth, pp. 164-189, Tables A-15 and A-3, Jeffrey G. Williamson, Late Nineteenth Century American Development: A General Equilibrium History (Cambridge: Cambridge University Press, 1974), Table C.5, p. 304.

[47]This section has benefited from the helpful suggestions and provision of unpublished data from several scholars familiar with the wealth and demographic data for colonial and antebellum America. Without implicating them in the errors that may remain, we would like to thank Robert E. Gallman, James A. Henretta, Alice Hanson Jones, Gloria L. Main, Jackson T. Main, Gary B. Nash, Daniel S. Smith, Lee Soltow, Gerald B. Warden, and Robert Wells.

[48]The data on New York City can be found in G. Main, "Inequality in Early America," Table 1. The top decile share among tax payers was 44.5 percent in 1695 and 45 percent in 1789.

[49]Jackson T. Main, "The Distribution of Property in Colonial Connecticut," in James Kirby (ed.), The Human Dimensions of Nation Making (Madison, Wis.: The State Historical Society, 1976).

[50]Bruce Daniels, "Long Run Trends of Wealth Distribution in 18th Century New England," Explorations in Economic History, vol. 11, no. 2, Winter 1973-74, pp. 123-136. Daniels used probate inventory data unadjusted for age.

[51]See J. Main, "The Distribution of Property in Colonial Connecticut," pp. 77-83.

[52]Gloria L. Main, "Inequality in Early America: The Evidence of Probate Records from Massachusetts and Maryland," mimeo., 1975, Tables IV and V.

[53]Lee Soltow, "Economic Inequality in the United States in the Period from 1790 to 1860," Journal of Economic History, vol. 31, no. 4, December 1971, pp. 822-839.

[54]Lee Soltow, Men and Wealth in the United States, 1850-1870 (New Haven: Yale University Press, 1975), p. 107.

[55]This sentence is based on an examination of the following age distributions: (a) New England white males, c. 1690 (Robert Paul Thomas and Terry Anderson, "White Population, Labor Force, and the Extensive Growth of the New England Economy in the Seventeenth Century," Journal of Economic History, vol. 33, no. 3, September 1973, p. 654); (b) both sexes, Bedford and New Rochelle, New York, 1698 (Robert Wells, The Population of the British Colonies in America before 1776,

Princeton: Princeton University Press, 1975), p. 117; (c) Connecticut whites, both sexes, 1774 (ibid., p. 92); (d) U.S. white males, 1800 (Historical Statistics of the United States, Series A71-A84); and (e) U.S. males, 1860 (ibid.).

[56]Soltow, Men and Wealth in the United States, p. 152.

[57]Soltow, Men and Wealth, p. 107. The Gini coefficient of wealth inequality for all males in 1870 was .833 and that for native born males was .831.

[58]Ibid. The Gini coefficient for farm males alone was .765.

[59]"Frontier" counties had far lower wealth concentration levels in Southern New England for example. During the period 1720-1740, the top 30 percent of estates comprised 60.24 percent of the probated wealth in Worcester County while the figure for Boston was 82.45 percent. During the period 1740-1760, the figure for Hartford was 77.27 percent while middle and small Connecticut townships had figures of 69.05 and 60.83 percent, respectively. See Daniels, "Long Range Trends of Wealth Distribution," pp. 129 and 131. Other data for Massachusetts and Pennsylvania confirm this characterization.

[60]The estimates for both cities are taken from Edward Pessen, Riches, Class, and Power Before the Civil War (Lexington, Mass.: D.C. Heath, 1973), Tables 3-1, 3-2, 3-3, and 3-4, pp. 33-37. For New York City, Pessen supplies the share of noncorporate wealth among "the population" held by the top 4 percent. Their share rose from 49 to 66 percent between 1828 and 1845. The data for Brooklyn refer to the top one percent whose share rose from 22 to 42 percent between 1810 and 1841.

[61]This section draws heavily on Williamson, "The Relative Costs of American Men."

[62]Calculated from E. H. Phelps-Brown, A Century of Pay (London: Macmillan, 1968), p. 47. This was the dominant view of contemporary analysts, too. Taussig, for example, found the "comparatively low rate of pay for the unskilled" prior to World War I "markedly peculiar." F. W. Taussig, International Trade (New York: 1927), pp. 58-60.

[63]H. J. Habakkuk, American and British Technology in the Nineteenth Century (Cambridge: Cambridge University Press, 1962).

[64]N. Rosenberg, "Anglo-American Wage Differences in the 1820s," Journal of Economic History 27 (June 1967), pp. 221-229.

[65]This remarkable statement was made in 1835. A. de Tocqueville, Democracy in America (New York: A. A. Knopf, 1963), p. 161.

[66]J. F. Zabler, "Further Evidence on American Wage Differentials, 1800-1830," Explorations in Economic History 10 (Fall 1972), pp. 109-117 is preferred to D. R. Adams, "Wage Rates in the Early National Period: Philadelphia, 1785-1830," Journal of Economic History 28 (September 1968), pp. 404-426. The two document conflicting trends to 1825. They coincide thereafter.

[67]R. G. Layer, Earnings of Cotton Mill Operatives, 1825-1914 (Cambridge: Harvard, 1955), Table 14, p. 52.

[68]Erie Canal common labor wage data is taken from W. B. Smith, "Wage Rates on the Erie Canal," Journal of Economic History 23 (September 1963), Table 1, pp. 303-304. The earnings data for civil engineers working on canals and other internal improvements can be

found in M. Aldrich, "Earnings of American Civil Engineers, 1820-1859," Journal of Economic History 31 (June 1971), Table 1, p. 201.

[69]Williamson, "The Relative Cost of American Men," pp. 12-15.

[70]C. D. Wright, Comparative Wages, Prices, and Cost of Living (Boston: 1889). The following ratio of machinist's to common labor daily wages are gleaned from pages 22, 54, 55, and 185:

1825	150.0 percent
1831-1840	154.8
1837	185.2
1845	169.0
1841-1850	190.1
1851-1860	220.5
1871-1880	168.2
1881-1883	171.8

It should be emphasized again that the pay differentials discussed in the text are for urban workers. There is some evidence to suggest that all workers, urban and rural, would be described by a pay structure index not entirely unlike the urban index itself. This missing data, of course, relates to "wage gaps" between urban and rural employment. Wright's Comparative Wages (pp. 184-185) supplies Massachusetts day rates for urban common labor and for agricultural employment. The ratio of the former to the latter yields a relative wage gap. Taking 1850-1860 = 100, we have:

1820-1830	102.6
1830-1840	103.2
1840-1850	92.9
1850-1860	100.0
1870-1880	117.0
1880-1883	114.2

The Massachusetts wage gap was quite stable between the 1820s and 1850s. If the same was true in other states, then by inference the economy-wide pay structure must have followed closely the urban pay structure in these

four antebellum decades. This was less true of the post Civil War trends. Since the rural-urban wage gap opened up sharply between the 1850s and the 1870s, our urban pay differentials index must understate the economy-wide widening in pay differentials during Reconstruction.

[71]The real wage data can be found in Williamson, "Prices, Wages and Urban Inequality Since 1820," Appendix Table.