1   Long-Term Trends in American Wealth Inequality

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1.1   The Inequality Issue

Public opinion and policy have always been influenced by perceptions about inequality, and recent research makes it possible to say much more about trends in wealth distribution than was the case a decade ago. The pioneering work of Lampman (1962) and others on twentieth-century estate tax returns has been revised and updated by James D. Smith and Stephen D. Franklin (1974), as well as by the U.S. Internal Revenue Service (1967, 1973, 1976). Robert Gallman (1969) and Lee Soltow (1975) have drawn large samples from the manuscript censuses of 1850, 1860, and 1870, which contained questions on wealth. Alice Hanson Jones (1977a, b) has put together a composite picture of the distribution of wealth on the eve of the American Revolution, drawing on a sample of probate inventories. A host of other scholars, most of them cited in sections 1.2 through 1.4 below, have drawn on probate and property tax records to sketch local trends in wealth inequality across the seventeenth, eighteenth, and nineteenth centuries.

Some striking patterns have begun to emerge from these studies. The inequality of American wealthholding is not an eternal constant. While

the colonial era was one of relative egalitarianism and stable wealth distribution, it was followed by an episode of steeply rising wealth concentration lasting for more than a century. By the early twentieth century, wealth concentration had become as great in the United States as in France or Prussia, though still less pronounced than in the United Kingdom, to judge from some tentative comparisons of probate returns. This episodic rise in wealth concentration seems to have occurred primarily in the antebellum period, with the most dramatic shift towards concentration apparently centered on the second quarter of the nineteenth century, a period when wage gaps and skill premia were rising, and profit shares increasing.

Wealth inequality declined in three periods. First, during the Civil War decade, while Northern wealth inequality remained almost unchanged, Southern inequality was reduced dramatically by slave emancipation. This revolutionary leveling in Southern wealth contrasted with and outweighed the opening of new inequalities in wealth (as well as income) between North and South. Second, both wealth and earnings leveled during the brief World War I episode. The third and last period of declining wealth inequality coincided with the "incomes revolution" documented by Kuznets (1953) and proclaimed by Arthur Burns. That is, wealth inequality declined between the late 1920s and the mid-twentieth century. In contrast with the previous periods of wealth leveling, the twentieth-century leveling has not been reversed.

American experience thus suggests confirmation of Simon Kuznets's hypothesis of an early rise and later decline in inequality during long-term modern economic growth. There is even a close correspondence in the timing of income and wealth inequality turning points. We do not yet know whether the rise and fall of wealth and income inequality were of the same magnitude. It is apparent, however, that the inequality of wealthholding today resembles what it was on the eve of the Declaration of Independence.

Any effective theory of wealth distribution must deal with these long-term changes in concentration over time. The greatest challenge to existing theory, of course, will be the apparently episodic shifts in wealth concentration at two points in American history: (1) the marked rise in wealth concentration in the first half of the nineteenth century following what appears to have been two centuries of long-term stability; (2) the pronounced decline in wealth concentration in the second quarter of the twentieth century following what appears to have been six decades of persistent and extensive inequality with no evidence of trend. Furthermore and contrary to the popular view, these episodic shifts in American wealth inequality were not merely the product of changes in the demographic mix. Changes in age composition, for example, fail to account for either revolutionary shift in aggregate wealth

inequality. Thus, while life cycle may help to account for inequality levels at points in time it fails to offer an explanation for inequality trends over time. Nor have American inequality trends been influenced in any important way by changes in the size of the immigrant population stock.

These are the tentative findings of this paper. Before going further, however, two issues must be confronted: motivation and measurement. While some observers care about income and wealth inequality itself, others appear to be more concerned about justice, opportunity, and social mobility. Injustice, not inequality, is central to debate over institutions which foster discrimination by race or sex. Immobility, not unequal outcomes, is the central issue to those concerned with the impact of genes, inheritance, and other dimensions of family background. Yet information on wealth inequality is central even to debates on economic justice, mobility, and opportunity. To judge the importance of discriminatory rules or other barriers to mobility in producing economic inequality, it is important to measure wealth gaps between rich and poor. If the richest one percent of households has always held only twenty percent more wealth than the poorest one percent, then being born male to rich parents can buy only a twenty percent ticket at most. By contrast, if the richest one percent has always held a thousand times more wealth than the poorest one percent, then investigating the extent and sources of injustice and immobility would have far more to recommend it. Furthermore, inequality may itself help foster attitudes of contempt that exacerbate discrimination and socioeconomic immobility.

The problems of measurement are well known and they involve choice of time span, income or wealth concept, recipient unit, and the summary statistic for computing inequality. As for time span, it seems clear that the greatest welfare meaning can be attached to lifetime income from all sources, or its capitalized counterpart—total personal wealth—viewed from a given age. Such measures better capture material well-being than any one of those usually available: annual income, annual earnings, or the stock of nonhuman wealth. Like other researchers, however, we have been forced to retreat to less perfect measures. We have analyzed the available data on the distribution of nonhuman net worth alone (including the ownership of slaves). These data shed light on trends in lifetime inequality in two ways. First, movements in nonhuman wealth inequality are likely to reflect movements in current property income if the slope relating the average rate of return to the size of household wealth does not change significantly over time. Second, wealth inequality trends are likely to correspond with earlier movements in overall income inequality if the marginal propensities to save and rates of return maintain stable relationships with levels of income and wealth, respectively. Time series on wealth inequality are valuable mainly because

they relate to the inequality of lifetime income in these indirect ways, and also because wealth distribution data exist from earlier time periods, well before household surveys and income tax returns supplied estimates for the distribution of current income.[1]

Ambiguity relating to the population unit selected and the summary inequality statistic employed also blurs, though it does not totally obscure, the meaning of trends and levels in wealth inequality. Wealth is shared to varying degrees among relatives and coresidents, complicating the definition of just who it is that has access to that wealth. The "household" offers a unit of observation which is probably as satisfactory a resolution as can be had for the question, Whose wealth is it? In addition, recent work has shown that the summary inequality statistic selected can influence the ranking of different distributions by inequality. One distribution may look more unequal than another by a Gini coefficient measure, just as equal by an entropy measure, and more equal by top shareholder percentages (Atkinson 1970). Behind this diversity in rankings of given distributions lie more basic differences in what aspects of inequality we care about most: some observers care most about the gap between the richest and the median, which is featured by some statistics, and others care most about the gap between the median and the poorest, which is featured by competing statistics. We cannot treat this issue at any length here. In order to compare studies of wealth distribution in different time periods, we shall concentrate on the three measures most commonly provided by these studies—the share of wealth held by the richest one percent of households, the share held by the richest ten percent, and the Gini coefficient—with attention to variance measures where decomposition identities are useful. Our conclusions imply a belief that the major changes in wealth inequality revealed by American history would be evident regardless of the inequality statistic employed.

These comments set the stage. Measurement of inequality through historical time is fraught with problems and thus our paper is long. But the exercise is an essential prerequisite to any serious modeling of long-term inequality dynamics in America.

1.2   In the Beginning: The Distribution of Wealth in Colonial America

1.2.1   The American Dream and the Revisionists

Visiting contemporary observers were unanimous in describing colonial America as a utopian middle class democracy, where economic opportunities were abundant and egalitarian distributions the rule. After his 1764 visit to Boston, Lord Adam Gordon remarked: "The levelling principle here, everywhere operates strongly and takes the lead, and

everybody has property here, and everybody knows it" (Mereness 1916, pp.449–52). A French visitor, Brissot de Warville, viewed Boston in 1788 and "saw none of those livid, wragged wretches that one sees in Europe, who, soliciting our compassion at the foot of the altar, seem to bear witness . . . against our inhumanity" (Kulikoff 1971, p. 383). Of colonial Philadelphia, visitors pronounced that "this is the best poor man's country in the world" (Nash 1976a, p. 545). According to early America's most famous foreign observer, Alexis de Tocqueville, things were pretty much the same by the 1830s. Indeed Tocqueville's hope coincided with the American dream that the New World could some-how continue to avoid the classic conflict between growth and inequality, a conflict so painfully obvious in England and on the European conti-nent when Tocqueville and his predecessors made their visits to America.

These early observers thought America was egalitarian by European standards, and modern social historians have done nothing to upset these early impressionistic judgments. The modern quantitative evidence is effectively summarized by Allan Kulikoff's (1971, p. 380) statement that "in the seventeenth century wealth in American towns was typically less concentrated than in sixteenth-century English towns, where . . . the richest tenth owned between half and seven-tenths."

While comparative *levels* of European and American inequality have never been seriously debated, there has been lively debate regarding co-lonial *trends* in America. Three competing hypotheses have emerged in the literature. Following Jackson T. Main (1976, p. 54), the first thesis holds that a European class structure and highly concentrated wealth distribution were exported to seventeenth-century America. The frontier made short work of the European model, however, and the Revolution eventually ensured its demise. While the first thesis predicts an egalitar-ian trend economy-wide in the colonial era, that it predicts as well an egalitarian trend in the older Eastern settlements where the English model was first imported is not clear.

In contrast, the second thesis argues that the presence of the frontier made it possible right at the start to achieve a very equal distribution of land and thus wealth. But as the readily accessible colonial frontier be-came exhausted, a trend toward inequality and wealth concentration emerged, which the Revolution served only temporarily to halt. This second thesis has many proponents; for simplicity, we shall label them "the revisionists." Kenneth Lockridge (1970, 1972), for example, uses his colonial economic stress theory to describe increasing wealth con-centration and diminished opportunities for accumulation in settled agrarian coastal regions. Man/land ratios rose, land values shot up rela-tive to wages making it increasingly difficult for the landless to purchase an acre of farmland and earn rent, and increased wealth and income in-equality resulted. Lockridge makes two assumptions in reaching his con-

clusions: that nonagricultural opportunities can be ignored, and that young men were reluctant to leave for the frontier. Lockridge is asking us to view Eastern settled colonial townships as closed agrarian systems. His "crowding" thesis quite naturally predicts inequality as the European classic steady state emerged. There is another band of revisionists who share the rising inequality view, but the city is their window on colonial America. Bridenbaugh (1955), J. Main (1965, 1971), Henretta (1965), Kulikoff (1971), and Nash (1976a, 1976b) have argued that poverty was on the rise in American cities, and that urban trends were toward propertylessness, swollen relief rolls, increasing stratification, declining opportunity and general inequality. For these scholars, inequality trends in Boston, Philadelphia, and New York City are far more important than colony-wide performance or even settled coastal agrarian township performance, because in their view these cities were the flash points for revolution, political change, and social reform. It matters little to the urban revisionists that these towns were a small and sharply declining share of total colonial population.

The third thesis is the romantic one, and it is the one we adopt here: trends were mixed, but *in the aggregate* colonial inequality was stable at low levels.[2] In some cities, inequality was on the rise. These were the fast growers who attracted the young adult or the propertyless. In others, no rise in inequality can be observed. These were typically slow growers who failed to attract the young and propertyless. Some settled agrarian regions exhibited inequality trends, others not. Even frontier settlements exhibited some evidence of rising inequality.The colonial era exhibits a lack of consistent local behavior, in contrast to the century following the second or third decade of the nineteenth century. Indeed, when the New England or Middle colonies are examined as a whole we believe there is no evidence which supports the view of drifting colonial inequality.

It appears to us that participants in the "great colonial wealth debate" have fallen victims of the fallacy of composition. Were there evidence of rising inequality in *all* town and rural communities, the case for aggregate colonial inequality trends would still not be established, for as we shall see, populations may shift toward regions with both lower inequality and more rapid wealth accumulation per capita. These were in fact the ingredients of colonial extensive and intensive frontier development, ingredients absent in the nineteenth-century economy, so that it thus was not spared from the inequality produced by modern economic growth.

1.2.2   Wealth Inequality in the Colonies

A Word about Data

Colonial social historians have made great strides in establishing a broad data base documenting wealth inequality trends in the Northern

colonies. Whether based on tax assessments or probate inventories, these wealth distributions can be used as indicators of income inequality only with a solid understanding of their limitations. Since probate records are by far the best source of colonial inequality information, what follows is primarily directed toward this type of information.

Historians can get valuable clues as to the inequality of property and total income distributions among the living by observing the inequalities in the wealth that individuals left upon death. Research into colonial probate records has shown clearly that wealth inequality at death exhibits much the same trends (but different levels) as wealth inequality among the living where both kinds of documentation are available. This is apparent in the studies by Jackson T. Main (1976), Gloria Main (1976), Gary Nash (1976a), Alice Jones (1970, 1971, 1972, 1977a, 1977b) and others, all of whom have been able to classify numerous extant colonial wealth distributions for decedents by age so as to reweight them to conform to the age distributions of the living (following the estate multiplier method, e.g., Mendershausen 1956 and Lampman 1962). In no case do the resulting trends in wealth inequality among the living depart from those based on the deceased. In short, while the first limitation of colonial wealth probate data is that they fail in theory to describe the living, past studies have established unambiguously that adjusting for age distribution affects only the levels and not the trends in wealth inequality.

Some critics argue that extant colonial wealth distributions fail to gauge *income* inequality, and that it is this which should be the relevant focus. The critics can be answered in the following way: Wealth inequality measures will be monotonically related to income inequality measures when a few innocuous assumptions are satisfied. Wealth inequality *levels* are monotonically related to inequality in current property (human and conventional) incomes if rates of return on assets (including consumer durables) vary little across wealth classes. Even if rates of return rise with size of wealth holdings, the correlation still holds; parallel inequality trends in property income and property values would still be assured in this case, although income inequality levels and trends would be magnified. Indeed, while twentieth-century evidence shows that property income is more highly concentrated than wealth, implying higher rates of return among the more wealthy, the temporal correlation between the two after 1929 can be established with ease. Compared with those of the twentieth century, colonial wealth distributions are likely to exhibit an even closer parallel to *total,* as opposed to only property, income distributions. After all, conventional property income is a far larger share of total income in early stages of growth when human capital, and thus labor earnings above "subsistence," is less important. On these grounds alone, the distribution of real estate and mercantile wealth was more important in determining total wealth and income distribution

early in America's growth experience than late. Finally, wealth inequality trends will accurately reflect *prior* income inquality trends if average propensities to save do not decline with income and if the income slope of the average-propensity-to-save function is relatively stable over time. Neither of these assumptions can be rejected on the basis of colonial and early national data.

We now turn to another problem in dealing with colonial wealth data. Owing to small sample size, probate wealth distributions, appropriately deflated, must be averaged over several years in order to shed light on long-term trends in wealth distributions. Wealth inequality statistics drawn from only a year or two are much too sensitive to the timing of death among the very rich. In response to this problem, some researchers report the full distribution from which has been subtracted the effect of the richest few. Although this procedure has been favored by some (e.g., J. Main's [1976] use of the "trimmed mean" in Connecticut colonial probates), we shall rely instead on multiyear averages.

Two remaining limitations on the probated wealth distributions are more important than those just mentioned. First, many decedents failed to leave wills or to have their estates administered at death. The records that survive thus supply only a sample of all decedents. Fortunately, these samples are usually large enough to predict population wealth distributions. While the samples are not free of coverage bias, colonial historians have been impressed at how well represented are both the very poor and the very rich in probate records. To be sure, samples may exhibit better coverage among estates of middle and high value, and those too poor to leave any wealth are often seriously underrepresented. Yet these problems are hardly intractable, and consistent rules for augmenting colonial probate records have been well established (Jones 1977a, 1977b; J. Main 1976; G. Main 1976; D. Smith 1975) to correct for the coverage bias. The essential point is that probate samples will accurately reflect *trends* in wealth inequality unless there were changes in coverage.

Second, probate records are limited in their asset and liability coverage. As a rule, the Middle colonies did not include real estate (land, improvements, and buildings), but covered only personal estate. The New England colonies were more complete in asset coverage. In both cases, financial liabilities were rarely included. As we shall see, this variety in asset coverage is a serious defect only if comparative judgments across colonies or short-term instability is the focus. The problem of limited coverage appears not to be quantitatively significant when evaluating long-run trends, since colonial wealth inequality measures normally trace the same secular pattern regardless of probate asset coverage.

What, then, do these sources tell us about the distribution of colonial wealth and opportunity?

Colonial Wealth Inequality Trends

Appendix 1 collects estate and tax list distributions from New England and the Middle colonies, producing twenty-nine series in all. Connecticut and Massachusetts are both very well represented from the mid–late seventeenth century to the Revolutionary War. We have long time series on urban and rural areas, and the series yield a wide geographic representation. The Middle colonies are less extensively documented, but even in this case we have time series on Philadelphia and New York City as well as Maryland and rural Pennsylvania. The data have two limitations. First, they fail to supply summary descriptions of trends in aggregate performance for any colony or region, with the possible exception of Maryland. While manuscript censuses for 1860 and 1870 yield returns on total personal wealth for America as a whole and the major regions, no such aggregates are available for the colonial era, with the exception of Alice Jones's benchmark for 1774 (Jones 1970, 1972, 1977a, 1977b). This attribute of colonial wealth concentration trends has the effect of producing an inherent upward bias and, as we shall see in section 1.2.3, has produced erroneous inferences in the recent literature. Second, wealth distributions derived from tax lists must be treated with great caution. Since so much of the revisionist literature (Henretta 1965; Lemon and Nash 1968) was initially based on tax lists, it might be useful to discuss its limitations before proceeding further.

Some ten years ago, Henretta (1965) reported steep wealth inequality trends for colonial Boston. His pioneering work was based on very imperfect tax list data. He thought he observed a striking trend toward wealth concentration, since the top ten percent increased their share from 46.6 percent in 1687 to 63.6 and 64.7 percent in 1771 and 1790 (table 1.A.4, col. 12). Apart from the fact that Gloria Main and Gary Nash's Boston probate data (table 1.A.3, cols. 8 and 9) now make it apparent that the 1680s and '90s were decades of atypical low concentration ratios, the tax data have now been shown to be seriously flawed. Gerard Warden's adjustments (table 1.A.4, col. 13) suggest a much more modest rise from the atypical trough of the 1680s, from 42.3 to 47.5 percent between 1681 and 1771. Warden's "adjustments" deal with problems of undervaluation. Undervaluation ratios varied greatly across assets and over time, many assets escaped assessment altogether, and asset mixes varied over time and across wealth classes. Apparently, these valuation problems tend to yield a spuriously steep inequality trend for Boston. Although no one to our knowledge has yet attempted similar adjustments to the Philadelphia, Chester County (Pennsylvania), Hingham (Massachusetts), and New York City tax list wealth distributions, they must by inference be treated with equal caution. It is for this reason that figures 1.1–1.4 rely almost exclusively on probate data.

What do the probate wealth inequality trends tell us? Was the colonial era one of drifting inequality? If one were to take 1690 or 1700 as a base, the wealth inequality series reported in figures 1.1–1.4 would suggest mixed trends but, on average, a drift toward greater wealth concentration for the seven or eight decades prior to the Revolution. This characterization holds for rural Connecticut (but not for Hartford County),
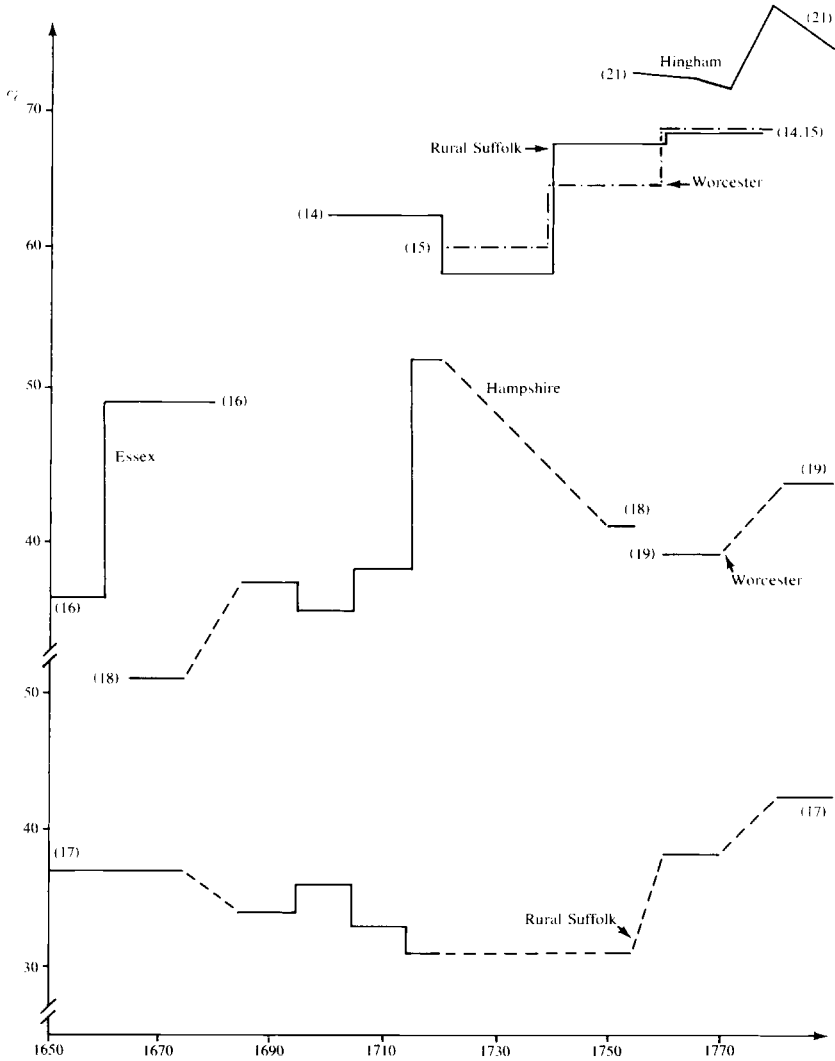
Fig. 1.1   Colonial Wealth Inequality Trends: Rural Massachusetts (percent held by top wealthholders). Source: tables 1.A.5 and 1.A.6, cols. 14–19 and 21.

for rural Massachusetts (but not for rural Suffolk County), for Boston as well as Portsmouth (New Hampshire), and for Philadelphia as well as nearby Chester County. It does not hold for Maryland, however, which exhibits stability from the 1690s onward. New York City is an-
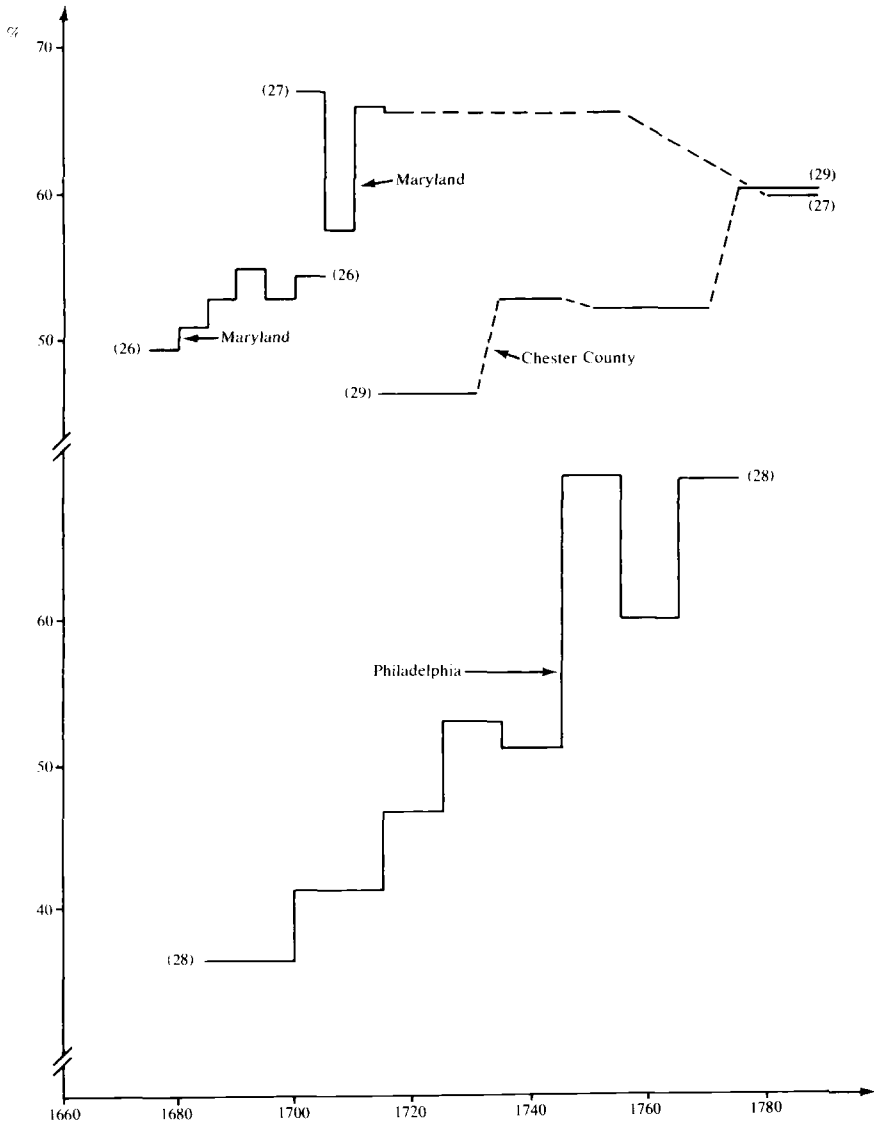

Fig. 1.2   Colonial Wealth Inequality Trends: Middle Colonies (percent held by top wealthholders). Source: table 1.A.8, cols. 26–29.

other exception since it had a stable wealth distribution between 1695 and 1789 (table 1.A.7, col. 25), but it is based on tax list data.

Selection of benchmark dates is critical in evaluating colonial inequality trends. Boston traces out inequality trends only if the 1690s are taken as a starting point, while no perceptible trend can be identified when the 1770s are compared with the 1670s or 1730s instead. "Cycles" in wealth inequality are also reported by Gloria Main for both Boston and Suffolk County probates (table 1.A.3, cols. 8–10). Wealth concentration rose after a trough in the 1680s and '90s, but far higher inequality was recorded in the colonial era beginning in 1650. If the 1690s were years of atypical economic conditions accounting for unusually low concentration levels, then the case for stability in Boston colonial inequality trends would be reinforced. It hardly seems coincidental that New England imports were low and declining from 1697 to 1706, high and rising from 1707 to 1730, declining again from 1731 to 1746, and rising thereafter to 1771.[3] These episodes of "bust" correspond very well with periods of low inequality in Boston and Suffolk County (figure 1.3), a predictable result since extended depression must have produced capital losses at the top of the distribution and thus a leveling in wealth concentration. Subsequently, the improvement in Boston trade (and associated capital gains) produced increased wealth concentration following ca. 1705 and again following ca. 1750. What we may be observing between 1700 and 1730 is not a pervasive secular shift in *physical* asset accumulation at the top of the wealth pyramid, but an uneven rise in average asset values among the very rich who held mercantile capital in relatively high proportion. After all, real estate was far more equally distributed in mercantile Boston than was "portable" personal property (Nash 1976a, pp. 552–53), and the latter included slaves, servants, currency, bonds, mortgages, book debt, stock in trade, and ships. Short-term capital gains and losses must have been more typical for these types of assets than for real estate, at least for a trading center like Boston which was subjected to the whims of exogenous world commercial conditions. Since the very wealthy held non-land-type assets in relatively high proportions, their relative fortunes were far more sensitive to the vagaries of mercantile conditions. (For a twentieth century example, see Robert Lampman's [1962, pp. 220–29] discussion of asset price changes and wealth inequality during the 1920s and '30s.) Thus the "cycles" in wealth concentration can be readily associated with Boston's trade conditions, and since the 1680s and '90s were years of atypically poor trade conditions, while the 1670s or 1710s were not, long-term stability (or decline) seems the best characterization of Boston's wealth concentration for the whole colonial era.

Mercantile centers were not the only colonial areas to exhibit wide instability in wealth concentration. Maryland supplies another example,

and thus the choice of benchmark dates plays a crucial role here too. While wealth concentration was remarkably stable after 1710 (table 1.A.8, col. 27), the social historian beginning his analysis with 1675 would have cited instead evidence of a slight drift in Maryland inequality throughout the colonial era. While Gloria Main's estimates (table 1.A.8,
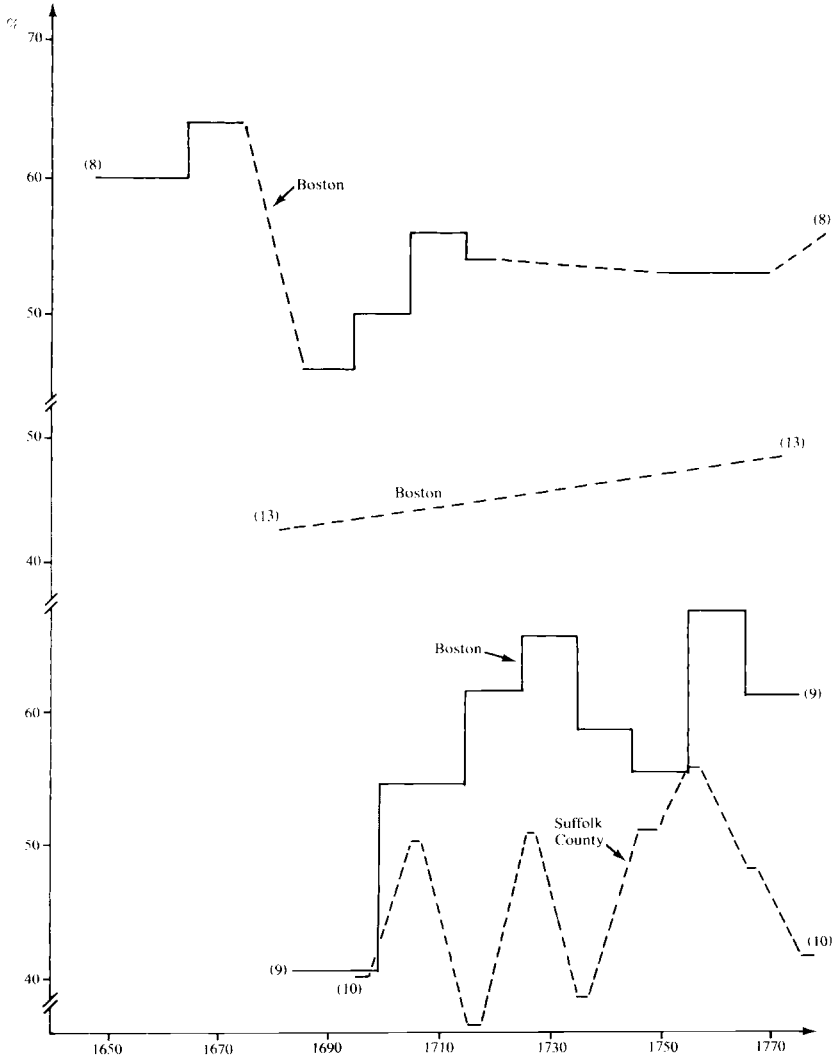

Fig. 1.3   Colonial Wealth Inequality Trends: Boston and Suffolk County (percent held by top wealthholders). Source: tables 1.A.3 and 1.A.4, cols. 8–10 and 13.

col. 26) show a modest rise in Maryland wealth inequality from 1675 to 1690, Menard, Harris, and Carr (1974, p. 174) have shown that the 1670s were unusual since a leveling in the wealth distribution had been at work for the quarter-century following 1640, at least along the lower western Chesapeake shore. This pattern seems to correspond fairly well with tobacco fortunes. While American tobacco prices fell sharply up to the late 1660's, they bottomed out thereafter. Furthermore, the temporarily low wealth inequality recorded in 1705–9 (table 1.A.8, col. 27) also appears to correspond with depressed tobacco exports.[4] The capital-gains-and-losses-export-staple thesis seems to account for Maryland colonial wealth instability, too. In the 1690s, conditions facing Maryland's key export staple, tobacco, were more typical; therefore, the stable long-term wealth inequality levels from that benchmark seem to describe Maryland's colonial inequality experience best.

Hartford, Connecticut, will serve as a final example of colonial instability and the benchmark dating problem. Jackson T. Main's (1976) recent finding of long-term stability of wealth distribution for the Hartford probate district can be seen quite clearly in figure 1.4. Main's trends for Hartford are confirmed by Bruce Daniels (1973–74, pp. 129–31). Daniels also finds, however, that wealth inequality was on the rise in small and medium-sized Connecticut towns after the early 1700s. Daniels reports a steep trend in wealth concentration in Danbury, Waterbury, and Windham after 1700, and in the smaller frontier towns in Litchfield County after 1740 (table 1.A.2, cols. 5 and 6). But a comparison with Main's data reproduced in figure 1.4 shows that the contrast between rural and "urban" Connecticut experience may be only apparent, not real. While Hartford personal wealth inequality (figure 1.4, series 1a and 2a) and total wealth inequality (table 1.A.2, col. 4) were stable throughout the eighteenth century, *real* wealth inequality was not, for it rose between 1710 and 1740 or 1750. Since the smaller frontier towns had a far larger share of wealth in real estate (and thus land),[5] the rise in wealth concentration outside of the Connecticut trading towns following 1710 seems less anomolous. Indeed, had Daniels extended his analysis backward to 1680, he may have discovered stable inequality trends in rural Connecticut too. J. Main's real estate concentration figures for Hartford County (figure 1.4, series 3) show a very striking leveling in real wealth distributions from the 1680s to 1710. Had we, like Daniels, begun our analysis in 1700 we would have observed a real wealth inequality drift in Hartford up to 1774. If instead the analysis starts with the 1680s or earlier, no trend in real wealth concentration can be observed. By inference, it seems likely that at least some of the wealth inequality trends following 1700 noted by Daniels in rural Connecticut are spurious.[6]
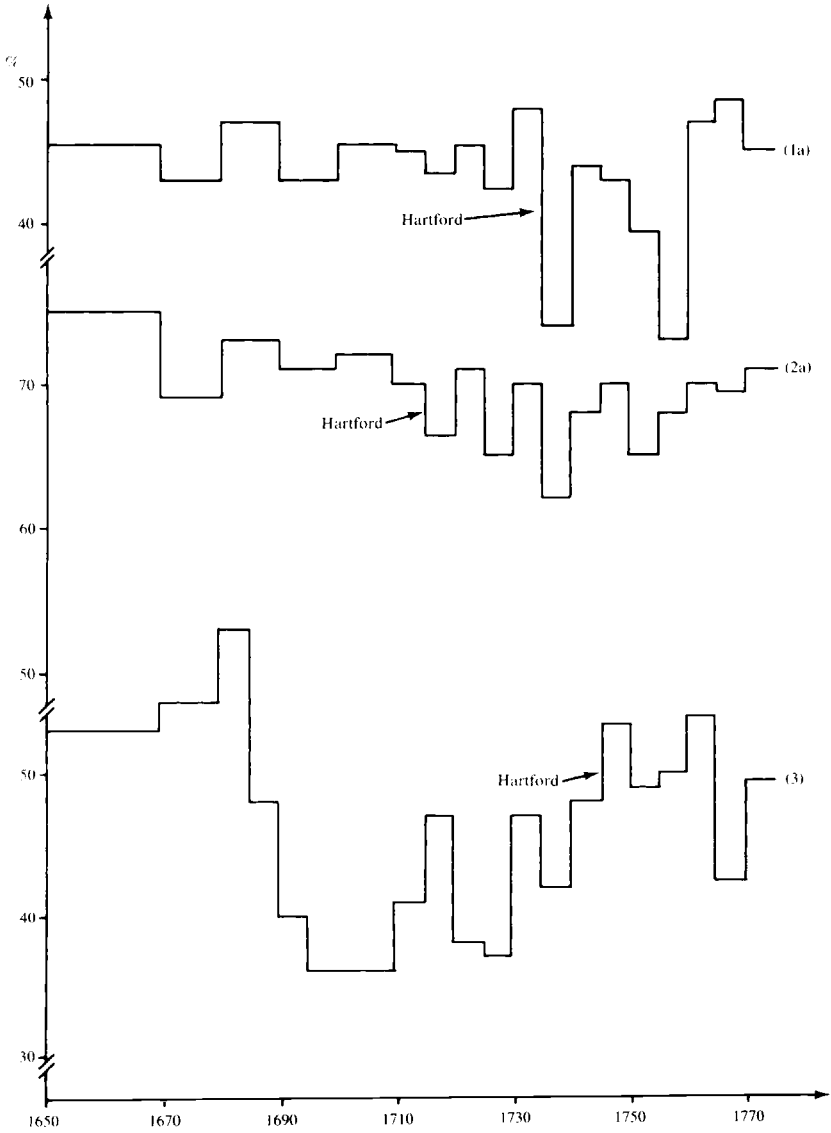
Fig. 1.4 Colonial Wealth Inequality Trends: Hartford, Connecticut (percent held by top wealthholders). Source: table 1.A.1, cols. 1–3.

To summarize, among those probate wealth inequality series that extend backward before the 1690s, Worcester County (Massachusetts) and Philadelphia reveal the minority position: a clear secular drift toward inequality for the entire colonial era. Connecticut, Boston, rural Suffolk County (Massachusetts), and Maryland represent the majority: they do not reveal inequality trends. If instead one is content to start the analysis with 1700, then a modest drift toward inequality seems to characterize these colonial "local histories" best. We have tried to show, however, that the 1700 benchmark may impart a spurious upward trend to wealth concentration indices. Some readers may disagree with this interpretation, but those historians who have adopted the 1700 benchmark, and thus view the mixed "local history" trends as evidence of a colonial inequality drift, may be inadvertent victims of yet another bias—the fallacy of composition.

1.2.3   The Fallacy of Composition and the Trending Inequality Bias

New Frontiers, Old Settlements, and
Colonial Wealth Inequality

As we have seen, the probate or tax data necessary to document trends in colony-wide wealth inequality do not exist. These trends may be inferred, however, with the help of some variance properties. Our interest is in the concentration of wealth colony-wide and one such measure is the *variance statistic*:[7]

$$\sigma^2 = \frac{\sum_i (W_i - \overline{W})^2}{P}$$

where W_i is individual wealth, $\overline{W}$ is average wealth, and P is total colonial population (or adult males). Similarly, variance in individual wealth holdings in any city, township, county or settlement can be denoted by σ_j^2. Consider two regions, an "old settlement" (U, for urban) and a "new frontier" (R, for rural). Since the two regions are independent in the statistical sense (but hardly independent in the economic sense), colony-wide wealth concentration can be decomposed into the weighted sum of variance within and between the two regions. Since *relative* mean deviation is the key to inequality trends, we might instead deal with the coefficient of variation (or its square):

$$\left(\frac{\sigma}{\overline{W}}\right)^2 = \frac{U\sigma_U^2 + R\sigma_R^2 + U(\overline{W}_U - \overline{W})^2 + R(\overline{W}_R - \overline{W})^2}{P \cdot \overline{W}^2}$$

Let I be this wealth inequality statistic, and call the population share in settled regions u. Then at any point of time between 1620 and 1776

$$I = u \left(\frac{\overline{W}_U}{\overline{W}} \right)^2 I_U + (1 - u) \left(\frac{\overline{W}_R}{\overline{W}} \right)^2 I_R$$

$$+ \frac{u}{1 - u} \left(\frac{\overline{W}_U}{\overline{W}} - 1 \right)^2$$

Colonial wealth inequality *levels* were determined by four forces: (1) inequality in settled regions; (2) inequality at the frontier; (3) the relative average wealth differential between frontier and settled regions; and (4) the relative size of the settled region.[8] Our interest is in colonial wealth inequality *trends,* not levels, so:

$$dI = dI_u \left\{ u \left[\frac{\overline{W}_U}{\overline{W}} \right]^2 \right\} + dI_R \left\{ (1 - u) \left[\frac{\overline{W}_R}{\overline{W}} \right]^2 \right\}$$

$$+ du \left\{ \left[\frac{\overline{W}_U}{\overline{W}} \right]^2 I_u - \left[\frac{\overline{W}_R}{\overline{W}} \right]^2 I_R + \left[\frac{\overline{W}_U - \overline{W}}{\overline{W}(1 - u)} \right]^2 \right.$$

$$+ 2I_R \left[\frac{\overline{W}_R}{\overline{W}} \right] \left[\frac{\overline{W} - \overline{W}_U}{\overline{W}(1 - u)} \right] \right\}$$

$$+ d \left(\frac{\overline{W}_U}{\overline{W}} \right) \left\{ 2u \left[I_U \left(\frac{\overline{W}_U}{\overline{W}} \right) - I_R \left(\frac{\overline{W}_R}{\overline{W}} \right) \right. \right.$$

$$\left. \left. + \left(\frac{\overline{W}_U}{\overline{W}} - 1 \right) \left(\frac{1}{1 - u} \right) \right] \right\}$$

Four forces were driving trends in colonial wealth concentration: (1) trending concentration in settled regions; (2) trending concentration at the frontier; (3) the changing relative size of the older settlements; and (4) the ratio of per capita wealth in settled regions to that of the colonies as a whole.

There is little conflict among colonial social historians regarding the following two assertions: (1) wealth was more concentrated in older seacoast settlements; and (2) per capita wealth was higher in the older seacoast settlements. Although we shall provide empirical support for these innocuous assumptions below, for the moment consider their implications.

Colonial historians almost always draw their data from either settled urban areas (Boston, Philadelphia, Hartford, New York City) or from older eastern townships or counties (Hingham, Chester). Yet our inequality formula reminds us that an upward drift in Philadelphia inequality hardly implies an inequality trend for eastern Pennsylvania. Nor does an upward drift in eighteenth century wealth concentration in Boston or Suffolk County necessarily imply an increase for Massachusetts Commonwealth as a whole. A shift in population away from the older settlements would have a leveling influence, and so too would any trend

which diminished the average wealth differential between frontier and seacoast regions. Even if we were to agree (and we do not) that rising inequality was characteristic of both settled and frontier regions in the colonial era, this evidence would hardly establish the case for drifting inequality in the eighteenth century. On the contrary, if *extensive* or *intensive* development in colonial areas away from the seaboard was sufficiently rapid, the opposite could have been the case.

The foregoing section serves to identify the component sources of colonial inequality trends, but it also offers a tool for estimating otherwise unobservable colony-wide trends. All we require are benchmark estimates for the percent of population residing in settled regions, estimates of average wealth in both settled and rural regions, and surrogates for wealth inequality in both regions.

Interior Development and the Irrelevance of Boston

Let us now apply the decomposition formula to New England colonial performance. Four forces were driving trends in New England wealth concentration: (1) trending inequality in the seaports generally, and Boston in particular (dI_B); (2) changing patterns of wealth concentration in newly settled interior counties and townships (dI_{NB}); (3) the changing relative size of older seaport settlements like Boston (du); and (4) the ratio of per capita wealth in Boston ($\overline{W}_B$) to that of New England as a whole ($\overline{W}_{NE}$).[9] The first two terms in the decomposition formula are simply a weighted average of inequality trends in Boston and in the remainder of New England. Table 1.1 and appendix 2 supply the necessary information to estimate these weights. In 1774, for example, the weight attached to Boston inequality trends is .05, while that attached to the remainder of New England is .95. It looks very much as if Boston's wealth inequality trends were irrelevant to New England's experience. Then why all the fuss about Boston? While some may argue that Boston was the focus of political change, Boston's experience with trending wealth inequality—falling after the 1670s, rising after the 1680s, stable after the 1710s—tells us almost nothing about New England experience. In short, even if we were to adopt the atypical 1680s as a benchmark, Boston's trends would grossly exaggerate any alleged inequality drift in New England as a whole.

Turn now to the third term in the decomposition expression. According to Gary Nash and Allan Kulikoff, Boston's population share must have undergone a consistent and extended decline between 1687 and 1774; in contrast with nineteenth-century city growth, the colonial era is hardly one of dynamic urbanization. Indeed, while Boston contained 7.5 percent of New England's population in 1710, the figure had fallen to 4.4 percent in 1750 and 2.7 percent in 1771 (table 1.1). We have al-

Table 1.1   **Colonial Population Trends**

New England Colonies

Year	(1) Boston	(2) New England	(3) (1) ÷ (2) *u*
1680		68,400	
1690		86,900	
1700		92,800	
1710	(8665)	115,200	.075
1720		170,900	
1730	13,875	217,400	.064
1740	16,800	289,800	.058
1750	15,800	360,000	.044
1760	15,631	449,700	.035
1770	15,500	581,100	.027
1780	10,000	712,600	.014

Middle Colonies

Year	(1) Middle Colonies	Period	(2) Phila- delphia	(3) New York City	(4) (2) + (3) ÷ (1) *u*
1700	83,200	1700–10	2,450	4,500	.083
1710	112,300	1711–20	3,800	5,900	.087
1720	169,200	1721–30	6,600	7,600	.084
1730	238,100	1731–40	8,800	10,100	.079
1740	336,700	1741–50	12,000	12,900	.074
1750	437,600	1751–60	15,700	13,200	.066
1760	590,200	1761–70	22,100	18,100	.068
1770	758,500	1771–75	27,900	22,600	.067
1780	968,300				

Sources: New England and Middle colonies totals are from U.S. Bureau of the Census (1976, Part 2, p. 1168). The New York City and Philadelphia figures are from Nash (1976, table 4, p. 13). The Boston figures are from Nash (1976, table 4, p. 13), and Kulikoff (1971, table V, p. 393).

ready seen that the distribution of wealth in the interior was of far greater significance (by a factor of 20 to 1) to mid-eighteenth-century New England wealth inequality trends than was Boston itself. In addition, we now learn that Boston's relative decline must have produced a leveling influence in New England as a whole. After all, colonial Boston *always* exhibited higher wealth concentration than the interior. In the 1760s, for example, the top 10 percent of probated wealth holders had 53 percent of the wealth in Boston, while the figure was 38 percent for rural Suffolk County, 39 percent for Worcester County, and 40 percent for Hingham. The top 30 percent controlled 88 percent of the (probated) wealth between 1740 and 1760, a figure far in excess of Worcester's 64 percent,

rural Suffolk's 68 percent, and Hingham's 73 percent. Indeed, the top 30 percent in Connecticut's small and medium-sized towns held from 61 to 69 percent of total wealth during the same period.

How important was Boston's decline in contributing to an overall egalitarian leveling in New England? Or to put it another way, how important was the *extensive* development in rural New England to wealth leveling during the colonial period? The third term in the decomposition expression can be estimated,[10] and it implies the following: between 1710 and 1774, the decline of Boston (u fell from .075 to .027) contributed to a wealth leveling in New England of about $dI_{NE} = -.07$ using weights from the 1770s, or $dI_{NE} = -.13$ using weights from the 1680s. This leveling influence is not insignificant when compared with Alice Jones's 1774 benchmark $I_{NE} = 1.88$ since it implies a 4 to 7 percent reduction in aggregate inequality. It seems unlikely that this conclusion would be changed if the seacost urban settlement was expanded to include far smaller centers like Portsmouth, Hartford, or New Haven, but it is true that none of these underwent anything like Boston's decline.

While Boston's share of New England's population declined, the rest of New England slowly made good an initial disparity in per capita wealth levels. Indeed, appendix 2 reveals that Boston's per capita taxable wealth (adjusted by Gerard Warden) as a ratio of New England's per capita physical wealth *fell* from 1.608 to 1.339 between 1687 and 1774. These two wealth concepts are, of course, somewhat different, but if the ratio of taxable to physical wealth was fairly stable over the eighteenth century, we can safely conclude that rural New England achieved more impressive wealth accumulation than did Boston and other seacoast settlements. This tended to equalize wealth in the region at large.

By how much did interior intensive development contribute to an overall colonial leveling? Although the calculation is based on slim evidence, it would take an enormous error to change our results. The narrowing of the wealth per capita gap between Boston and the remainder of New England over the century 1687–1774 served to lower the New England wealth inequality statistic by .025 (1.3%) if 1771 weights are used and .064 (3.4%) if 1687 weights are used. The relatively rapid *intensive* development in Boston's hinterlands must have contributed significantly to a leveling of wealth in New England.

Even the most skeptical reader must agree that wealth inequality trends in Boston and other settled coastal regions mask New England trends. Our experiments show the following: (1) inequality trends outside Boston were far more important to New England colonial inequality experience by a factor of 20 to 1; (2) the relative decline of Boston, as rural New England underwent *extensive* settlement, contributed significantly to a leveling of wealth distribution in the region as a whole; (3) the relative decline of Boston, as rural New England underwent *intensive* wealth accumulation and relatively rapid economic development, also

contributed to a leveling of wealth distribution in the region as a whole. The present colonial data base makes it impossible to pursue these components of wealth inequality in much greater detail. What we need, of course, is a far more extensive sampling of wealth records from the early eighteenth century to serve as a benchmark with which Alice Jones's 1774 observations may be compared. Then our "analysis of variance" experiment would have far greater legitimacy. Until that time, however, the hypothesis must be that rising New England wealth inequality cannot be inferred from mixed "local" trends, but rather that stability or leveling was the case for New England as a whole prior to the Revolution.

Interior Development and the Doubtful Relevance of Philadelphia

In contrast with Boston, the main seaports in the Middle colonies, Philadelphia and New York City, both underwent consistent and rapid growth between 1710 and 1774. Nevertheless, even Philadelphia—the faster growing of the two—failed to match the rate of interior settlement after 1720 (table 1.1). From the 1720s to the Revolutionary War, Philadelphia's population share in the Middle colonies fell from 3.9 to 3.7 percent. The population of New York City and Philadelphia combined fell from 8.4 to 6.7 percent of the regional total over the same period. As in New England, wealth was far more heavily concentrated in the settled coastal areas than in the interior,[11] so that the relative decline of these two seaports served to lower wealth inequality in the region as a whole. How important was the *extensive* development in the interior of the Middle colonies as a wealth leveling influence during the colonial period? Since New York City and Philadelphia population shares declined by only 1.7 percent in the half-century following 1720, the leveling influence, though positive, could not have been very great.

Did inequality trends in Philadelphia contribute significantly to Middle colony trends? Could trending inequality in Philadelphia have taken place simultaneously with leveling in the Middle colonies as a whole? Since Philadelphia is the prime example of trending probate wealth inequality cited by Gary Nash, the bifurcation has special relevance, and once again the decomposition formula will prove helpful. If we use the 1770s as a benchmark, each parameter in the decomposition formula can be estimated.[12] Thus, we can decompose the (unobserved) eighteenth-century wealth inequality trends of the Middle colonies into the following component parts:

$$dI_{MC} = (.071)dI_P + (.933)dI_{NP} + (2.770)du$$
$$+ (.193)d(\overline{W}_P/\overline{W}_{MC}),$$

where *MC, P,* and *NP* denote, respectively, Middle colonies, Philadelphia, and non-Philadelphia.

In terms of *potential* impact on Middle colony wealth concentration trends, the rate of extensive development (du) and inequality trends in rural inland settlements (dI_{NP}) were clearly most important, while inequality trends in Philadelphia were least important. The *actual* impact, of course, can be determined only by documentation of the four trending variables on the right-hand side of the decomposition expression. Since interior extensive development was a minor force from the 1720s to 1775 $(du = -.002)$, the actual impact of extensive development on Middle colony inequality trends must have been minor. How relevant was Philadelphia's trending wealth inequality to Middle colony performance? Between 1700–1715 and 1766–75, probate inequality data imply a sharp rise in Philadelphia wealth concentration. Judged by Gary Nash's trends and using Alice Jones's 1774 Philadelphia county estimates as a base (appendix 2), $dI_P \cong .557$. Philadelphia trends by themselves would have raised Middle colony wealth inequality by .040 (3%). Once again, the debate over inequality trends has been based on a city whose contribution to overall Middle colony inequality trends was quite small. Only if Philadelphia was representative of all regions would the attention lavished on her be warranted. The truth of the matter is that Philadelphia was not typical even of all seaports in the Middle colonies. New York City and Philadelphia had very similar wealth concentration in the 1690s. The top 10 percent of taxpayers claimed 44.5 percent of New York's taxable wealth in 1695, while they held 46 percent of Philadelphia's taxable wealth in 1693. By 1789, New York City had hardly changed at all (the top 10 percent of taxpayers claiming 45 percent of taxable wealth), while Philadelphia had undergone the extraordinary inequality trends analyzed so well by Gary Nash (reaching 72.3 percent by 1774). In short, if we believe Philadelphia to be representative of seacoast cities, it contributed very little to Middle colony wealth concentration trends. Since there is evidence that Philadelphia was an extreme case of trending urban inequality, "very little" seems more likely to have been "trivial." Philadelphia inequality experience was indeed of doubtful relevance.

What about the remaining two forces: (1) trending wealth concentration in the interior; and (2) intensive development in the interior? The only probate wealth data for the Middle colonies outside of Philadelphia that would supply dI_{NP} are Gloria Main's estimates for Maryland. From 1700 to 1754 there appears to be a slight decline in Maryland's wealth concentration. Lemon and Nash (using taxable wealth) and Duane Ball (using a very small probate sample) find the opposite trends in Chester County between 1693 and 1770. Interior trends are mixed. But note the following: those vast Middle colony frontier regions, whose trends are left undocumented, must have been regions of relatively equal distributions of wealth. Evidence of "frontier equality" is repeated for every

New England and Middle colony wealth study cited in table 1.A.1, so it seems quite legitimate to make use of it here. Furthermore, we know that over time and with settlement, these frontier New York and Pennsylvania counties increased in importance. The process must have had an important leveling influence in the interior. To judge interior inequality trends by examining the experience of a single county, say Chester County, is to commit the fallacy of composition once again. All of this suggests to us that to presume anything about interior wealth inequality trends would be folly.

We are left with only one final potential source of alleged increased wealth concentration in the Middle colonies. Did Philadelphia increase in per capita wealth more rapidly than the Middle colonies in general? If so, then the recent attention devoted to Philadelphia's pre-Revolutionary inequality trends might be justified. If, like Boston, it did not, then Philadelphia's performance tells us little about Middle colonial inequality. Until such evidence on interior intensive development is made available, colonial Philadelphia inequality trends remain of doubtful relevance.

Age, Wealth, and Selective Migration

Demographic forces may also have acted to produce a spurious drift in colonial wealth inequality. To judge what truly happened to life cycle wealth inequality, an effort must be made to hold age distribution constant. After all, young adults have far smaller average wealth holdings (table 1.2 and figures 1.5–1.6). On these grounds alone, if young adults are added to a static adult population through immigration or natural increase, wealth inequality may rise even though life cycle inequalities change not at all. The larger the differential in average wealth levels by age, the more potent the effect. In addition, we must consider wealth inequality within age classes. Using 1870 total estate and 1850 real estate census data, Lee Soltow (1975, p. 107) has shown that inequality was high in the age group 20–29, much lower in the age group 30–39, and fairly stable in subsequent age groups. It is possible that as the share of adult males in their twenties rose over time, inequality would also appear to rise when no true inequality trend was present.[13]

What is the colonial evidence on wealth and age? We would be satisfied with either of two kinds of wealth concentration data: (1) measures of wealth concentration over time *within* fairly narrow age classes; (2) detailed information on changing age distributions which could be combined with our knowledge of age profiles on wealth means and variances. Since the colonial data base does not yet fulfill these rigorous demands, we must be content with Soltow's 1850 estimates of wealth dispersion within age classes.[14] What about wealth by age class? Does the colonial age-wealth life cycle trace out a profile much like mid-nine-

teenth and twentieth-century patterns? Table 1.2, figure 1.5, and figure 1.6 exhibit an age-wealth profile that is consistent over time and across regions. Whether late-seventeenth-century Maryland, mid-eighteenth-century Hartford, or Revolutionary New England, the patterns are very similar to twentieth-century age-wealth profiles. It is a simple matter, therefore, to establish a *potential* role for demographic forces as a source of measured wealth inequality change in pre-Revolutionary decades.

The actual role of demographic forces is far more difficult to isolate. Demographic data for the colonial era are very skimpy, and the time series that are available rarely supply more than three age classes (most

Table 1.2   **Age and Wealth in the Colonies, 1658–1774: Average Wealth by Age Class Relative to Total**

Age Class	(1) Maryland 1658–1705
25 and under	.246
26–45	.940
46–60	1.334
61 and over	1.021
All adult males	1.000

Age Class	(2) Hartford 1710–14	(3) Hartford 1750–54	(4) Connecticut 1700–1753
21–29	.340	.383	.264
30–39	.744	.767	.607
40–49	1.545	1.208	1.014
50–59	1.330	1.342	1.383
60 and over	.898	1.192	1.283
All adult males	1.000	1.000	1.000

Age Class	(5) Middle Colonies 1774 Net Worth	(6) Middle Colonies 1774 Physical Wealth	(7) New England 1774 Total Wealth	(8) New England 1774 Physical Wealth
25 and under	.121	.881	.184	.197
26–45	.770	.891	.731	.732
46 and over	1.338	1.295	1.270	1.269
All adult males	1.000	1.000	1.000	1.000

Sources: (1): Value of total estate (excluding land and improvements), inventoried at death, lower western shore of Maryland. Menard, Harris, and Carr (1974, table II, p. 178). (2) and (3): Hartford probate district, personal wealth only. J. Main (1976, table XI, p. 84). These are periods for which Main's samples are relatively large. (4): All Connecticut inventoried wealth, including land. J. Main (1976, table XIX, p. 95). (5) and (6): Middle Colonies, decedent wealth. A. H. Jones (1971, table 5). (7) and (8): New England, decedent wealth. A. H. Jones (1972, table 4, p. 114).

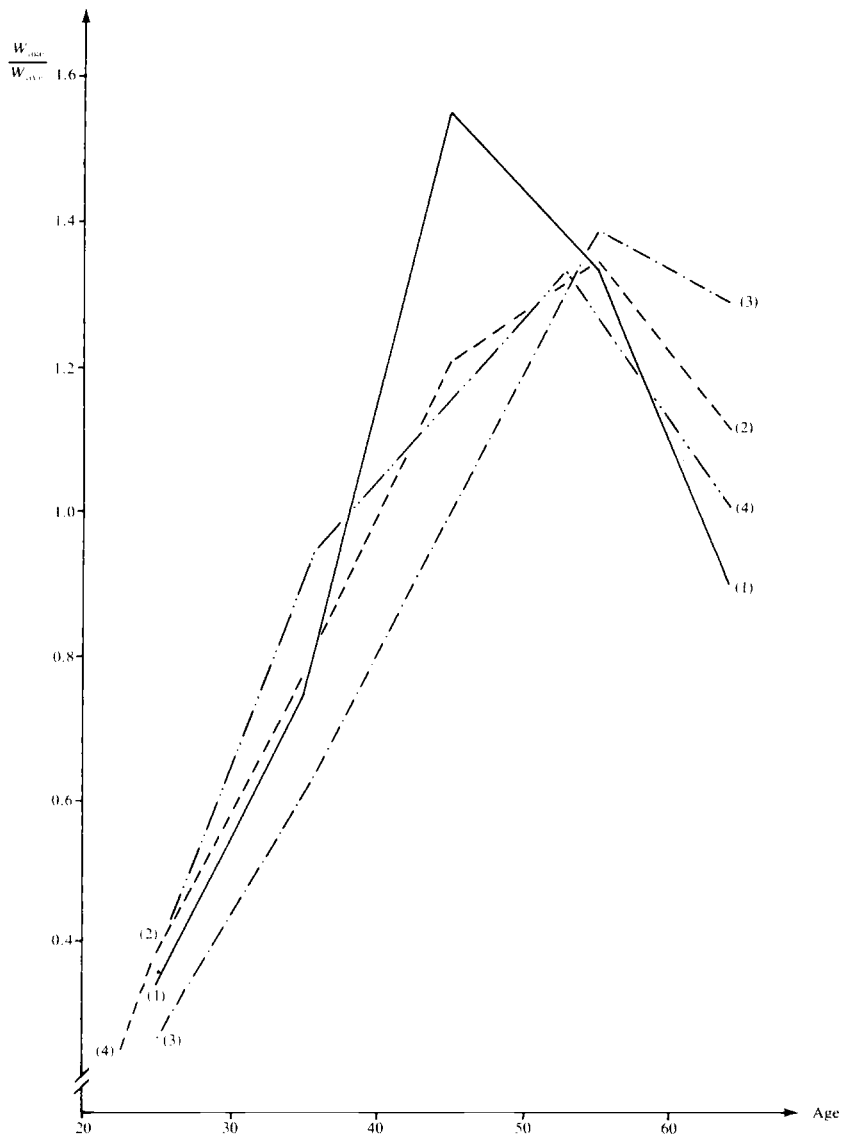**Fig. 1.5** Age and Wealth in the Colonies, 1658–1753. Key: (1) Hartford, Connecticut, 1710–14; (2) Hartford, Connecticut, 1750–54; (3) Connecticut, 1700–1753; (4) Maryland, 1658–1705. Source: table 1.2.
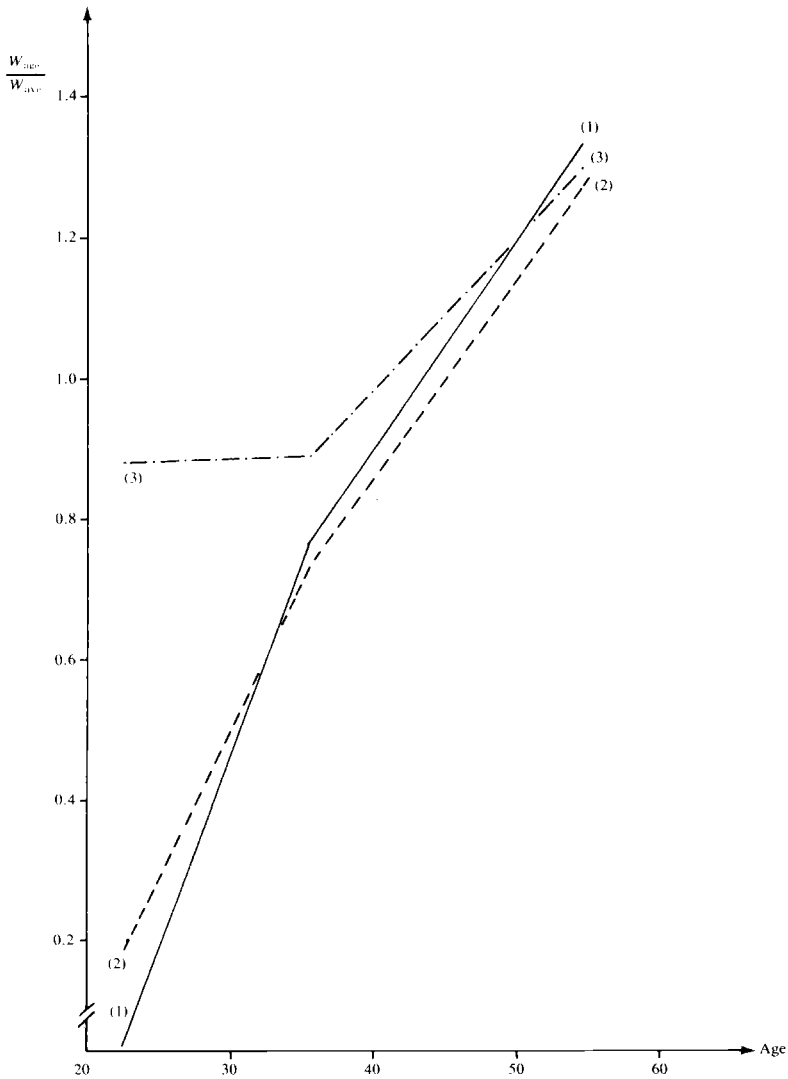
Fig. 1.6   Age and Wealth in the Colonies, 1774. Key: (1) Middle colonies, 1774 (net worth); (2) New England, 1774 (total and physical wealth); (3) Middle colonies, 1774 (physical wealth). Source: table 1.2.

commonly, under 16, 16–60, and over 60). What we have suggests stability in colonial age distributions. If we ignore the Revolutionary War years, when (young) men in the army were undercounted or missed entirely, the evidence suggests very little change in age distributions in New Hampshire between 1767 and 1773, in New York between 1712–1714 and 1786, or in New Jersey between 1726 and 1745 (U.S. Bureau of the Census 1976, part 2, p. 1170). Indeed, the age distribution of adult males (free *and* slave) was not much older or more dispersed even in 1860 compared with colonial times.[15]

While age distributions appear to have been stable colony-wide in the eighteenth century, and thus would impart no bias in an aggregate inequality index, the same cannot be said for colonial cities and more urbanized eastern settlements. A widening of inequality may have resulted if urban populations got younger. Rapid growth in Philadelphia, for example, could not have been achieved in the absence of native emigration from the countryside as well as a foreign influx. These tended to consist of younger and, more frequently, single males. Thus, those cities enjoying the most rapid growth were likely to have the steepest inequality trends, not necessarily because average ages were lower but rather because ages were far more widely dispersed. This prediction of an upward inequality trend bias in the cities is confirmed by Philadelphia's colonial performance, on the one hand, and Boston's and New York's, on the other. One cannot help but wonder to what extent the rise in Philadelphia's "poor," documented by Gary Nash, could be explained simply by the increased preponderance of youth in the city's population.[16]

There is yet another upward bias in the urban wealth concentration trends. Migration is, by definition, selective. The vast majority of young in-migrants to Boston, New York, and Philadelphia chose to leave the settled countryside or Europe because they had better "opportunities" in the eastern seaports. Since they had no land to keep them at home, some (the majority) joined frontier settlements and became part of intensive and extensive colonial interior development. A smaller number migrated to the towns. The point is obvious: while young adults have, on average, low wealth holdings, the young urban immigrant has even lower wealth holdings. This selective aspect of urban immigration imparts an upward bias to urban inequality trends beyond the bias imparted by age itself.[17]

One can only speculate but it seems likely that changing urban age distributions imparted an upward bias to eighteenth-century wealth inequality trends in Boston and Philadelphia. While the same cannot be said for colony-wide trends, the fact remains that it is the experience of these two cities that has attracted much of the social historian's attention.

This section has suggested yet another reason for rejecting trending inequality as a description of the colonial era.

1.2.4   Colonial Quiescence

It could be argued that all the protagonists in the colonial wealth debate are correct, but none of them has articulated how local trends relate to trends for the thirteen colonies combined. Urban inequality did rise in some cities, perhaps supplying fuel for revolution and social change. Inequality and social stratification did rise to high levels in some settled agrarian regions along the Atlantic coast, especially those from which young men were slow to emigrate. Inequality even rose over time in some frontier settlements. The important point, however, is that new frontiers were being added at a very rapid rate. The opportunities for wealth accumulation were there in the interior, and they were exploited assiduously. The result was both extensive and intensive development in the interior of the Northern colonies. Wealth per capita grew there relative to the seacoast settlements, thus producing a leveling influence since the new settlements were comparatively poor to start with. Total wealth and population shifted to the interior as well, and this too had a leveling influence since equality was more a frontier attribute.

The net effect was to produce quiescence in colonial inequality. A comfortable result, indeed, since per capita wealth and income growth was fairly quiescent during the pre-Revolutionary years too.

1.3   Wealth Concentration in the First Century of Independence

1.3.1   The 1774, 1860, and 1870 Benchmarks

For the century inaugurated by the Declaration of Independence, we now have benchmarks for nation-wide wealth distributions. Alice Hanson Jones (1977a) has constructed one set of estimates for 1774 using probate inventories and the estate multiplier method by which the wealth distribution of the living is reconstructed from that of decedents. Lee Soltow (1975) has used large manuscript census samples to derive size distributions of total assets for 1860 and 1870.

Table 1.3 reports these benchmark size distributions. Around 1774, the top one percent of free wealthholders in the thirteen colonies held 12.6 percent of total assets, while the richest ten percent held a little less than half of total assets. In 1860, the richest percentile held 29 percent of total America assets, and the richest decile held 73 percent.[18] Thus, the top percentile share more than doubled and the top decile increased its share by half again of its previous level. Among free adult males, the Gini coefficient on total assets rises from .632 to .832. Equally dramatic surges are implied for the South and non-South separately.

Table 1.3   **Selected Measures of Wealth Inequality, 1774, 1860, 1870, and 1962**

	Net Worth			Total Assets		
	Percent Share Held by Top 1%	Percent Share Held by Top 10%	Gini	Percent Share Held by Top 1%	Percent Share Held by Top 10%	Gini
1774 (13 colonies)						
Free households	14.3%	53.2%	.694	12.6%	49.6%	.642
Free and slave households	16.5	59.0		14.8	55.1	
Free adult males	14.2	52.5	.688	12.4	48.7	.632
All adult males	16.5	58.4		13.2	54.3	
Southern free households	10.7	47.3	.664	9.9	46.3	.649
Non-South, free households	17.1	49.5	.678	14.1	43.8	.594
1860						
Free adult males				29.0	73.0	.832
				30.3–	74.6–	
Adult males				35.0	79.0	
Southern free adult males				27.0	75.0	.845
Non-South, free adult males				27.0	68.0	.813
1870						
Adult males				27.0	70.0	.833
Southern adult males				33.0	77.0	.866
Southern adult white males				29.0	73.0	.818
Non-South, adult males				24.0	67.0	.816
1962						
All consumer units ranked by total assets, unadjusted	36.9	69.1–82.6		26.0	61.6	.76
All consumer units ranked by total assets, revised (see section 1.5.2 below)	20.6	38.5–46.1		15.1	35.7	

Sources and notes: The 1774 wealth distributions are from Alice Hanson Jones (1977, vol. 3, table 8.1). We are grateful to Professor Jones for advice and access to unpublished calculations that were useful as cross-checks to our own computations. We also wish to thank Roger C. Lister for performing the 1774 computer calculations for this and the next table. The 1860 and 1870 figures are from Lee Soltow (1975, pp. 99, 103). The 1962 figures are derived from Projector and Weiss (1966, tables 8, A2, A8, A14, and A36).

The sample sizes on which these calculations are based follow: *1774*, 919 decedents, of whom 839 were males and 298 were from the South; *1860*, spin sample

The antebellum rise in wealth inequality is evident even if one includes slaves as part of the population. Counting slaves both as potential wealthholders and as wealth has the effect of raising estimated inequality before the Civil War. This follows from the reasonable assumption that slaves had zero assets and net worth. Adding extra "wealthholders" with zero wealth is equivalent to scaling down the share of the population represented by the same number of top wealthholders. This adjustment should be greater for 1774 than for 1860, since the slave share of the population peaked at about 21.4 percent in 1770 and declined to about 11 percent by 1860. Thus counting slaves as both people and property, a defensible procedure, should have raised the inequality measure more for 1774 than for 1860. Nevertheless, table 1.3 suggests that this adjustment has little or no effect on the net rise in inequality between these two dates.

Table 1.3 Sources and notes (*cont.*)

of 13,696 males, of whom 27.6 percent were from the South; *1870*, spin sample of 9,823 males; *1962*, 2,557 consumer units.

For definitions of net worth, total assets, and the population unit, see the sources cited above. It should be remembered that the 1774 and 1860 calculations include the asset values of slaves in the total assets and net worth of their owners.

The calculations referring to the total population, free plus slave, include slaves as households with zero assets and net worth as part of the population. In these calculations, slaves are thus both people and property. Their share of the 1770 population of households was estimated by multiplying both the total free and slave populations by a proxy for the ratio of households to population. This proxy was the share of negroes and mulattoes over sixteen years of age in Maryland in 1755 in the case of slaves (U.S. Bureau of the Census, 1976, chapter Z), and the share of white males over sixteen in 1790 (ibid., series A119–34) for the free population. Assuming the same ratio of household heads to adults among slaves as among the free, and applying the adult-to-population ratios to the slave and free populations, yield the estimate that slave households were 20.2 percent of all households in 1770, which is applied to 1774.

Point estimates (single values) are reported for cases in which we judged the range between high and low estimates based on different interpolations within wealth classes to be sufficiently narrow. Where the range implied by alternative methods of interpolation was wide, we have reported a range of values. The latter is not to be interpreted as indicating true lower and upper bounds, since errors could arise from factors other than just interpolating shares within the wealth classes supplied by the underlying data.

Our results show lower inequality for 1774 than was reported by Alice Hanson Jones (1977a) for two reasons. The first is that Professor Jones has concluded that her regional weights within the South require revision so as to reduce the weight of prosperous Charleston to 1 percent of the South, as she will report in her forthcoming volume (1977b). We have used her revised regional weights here, and wish to thank her for informing us of the revision. The second reason relates to an apparent slight deviation in our procedures in constructing the "w*B" weights used to convert the sample of decedents to the estimated population of living wealthholders. We are checking the computer programs used by Professor Jones and ourselves to pinpoint the discrepancy. The differences are slight in any case, with Professor Jones's revised size distributions (1977b) resembling ours much more than they resemble those of her earlier volume (1977a).

The 1774 wealth distribution bears some resemblance to the (revised) distribution implied by the Federal Reserve survey for 1962. The share held by the richest one percent was apparently a little lower in 1774, both among the free and among the free plus slaves. On the other hand, the top decile share appears to have been somewhat higher on the eve of the Revolution than it was nearly two centuries later.

If the figures in table 1.3 are allowed to stand without adjustment, they reveal an epochal rise in wealth concentration between 1774 and 1860. Tocqueville anticipated this trend toward concentration, pointing to the rise of an industrial elite which he feared would destroy the economic foundation of American egalitarianism:

> 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 a permanent inequality of conditions and aristocracy . . . penetrates into [America], it may be predicted that this is the gate by which they will enter. [Tocqueville 1963 ed., p. 161.]

Jackson T. Main suspected that Tocqueville's fear was borne out by subsequent events, at least based on his early rough estimates of wealth inequality on the eve of the Revolution and Gallman's (1969) findings for 1860 (J. Main, 1971). Gallman suspected a rise in wealth inequality after 1810, though for different reasons. Edward Pessen took a similar position, debunking "the era of the common man" with evidence of rising wealth inequality and social stratification (1973). Lee Soltow (1971b, 1975) has opposed this view, arguing instead that wealth inequality remained unchanged across the nineteenth century.

Did a marked shift toward wealth concentration really take place?

1.3.2   Possible Benchmark Biases and Weight Shifts

There are several ways that the figures in table 1.3 might be judged misleading. The obvious frontal assault is to claim that the underlying data are simply unreliable.

Since her 1774 sample consisted of only 919 observations, as against the 13,696 observations used by Lee Soltow for 1860, it is natural to point the finger of suspicion at Alice Hanson Jones's estimates. As far as the asset coverage and population unit are concerned, however, we see no clear bias. While the probate inventories she used may well exclude some financial assets or liabilities, no clear effect on the size distribution of net worth or total assets is obvious. Unleased real estate was excluded from the inventories outside of the New England colonies, yet Professor Jones supplied the missing real estate values from predictions implied by regressions estimated on the New England observations. As

for the population unit, Professor Jones tried to make the basic popula-
tion that of all households in the thirteen colonies by assuming that a
large majority of adult females were not household heads. Should one
wish to compare an all male wealth distribution in 1774 with that for
1860 or 1870, that comparison is also reported in table 1.3, with little
difference in the implied trend toward concentration.

The most serious criticism of the underlying probate data is that they
cover a biased sample of the population of potential wealthholders. We
know that only a minority of decedent household heads left wills and
inventories. We know that the set of decedents for whom no inventory
survives includes people from all wealth classes. We also know that the
main excluded group is the very poor, who left no inventory because
they left no wealth to appraise. The net effect is likely to be an under-
sampling that is more serious for the poorest classes, producing a pro-
bate sampling bias that could make wealth inequality look misleadingly
low. Given the extent to which probate records will remain a critical
data base in future historical research, it is important that more detailed
studies be devoted to cross-checking the probate inventory samples
against other primary data identifying the wealth, occupation, and other
attributes of the population from which the probates survive. It is espe-
cially important to identify the wealthiest and most prominent citizens
in earlier centuries, in order to quantify the sampling ratio for the rich.
Such research into probate bias has already begun (G. Main 1976; D.
Smith 1975), but much remains to be done.

Professor Jones has already performed sensitivity analyses to deter-
mine the importance of the probate sampling bias. Her estimates reported
in table 1.3 are based on the assumption that the probate inventories
undersampled the poorer wealth classes. In the net worth size distribu-
tion, for example, these "w*B - weighted" results are based on an under-
lying assumption that the bottom net worth decile includes from five to
eighty times more nonprobated decedents than the top decile, the rela-
tive ratio varying from region to region. These multipliers are based in
part on Professor Jones's own limited cross-checks between the probate
samples and other source materials, such as local tax lists. The multi-
pliers must, however, be characterized as guesses, and guesses which
lack the guidance of any colonial contemporary judgments regarding
which people were eluding probate.

Let us consider what kinds of errors in these probate sampling multi-
pliers might have led to a serious underestimation of wealth inequality
in 1774. Perhaps the poor have still been relatively undersampled, de-
spite Professor Jones's attempt to scale up their numbers. While this is
possible, the missing extra poor would have to be at the very bottom
of the wealth spectrum. An alternative set of weights that uniformly
expanded the numbers with wealth low enough to be in the bottom quar-

ter of those probated, Professor Jones's "w*A" weights, showed no
greater inequality than the preferred "w*B" weights used here. Suppose,
however, that the undersampled groups are the very rich as well as the
very poor. While this is also possible, it must be remembered that in this
era the very wealthy would have had little incentive to hide their wealth
from probate. There were no estate taxes to avoid, and even the local
property taxes on the living were light enough to offer little incentive to
keeping property hidden from the probate appraiser, or to transfers
inter vivos.

One can also question the reliability of the 1860 census returns un-
derlying Lee Soltow's recent book. Perhaps people gave very casual
answers to the census takers. In particular, a large number of them may
have reported zero wealth in order to avoid the bother of estimating
asset value. Fully 38 percent of free adult males reported property less
than $100 in the 1860 census sample, but it is hard to tell what share of
these actually reported zero wealth. At the other end of the wealth spec-
trum, one might speculate that the very rich overstated their wealth in
the 1860 and 1870 censuses, but this is a hard conjecture to sustain.
Again, we know of no clear bias in the estimates, either for 1774 or for
1860.

Another common suspicion relates not to the quality of the data but
to the potentially distorting effect of shifts in demographic weights, such
as changes in the age distribution or changes in nativity. Reflecting the
sophistication with which economists approach measures of income or
wealth inequality in the 1970s, many have expressed the view that the
antebellum rise in wealth inequality may be a mirage caused by shifts
toward an older population or by shifts in the share of foreign-born or
the share living in cities. To address such skepticism, we need to ascer-
tain whether there was a rise in wealth inequality among people of given
age, place of birth, and area of residence.

To sort out the contributions of such population group shifts to the
apparent rise in wealth inequality between 1774 and 1860, we first per-
form a set of reweighting experiments using Professor Jones's 1774
data.[19] This involves transforming the weights on the 919 individual ob-
servations in her sample so as to reflect the age distribution or the rural-
urban mix of 1860, and recalculating top quantile shares and Gini
coefficients to see how much shift in wealth inequality is implied by
combining different demographic distributions with the same within-
group wealth data. These experiments are summarized in table 1.4.

Before concluding that wealth concentration rose dramatically in the
antebellum era, one must first establish that the rise was not the sole
result of a change in the age mix of the adult population. From section
1.2 and table 1.7, we know that average wealth rose steeply with age
both in the colonial era and in the mid–nineteenth century. We also

know that the age distribution of adults became more dispersed over the century following 1774. This evidence encourages the intuition that wealth inequality may have remained the same within age groups, and that the rise in aggregate inequality was the result of population aging alone. Table 1.4 appears to reject this intuition. Application of the 1860 age distribution to the 1774 wealth data serves only to raise the top percentile share of total assets held by males from 12.4 percent to 12.9 percent, and the top decile share from 48.7 percent to 50.1 percent. These age effects account for less than 6 percent of the aggregate trend toward wealth concentration. Similarly, the shift from the 1774 age distribution[20] to the 1962 age distribution explains only a small share of the apparent rise in top quantile shares over the intervening two centuries. It appears that shifts in age distribution were not sufficiently dramatic to

Table 1.4   Effects of Changing Group Weights on Measures of Wealth Inequality among Nonslaves, 1774 Versus 1860 and 1962

	Net Worth			Total Assets		
	Percent Share Held by Top 1%	Percent Share Held by Top 10%	Gini	Percent Share Held by Top 1%	Percent Share Held by Top 10%	Gini
1774						
Original weights	14.3%	53.2%	.694	12.6%	49.6%	.642
Males only	14.2	52.5	.688	12.4	48.7	.632
Males only, 1860 age distribution	15.6	55.0	.715	12.9	50.1	.644
1962 age distribution	14.2	54.3	.706	12.7	50.5	.656
Rural only	12.0	50.8	.675	11.4	48.8	.629
Urban only	29.4	70.8	.817	24.8	61.4	.736
1860						
All (free) males				29.0	73.0	.832
1962						
All consumer units, unadjusted	36.9	69.1–82.6		26.0	61.6	.760
All consumer units, revised (see section 1.5.2 below)	20.6	38.5–46.1		15.1	35.7	

Sources and notes: The sources are the same as for table 1.3.
In adjusting the 1774 wealth distribution to reflect the 1860 and 1962 age distributions, we use the age group division offered by Professor Jones: 25 and under, 26–44, and 45 and over. The 1860 and 1962 distributions were calculated from U.S. Bureau of the Census (1976, chapter A), with age group interpolations for 1860. The rural sample population for 1774 consisted of those scoring 9 (most rural) on Professor Jones's regional code. The urban sample consisted of codes 1 through 3, or essentially Boston, Philadelphia, Charleston, and New York City.

explain much of the aggregate wealth inequality trends for the first century of independence.

Urbanization appears to offer more explanatory power than age distribution changes. On the eve of the Revolution, as elsewhere in U.S. history, wealth inequality was consistently higher in the cities than in the countryside. To judge the contribution of urbanization to the 1774–1860 trend in concentration, one must quantify the amount of urbanization that occurred. This cannot be done in a satisfactory way since Professor Jones used a rural-urban code that does not conform to the rural-urban census definitions for 1860. Within the context of the present 1774 reweighting experiment, we can offer only clues to the importance of the rural-urban shift. One clue is that while the urban top quantile shares in 1774 were much higher than similar colony-wide shares, they were not so high as the top quantile shares for the total male population in 1860. This suggests that even if cities had engulfed the entire U.S. population by 1860, this movement could not have explained all of the observed rise in wealth inequality. Another comparison points to the same conclusion. Professor Soltow's 1860 results imply that if the entire colonial free male population had lived on farms in 1774, the Gini coefficients and top quantile shares for the total assets would have been much lower, but still not so low as those observed in 1774. The actual shift from rural to urban residence, or from farm to nonfarm, was much less over the century than these comparisons presume, of course. This, and evidence offered in section 1.3.5, suggest that the true shift in population toward the cities is unlikely to have accounted for the observed rise in aggregate inequality.

It appears that the trend toward wealth concentration in the early nineteenth century was no mirage. Mere shifts in age and residence cannot account for the massive change in the structure of American wealth-holding. This conclusion is too important to rest solely on the evidence presented thus far. We need to perform further tests on the relevance of age, residence, and nativity shifts across the nineteenth century.

1.3.3 Aging in the Nineteenth Century

We have argued that shifts in the age distribution had little effect on wealth inequality trends in either the colonial period or the first century of independence. Is the same conclusion warranted for the shorter term antebellum period or for the nineteenth century as a whole?

Tables 1.5 and 1.6 report changes in the U.S. adult age distribution between 1830 and 1900. The age distribution among American white adult males did change markedly between 1830 and 1870, the most dramatic shift occurring in the last two decades. The percent of white males in their twenties declined from 40.6 in 1830 to 36.1 in 1860 and to 34.4 percent in 1880. The decline appears to have been even more pro-

Table 1.5   Percent Distribution of White Adult Males by Age, 1830–1900

Census Year	Age Class					
	20–29	30–39	40–49	50–59	60+	Total
1830	40.58	25.14	15.61	9.73	8.95	100.01
1840	39.87	26.12	16.16	9.47	8.38	100.00
1850	38.10	26.25	17.12	10.15	8.38	100.00
1860	36.06	26.96	17.68	10.69	8.62	100.01
1870	33.61	25.09	18.79	12.41	10.09	99.99
1880	34.41	24.61	17.58	12.43	10.97	100.00
1890	32.93	25.79	17.70	12.00	11.58	100.00
1900	31.30	25.60	19.06	12.53	11.52	100.01

Source: U.S. Bureau of the Census (1976, pp. 16, 23).

Table 1.6   Percent Distribution of White Adults by Age: U.S. and Northeast, 1800–1870

Age Class	U.S. Males & Females		Northeast Males	
	1800	1820	1830	1870
15–24			50.99	29.91
25–44			40.75	42.12
45–64			7.47	21.61
65+			.80	6.36
16–25	36.2	38.0		
26–44	39.7	37.6		
45+	24.1	24.3		

Source: U.S. Bureau of the Census (1976, pp. 16, 23).

nounced in Northeastern states; the share of adults (male and female) in the 15–24 age group falls from 51 percent in 1830 to 30 percent in 1870, a steep decline indeed. The era of great inequality surge was therefore also one of pronounced aging in the American adult population.

Such shifts in the age distribution could have raised or lowered aggregate inequality. The outcome would depend in part on whether the aging of the adult population raised age dispersion, as in the earlier stages of mortality improvement, or lowered it, as in the present stage of low and declining fertility, when the adult population pushes against the modern limits of life expectancy. Life cycle wealth patterns imply that greater wealth dispersion would be associated with greater age dispersion. In addition, wealth inequality is highest among the youngest adults, and an aging of the adult population would on these grounds tend to reduce

wealth inequality.[21] Which effects prevailed? Let us turn first to a crude national calculation and then to a firmer one based on Wisconsin data.

We can use Soltow's data on the relationship of age to real estate wealth in 1850 to calculate one component of the age effect. Table 1.7 shows mean wealth and Gini coefficients for different age groups in 1850. Ignoring the Ginis within age groups for the moment, let us calculate what would have happened to the top decile share of real estate wealth if all age groups held their mean values and the age distribution shifted as it actually did between 1830 and 1860. If the age distribution alone had changed, the top 10 percent (the oldest) would have claimed 23.6 percent, 22.3 percent, and 21.5 percent of all real estate in 1830, 1860, and 1880 respectively. Of course, aging would also affect aggregate real estate inequality by shifting the adult population to older age groups having lower within-group Gini coefficients. This second impact would reinforce the presumption that aging after 1830 served to *reduce* wealth inequality. What we know about age effects thus far serves to magnify the aggregate wealth inequality trend that requires explanation.[22]

Wealth data currently exist which would allow a more explicit accounting of these age and life-cycle effects, since the sample underlying Soltow's 1975 book yields total estate values by age, sex, nativity, and region. Unfortunately, Professor Soltow was unable to make his 1860 or 1870 samples available to us, so we settled on a second best strategy. Soltow's 1971 book on Wisconsin wealthholding reports the 1860 distributions for adult males reproduced in table 1.8. If we hold the variance within age classes constant, how would American aggregate wealth inequality have behaved between 1830 and 1900 if the observed changes in the age distribution of the adult male population (table 1.5) had been the only changes taking place? How important was population aging in producing a downward bias in aggregate wealth inequality trends? The answers are supplied in table 1.9. The Gini coefficient would have drifted downward until 1870 while remaining stable thereafter.

In short, attention to age distribution trends in the antebellum era

Table 1.7   Age and Real Estate Wealth in 1850

Age Class	Mean Wealth	Gini Coefficient	Age Class	Mean Wealth	Gini Coefficient
20–29	$253	.92	50–59	1950	.77
30–39	835	.82	60–69	2253	.77
40–49	1639	.81	70+	2439	.81

Source: Soltow (1975, pp. 70 and 107) based on census samples, free males, aged 20 and older.

Table 1.8   **Percent Distribution of Wealth by Class, Males Classified by Age: Wisconsin, 1860**

Wealth Class, j ($)	Mean Wealth W_j ($)	Total Distribution 20+ (a_j)	Percent Distribution by Age (a_{ij})				
			20–29	30–39	40–49	50–59	60+
0–1	.5	.288	.166	.058	.025	.015	.024
1–100	50.5	.041	.015	.013	.006	.003	.004
100–200	150.0	.062	.020	.023	.010	.005	.004
200–300	250.0	.049	.016	.017	.009	.005	.002
300–400	350.0	.037	.011	.013	.007	.003	.003
400–500	450.0	.032	.008	.013	.007	.003	.001
500–600	550.0	.034	.008	.013	.007	.003	.003
600–700	650.0	.029	.007	.010	.007	.003	.002
700–800	750.0	.025	.005	.009	.006	.002	.003
800–900	850.0	.024	.004	.009	.005	.004	.002
900–1,000	950.0	.021	.005	.006	.005	.003	.002
1,000–1,100	1,050.0	.027	.005	.009	.006	.005	.002
1,100–1,200	1,150.0	.019	.003	.008	.006	.002	0
1,200–1,300	1,250.0	.023	.005	.006	.006	.004	.002
1,300–1,500	1,400.0	.032	.006	.011	.007	.005	.003
1,500–2,000	1,750.0	.058	.010	.019	.017	.007	.005
2,000–2,500	2,250.0	.046	.006	.016	.013	.008	.003
2,500–3,000	2,750.0	.027	.002	.008	.010	.005	.002
3,000–4,000	3,500.0	.041	.004	.013	.014	.006	.004
4,000–5,000	4,500.0	.023	.002	.007	.007	.005	.002
5,000–10,000	7,500.0	.042	.003	.011	.016	.008	.004
10,000+	19,642.1	.019	.002	.006	.006	.004	.001
Total	1,486.0	.999	.313	.298	.202	.108	.078

Sources and notes: The underlying data taken from Soltow (1971b, table 6, p. 45). The a_{ij} are calculated as a percent of all adult males. Soltow does not report mean wealth or total wealth by class, nor has he been able to supply us with the underlying data. Thus, we have assumed the mean wealth by class to be the midpoint in each size class, with the exception of $10,000 and above. The latter is computed as a residual, since Soltow does report the total mean of $1,486. In the absence of the underlying data, we have also assumed that these class means apply to each age group within the given class. Our imperfect data imply a Gini coefficient of 0.735, while Soltow reports a figure of 0.752.

hardly suggests that our aggregate inequality indices are mirages. On the contrary, they understate the true inequality trends.

1.3.4 The Foreign-Born Myth

Perhaps the surge toward wealth inequality was the result of a rising share of impecunious immigrants in the total population. A rise in the foreign-born share could have increased aggregate wealth inequality without any change in inequality among persons classified by nativity.

Indeed, since immigrants were normally skewed toward the young male categories, one might have thought that immigration would have produced an inequality trend on these age considerations alone. We have already seen this to be false for the Northeast and for the United States as a whole.

An increasing foreign-born share could play a role in two ways. First, given a gap in average wealth between native and foreign born, a rise in the foreign-born share would serve to increase total inequality without any increased wealth inequality within either group. Such evidence could be grounds for dismissing the study of American inequality experience. If the antebellum inequality surge was simply the result of poverty influx from Europe, it would hardly warrant detailed analysis. And these wealth gaps were large. After standardizing for age, Soltow shows that in 1860 in the Northeast, those native Americans born in southern New England or the Middle Atlantic had average wealthholdings more than two times those of male heads born in Germany, almost three times the Irish male head, and a little less than double the British male head (Soltow 1975, table 6.2, p. 152). Whether due to discrimination, inability to speak English, a relatively poor European environment, or length of time in America, the gaps were a fact of life. To be more precise, for free men in their thirties, those native born had average total estates of $2,444 in 1860, while those foreign born had only $1,051; native born had wealthholding on an average 2.3 times that of foreign born (Soltow 1975, table 3.4, p. 77). Second, 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 indeed more heavily concentrated among the foreign born in midcentury.[23]

It seems to us, however, that these two forces could not have had an important quantitative impact on the measured aggregate trends. Even if the entire population of adult males had been native born in 1820, the

Table 1.9   Impact of Changing Age Distributions on Trends in American Wealth Concentration, 1830–1900: Wisconsin 1860 Weights

Census Year	Gini Coefficient		Census Year	Gini Coefficient	
	U.S.	Wisconsin		U.S.	Wisconsin
1830	.716		1870	.702	
1840	.714		1880	.705	
1850	.710		1890	.703	
1860	.707	.735	1900	.698	

Sources and notes: Underlying age data used in the calculation are taken from tables 1.5 and 1.6. The U.S. age distributions are applied using Wisconsin 1860 "wealth distribution weights." The procedure assumes the distribution across wealth classes within age groups to be constant.

rise in the foreign-born share to its actual values in 1860 or 1870 could not account for much of the observed surge toward inequality. The truth of this assertion can be made most apparent with the help of the inequality algebra introduced in section 1.2:

$$
\begin{aligned}
dI = dI_N &\left[n \left(\frac{\overline{W}_N}{\overline{W}} \right)^2 \right] + dI_F \left[(1-n) \left(\frac{\overline{W}_F}{\overline{W}} \right)^2 \right] \\
&+ dn \left[\left(\frac{\overline{W}_N}{\overline{W}} \right)^2 I_N - \left(\frac{\overline{W}_F}{\overline{W}} \right)^2 I_F + \left(\frac{\overline{W}_N - \overline{W}}{\overline{W}(1-n)} \right)^2 \right. \\
&\left. + 2I_F \left(\frac{\overline{W}_F}{\overline{W}} \right) \left(\frac{\overline{W} - \overline{W}_N}{\overline{W}(1-n)} \right) \right] \\
&+ d \left(\frac{\overline{W}_N}{\overline{W}} \right) \left\{ 2n \left[I_N \left(\frac{\overline{W}_N}{\overline{W}} \right) - I_F \left(\frac{\overline{W}_F}{\overline{W}} \right) \right. \right. \\
&\left. \left. + \left(\frac{\overline{W}_N - \overline{W}}{\overline{W}(1-n)} \right) \right] \right\}
\end{aligned}
$$

where N and F refer to native-born and foreign-born males, respectively, and n is the native-born share in the total male population. The remaining notation follows that of section 1.2, where $\overline{W}$ refers to mean wealth and I is the squared coefficient of variation. The first two terms in this expression measure the contribution to the aggregate inequality surge of changing inequality *within* native-born and foreign-born groups. We view these two sources to be far and away the most important, but our position can be substantiated only if the remaining two sources can be shown to have been minor.

Consider the contribution of the changing variance in between-group means, the fourth term in the changing inequality expression. While I_F was slightly larger than I_N in midcentury, $\overline{W}_N$ exceeded both $\overline{W}_F$ and $\overline{W}$ by a much larger proportion. It follows that if the relative mean wealth position of the native born rose over time—if $d(\overline{W}_N/\overline{W})$ were positive— then aggregate inequality would have been fostered as the poorer immigrant groups fell behind the average accumulation performance of native Americans. The evidence, however, fails to support this view. On the contrary, the ratio of the mean value of real estate belonging to native and foreign-born white males (nonfarm) was 2.12 in 1850, 1.99 in 1860, and 2.02 in 1870 (Soltow 1975, table 3.3, p. 76). The surge in aggregate antebellum wealth inequality cannot be explained by a rising "wealth gap" between native and foreign born, at least not after 1850, the first year for which we have data.

Consider the third term in the changing inequality expression. What was the impact of the fact that the native-born share was falling and the foreign-born share was rising? We have already indicated the primary way that rising foreign-born shares might have served to increase aggre-

gate inequality: by increasing the relative importance of the impecunious, thus augmenting inequality. While I_N and I_F were roughly the same in the mid–nineteenth century, and while $\overline{W}_N$ exceeded $\overline{W}_F$, it is also true that $(\overline{W} - \overline{W}_N)$ was negative. Thus, the long expression in brackets following dn does not have an unambiguous sign. The fall (rise) in the native (foreign) born share could have raised or lowered aggregate inequality trends, depending on the initial magnitudes of mean wealth by nativity, within variance by nativity, and the distribution of adult males by nativity.

The issue is an empirical one which will be resolved only when further samples from the U.S. 1850, 1860, and 1870 censuses are drawn, or when Professor Soltow's data are made available. We can speculate on the outcome, however, by appeal to a simple experiment. Was wealth inequality among all Americans in midcentury larger than that among native Americans? It was, but the differences are trivial. In 1860, the Gini coefficient for native born was .816, while for all free adult males the figure was .832. The presence of foreign born in the American wealth distribution served to raise the Gini coefficient by 2 percent, hardly the magnitude necessary to account for a significant portion of the antebellum inequality surge, especially given that the foreign born were hardly absent from America earlier, in 1820, for example. In 1870, the differences are even smaller. The Gini coefficient for total estate values was .831 for native born and .833 for all adult males. The presence of immigrants in 1870 served to raise the Gini measure of wealth inequality by two-tenths of one percent (Soltow 1975, pp. 107, 149)!

In summary, the source of wealth inequality trends lay *within* the native-born and the foreign-born groups. It was not merely a statistical mirage resulting from the increased preponderence of foreign born in America, or from an increased wealth gap between native and foreign born.

1.3.5   The Impact of Urbanization

The antebellum wealth inequality trend is not a mirage induced by age and nativity forces, but perhaps urbanization accounts for the aggregate trend. Its importance would not be diminished in this case, unlike the cases of age and nativity; after all, while nativity and age distribution changes may be viewed in large part as exogenous variables in American antebellum development, urbanization surely may not. In any case, it would be of some value to sort out the key sources of the antebellum inequality trend along urban-rural lines, especially given the conventional wisdom that urbanization can "account for" the vast majority of inequality trends during early modern growth.

This line of inquiry follows in the intellectual tradition stretching from Simon Kuznets (1955) to, most recently, Sherman Robinson (1976).

Once again, we can decompose aggregate inequality trends into four component parts:

$$dI = dI_U \left[u \left(\frac{\overline{W}_U}{\overline{W}}\right)^2 \right] + dI_R \left[(1 - u) \left(\frac{\overline{W}_R}{\overline{W}}\right)^2 \right]$$

$$+ du \left[\left(\frac{\overline{W}_U}{\overline{W}}\right)^2 I_U - \left(\frac{\overline{W}_R}{\overline{W}}\right)^2 I_R + \left(\frac{\overline{W}_U - \overline{W}}{\overline{W} (1 - u)}\right)^2 \right.$$

$$\left. + 2I_R \left(\frac{\overline{W}_R}{\overline{W}}\right) \left(\frac{\overline{W} - \overline{W}_U}{\overline{W} (1 - u)}\right) \right]$$

$$+ d \left(\frac{\overline{W}_U}{\overline{W}}\right) \left\{ 2u \left[I_U \left(\frac{\overline{W}_U}{\overline{W}}\right) - I_R \left(\frac{\overline{W}_R}{\overline{W}}\right) \right. \right.$$

$$\left. \left. + \left(\frac{\overline{W}_U - \overline{W}}{\overline{W} (1 - u)}\right) \right] \right\}$$

where the notation follows that of section 1.2 above. Let us take the last term first, the rural-urban (here, farm-nonfarm) wealth gap. Average wealth was *higher* among farmers than among other Americans. For example, among free adult males in 1860, farmers had total estates which averaged $3,166 while nonfarmers averaged only $2,006 (Soltow 1975, table 3.4, p. 77). Furthermore, the farmer's wealth advantage cannot be attributed to his older average age, since the same wealth differential appears in all age classes. In addition, the differential did not increase over time; the ratio of farm to total average wealth among free males actually fell from 1.38 in 1850 to 1.27 in 1860, and the trend continues until 1870 (Soltow 1975, p. 76). The declining "wealth gap" should have generated an egalitarian drift in America as a whole. Obviously, we must look elsewhere for the source of the antebellum surge.

How about off-farm migration and the rise of nonfarm employment (du)? It is true that wealth was far more equally distributed among farm families than among nonfarm families in the 1870 census sample drawn by Lee Soltow. Indeed, while the top 10 percent of farmers owned 59 percent of farm wealth, the top 10 percent of nonfarmers owned 81 percent of nonfarm wealth (Soltow 1975, p. 108). Gallman (1969, table A-1, p. 22) found similar results in the 1860 census. While Baltimore's top decile claimed 86.8 percent of gross wealth, in the remainder of Maryland the figure was 64.5 percent. Similarly, New Orleans's top decile claimed 82.6 percent while the rural "cotton counties" claimed 58.6 percent. It follows that urbanization did serve to raise inequality in America. In 1820, about 28 percent of the work force was nonfarm while the figure was 41 percent in 1860 (U.S. Bureau of the Census 1976, part 1, p. 134). The share of total Northern population in urban areas rose from 9.4 to 25.6 percent over the same period (table 1.10).

Table 1.10   **Distribution of Northern Population by Urban and Rural Residence, 1790–1900**

Year	Population (000)		Urban Share	Year	Population (000)		Urban Share
	Urban	Rural			Urban	Rural	
1790	160	1,809	.081	1850	2,788	11,242	.199
1800	245	2,442	.091	1860	5,050	14,640	.256
1810	383	3,397	.101	1870	8,150	17,130	.322
1820	490	4,730	.094	1880	11,568	20,303	.363
1830	827	6,327	.116	1890	17,684	22,133	.444
1840	1,382	8,730	.137	1900	24,076	23,304	.508

Source: U.S. Bureau of the Census 1976, p. 22.

These arguments could be quantified if Soltow's (1975) underlying urban-rural or farm-nonfarm wealth distributions for 1860 or 1870 were made available. In their absence, the Wisconsin 1860 urban and rural wealth distributions reported in table 1.11 will have to serve. If we hold the variance *within* urban and rural areas constant, how would Northern aggregate wealth inequality have behaved over the nineteenth century if the observed changes in the urban population share were the only ones that had taken place? What was the quantitative impact of urbanization on Northern wealth concentration trends? The results are summarized in table 1.12. There we see that the Gini coefficient would have drifted upward hardly at all between 1790 and 1840, from .740 to .748. Even after 1840, the impact of rapid urbanization in the Northeast served to raise aggregate inequality only modestly, from .748 in 1840 to .771 in 1870, a rise of some 3 percent. In short, while urbanization served to raise inequality in the first three-quarters of the nineteenth century, its contribution to the aggregate inequality surge appears to have been relatively minor. This again implies that the vast majority of the antebellum wealth inequality surge in America had its source *within* sectors and regions. To judge from figure 1.7 below, however, much of the inequality drama must have centered on the cities.

3.6   When and Where Did Wealth Become More Concentrated?

Other independent measures of wealth inequality trends between these 1774 and 1860 benchmarks are essential to test the implications of the Jones and Soltow-Gallman research.

Gathering data on the estates of the very richest .031 percent of U.S. families and comparing their aggregate value with rough estimates of the wealth of the entire nation, Robert Gallman (1969, table 2) found that the share held by this superrich group rose from 6.9 percent in 1840 to 7.2–7.6 percent in 1850, and then to 14.3–19.1 percent in 1890. The

Table 1.11   **Distribution of Wealth by Class, Males 20 and Older, Urban and Rural: Wisconsin, 1860**

Wealth Class ($)	Mean Wealth ($)		Adult Male Population	
	Rural	Urban	Rural	Urban
0–1	.5	.5	55,134	5,707
1–100	50.5	50.5	6,897	1,320
100–200	150.0	150.0	9,859	1,520
200–300	250.0	250.0	8,878	840
300–400	350.0	350.0	7,191	420
400–500	450.0	450.0	6,006	400
500–600	550.0	550.0	6,839	780
600–700	650.0	650.0	5,784	520
700–800	750.0	750.0	4,951	240
800–900	850.0	850.0	4,690	100
900–1,000	950.0	950.0	3,766	220
1,000–1,200	1,100.0	1,100.0	8,684	580
1,200–1,400	1,300.0	1,300.0	7,213	320
1,400–1,600	1,500.0	1,500.0	5,599	140
1,600–1,800	1,700.0	1,700.0	4,170	280
1,800–2,000	1,900.0	1,900.0	3,598	120
2,000–2,500	2,250.0	2,250.0	7,938	360
2,500–3,000	2,750.0	2,750.0	5,191	120
3,000–4,000	3,500.0	3,500.0	7,401	340
4,000–5,000	4,500.0	4,500.0	4,188	240
5,000–10,000	7,500.0	7,500.0	6,747	680
10,000+	19,315.0	38,582.0	2,851	642

Sources and notes: The underlying data are taken from Soltow (1971b, pp. 52–53). Soltow does not report mean wealth or total wealth by class. Thus, we have assumed the mean wealth by class to be the midpoint in each size class with the exception of $10,000 and above. The latter is computed as a residual since Soltow does report urban and state total means, $1,450 and $1,370 respectively. In the absence of the underlying data, calculated Ginis from the above data need not necessarily coincide with those reported by Soltow. Soltow reports a statewide Gini of .757, while we computed a value of .750. *Urban* refers to Milwaukee County and *rural* to the remainder of the state.

suggestion that inequality between the superrich and the rest of the nation rose across the 1840s supplies a valuable clue, even though Gallman's data do not allow a comparison between middle and low wealth shares.

Lee Soltow reaches the opposite conclusion based on real estate distributions in 1850 and 1860. For both these years, and for 1870, the U.S. census asked respondents to state the value of their land and buildings gross of lein. Sampling these returns, Soltow (1975, ch. 4) has found no net change in real estate inequality across the 1850s, the top quantile shares almost exactly matching the same shares of total estate in 1860. Stability in the inequality of real estate would surely limit inequality trends for the 1850s, given that real estate was nearly 60 percent of the

Table 1.12   **Impact of Urbanization on Trends in Northern Wealth Concentration, 1790–1900: Wisconsin 1860 Weights**

Census Year	Gini Coefficient		Census Year	Gini Coefficient	
	Northern States	Wis-consin		Northern States	Wis-consin
1790	.740		1850	.756	
1800	.742		1860	.763	.750
1810	.743		1870	.771	
1820	.742		1880	.776	
1830	.745		1890	.785	
1840	.748		1900	.792	

Sources: Underlying data used in the calculation are taken from the sources to tables 1.5 and 1.11. The urban-rural population distribution in Northern states is applied using Wisconsin 1860 "wealth distribution weights." The procedure assumes the distribution *within* urban and rural areas to be constant. It also assumes the urban-rural mean wealth differentials to be constant. Thus, only the relative weights, or the share urbanized, is allowed to change over time.

total value of wealth in 1860. Still, firm conclusions about inequality in total estate cannot be reached from the distribution of real estate alone.

The remaining time series evidence comes from regions and cities. For the late antebellum South, Gavin Wright (1970) has presented data on the inequality of improved acreage, farm real estate values, farm physical wealth (land, buildings, slaves, implements), and cotton output from the Parker-Gallman farm sample in cotton counties. Wright found no net inequality trend for the 1850s, though the second and third deciles from the top gained noticeably at the expense of the top decile and the lower seventy percent. This result seems to reinforce Soltow's finding of no net change in real estate concentration for the South (as well as for the nation) across the 1850s.

Enough data do exist to construct size distributions for slaveholding over a much longer antebellum period. Soltow's work with the slave-owning data has led to the summary figures shown in table 1.13. Soltow himself (1971a) concluded that there was no change in slaveholding inequality among slaveholders. Yet the more relevant measure is one that examines inequality among *all* families, not just slaveholders. As Soltow notes, slaveholders were a declining share of all families. Therefore what is at most a modest rise in inequality of slaveholding among slaveholders after 1830 becomes a pronounced rise in slaveholding inequality among all families (table 1.13). Contrary to the findings of Gavin Wright for the cotton South, the entire South shows a rise in the 1850s in slaveholding inequality, apparently part of a longer term trend. The years after 1830, and perhaps even after 1790, exhibit rising inequality in Southern slaveholding.

Table 1.13   Unequal Slaveholding in the South, 1790–1860

Region	1790	1830	1850	1860
Five regions on the Eastern seaboard				
Slaves per slaveholder	8.3	9.6	9.8	10.2
Slaveholders/family	.35	.36	.30	.25
Slaves/family	2.9	3.5	2.9	2.6
Gini coefficient, among slaveholders	.572	.573	.582	.597
Share held by top 1%				
of slaveholders	13.4%	13.0%	14.2%	13.7%
of families	22.5%	26.7%	27.9%	30.5%
Four regions on the Eastern seaboard				
Share held by top 10%				
of families	74.0%	75.2%		
Entire South				
Share held by top 10%				
of families		71.5%		82.3%

Source and notes: Soltow (1971a, tables 1 and 2) draws on both official census publications and his own sample of families and slaveholders from the manuscript censuses.

The regions consisted of most of Maryland, the District of Columbia, and North Carolina, plus parts of South Carolina. The fifth region added to these was most of Virginia, with some property tax returns for 1780 educating the underlying estimates for Virginia.

Professor Soltow reported some of the assumed class means for classes defined by number of slaves held. We have assumed others using what seem to be comparable procedures.

The remaining antebellum observations on wealth distributions are mainly from Northeastern cities.[24] The tax and probate data for these areas have yielded the top quantile shares displayed in figure 1.7. These are a valuable cross-check on the 1774 and 1860 benchmarks, since they are derived by different scholars, with possibly different sampling techniques, and in some cases with different kinds of data (e.g., tax returns).

Two striking patterns emerge from figure 1.7. First, it suggests when the steepest trend toward concentration set in. The local tax returns from Boston and neighboring Hingham show trough observations in the 1810s and '20s. The two top quantile shares from this period for New York City and Brooklyn are also much lower than that for the 1840s. Each series shows steep increases after 1830, as did the Southern slaveholding returns (but not the already cited Soltow and Wright results confined to the 1850s). Second, rates of increase in the top decile shares per decade seem to average about the same as that derived for total assets among all free households in the U.S. between 1774 and 1860 (about 4.6 percent per decade as a percent of the share itself, according to table 1.3 above). It appears, therefore, that the movement toward wealth concentration

occurred *within* regions, just as it seems to have occurred within given age groups, among native or foreign born, and within rural and urban populations.[25]
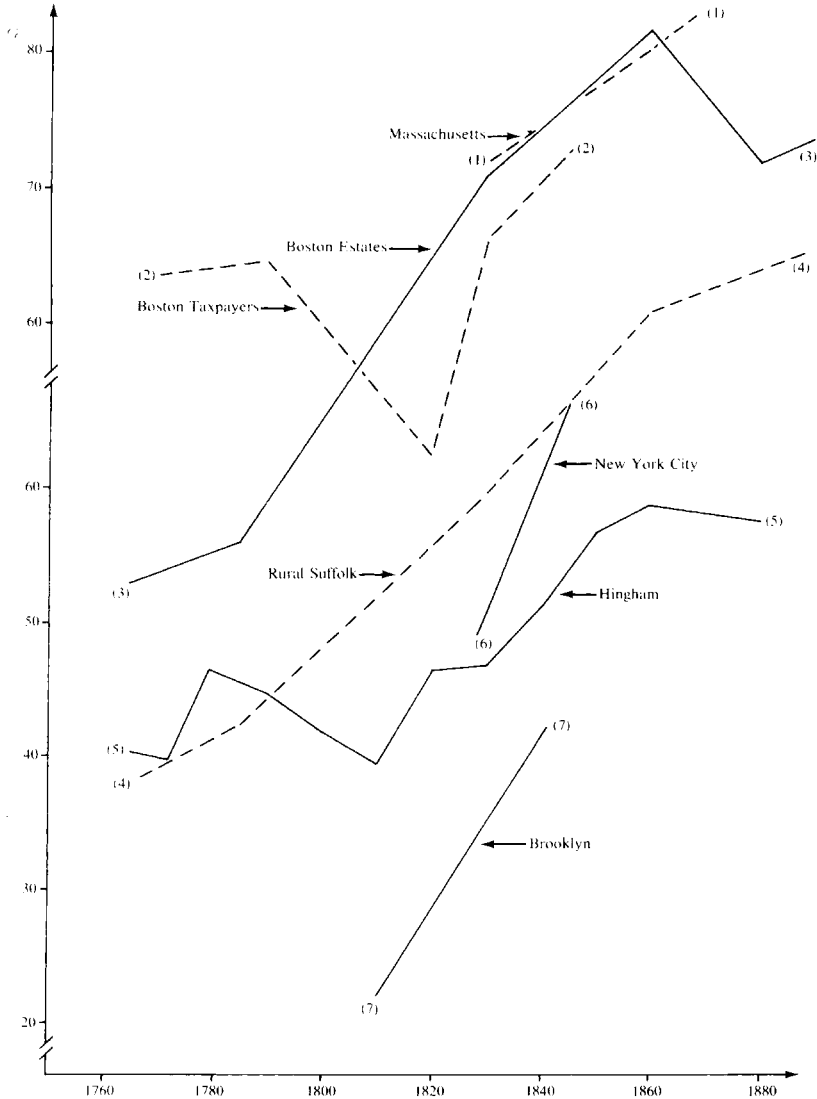

Fig. 1.7   Dating the Rise in Antebellum Wealth Concentration (percent held by top wealthholders): Northeast. Source: appendix 3.

While no rich empirical feast can be prepared from such scraps, the appetizer should certainly stimulate further interest in early-nineteenth-century archives. The working hypothesis seems now to be that wealth concentration rose over most of the period 1774–1860, with especially steep increases from the 1820s to the late 1840s. It should also be noted that these two or three decades coincide with early industrial acceleration, and with a period in which wage gaps between skilled and unskilled occupational groups seemed to widen (Lindert and Williamson 1976).

1.4   The Uneven High Plateau: Civil War to Great Depression

1.4.1   Time Series Clues

The seven decades following the Civil War mark a period for which wealth inequality remained very high and exhibited no significant long-term trend. This judgment is based on slim evidence, since the period is illuminated statistically only near its start and finish. The half-century between the 1870 census and the onset of modern estate tax returns—begun in 1919 and reported after 1922—is an empirical Dark Age for wealth distributions. It need not remain this way. Probate records are rich for most of this pretax era. For the moment, however, we must rely on a data base which is less extensive for this half-century than for 1860 or even 1774.

The manuscript censuses have allowed Soltow to compare the distribution of total assets in 1860 and 1870. The dominant intervening event during the decade was slave emancipation, a massive confiscation from the richest strata of Southern society. Thus, the net change across the 1860s was a shift toward more equal wealthholding for the United States as a whole, whether we count slaves as part of the wealthholding population or not. The movement of top decile shares is shown in table 1.14. The leveling within the South was apparently sufficient to outweigh the contribution to total U.S. wealth inequality implied by the opening up of a new wealth gap between North and South. Within the North, meanwhile, there was either no change or a slight leveling across the 1860s.

Table 1.14   **Top Decile Shares of Total Wealth among Adult Males, 1860 and 1870 (%)**

	1860		1870	
Region	Free	All	White	All
U.S.	73	74.6–79.0	68	70
South	75	(very high)	70	77
North	68	68	67	67

Sources: Table 1.13 and Soltow (1975, p. 99).

The next set of clues is offered by the census year 1890. As we noted above, the share of wealth held by Gallman's richest .031 percent of wealthholders rose to 14.3–19.1 percent in 1890, from 7.2–7.6 percent at midcentury. The rest of the Lorenz curve for 1890 has been estimated by George K. Holmes (1893). The 1890 census supplied data on farm and home ownership in twenty-two states, and Holmes extrapolated this sample to the national distribution. Furthermore, using mortgage debt reported in the census, Holmes was able to approximate net worth as opposed to gross wealth, thus making the distributions more comparable to Lampman's 1922 net estate benchmark. Holmes guesstimated full distribution of wealth from this data base and, by the imaginative use of other information, generated the distribution for 1890 reproduced in table 1.15.

Holmes's guesses imply that the top one and ten percent of American families held, respectively, 25.76 and 72.17 percent of wealth. Interpolation suggests that the top 1.4 percent claimed 28.13 percent of total wealth. By comparison, Lampman (1959, table 6, p. 388) calculated that the top 1.4 percent of families held 29.2 percent of the total wealth in 1922.[26] To the extent that comparability holds, wealth concentration increased only slightly between 1890 and 1922.[27]

Better estimates of national wealth distributions around World War I are offered by the Federal Trade Commission's early research. In 1926 the FTC published the results of a special survey in which they collected 43,512 probate estate valuations from twenty-three counties in thirteen states plus the District of Columbia. The survey covered the years 1912–23.[28] While table 1.16 exploits the FTC data, it should be emphasized that these distributions relate to those dying in the sampled counties, and the sample contains only one major city, Washington, D.C. If the sample had contained a more accurate representation of the urban East-

Table 1.15	**Holmes's Estimated Wealth Distribution for American Families in 1890**	
Wealth Class	Number of Families (000)	Net Worth ($000,000)
Lowest to	1,440.0	216.0
	752.8	1,359.7
	1,756.4	5,309.6
	5,159.8	2,579.9
	720.6	1,142.5
	1,764.3	6,749.1
	1,092.2	30,643.2
Highest	4.0	12,000.0
Total	12,690.2	60,000.0

Source: Holmes (1893, pp. 591–92).

Table 1.16   **Distribution of Wealth from FTC Sampled Estates, 1912 and 1923**

Wealth Class	1912 King No.	King Value ($)	1912 Williamson-Lindert No.	Williamson-Lindert Value ($)	1923 King No.	King Value ($)	1923 Williamson-Lindert No.	Williamson-Lindert Value ($)
Not probated	4,624	448,528	5,914	573,658	4,805	494,915	6,146	633,038
<$500	469	119,353	469	119,353	462	124,775	462	124,775
500–1,000	360	255,070	360	255,070	406	287,638	406	287,638
1,000–2,500	599	983,480	599	983,480	817	1,334,301	817	1,334,301
2,500–5,000	486	1,715,689	486	1,715,689	731	2,607,015	731	2,607,015
5,000–10,000	370	2,613,262	370	2,613,262	643	4,585,009	643	4,585,009
10,000–25,000	316	4,822,552	316	4,822,552	623	9,411,982	623	9,411,982
25,000–50,000	140	4,966,955	140	4,966,955	242	8,464,878	242	8,464,878
50,000–100,000	54	3,699,454	54	3,699,454	136	9,064,680	136	9,064,680
100,000–250,000	42	6,464,171	42	6,464,171	62	9,824,211	62	9,824,211
250,000–500,000	12	4,135,571	12	4,135,571	27	8,718,762	27	8,718,762
500,000–1,000,000	4	2,521,647	4	2,521,647	9	6,198,199	9	6,198,199
1,000,000<	2	8,165,326	2	8,165,326	2	5,599,535	2	5,599,535
Total	7,478	40,911,058	8,768	41,036,188	8,965	66,715,900	10,306	66,854,023

Sources and notes: The FTC data is reported in 69th Cong., 1st Session, Senate Doc. No. 126, *National Wealth and Income* (1926), pp. 58–59. The King estimates are derived from his assumption that those not probated had, on average, $100 at death. The Williamson-Lindert estimates allow for the same average among those not probated, but for a rise from $97 in 1912 to $103 in 1923, the observed rate of increase in the less-than-$500 class. In addition, numbers not probated are estimated as a residual from mortality data. The mortality statistics are for registered states reported in the 19th and 24th Annual Reports, Department of Commerce, Bureau of the Census, *Mortality Statistics* (1918 and 1923). These supply a trend in crude death rates which is then applied to the FTC aggregate estimate of 184,958 for the whole 1912–23 period to yield annual estimates for 1912 and 1923. This figure is distributed by sex using 1921 *Mortality Statistics* proportions. Total potential wealthholders at death are then estimated assuming 25.3 percent of deceased females were potential wealthholders. The 25.3 percent figure is derived from FTC 1944 estate tax returns (Mendershausen 1956).

ern seaboard, inequalities at death would look even greater for these years. On the other hand, both King's and our procedures for including the nonprobated decedents may tend to overstate the wealth inequality of decedents. These potential biases make it hazardous to compare these size distributions with ones that attempt to estimate wealth inequality among the living.

The FTC results for 1912 and 1923 can, however, be used to reveal the likely net change in net worth inequality between these dates. Table 1.17 reveals a sharp drop in wealth inequality across World War I, either in terms of the top quantile share or in terms of the Gini coefficient. The wealth leveling replicates findings emerging from two other strands of research. First, it appears that World War I was a pronounced leveler of incomes and wage ratios (Lindert and Williamson 1976). Second, Stanley Lebergott's (1976) evidence suggests that mobility into and out of the ranks of top wealthholders was great across the same era. World War I was a sharp but brief leveler, perhaps because of its sudden inflation, perhaps because of its effects on labor supply and product demand.

Wealth inequality trends across the 1920s can be gauged by the application of estate multiplier methods to the returns of the estate tax initiated in 1916. Robert Lampman (1962) performed that task some time ago and his figures (examined in more detail below) show an unmistakable rise in the share held by the richest between 1922 and 1929. The top percentile share among all adults rose from 31.6 percent of total equity in 1922 to 36.3 percent in 1929. Here again the top quantile measures of wealth inequality display positive correlation with movements in income inequality. The 1920s were years in which the top percentile share of income, the ratios of skilled to unskilled wage rates, and the inverse Pareto slope of income inequality among top income groups also rose (Lindert and Williamson 1976).

The period from 1860 to 1929 is thus best described as a high uneven plateau of wealth inequality. When did wealth inequality hit its historic peak? We do not yet know. We do know that there was a leveling across the 1860s. We also know that there was a leveling across the World War

Table 1.17   **Percent Share of Wealth, 1912–23**

| Wealth Class | 1912 | | 1923 | |
	King	Williamson-Lindert	King	Williamson-Lindert
Top 1%	54.38	56.38	43.10	45.68
Top 5%	77.69	79.83	70.18	72.44
Top 10%	88.08	90.03	81.24	84.10
Gini coefficient	.9186	.9252	.8878	.8988

Source: Table 1.16.

I decade (1912–22), which was reversed largely or entirely by 1929. This leaves three likely candidates for the dubious distinction of being the era of greatest inequality in American personal wealth: ca. 1860, ca. 1914, and 1929. That each of these pinnacles was followed by a major upheaval—civil war and slave emancipation, world war, or unparalleled depression—suggests interesting hypotheses regarding the effects of these episodic events on wealth inequality (or perhaps even the impact of inequality on these episodic events). These cannot be explored here. We shall note only that the existence of a trend in wealth inequality within this period cannot be established, primarily because we lack good time series spanning the four decades from 1870 to the early 1910s.[29]

1.4.2   International Comparisons

The shaky quality of the available wealth distribution data around the turn of the century makes comparisons between the U.S. and other countries hazardous. Yet a rough comparison can at least be suggested, since the early years of this century were ones for which several countries reported information on one particular kind of wealth distribution, the distribution of wealth among probated decedents.

The comparison in table 1.18 pivots on the FTC probate distribution of 1912, which shows more inequality than any other measurement of wealth dispersion from the entire history of the U.S. It may be a biased indicator but, as we have argued, it is not clear which way the bias runs. The FTC probates understate inequality with their underrepresentation of large cities, yet the assumptions used by King and ourselves to include nonprobated estates may overstate inequality. With all of these qualifications, it appears that America had joined industrialized Europe in terms of its degree of reported wealth inequality. Whatever leveling effect the American "frontier" and more rural orientation may have imparted, they did not show up in the form of a clearly lower degree of wealth inequality. By the eve of World War I, wealth—or at least decedents' wealth—was as unequally distributed here as in Western Europe. Tocqueville was right; less than a century after his visit, the American egalitarian dream had been completely lost.

If further studies confirm this tentative comparison, several corollaries demand attention. First, it is important to establish whether differences in age distribution and urbanization affect the international comparison. Second, was there a stable and high degree of wealth inequality in Western Europe that the post-1774 rise in American wealth inequality was approaching? Or was the trend toward wealth concentration as strong in Europe as in the United States across the nineteenth century? Third, who migrated, and did their departure from Europe and arrival in America serve to raise wealth inequality on both sides of the Atlantic? Finally,

Table 1.18   **Wealth Shares Held by Top One and Ten Percent of Decedents and the Living: Four Nations, 1907–13**

	Wealth Share of	
Country	Top 1%	Top 10%
Among decedents		
U.S., 1912: FTC probate sample	56.4%	90.0%
U.K., 1907–11: succession	57.8–	
duty returns for males over 25	64.3	91.9
France, 1909: all probated estates	50.4	81.0
Among the living		
England and Wales, 1911–13: persons		
over 25 (estate multiplier method)	70.0	
Prussia, 1908: family wealth		
(based on tax assessments)	49.1	82.3

Sources and notes: The sources are table 1.17, Willford King (1915, pp. 86–95), and Robert Lampman (1962, pp. 210–15) citing an earlier study by Kathleen Langley. In constructing the probate size distribution for the United Kingdom, King assumed that the estates in the poorest class of men averaged 60 pounds ($292) each, and that women owned the same fraction of the number and value of estates as in Massachusetts in 1890. It should also be noted that the British estate duty returns are likely to be distorted by a peculiar cause for tax avoidance. The British succession duties were a step function of total estate, so that the duty jumped by large numbers of pounds as one's estate gained the extra few pennies that put it into a higher tax bracket. Our preliminary inspection of the summary returns published in the *Statistical Abstract of the United Kingdom* suggests that in high wealth brackets the average declared wealth was noticeably above the midpoint, while this was not true of lower tax brackets. This is not the pattern one would expect of a distribution that rises and then falls with size. We suspect that rich heirs prevailed on themselves and their assessors to pull down their taxable estate into lower wealth brackets, thus understating British wealth inequality.

   King felt that the French returns appeared to list all estates, and left the probate tax return distribution unadjusted. He estimated the lower 86 percent of the Prussian distribution assuming "that the curve for small properties would resemble in form that known to exist for France" (p. 91).

what became of the European-American comparison following World War I? This last question has already been explored by Harold Lydall and J. B. Lansing (1959), as well as by Robert Lampman (1962, pp. 210–15). They find that the top quantile shares among living wealth-holders in England and Wales dropped with each decade from 1911–13 to midcentury, yet that wealth inequality always remained more pronounced there than in the United States from the 1920s on. Either the prewar comparison is misleading, or the age adjustment from the deceased to the living serves to raise American inequality more markedly, or there was an even more dramatic leveling of wealth in the United States across World War I than the available figures have revealed. This issue has yet to be resolved.

1.5   The Twentieth-Century Leveling

1.5.1   The Post–World War I Estimates

Our understanding of levels and trends in wealth inequality since World War I rests on two kinds of data. One source relies on estimates of top wealthholder shares using estate tax returns and estate multiplier methods (Lampman 1962; Smith and Franklin 1974). The other main source is the Federal Reserve Board's oft-cited Survey of Financial Characteristics of Consumers taken on 31 December 1962 (Projector and Weiss 1966).

The top quantile shares reported in table 1.19 reveal unambiguous and well-known trends. Top wealthholders increased their share markedly between 1922 and 1929, apparently recovering their pre–World War I shares. Their share then dropped secularly over the next twenty years, hitting a trough around 1949. Thus, the leveling in wealth distributions after 1929 parallels the "revolutionary" income leveling over the same period. Furthermore, as with incomes the wealth leveling is not solely a wartime phenomenon, since an equally dramatic leveling took place early in the Great Depression. While this revolutionary change in the distribution of wealth has become a permanent feature of the mid–twentieth century, the postwar period has not recorded any further trend toward wealth leveling.

Table 1.19   **Share of U.S. Personal Wealth Held by Top Wealthholders, 1922–72**

Year	Percent Share of Equity (or Net Worth) Held by Richest			
	1.0 Percent of Adults (1)	0.5 Percent of Population (2)	(3)	1.0 Percent of Population (4)
1922	31.6	29.8		
1929	36.3	32.4		
1933	28.3	25.2		
1939	30.6	28.0		
1945	23.3	20.9		
1949	20.8	19.3		
1953	24.3	22.7	22.0	27.5
1954	24.0	22.5		
1956	26.0	25.0		
1958			21.7	26.9
1962			21.6	27.4
1965			23.7	29.2
1969			20.4	25.6
1972			20.9	26.6

Sources: Columns 1 and 2: Lampman (1962, pp. 202, 204). Columns 3 and 4: Smith and Franklin (1974, and unpublished estimates).

1.5.2   Adjustments and Anomalies

So say the unadjusted estate tax series. But when these are compared with the 1962 Federal Reserve Board survey, the estimates begin to reveal serious gaps. The Fed survey implies that the top 1 percent of all consumer units held 36.9 percent of net worth at the end of 1962. In contrast, the top 1 percent of total population held only 27.4 percent in the same year, according to Smith and Franklin. This significant gap must be explained.

Elimination of the gap between these inequality estimates might well begin with standardization of population units. The Fed survey dealt with households or, more accurately, "consumer units." The estate tax studies could not easily follow the same convention, however. Given data on top individual wealthholders, they projected these top wealthholders onto the total population or the total adult population. Converting the estate tax results into a size distribution among households is of course impossible in the absence of data on the wealth of other family members. It is crucial to know, for example, the frequency with which male and female millionaires estimated from the decedent returns are married to each other. If it is high, then wealth inequality among households is greater than that implied by calculations which treat male and female millionaires as living in separate households.

While point estimates of wealth inequality among households are elusive, we can establish ranges. Table 1.20 performs an exercise of this sort, accepting the underlying wealth data and converting the top wealthholder aggregates from an individual to a household basis. These estimates cannot be proved to bound the true top percentile shares, but it is our judgment that the truth lies within the range given here. In any case, table 1.20 suggests that twentieth-century inequality trends are not much affected by converting the top share estimates to a household basis. The rise in wealth concentration between 1922 and 1929 persists, a somewhat larger decline from 1929 to midcentury emerges, but the stability since the early 1950s remains.

While the revisions fail to change trends by much, they do add to the anomalous discrepancy between the estate tax and the Federal Reserve Board survey estimates. It now appears that the top 1 percent of households held only 19.2–21.1 percent of 1962 net worth according to the estate tax estimates, while the 1962 Fed survey reports 36.9 percent. The anomaly grows.

Perhaps the discrepancy lies in different definitions or measurements of wealth. Yet the two studies seem to have used similar definitions, although Lampman's economic estate and Smith and Franklin's net worth are not exactly the same as the Federal Reserve Board's definition of net worth.

Our suspicion turns quite naturally to the way of reporting wealth to the estate tax authorities. Tax avoidance certainly must be considered, since top wealthholders face estate taxes now rising to marginal rates as high as 74 percent. Perhaps the richest have simply been much more adept at hiding their wealth from fiscal authorities, and increasingly so as the marginal tax rates rose with time. Perhaps the Federal Reserve

Table 1.20   Top Percentile Shares of Estimated Net Worth among Households, 1922–72

| | | High Estimates | |
Year	Low Estimates	Lampman Procedure	Alternative Procedure
1922	22.8%	26.0%	
1929	27.7		
1953	17.65	22.4	
1962	19.2	21.1	
1969	17.9	20.4	26.2%
1972	18.9		

Sources and notes: The sources are those cited in table 1.19 plus, for the total number of households, the U.S. Bureau of the Census (1976) and *Statistical Abstract of the United States*.

The *low estimates* were based on the following definitions:

$$\text{Percent of top wealth-holding households (wealth above } \$x) = \frac{\text{No. of individual estates above } \$x \text{ (among estimated living population)}}{\text{No. of households in the U.S.}} \times 100$$

$$\text{Their percent share of wealth} = \frac{\text{Total value of estates individually above } \$x}{\text{Wealth of the entire household sector}} \times 100$$

Note that this *low estimate* intentionally ignores the fact that more than one personal estate can exist in the same household.

The *Lampman procedure* (1962, pp. 204–7) generates what is probably a *high estimate* of the top wealthholders' share by subtracting the number of married women among individual top wealthholders from the top wealthholder ranks, with no other adjustments. This amounts to dividing the husbands with individual estates above the top wealthholders' threshold into two groups. The first group is married to wives also having more than the threshold individual wealth. The second group has wives and children with zero personal wealth.

The *alternative procedure* for developing a *high estimate* marries all the top wealthholding husbands off to the richest possible wives and gives them all the children with individual estates. That is, this procedure uses the definitions:

$$\text{Percent of top wealth-holding households (wealth above } \$x) = \frac{\begin{array}{c}\text{No. of individual estates above } \$x, \text{ excluding all}\\ \text{wealthholders under age 20 and all married}\\ \text{women with wealth above } \$x\end{array}}{\text{No. of households in the U.S.}} \times 100$$

$$\text{Their percent share of wealth} = \frac{\begin{array}{c}\text{Total value of estates over } \$x \text{ among adult males,}\\ \text{adult females not currently married, all minors,}\\ \text{richest married women equal in number to the}\\ \text{married males with estates over } \$x\end{array}}{\text{No. of households in the U.S.}} \times 100$$

Board survey of 1962 is correct, and there is much less to the wealth leveling since World War I than meets the eye.

The difficulty with this obvious possibility is that it does not offer a clear explanation of why the Fed survey got such different results. Inheritance tax avoidance by the rich implies large transfers to heirs *inter vivos* and through trusts, some of which go unreported altogether (Lampman 1962; Smith and Franklin 1974; Mendershausen 1956). But in that case, why did they have such a larger share of total wealth still in hand to report to the interviewers in the Fed survey? Alternatively, if we think they are *not* taking these legal means of transfering their bequests before death, but rather are hiding vast sums from the assessors, why would they be so much more candid when interviewed by the Federal Reserve in 1962? We can well believe that people might lie to avoid a 74 percent marginal tax rate, but it is not yet clear how or why their lying was so inconsistent. There must be another explanation for the discrepancy.

There are only small gaps between the amounts of wealth reported for top wealthholders to the Fed survey, the Internal Revenue Service, and the Smith-Franklin modification of the IRS data. For either the top million wealthholders or the top two million, the estimated amounts of wealth in the Fed survey run something like 10 percent above the amounts implied by the Smith-Franklin estimates. The discrepancy is not large enough to explain the top share gap already noted. Furthermore, the same top million or two reported even more to the IRS itself, according to its own estimates (U.S. Internal Revenue Service 1967). Differences in the amounts of wealth attributed to top wealthholders apparently do not account for the differences in the 1962 share estimates.

The key to the 1962 puzzle must lie with competing estimates of the total net worth of the entire personal sector. The Fed survey never reported its estimate of total personal wealth, but the mean net worth and and the estimated population size imply an aggregate net worth of $1,198 billion. This is very close to John Kendrick's (1976, p. 70) recent estimate of the personal sector's gross assets of $1,175 billion for the same date. Unfortunately, both figures are well below the $1,779.9 billion total net worth used by Smith and Franklin—and supplied to them by Helen Stone Tice of the Federal Reserve Board. It appears that the Fed survey somehow erred by using a total net worth estimate which which is only 56 percent of the figure later disseminated by the Fed itself. A look at Projector and Weiss's (1966, pp. 61, 62) technical notes to the survey reveals that they were already aware of a serious underestimation of total assets and net worth. If we conclude that the better estimate of total net worth was that later supplied by the Fed to Smith and Franklin, then the Fed survey itself implies a top percentile share of only 20.6 percent of net worth, well within the range estimated in table 1.20 above.

If the estimates are now consistent with each other, they still do not reveal what made wealth inequality decline between 1929 and midcentury. We must take care to subject this aggregate leveling to the same kind of scrutiny applied to the nineteenth-century wealth concentration trends. In particular, could the leveling be just an artifact of changes in the age distribution? Pursuing this point, table 1.21 displays the percent distribution of male-headed households by age of head. Between 1930 and 1940 or between 1930 and 1960, there was indeed an aging in the population of male household heads, but it takes a different form from that of the antebellum aging discussed above in section 1.3. Over the nineteenth century, young adult males declined in importance, thus imparting a downward drift to aggregate inequality indicators as the age distribution compressed. The twentieth-century experience appears to be somewhat different. While young adults (under 35) decline in relative numbers from the 1920s to the 1960s, adults at the other end of the age distribution increase in relative importance (aged 55 and above). The net life cycle impact on aggregate wealth concentration trends is unclear. The issue can be resolved only by applying wealth distributions by age to this trending demographic data. The only distribution data suitable for this purpose are those for 1962 reproduced in table 1.22.

If we hold both the variance within and the mean values between age classes constant at their 1962 magnitudes, what would have been the impact of the changing age distribution of male household heads on aggregate inequality trends following 1930? The answers appear in table 1.23. First, and in sharp contrast with the implications of the "Paglin debate" (Paglin 1975, and the subsequent exchange in later issues), age–life cycle effects appear to be a trivial component of aggregate wealth concentration trends in the mid–twentieth century. Regardless of the time span selected, Gini coefficients vary hardly at all in response to these demographic forces. Second, the impact—although very small—is to produce *increased* wealth concentration over time. Thus, it appears that

Table 1.21   **Percent Distribution of Male-Headed Households by Age of Head, 1930–70**

Year	Under 35	35–44	45–54	55–64	65 and Over	Total
1930	27.3	27.1	22.0	14.1	9.3	99.8
1940	26.3	24.5	22.6	15.3	11.2	99.9
1950	27.9	24.2	20.3	15.5	12.2	100.1
1960	25.8	23.9	20.9	15.5	13.8	99.9
1962	25.3	23.6	20.7	15.6	14.8	100.0
1970	27.9	20.5	20.7	16.4	14.6	100.1

Source: Underlying data taken from various census publications.

Table 1.22   **Mean Wealth and Percent Wealth Distribution by Wealth Class, Consumer Unit Heads Classified by Age, 1962**

Age	Neg. or 0	$1–999	$1,000– 4,999	$5,000– 9,999	$10,000– 24,999	$25,000– 49,999	$50,000– 99,999	$100,000– 199,999	$200,000– 499,999	$500,000 and over
					Mean Wealth ($)					
All units	0	396	2721	7267	16,047	35,191	68,980	132,790	300,355	1,260,667
Under 35	0	411	2552	7176	15,493	30,911	75,861	117,437	281,433	4,972,437
35–44	0	392	2801	7460	15,897	35,068	68,026	130,385	294,846	1,194,630
45–54	0	392	2801	7460	15,897	35,068	68,026	130,385	294,846	1,194,630
55–64	0	358	2804	7286	17,056	36,067	68,533	141,236	309,196	1,353,921
65 and over	0	365	2775	6958	15,572	35,131	70,645	122,569	298,141	1,034,548
					Percent Wealth Distribution					
All units	10	16	19	16	23	11	4	1	1	
Under 35	14	36	26	14	8	2				
35–44	9	14	20	21	25	8	4	1		
45–54	8	10	20	10	31	14	5	1	1	
55–64	9	7	12	16	28	16	8	3	2	1
65 and over	11	8	13	18	25	15	5	1	2	

Sources and notes: Underlying data taken from Projector and Weiss (1966, tables A2 and A8, pp. 98–99 and 110–111). Mean wealth is not reported separately by size for age groups 35–44 and 45–54, but rather for 35–54. We have, therefore, assumed the 35–54 mean values to apply to both age groups. Furthermore, we set negative wealth values at zero, since no alternative was possible.

Table 1.23   **Impact of Changing Age Distribution on Trends in American Wealth Concentration, 1930–70: Projector and Weiss 1962 Weights**

	U.S. Gini Coefficient			U.S. Gini Coefficient	
Year	Male-Headed Households	Consumer Units	Year	Male-Headed Households	Consumer Units
1930	.718		1960	.720	
1940	.719		1962	.719	.76
1950	.722		1970	.725	

Sources and notes: Underlying data are taken from tables 1.21 and 1.22. U.S. male-headed household age distributions are applied using Projector and Weiss 1962 "wealth distribution weights" for consumer units, applying constant (1962) conversion factors to get from male-headed households to consumer units. The procedure assumes the distribution across wealth classes *within* age groups to be constant. We fail to replicate the Projector and Weiss reported Gini (1966, table 8, p. 30) of .76 since we were forced to set the mean negative wealth class at zero and the mean wealth detail in the 35–54 age group is different from Projector and Weiss (see note to table 1.21). Thus, our 1962 Gini of .72 reflects greater equality. Presumably, the trends reported above are unaffected by these assumptions.

the post-1929 leveling in wealth distribution is *understated*, and proper adjustment for life cycle effects would serve to make the trend toward greater wealth equality even steeper.[30]

1.5.3   Toward Size Distributions of Total Wealth

Thus far we have addressed only the size distribution of nonhuman wealth (inclusive of slaveholding), and have ignored total wealth. The latter augments "conventional" wealth by the capitalization of all expected future income streams accruing from human capital as well as claims on retirement income. So basic an omission is easily justified for the nineteenth century and earlier, when human capital was a far less important mode of accumulation and pensions were uncommon. For this century, however, we should at least begin the task of discerning what better measures of total wealth would show, since better measures should soon be available.

Human Capital

It is well known that earnings are far more equally distributed than conventional property income or total income. The implication for wealth distributions is straightforward: *total* personal wealth must be far less concentrated than conventional wealth, and intangible human capital must, by inference, be more equally distributed. Frequency distributions of adults by formal schooling are certainly consistent with that inference,

and a recent publication by Lee Lillard (1977, p. 49) supplies more specific support. Lillard reports an explicit calculation of the distribution of human capital for a male cohort born between 1917 and 1925. Gini coefficients are calculated for the cohort between ages 35 and 44 (e.g., over the years 1943 to 1970), taking on an average value of .45 and ranging between .39 and .53. By comparison, Projector and Weiss (1966, table 8, p. 30) report a Gini coefficient of .71 for "conventional" 1962 wealth in the same age class. What is true for the age class 35–44 is likely to be even more true of all adult potential wealthholders.

From the properties of variance, we also know that the coefficient of variation describing the concentration of *total* wealth (W) can be decomposed into three parts:

$$\left(\frac{\sigma_W}{\overline{W}}\right)^2 = \left(\frac{H}{\overline{W}}\right)^2 \left(\frac{\sigma_H}{\overline{H}}\right)^2 + \left(\frac{C}{\overline{W}}\right)^2 \left(\frac{\sigma_C}{\overline{C}}\right)^2 + \frac{2\sigma_{HC}}{\overline{W}^2}$$

i.e., (1) the coefficient of variation describing human capital (H) concentration weighted by the share of human capital in total wealth economy-wide;[31] (2) the coefficient of variation describing conventional capital (C) concentration, weighted by the share of conventional capital in total wealth economy-wide; and (3) a covariance term. It follows that total wealth will become more equally distributed over time for any of four reasons, singly or in concert: (1) a leveling in human capital distribution; (2) a leveling in conventional capital distribution; (3) an economy-wide rise in the importance of human capital in total wealth; and (4) a diminution in the (presumably positive) correlation between conventional and human wealthholdings.

Table 1.24 explores the potential impact of the third item, namely the shift in the economy-wide portfolio mix toward human capital following 1929. For net national wealth held by *persons,* John Kendrick estimates that the intangible human capital share in total wealth rose from 50.3 percent in 1929 to 58.7 percent in 1969. Based on the tentative estimates supplied by Theodore Schultz and Edward Denison, 1929 was a watershed since there is very little evidence supporting a shift in portfolio mix prior to that data. Indeed, it appears that conventional wealth was a *higher* share of total wealth in 1929 than in 1896. The implication would appear to be that the trend toward less concentrated wealth holdings following 1929 is significantly understated by our inattention to this fundamental shift in the wealth portfolio mix during the middle third of the twentieth century.[32]

The first-order causes of the portfolio mix shift following 1929 are not hard to find. John Kendrick's estimates[33] show that net rates of return for human capital have exceeded those for nonhuman capital over the past four decades. Furthermore, there appears to be considerable evi-

Table 1.24   Composition of Wealth: Three U.S. Estimates, 1896–1973 (percent shares)

Year	Schultz		Denison-Schultz		Kendrick		
	Education Stock	Reproducible Nonhuman Stock	Intangible Human Capital Stock	Reproducible Nonhuman Stock	Education Stock	Intangible Human Capital Stock	Tangible Nonhuman Stock
1896			32.1	67.9			
1899			33.3	66.7			
1900	18.3	81.7					
1909			33.4	66.6			
1910	18.9	81.1					
1914			32.5	67.5			
1919			31.9	68.1			
1920	19.4	80.6					
1929	19.2	80.8	29.8	70.2	42.9	50.3	49.7
1930	19.7	80.3					
1940	24.7	75.3					
1948			34.3	65.7	45.1	51.7	48.3
1950	27.0	73.0					
1957	29.6	70.4					
1969					50.5	58.7	41.3
1973						60.7	39.3

Sources: *Schultz*: The education stock refers to members of the labor force with ages over 14. The reproducible nonhuman wealth stock is Raymond W. Goldsmith's estimates for the U.S. economy as a whole. Both series are in constant 1956 prices. Schultz (1961, table 14, p. 73; and 1963, table 4, p. 51).

Denison-Schultz: Denison's labor quality input index 1896–1948 is applied to Schultz's educational capital stock benchmark for 1929. Reproducible nonhuman stock is private domestic economy capital stock, Kendrick (1896–1909) and Denison (1909–48) linked. Denison (1962, tables 11 and 12, pp. 85 and 100). Kendrick (1961, tables A–XV and A–XXII, pp. 320–22 and 333). All series in 1929 prices.

Kendrick: Net national wealth held by persons, current dollars. Estimates exclude intangible nonhuman capital (e.g., R&D) and tangible human capital (e.g., rearing costs). Kendrick (1976, tables 2–9, 2–10, 2–11, and C–7, pp. 50–51 and 239).

dence that human capital has become less concentrated since 1929, at least based upon earnings distribution data (see Lindert and Williamson 1976, for a summary of the evidence).

This implies that low income and/or younger families have been more able to exploit the higher rates of return to human capital. This would constitute a mechanism inducing a greater concentration of capital since 1929, to the extent that the portfolio shift to human capital has been more pronounced among households with low holdings of conventional wealth.[34] We have, then, two reasons for believing that trends in conventional wealth distributions understate the true leveling in total wealth distributions.

Social Security and Pensions

Conventional wealth estimates exclude the present value of contingent claims to social security benefits. Since its introduction in 1937, the social security system has expanded dramatically. Since wealth in this form has markedly increased in relative importance, and given its more equal distribution, we have reason to expect that its exclusion from wealth concentration statistics tends to create an upward bias in total wealth inequality trends since the 1920s. Furthermore, if low and middle class groups have tended as a result to shift out of conventional accumulation much more dramatically than the rich, then the measured concentration of "conventional" wealth has an upward bias over time as well.

Martin Feldstein (1974) has estimated that in 1971 social security wealth increased wealth of the entire population by 37 percent net of the present value of social security taxes paid by those currently in the labor force. A similar calculation for 1962 yields an estimate of 31 percent, while for those households in which there is a man aged 35–64 the figure is 35 percent (Feldstein 1976). James Smith (1974) has estimated that pension fund reserves amounted to about 7 percent of individual net worth in 1962. Not all pension plans are fully funded, of course, so this figure might be viewed as an understatement. Who benefits from pensions and social security? On the face of it, wealth held in these contingent forms must be most important for middle and low income individuals with little conventional nonhuman wealth except for house equities and consumer durable stocks.

Feldstein (1976) has made an explicit calculation of the impact of social security wealth on the distribution of total 1962 wealth reported by Projector and Weiss. The calculation is based on the assumption that social security taxes reduce human wealth but not nonhuman wealth, so that his results are gross of taxes. Feldstein thus estimates (1976, table 2) that the share of the top 1 percent of wealthholders aged 35–64 falls from 28.4 percent of fungible wealth to 18.9 percent of total wealth

when social security wealth is included. No doubt somewhat less striking results would be forthcoming if the calculation was expanded to include all adults, but what does this 9.5 percent difference suggest regarding "conventional" wealth concentration trends offered by Lampman and Smith and Franklin? As a share in adult population, the top 1 percent had their share in conventional wealth decline from 31.6 percent in 1922 to 26.0 percent in 1956 (table 1.19). If the Feldstein 1962 adjustment was roughly applicable to 1956 as well, the true decline would have been from 31.6 to 16.5 percent, a leveling in wealthholdings far more consistent with the observed leveling in incomes.[35]

There is, of course, an active debate (Feldstein 1974; Barro 1977; Munnell 1976) over the response of total private saving to the presence of pension and social security plans, a debate which extends to labor supply and the retirement decision. However, no one has challenged the view summarized above that these mid-twentieth-century plans have induced a pronounced shift in wealth portfolios in such a fashion that the wealth leveling as reflected in "conventional" wealth measures is significantly understated.

1.6   Overview

This survey suggests one obvious moral: more data can and should be gathered on the size distribution of wealth throughout American history. Unlike data on incomes, the extant wealth data do not improve in quantity and quality over time. The twentieth-century wealth distributions are based on numbers only a little more plentiful and probably more flawed than wealth data for earlier centuries. The most critical flaw results from the charge of tax distortion, an alleged distortion unique to the twentieth century. To the extent that tax distortions have escalated with the estate tax burden, we shall have understated recent wealth inequalities and overstated the post-1929 leveling. While the tax distortion problem may never be fully resolved, it seems likely that an extension of our wealth accounting to include contingent claims on retirement income and human wealth is on the way.

The available estimates yield more than just caveats, however. This paper has presented a tentative three-century accounting starting with the mid–seventeenth century. From that time until the eve of the American Revolution, colonial wealth inequality seems to exhibit stability despite some noteworthy increases in urban wealth inequality just before the Revolution. Between 1774 and the outbreak of the Civil War, a revolutionary change took place in the distribution of wealth. Our nationwide estimates point to a near tripling in the ratios of the average wealth of the top one or ten percent of wealthholders to the average wealth of

all other groups. Estimates from local probates and tax return sources seem to confirm this dramatic trend toward concentration. Furthermore, regional estimates suggest that most of the antebellum shift to wealth concentration occurred from the 1820s to the late 1840s, although the supply of such shorter run data is still inadequate. In addition, our calculations show that the apparent rise in wealth inequality before the Civil War cannot be explained by mere shifts in the age distribution, by the increasing share of foreign born, or by urbanization, although this last item contributes noticeably to the rise of wealth concentration.

We still know little about wealth inequality trends within the long period from the Civil War to World War I. Slave emancipation unambiguously leveled wealth inequality within the South and for the nation as a whole across the 1860s. For the half-century after 1870 we are in the dark, so that we cannot with confidence identify peak wealth inequality with 1929, 1914, or 1860. Nevertheless, it is apparent that no significant long-term leveling took place during the period and that inequality persisted at very high levels.

The twentieth-century figures suggest a clear pattern. Wealth inequality, like income inequality, dipped across World War I and rose across the 1920s, although it is hard to say whether the 1929 distribution was more or less equal than that of 1912 or some nearby year. From 1929 until midcentury, wealth inequality seems to have dropped, again paralleling the movement in income inequality. After midcentury, neither wealth nor income inequality has shown a trend that can be judged significant on existing data. The American record thus documents a "Kuznets inverted-U" for both wealth and income inequality. Significant inequality in either form apparently did not appear on the American scene until the onset of modern economic growth in the early nineteenth century.

Throughout the paper we have followed the usual convention of exploring the size distribution of *nominal* wealth. Yet rich and poor consume different items with their wealth. The size distribution of *real* wealth can thus be influenced by movements in the ratio of the cost-of-living index for the rich to the corresponding index for the poor. Elsewhere (Williamson 1977; Williamson and Lindert 1978) we have explored the class difference in cost-of-living movements, and have found these to have moved in a fashion which serves to reinforce the nominal distribution trends. In particular, what we know about class differences in the cost-of-living suggests no revision of the position that wealth inequality rose before the Civil War. A rise in the relative cost-of-living for poorer families between 1890 and 1914 adds force to the belief that real wealth inequality ascended to a historic peak just before World War I. Movements in class cost-of-living indices also reinforce the nominal distribution trends over the last half-century.

To the extent that further research upholds these findings, it will under-score the importance of identifying those forces driving the distribution of wealth in America. An essential first step is to decompose changes in aggregate wealth inequality (among persons of given age) into its four components: (1) changes in the prior inequalities of bequests inherited by the age group, (2) changes in the inequalities of prior earnings and public transfers received by the age group, (3) changes in the correla-tion between size of wealth and average propensities to save in non-human form, and (4) changes in the correlation between size of wealth and rates of return received on that wealth. This decomposition is preg-nant with social implications, of course. Defenders of the American record may endeavor to find that shifts in savings propensities explain the nineteenth-century rise in wealth inequality, but not the twentieth-century leveling. Critics will feel some compulsion to show the opposite. We cannot enter such a debate here, although we feel that changes in the inequalities of prior incomes will be central to successful explanatory models, and that such models will have to deal with the full general equi-librium determinants of quasi-rents on assets of all sorts, human and nonhuman. It should suffice for the present to point out that American wealth inequality paints a fascinating picture, one awaiting explanation.

Appendix 1 Colonial Wealth Inequality Trends

New England Colonies

Table 1.A.1   Connecticut: Probate Wealth

Period	(1a) Top 10% Hartford (personal)	(1b) Top 10% Hartford (total)	(2a) Top 30% Hartford (personal)	(2b) Top 30% Hartford (total)	(3) Top 10% Hartford (real)
1650–69	45.5	47.8	75.0	76.2	53.0
1670–79	43.0	54.1	68.0	76.7	55.0
1680–84	47.0	56.4	73.0	81.6	60.0
1685–89					48.0
1690–94	43.0	52.1	71.0	74.9	40.0
1695–99					36.0
1700–09	46.0	40.3	72.0	69.4	36.0
1710–14	45.0	45.6	70.0	70.8	41.0
1715–19	43.5	45.0	66.5	71.4	47.0
1720–24	45.5		71.0		38.0
1725–29	42.5		65.0		37.0
1730–34	48.0		70.0		47.0
1735–39	33.0		62.0		42.0
1740–44	44.0		68.0		48.0
1745–49	43.0		70.0		53.5
1750–54	39.0		65.0		49.0
1755–59	34.0		68.0		50.0
1760–64	47.0		70.0		54.0
1765–69	48.5		69.5		42.5
1770–74	45.0		71.0		49.4

Source: Professor Jackson T. Main has kindly supplied us with these data under-lying his 1976 article on Connecticut wealth. The estate inventory data, which cover the great majority of adult male decedents before the mid–18th century, have been age-adjusted to estimate the distribution of personal estate, real estate, and total estate among living adult males whose estates were likely to be inven-toried at death.

Table 1.A.2   Connecticut and New Hampshire: Unadjusted Probate Wealth, Top 30%

Period	(4) Hartford, Conn.	(5) Middle-Sized Towns, Conn.	(6) Small Towns, Conn.	(7) Portsmouth, N.H.
1700–20	74.03	50.12		65.5
1720–40	73.02	63.95		75.3
1740–60	77.27	69.05	60.83	79.7
1760–76	73.94	69.07	67.50	79.1

Source and notes: Unadjusted probate wealth, sampled counties, from Daniels (1973–74, tables 3 and 4, pp. 131–32). The middle-sized Connecticut towns are Danbury, Waterbury, and Windham. The small Connecticut towns are the "fron-tier settlements" Canaan, Kent, Salisbury, and Sharon, all of which are in Litch-field County.

Table 1.A.3   Massachusetts: Boston and Suffolk County, Probate Wealth, Top 10%

Period	(8) Boston	Period	(9) Boston	Period	(10) Suffolk County	Period	(11) Top 30% Boston
1650–64	60.0						
1665–74	64.0						
1685–94	46.0	1684–99	41.2				
1695–04	50.0			1695–97	40.6		
1705–14	56.0	1700–15	54.5	1705–06	50.2	1700–20	84.25
1715–19	54.0			1715–17	36.4		
		1716–25	61.7				
		1726–35	65.6	1726–27	50.8		
		1736–45	58.6	1735–37	38.7	1720–40	82.45
1750–54	53.0	1746–55	55.2	1746–47	50.9		
		1756–65	67.5	1755–57	55.7	1740–60	87.94
1760–69	53.0	1766–75	61.1	1766–67	48.6		
				1777–78	41.4	1760–76	85.30
1782–88	56.0						

Sources: Col. 8: Wealth inventories of adult male decedents, total estate values. G. Main (1976, table IV).

Col. 9: Unadjusted inventoried personal wealth (excluding real estate). Nash (1976b, table 3, p. 9).

Col. 10: Suffolk County includes Boston. Inventoried total wealth, unadjusted. G. Warden (1976, table 2, p. 599).

Col. 11: Unadjusted probate wealth, total estate value. Daniels (1973–74, table 2, p. 129).

Table 1.A.4   Massachusetts: Boston, Tax Lists, Top 10%

Year	(12) "Unadjusted"	(13) "Adjusted"	Year	(12) "Unadjusted"	(13) "Adjusted"
1681		42.30	1771	63.60	47.50
1687	46.60		1790	64.70	

Sources and notes: Taxable wealth from Boston tax lists, augmented to include adult males without wealth. The 1687 and 1771 figures in col. 12 are from Henretta (1965, tables I and II, p. 185), while the 1790 entry is from Kulikoff (1971, table 2B, p. 381). Gerard Warden has warned that one takes great risks in trying to infer the level and trend of wealth inequality from Boston's tax assessments. Undervaluation ratios varied greatly over time and across assets, while many assets escaped assessment altogether. His adjustments for these valuation and coverage problems are presented in col. 13. G. Warden (1976, p. 595).

Table 1.A.5   **Massachusetts: Rural Areas, Probate Wealth**

Period	(14) Top 30% Rural Suffolk	(15) Top 30% Wor- cester	(16) Top 10% Essex	Period	(17) Top 10% Rural Suffolk	(18) Top 10% Hamp- shire	(19) Top 10% Wor- cester
1635–60			36.0	1650–64	37.0		
1661–81			49.0	1665–74	37.0	30.0	
				1685–94	34.0	37.0	
				1695–04	36.0	35.0	
1700–20	62.52			1705–14	33.0	38.0	
				1715–19	31.0	52.0	
1720–40	58.01	60.24					
1740–60	67.57	64.42		1750–54	31.0	41.0	
				1760–69	38.0		39.0
1760–76	68.05	68.06					
				1782–88	42.4		43.0

Sources and notes: Cols. 14 and 15: Unadjusted probate wealth, total estate values. Daniels (1973–74, table 2, p. 129). Rural Suffolk refers to Suffolk County excluding Boston, while Worcester refers to the county.

Col. 16: Unadjusted total estate values from Koch (1969, pp. 57–59) as cited in G. Main (1976, table I).

Cols. 17, 18, and 19: County data where Suffolk excludes Boston. Total estate values among adult male decedents reported in G. Main (1976, table IV).

Table 1.A.6   **Massachusetts: Rural Areas, Hingham Tax Lists**

Year	(20) Top 10%	(21) Top 30%	Year	(20) Top 10%	(21) Top 30%
1754	37.44	72.90	1779	46.52	77.58
1765	40.09	72.40	1790	44.66	74.53
1772	39.93	71.43			

Sources and notes: Taxable wealth, adult males, from Hingham, Massachusetts, tax lists, adjusted to include males without property. D. Smith (1973, table III–1, p. 90). Smith also reports top wealth shares for 1647, 1680, and 1711, but these observations are unsuited for time series analysis. For justification of their exclusion see Smith (1973, Appendix tables III–1 and III–2) and Warden (1976, p. 595).

Middle Colonies

Table 1.A.7   New York and Pennsylvania: Tax Lists

Year	(22) Top 10% Chester, Pa.	(23) Top 10% Philadelphia	(24) Top 4% Philadelphia	(25) Top 10% New York City
1693	23.8	46.0	32.8	
1695				44.5
1715	25.9			
1730	28.6			43.7
1748	28.7			
1756		46.6	34.0	
1760	29.9			
1767		65.7	49.5	
1772		71.2	54.7	
1774		72.3	55.5	
1782	33.6			
1789				45.0

Sources and notes: Col. 22: Taxable wealth among taxpayers, unadjusted for propertyless, Lemon and Nash (1968, table I, p. 11). Lemon and Nash also report an observation for 1800–1802, but since it includes Delaware County as well, we exclude it from the time series.

Cols. 23 and 24: Taxable wealth among taxpayers, unadjusted for propertyless. Except for 1772, all observations from Nash (1976b, table 1, p. 6, and table 2, p. 7). The 1772 figure is from Nash (1976b, table 2, p. 11). Tax assessment data are beset with problems, and Philadelphia is no exception. For example, Nash (1976b, p. 8) notes that the 1756 records omitted all those in the lowest wealth class who, nevertheless, would have paid the head tax "ordinarily." It is not clear whether the same is true of 1693. Furthermore, since the minimum assessment was set at £8 in 1756, £2 in 1767, and £1 in 1774, there is an upward bias imparted to the inequality trends over time.

Col. 25: Taxable wealth among taxpayers, unadjusted for propertyless. The figure for 1730 is from Nash (1976b, table 1). The entries for 1695 and 1789 are from G. Main (1976, table I).

Table 1.A.8   Maryland and Pennsylvania: Probate Wealth

Period	(26) Top 10% Maryland	(27) Top 10% Maryland (adjusted)	Period	(28) Top 10% Phila- delphia	Period	(29) Top 20% Chester
1675–79	49.5					
1680–84	51.0					
1685–89	53.0					
1690–94	55.0		1684–99	36.4		
1695–99	53.0					
1700–04	54.7	67.2				
1705–09		57.7	1700–15	41.3		
1710–14		66.2				
1715–19		65.5	1716–25	46.8	1714–31	46.41
			1726–35	53.6		
			1736–45	51.3	1734–45	53.02
1750–54		65.8	1746–55	70.1		
			1756–65	60.3	1750–70	52.53
			1766–75	69.9		
1782–88		(60.0)			1775–90	60.49

Sources and notes: Cols. 26 and 27: "Maryland" is actually a pooling of six counties: Anne Arundel, Baltimore, Calvert, Charles, Kent, and Somerset. The 1675–1754 observations are based on inventoried adult male wealth, personal estate only. The 1782–88 observation is of questionable comparability since it is based on taxable wealth (real and personal) distribution among taxpayers. Both columns are taken from G. Main (1976, tables A–1 and IV). Col. 27 reports inventoried adult male personal estates, adjusted for underreporting. Main also reports the unadjusted top 10 percent for 1705 to 1754 but since the adjustments are so large, no purpose would be served in reporting the erroneous figures beyond 1704. She does not attempt to adjust the pre-1700 series.

Col. 28: Inventoried personal wealth. Nash (1976b, table 3, p. 9).

Col. 29: Chester County, Pennsylvania, inventoried wealth excluding land. Ball (1976, table 7, p. 637).

Appendix 2   Underlying Data for Colonial Wealth Decomposition Analysis

Table 1.A.9   **Average Wealth Benchmarks: Colonial Boston and New England**

Boston	*1687*	*1771*
Wealth	£ 331,820	£ 815,136
Population	5,925	16,540
Wealth per capita ($\overline{W}_B$)	£56.00	£49.28
New England	*1680–89*	*1774*
Wealth	£2,346,858	£22,322,880
Population	67,376	606,596
Wealth per capita ($\overline{W}_{NE}$)	£34.83	£36.80
Non-Boston	*1680–89*	*1774*
Wealth	£2,015,038	£21,507,744
Population	61,451	590,056
Wealth per capita ($\overline{W}_{NB}$)	£32.79	£36.45
$\overline{W}_B/\overline{W}_{NE}$	1.608	1.339
$\overline{W}_{NB}/\overline{W}_{NE}$	.941	.990
u	.088	.027

Sources: Boston wealth estimates are based on taxable wealth adjusted by Gerard Warden (1976, pp. 588–89) for both undervaluation and incomplete lists. New England wealth estimates are based on probate samples. The 1680–89 figure is taken from Terry Anderson (1975, table 9, p. 169), while the 1774 figure is from Alice Jones (1972, table 1, p. 102). All population estimates are taken from the same sources except Boston's for 1687. Using Shattuck, Warden reports the following per annum Boston averages: 1692–99, 6600, and 1700–09, 7378. Applying the growth rate between 1692–99 and 1700–09 backward to 1687 yields a Boston population estimate of 5,925.

Table 1.A.10   **Wealth Held by All Living Potential Wealthholders: New England, 1774**

Percentiles	Mean Wealth $\overline{W}_j$	Population $\overline{P}_j$
0–10	£ 6.30	10
11–20	15.75	10
21–50	47.25	30
51–80	134.40 .	30
81–90	234.68	10
91–100	773.33	10
All	£157.50	100
	Gini = 0.62; $\sigma^2/\overline{W}^2 = I_{NE} = 1.88$	

Source: Jones 1972, table 6, using assumption A for non-probates, "A– 1/4," p. 119.

Table 1.A.11   **Average Wealth Benchmarks: Philadelphia and the Middle Colonies, 1774**

	Wealth per Capita (£)	Inequality Measure (*I*)
Philadelphia	525	2.432
Middle colonies	377	1.293
Non-Philadelphia	371	1.193

Source: Jones (1971, tables 13 and 17), based on net worth rather than physical wealth, and adjusted to all living potential wealthholdings.

Appendix 3   Top Wealthholder Shares in the Northeast, 1760–1891

Table 1.A.12   **Top Decile Shares of Net Worth among All Decedents, Massachusetts, 1829–91**

Year	Share (%)	Year	Share (%)
1829–31	71.3–73.1	1879–81	87.2
1859–61	80.4	1889–91	82.5–83.4

Sources and notes: The shares of total estimated wealth held by the richest decile of the adult males dying in Massachusetts in the periods 1829–31, 1859–61, 1879–81, and 1889–91 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 (1895). 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 King (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 (1972, pp. 202–13).

Table 1.A.13   **Top Decile Shares of Taxable Wealth among Taxpayers: Boston, 1771–1845**

Year	Share (%)	Year	Share (%)
1771	63.5	1830	66.2
1790	64.7	1845	72.9
1820	50.3		

Sources: The eighteenth-century estimates are from Ku-likoff (1971, table II) and Henretta (1965, tables I and II, p. 185). The estimates for 1820, 1830, and 1845 were taken from Gloria Main (1975, table II). She has re-worked the data originally published in Pessen (1973, pp. 38–40) and in Shattuck (1846, p. 95).

Table 1.A.14   **Top Decile Shares of Total Wealth Inventoried at Death among Adult Males: Boston, 1760–1891**

Year	Share (%)	Year	Share (%)
1760–69	53.0	1859–61	93.8
1782–88	56.0	1879–81	83.9
1829–31	83.0	1889–91	85.8

Sources and note: See Note to table 3.A.1, above. The figures for 1760–88 are from G. Main (1975, table IV). Those for 1829–91 are "adjusted" and taken from the same source, table VI.

Table 1.A.15   **Top Decile Shares of Total Wealth Inventoried at Death among Adult Males: Rural Suffolk County, Massachusetts, 1763–91**

Year	Share (%)	Year	Share (%)
1763–69	38.0	1859–61	72.9
1783–88	42.4	1889–91	80.8
1829–31	59.5		

Source: G. Main (1975, table IX).

Table 1.A.16   **Top Decile Shares of Total Taxable Wealth among Property Taxpayers Plus Adult Males with Zero Property: Hingham, Massachusetts, 1765–1880**

Year	Share (%)	Year	Share (%)
1765	40.1	1820	46.2
1772	39.9	1830	47.0
1779	46.5	1840	51.4
1790	44.7	1850	56.7
1800	41.9	1860	58.8
1810	39.1	1880	57.5

Source: Daniel Scott Smith (1973, table III–1 and Appendix table III–2).

Table 1.A.17   **Shares of Estimated Nonbusiness Wealth Held by Top 4 Percent of "Population": New York City, 1828–45**

Year	Share (%)	Year	Share (%)
1828	49	1845	66

Source: Edward Pessen (1973, tables 3–1 to 3–4, pp. 33–37).

Table 1.A.18   **Shares of Estimated Nonbusiness Wealth Held by Top 1 Percent of "Population": Brooklyn, 1810–41**

Year	Share (%)	Year	Share (%)
1810	22	1841	42

Source: Edward Pessen (1973, tables 3–1 to 3–4, pp. 33–37).

Notes

1. One should resist the meritocratic temptation to single out nonhuman wealth as that part of total lifetime income or wealth that is of special interest because it it is inherited and not based on individual productivity. The distribution of wealth is affected by much more than inheritance. Some people save a greater share of their earnings than others, giving rise to a component of wealth inequality that is less repugnant to most people than differences in inheritance. The present data do not allow us to separate the effects of differences in saving rates from those of differences in inheritance. The same mixing of inheritance with invidual accumulation also characterizes human capital and earnings, of course, since parental wealth and abilities are strong determinants of human investments. The case for studying the separate distribution of nonhuman wealth is not based on its having a separate welfare meaning, but on its greater accessibility.

2. Six years ago Lee Soltow (1971a) insisted that inequality and wealth concentration were high and stable during the nineteenth century, and that this had been a relatively permanent attribute of American experience before 1776 and after. That wealth inequality levels were high during the colonial era cannot be maintained on the basis of the enormous amount of data which has accumulated since 1971. (See Jackson Main [1976, p. 54] for a critical evaluation of Soltow's position.)

3. The import values in pounds sterling can be found in U.S. Bureau of the Census (1976, part 2, series Z–216, pp. 1176–77). Unfortunately, the series does not extend back to the mid–seventeenth century. For further discussion of Boston's cycles, see Gary Nash's (1976a, pp. 575–76) account of wartime boom, postwar recession and their "disfiguring effect on urban societies."

4. For tobacco prices and exports, see, for example, Paul Clemens (1974) and Russell Menard (1973).

5. For example, around 1700, "settled trading" towns in Connecticut had 52.2 percent of wealth in real estate, while for the "new frontier" towns the share was 62.1 percent (J. Main 1976, table IX, p. 78). Furthermore, land was the dominant asset in the real estate total—about 82 percent—if Hartford, Farmington, and Simsbury in the 1760s are typical (personal correspondence from Jackson T. Main dated 27 May, 1976).

6. Furthermore, concentration trends in real estate holdings closely follow rates of change in Connecticut relative land values. Taking the ratio of prices of an acre of meadow (J. Main 1976, pp. 101–2) to farm labor wages (U.S. Bureau of Labor Statistics 1929, pp. 9, 51, 53 and 124), we find the relative price of land stable from the 1680s to 1710. It rises sharply to 1759 and then stabilizes thereafter. The index is 16.67 for 1680–89, 36.30 for 1755–59, and 44.12 for 1774.

7. Log variance is a more commonly used inequality measure. The algebra, and the argument, which follow would be exactly the same if log means and log variance were used instead. See Sherman Robinson (1976).

8. The reader will note the obvious similarity between this discussion of colonial wealth and Simon Kuznets's (1955) decomposition of *income* inequality into urban and rural components. The same four forces were present in his analysis too: (1) urban inequality, (2) rural inequality, (3) urbanization, and (4) rural-urban income gaps. The framework has been used recently in a wide variety of circumstances. A general statement can be found in Lindert and Williamson (1976, p. 6) or Robinson (1976).

9. That is

$$
\begin{aligned}
\mathrm{d}I_{NE} = \mathrm{d}I_B &\left[u \left(\frac{\overline{W}_B}{\overline{W}_{NE}} \right)^2 \right] + \mathrm{d}I_{NB} \left[(1-u) \left(\frac{\overline{W}_{NB}}{\overline{W}_{NE}} \right)^2 \right] \\
&+ \mathrm{d}u \left[\left(\frac{\overline{W}_B}{\overline{W}_{NE}} \right)^2 I_B - \left(\frac{\overline{W}_{NB}}{\overline{W}_{NE}} \right)^2 I_{NB} + \left(\frac{\overline{W}_B - \overline{W}_{NE}}{\overline{W}_{NE}(1-u)} \right)^2 \right. \\
&\left. + 2 I_{NB} \left(\frac{\overline{W}_{NB}}{\overline{W}_{NE}} \right) \left(\frac{\overline{W}_{NE} - \overline{W}_B}{\overline{W}_{NE}(1-u)} \right) \right] \\
&+ \mathrm{d} \left(\frac{\overline{W}_B}{\overline{W}_{NE}} \right) \left\{ 2u \left[I_B \left(\frac{\overline{W}_B}{\overline{W}_{NE}} \right) - I_{NB} \left(\frac{\overline{W}_{NB}}{\overline{W}_{NE}} \right) \right. \right. \\
&\left. \left. + \left(\frac{\overline{W}_B}{\overline{W}_{NE}} - 1 \right) \left(\frac{1}{(1-u)} \right) \right] \right\} .
\end{aligned}
$$

10. Alice Jones's wealth estimates for 1774 (Jones 1972, table 6, p. 119) yield $I_{NE} = 1.88$. Using top wealthholder share data reported in table 1.A.1, we estimate $I_B = 2.2$ and $I_{NB} = 1.6$. Table 1.1 informs us that Boston's population was about 3.5 percent of New England's in 1760. Appendix 2 supplies the requisite per capita wealth ratios for both the early 1770s and the 1680s. This is all the data necessary to compute the third term in the expression given in note 9.

11. In terms of taxable wealth, by the middle of the eighteenth century the top 10 percent owned the following shares: 46.6 percent in Philadelphia (1756); 28.7 percent in Chester County, Pennsylvania (1748). In terms of inventoried wealth, the top 10 percent owned the following shares: 70.1 percent in Philadelphia, (1746–55); 65.8 percent in rural Maryland (1750–1754). These estimates can all be found in table 1.A.1. Furthermore, Alice Jones (1972, tables 13 and 17) has documented net worth shares for 1774; the top 10 percent in Philadelphia County claimed 54.7 percent, while in the Middle colonies as a whole they claimed only 40.6 percent.

12. The decomposition formula in note 9 can be rewritten where MC, P, and NP denote the Middle colonies, Philadelphia, and non-Philadelphia, respectively:

$$
\begin{aligned}
\mathrm{d}I_{MC} = \mathrm{d}I_P &\left[u \left(\frac{\overline{W}_P}{\overline{W}_{MC}} \right)^2 \right] + \mathrm{d}I_{NP} \left[(1-u) \left(\frac{\overline{W}_{NP}}{\overline{W}_{MC}} \right)^2 \right] \\
&+ \mathrm{d}u \left[\left(\frac{\overline{W}_P}{\overline{W}_{MC}} \right)^2 I_P - \left(\frac{\overline{W}_{NP}}{\overline{W}_{MC}} \right)^2 I_{NP} + \left(\frac{\overline{W}_P - \overline{W}_{MC}}{\overline{W}_{MC}(1-u)} \right)^2 \right. \\
&\left. + 2 I_{NP} \left(\frac{\overline{W}_{NP}}{\overline{W}_{MC}} \right) \left(\frac{\overline{W}_{MC} - \overline{W}_P}{\overline{W}_{MC}(1-u)} \right) \right] \\
&+ \mathrm{d} \left(\frac{\overline{W}_P}{\overline{W}_{MC}} \right) \left\{ 2u \left[I_P \left(\frac{\overline{W}_P}{\overline{W}_{MC}} \right) - I_{NP} \left(\frac{\overline{W}_{NP}}{\overline{W}_{MC}} \right) \right. \right. \\
&\left. \left. + \left(\frac{\overline{W}_P - \overline{W}_{MC}}{\overline{W}_{MC}(1-u)} \right) \right] \right\} .
\end{aligned}
$$

where u is Philadelphia's share in total Middle colony population. Table 1.1 and appendix 2 supply the wealth inequality estimates for 1774 ($I_P = 2.432$, $I_{MC} = 1.293$, and $I_{NP} = 1.193$), as well as those for per capita wealth ratios.

13. In contrast with Gallman's (1974) cautious speculations on the early national period, some historians write as if the impact of age distribution on aggregate wealth inequality trends was fully understood for the colonial era. On the

1714–90 period in Chester County, Duane Ball (1976, p. 637) states: "[The] distribution of wealth, though seemingly unequal, actually might be considered fairly egalitarian if we were to take the age of wealth holders into account. It is also possible that at least some of the increasing concentration . . . is attributable to a change in the age structure, . . . from relatively younger to relatively older." All things are possible, but as far as we know there is no adequate colonial data which would allow exploration of the influence of changing age distributions.

14. This is not entirely accurate. Jackson Main (1976, table VI, p. 93) reports the distribution of decedents by wealth and age class for all Connecticut towns. Unfortunately, he pools observations drawn from the century ending 1753, a sufficiently long period to make age-wealth analysis tenuous at best.

15. This sentence is based on an examination of the following age distributions: New England, white males, ca. 1690 (Thomas and Anderson 1973, p. 654); Westchester, Bedford, and New Rochelle, New York, adult males and both sexes, 1698 (Wells 1975, p. 117); U.S., white and total males, 1800 (U.S. Bureau of the Census 1976, part I, p. 16).

The discussion here is motivated by a different set of issues than that motivating Jackson T. Main's recent analysis of Connecticut eighteenth-century probates. He devotes considerable attention to the impact of age on wealth distribution from region to region and across occupations, but never across time. See J. Main (1976, pp. 77–97).

16. Jackson Main (1976, p. 61) thinks it could, at least based on Connecticut evidence: "Historians seem to have neglected this life-cycle. They have lamented a high proportion of nearly propertyless polls appearing on tax lists . . . without perceiving that most of these were just entering manhood."

17. Take the case of Boston. Rapid growth early in the eighteenth century would imply a rise in the share of young adults in the adult population, increased age dispersion and, given in addition migration selectivity, an inequality bias. We should count more poor, the percent on relief should have risen, and probate records along with tax lists should produce rising concentration ratios. The opposite should have been true following the 1730s when young people (without much wealth) must have fled Boston's stagnating economy. The Boston probate records document historical concentration trends which may be explained at least in part by these (alleged) age distribution changes. That is, some portion of the inequality trend from 1700 to 1730 (figure 1.3) must be accounted for by the presumed rise in the young adult share.

18. These dramatic trends can also be seen in shifts in the ratios of average wealth at the top to average wealth economy-wide. Between 1774 and 1860 the ratio of the average wealth of the top 1 percent of wealthholders to the average wealth of the lower 99 percent rose from 14.0 to 40.4. Over the same period, the ratio of the top decile's average wealth to that of the bottom 90 percent rose from 8.54 to 24.3. Both ratios nearly tripled.

19. We had hoped to perform the same experiments, including a test for nativity effects, on Professor Soltow's 1860 spin sample, but this sample was not available to us at the time of writing.

20. Actually, Professor Jones applies the 1800 age distribution to the 1774 wealth data.

21. The skimpy data on age distribution before 1830 suggest that this date may have been a watershed in the share of young adults in the adult population, as well as in the wealth distribution trends discussed in section 1.3.6 below. Table 1.6 shows a rise in the share of persons aged 16–25 in the total population aged 15 and over between 1800 and 1820. By itself, this shift would impart an *upward*

bias to aggregate inequality trends for the first two decades of the nineteenth century. This would reinforce the case for dating the rise of wealth concentration among fixed demographic groups from around the 1820s. It is after this date that we observe the aging referred to in the text.

22. Since this result is so striking, we performed another calculation using the adult (male and female) age distributions in the Northeast reported in table 1.6 and Soltow's 1870 income $\times$ age profile guesstimates (1975, table 3.7, p. 90). The results are similar. The top 10 percent of adult income earners would have found their share of total income declining from 16 percent in 1830 to 12.5 percent in 1870, were no other inequality forces at work. Robert Gallman (1974, p. 7) found similar results using a different age $\times$ income profile. He argued that the top 30 percent share in total income would have declined from 95.9 percent in 1830 to 92.0 percent in 1860, a result almost identical to ours. Gallman did not pursue the implication of this calculation for interpretations of nineteenth-century American inequality trends. His interest was primarily in the comparison between America and Europe.

23. For adult males in 1870, the U.S. Gini coefficients based on total estates were .831 for native born and .840 for foreign born. For free adult males in 1860, the U.S. Gini coefficients based on total estates were .816 for native born and .858 for foreign born. Soltow (1975, pp. 107 and 145). For adult males in 1850, the Wisconsin Gini coefficients based on real estates were .746 for native born and .786 for foreign born. Soltow (1971b, p. 81).

24. This state of affairs need not continue. For the 1850s, more can be done from the manuscript federal and state census returns on real estate value, farm acreage, and farm implements, either with the Bateman-Foust and Soltow samples, or with new samples. Local tax returns can also be exploited more fully. In addition, Gallman's procedure of tracking down the wealth of the richest individuals for comparison with rough wealth aggregates can be extended to other dates and to regions. Above all, as we shall mention in the text, the vast numbers of probate inventories, many of them collected and referenced in the Library of the Genealogical Society of the Church of Jesus Christ of Latter-Day Saints near Salt Lake City, promise better perspectives on wealth distributions from the colonial period until the onset of estate tax returns in the 1920s.

25. It would be interesting to explore the extent to which the rise in urban inequality was due to the influx of immigrants from other countries and from the U.S. countryside, thus paralleling the experiments we performed on the "foreign-born myth" at the national level. The data for doing so were not available at time of writing, however.

26. Lampman's modern estimates for 1922 are to be preferred, of course, but King (1927, p. 152) estimated a wealth distribution for 1921 from which it can be inferred that the top 1.4 percent of *persons* held 31.51 percent of total wealth. Lampman and King are remarkably close, it seems to us, and either estimate for the early 1920s implies the same mild upward drift in concentration following 1890.

27. Professor Lampman (1959, p. 388, note 14) was apparently in error when he rejected Holmes's estimate of the 1890 wealth concentration with the statement: "It is difficult to believe that wealth was actually that highly concentrated in 1890 in view of the 1921 and 1922 measures." This statement is apparently based on the mistaken impression that Spahr's (1896) allegation that the top 1 percent held 51 percent of 1890 wealth could be attributed to Holmes as well. On the contrary, Holmes's results are quite in line with Lampman's estimates.

28. In addition, the FTC sampled 540 estates of $1 million and over from New York, Philadelphia, and Chicago for 1918–23, using the earliest estate tax returns.

The data worksheets underlying the entire FTC income and wealth study are currently available in the Washington National Records Center in Suitland, Maryland. The 1912–23 probate sample has the file designation Tab 5 Cou 5. Our colleague Victor Goldberg has kindly sampled these files for us and reports that the counties sent varying details back to the FTC. While they all provided the size distributions the Commission requested, they did not provide the individual wealth data in all cases, and apparently there is no consistency in the degree of further detail volunteered by the county officers. Some gave the names of the decedents, some broke down wealth into asset categories, and so forth.

Scholars in serious pursuit of further historical wealth data should also consider two other potential sources in addition to the FTC data files. One is the Composition of Estates Survey of about 100,000 probated estates, collected by the WPA, but not analyzed by them because federal funds ran out (Mendershausen 1956, p. 279n). The other is an unsampled set of files at the National Bureau in New York marked "W. I. King data files," the existence of which was kindly reported to us by Geoffrey H. Moore of the Bureau.

29. We have a few time series of more limited scope, and they also give conflicting indications of trends across the late nineteenth century. The suggestion of a gentle rise in wealth inequality planted by Gallman's top 0.031 percent shares receives some slight support from the gentle rises in the Gini coefficients for Indiana real estate appraisals for 1870–1900 and for U.S. real estate mortgage values for 1880–89. On the other hand, Massachusetts probate and tax series fail to agree on any trend after 1860, and Soltow feels that wealth inequality in Wisconsin showed a net decline between 1860 and 1900 (1971b, pp. 11, 12). We cannot identify any trends between 1870 and World War I, either in these limited series or in the national wealth distributions available.

30. Using T. Paul Schultz's (1971) data on the log variance of 1950 incomes by age classes (males, aged 20 and above), we also computed the effect of the 1930–50 age distribution shift on *income* inequality. Whether one excludes those under 25, over 65, or both, the effect of age distribution changes is to *raise* income inequality. We conclude that the observed post-1929 equalization tends to understate the equalization of both life cycle income and wealth.

31. We are considering the *total* population of potential wealthholders, not those at or in retirement. If the latter age class were the sole focus, human capital would, of course, be irrelevant.

32. All of this assumes, of course, that human and conventional capital are equally fungible and perfect substitutes so that dollar values of both may be aggregated without further adjustment. Readers may wish to quarrel with that assumption.

33. While net rates of return for human and nonhuman wealth were roughly identical in 1929, the rates (with the sole exception of 1948) have diverged in favor of human capital since. The figures are reproduced below (Kendrick 1976, p. 240; 1974, p. 465):

	Human Capital	Nonhuman Capital
1929	10.1%	10.0%
1937	9.6	8.9
1948	12.6	14.2
1953	14.8	11.4
1957	13.4	9.9
1960	12.9	9.2
1969	12.2	8.9

Elsewhere we have attempted to model the determinants of these rates of return (Williamson and Lindert 1978) and thus to emerge with a full analytical accounting of American twentieth-century distribution experience.

34. This argument implies that the covariance between human and nonhuman wealth holdings has weakened since 1929.

35. While Peter Drucker (1976, p. 12) and others have guessed that the inclusion of pension plans would result in a "distribution of total wealth [that] would probably turn out to be be very similar to . . . the distribution of personal income," no one to our knowledge has attempted for pensions a calculation like Feldstein's for social security. In any case, it is not clear how such an accounting would affect the post-1929 trends in income and wealth distribution. Lampman's (1962, table 97, p. 209) total wealth variant, upon which the trends in top shares are based, *includes* reserves of private pensions, although the 1962 Projector and Weiss estimates do not.

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