

Income Inequality in Kentucky

The distribution of income in Kentucky worsened during the decade of the 1980s. Over the course of the decade, the distribution of income shares for Kentuckians at the lowest income levels was less than the nation's at the same level while the income share for Kentuckians at the highest income level was greater than the top quintile for U.S. households. Possible explanations for the increase in the inequality of the distribution of income include demographic trends, which may exaggerate changes in income distribution; the decline in unionization; and technological progress, which rewards highly skilled labor and places abundant low-skill labor at a comparative disadvantage in the global economy.

By Amitabh Chandra
University of Kentucky

Discussions about the deterioration of U.S. income equality have become increasingly prevalent in the popular press, as well as among academics. However, such debates are a relatively new addition to the usual issues that dominate the polemics of economic policy and performance. A review of the literature of income inequality in the United States prior to 1980 presents a surprising consensus among leading economists on several issues. First, it was agreed that the distribution had essentially stayed the same over time. Henry Aaron viewed the stationary complexion of the distribution since WWII as being about as interesting as “watching grass grow.”¹ Aaron’s phrasing had two meanings: (1) growth in incomes had occurred at all levels in the United States, and (2) the study of income distribution was boring because it was not changing. Related to these conceptions was an optimism that the decade of the 1980s would see an improvement in the shape of the distribution, as a result of a more comprehensive income support system, an improved and equitable tax code, and a decline in labor market rigidities. A decade later, however, this enthusiasm underwent considerable revision as research by Lynn Karoly, Kevin Murphy, and others documented expanding wage inequality through the 1980s as a result of increasing returns to skill and changing demographic composition.²

This paper examines some of the changes in income and wage distribution in Kentucky for the period 1980-1990, using data from the U.S. Decennial Census of Population and Housing for 1980 and 1990, and the Current Population Survey (CPS). It attempts to document the extent to which the distribution of income inequality in the Commonwealth changed during the decade under review, and offers several theoretical explanations for factors that might be responsible for the observed changes. The paper concludes with a normative discussion of why policymakers should (or should not) care about the distribution of income inequality in the Commonwealth. In this chapter, three specific questions are addressed. First, did the distribution of income worsen dramatically for Kentucky during the decade of the 1980s, compared to the nation as a whole? Second, to what extent did Kentucky’s performance follow the nation’s? Finally, what possible explanations might account for changes in the income distribution?

¹ Aaron, H. (1978). *Politics and the professors: the great society in perspective*. Washington, DC: Brookings Institution.

² See for example, Karoly, L. (1993). The trend in inequality among families, individuals and workers in the United States, in Danziger, S., Gottschalk, P. (Eds.). *Uneven tides: Rising inequality in America*. New York: NY: Russell Sage Foundation, and Murphy, K.M., Juhn, C., Pierce, B. Wage inequality and the rise in the returns to skill *Journal of Political Economy*, 101, 410-42.

The possible answers to these questions have generated significant interest and speculation. While much is known about the deterioration of the income distribution at the level of the aggregate U.S. economy, little research exists at the state level. This article offers some answers by summarizing the results of a systematic analysis of the dynamics of income distribution in Kentucky. Before developing this analysis further, I will first explain some theoretical concepts that are used in discussions of income inequality and discuss several salient features of the two data sources that I have used in this study.

Theoretical Preliminaries

There are two principal concepts that are useful tools in discussions of income inequality. The first is the notion of percentiles. Imagine that all households in the Commonwealth could be ranked on the basis of their incomes. The top 1 percent of households would comprise the 99th percentile, and the top 2 percent of households would comprise the 98th and 99th percentiles of the household income distribution. Similarly, the statistical concept of quintiles is that of five, usually equal portions of a frequency distribution. It is important to note that a person's percentile or quintile ranking will depend on whether the unit of observation is a household or individual; it is conceivable for individuals with low earnings to be part of high-quintile households. Economists researching the distribution of income typically study households or individuals ranked in terms of quintiles instead of percentiles for efficiency reasons. Studying five groups of people is considerably more efficient than studying a hundred.

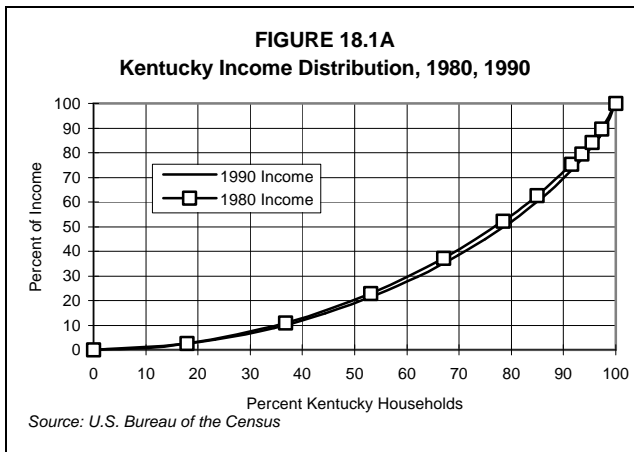
Another measure of income inequality is often illustrated in a "Lorenz Curve," an example of which is found in Figures 18.1a and 18.1b. If households, or workers, are ranked from lowest to highest on the basis of their incomes, then the Lorenz curve plots the cumulative percentage of households against the cumulative percentage of income received by these households. Under a perfectly egalitarian system, the Lorenz curve would be a straight line, with the bottom quintile receiving 20 percent of total income, the bottom 40 percent receiving 40 percent of income, and so forth. In the analysis that follows, the concepts of percentiles, quintiles and Lorenz curves will be used extensively.

Data

The data used in this analysis comes from two sources. First, the U.S. Decennial Census of Population and Housing from 1980 and 1990 is used to examine household level changes in the distribution of income. It is supplemented with individual level microdata from the Current Population Survey (CPS) to assess changes in the distribution of individual earnings. An important but subtle difference between income and earnings should be noted. Income refers to the sum of wages from all jobs, self-employment income, interest and dividend payments, pension and welfare payments. Earnings represent the sum of wages from all jobs, and net business income. Here, we study the distribution of "income" with the Census data, and the distribution of "earnings" with the CPS data. The CPS outgoing rotation data have no measures of the other components of income, a limitation which precludes their direct comparison to the Census data. However, given that earnings are the largest component of income, identifying changes in the distribution of earnings allows us to isolate factors that may, or may not, be driving the distribution of earnings. For example, if we were to find that the distribution of income worsened considerably (using Census data), and that there were no corresponding degeneration in the distribution of wages (using CPS data), we could comfortably conclude that changes in dividend income, rental income, or transfer payments must have caused the increase in income inequality.

The CPS, which is the official source of the U.S. government's unemployment statistics, is a monthly survey of almost 60,000 households in almost 700 different geographic areas.³ Respondents to the CPS are included in the survey for four months, excluded for eight months, and then included again for four months. Questions pertaining to earnings and hours worked are asked of respondents in the "outgoing rotations," i.e., those workers at the end of their 4th and 16th months in the survey. The use of the CPS data allows for a year-to-year comparison of changes in the distribution of earnings, and is therefore a useful complement to studies pursued with Census data. In this analysis, current dollars have been converted to real dollars using the CPI-UX1 as the appropriate price deflator.

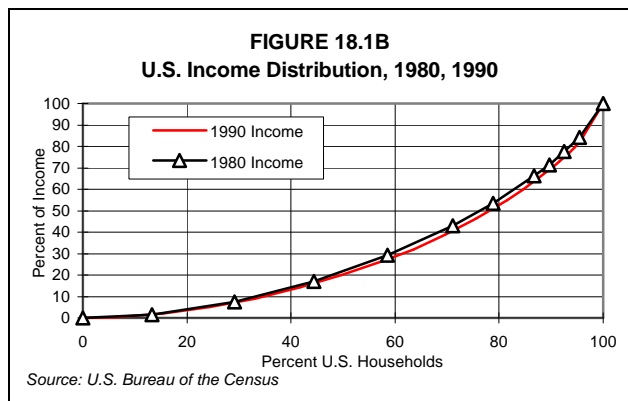
What Happened to Income Distribution in the 1980s?



The Lorenz curves in Figures 18.1A and 18.1B were generated using Census data, and show changes in the income distribution of all households in Kentucky and the United States. In addition, Table 18.1A and Table 18.1B show the underlying income distribution for other demographic groups in Kentucky and the United States, including black and white households, as well as rural and urban households. While the income distribution did deteriorate during the 1980s, the

regression was not as severe as previously thought. A common pattern emerges from the data. The dispersion in the distribution appears to be more pronounced between the 50th and 80th percentiles than anywhere else. Further, the distribution remained almost unchanged for households below the 20th percentile.

Table 18.1A reports summary income shares received by various quintile levels for the groups under study in Kentucky. Table 18.1B reproduces the same statistics for the United States. These tables were constructed by examining the previously discussed Lorenz curves at the appropriate quintiles. A comparison of the two allows a quick assessment of the changing fortunes of those at both ends of the income spectrum. From Tables 18.1A and 18.1B, we see that Kentucky's performance is worse than the nation's for the bottom quintile, as the share of income going to this quintile is less than the U.S. average for all the groups being studied. This situation remained unchanged from 1980 to 1990.



³ For a detailed description of the CPS and related terminology, see the US Department of Labor. (1992) *Bureau of Labor Statistics (BLS) handbook of methods*, Bulletin 2414, GPO Stock No. 029-001-031-03130-1.

TABLE 18.1A
Percent Income Received by Kentucky Quintiles

| Kentucky Households | Bottom Quintile | Second Quintile | Third Quintile | Fourth Quintile | Top Quintile |
|---------------------|-----------------|-----------------|----------------|-----------------|--------------|
| All | | | | | |
| 1980 | 3 | 10 | 16 | 26 | 45 |
| 1990 | 3 | 9 | 15 | 25 | 48 |
| Black | | | | | |
| 1980 | 2 | 9 | 14 | 28 | 47 |
| 1990 | 3 | 7 | 17 | 24 | 49 |
| White | | | | | |
| 1980 | 3 | 10 | 17 | 25 | 45 |
| 1990 | 3 | 9 | 16 | 24 | 48 |
| Rural | | | | | |
| 1980 | 3 | 10 | 16 | 27 | 44 |
| 1990 | 3 | 9 | 15 | 26 | 47 |
| Urban | | | | | |
| 1980 | 3 | 10 | 17 | 25 | 45 |
| 1990 | 3 | 9 | 16 | 24 | 48 |

Source: U.S. Bureau of the Census

The second quintile in Kentucky mirrors the U.S. experience exactly, with the exception of black households where Kentucky fared better than the nation in 1980 and worse in 1990. The data do support the hypothesis that the past decade has witnessed the rich (those in the top quintile) receiving an increased share of income, while the second, third and fourth quintiles received a declining share of income. The fortunes of the bottom quintile remained unchanged through the 1980s. These results apply to all the household groups under consideration. There is also evidence that the increase in the share of income received by the top quintile over the decade in Kentucky is greater than the same increase for the nation's top quintile. While the top quintile in Kentucky increased its share of

TABLE 18.1B
Percent Income Received by U.S. Quintiles

| US Households | Bottom Quintile | Second Quintile | Third Quintile | Fourth Quintile | Top Quintile |
|---------------|-----------------|-----------------|----------------|-----------------|--------------|
| All | | | | | |
| 1980 | 4 | 10 | 17 | 24 | 45 |
| 1990 | 4 | 9 | 16 | 24 | 47 |
| Black | | | | | |
| 1980 | 4 | 8 | 16 | 25 | 47 |
| 1990 | 3 | 8 | 16 | 25 | 48 |
| White | | | | | |
| 1980 | 5 | 10 | 17 | 24 | 44 |
| 1990 | 5 | 9 | 16 | 24 | 46 |
| Rural | | | | | |
| 1980 | 5 | 10 | 17 | 25 | 43 |
| 1990 | 5 | 9 | 16 | 24 | 45 |
| Urban | | | | | |
| 1980 | 4 | 10 | 17 | 24 | 45 |
| 1990 | 4 | 9 | 15 | 25 | 47 |

Source: U.S. Bureau of the Census

income by 3 percent on average, the top quintile for U.S. households realized a 2 percent gain. Once again, this pattern is constant across demographic groups in the state.

To provide the reader with a better sense of what income levels are required to be placed into the different quintiles, Table 18.2 shows the approximate income received by U.S. and Kentucky households at each of the quintiles. To be included into the fourth quintile (between the 60th and 80th percentiles) in Kentucky, for example, households would have had to receive an annual income of \$16,500 in 1979 and an income of \$29,000 in 1989. For the United States, it might be useful to note that while it requires a 1990 income of \$97,000 to be placed on the 95th percentile, an income of \$300,000 puts a household at the 97th percentile. To make it to the 99th percentile, households would have had to receive a little over \$800,000.

TABLE 18.2
1980 and 1990 Incomes at Various U.S. and KY Household Percentiles

| Percentile | U.S. | | Kentucky | |
|------------|----------|----------|----------|----------|
| | 1980 | 1990 | 1980 | 1990 |
| 20th | \$ 7,100 | \$12,000 | \$ 5,900 | \$ 9,000 |
| 40th | \$13,000 | \$23,000 | \$11,000 | \$17,800 |
| 50th | \$16,800 | \$30,000 | \$13,965 | \$24,000 |
| 60th | \$19,599 | \$36,500 | \$16,500 | \$29,000 |
| 80th | \$30,000 | \$57,500 | \$25,500 | \$45,200 |
| 95th | \$50,000 | \$97,000 | \$44,500 | \$79,000 |

Source: U.S. Bureau of the Census

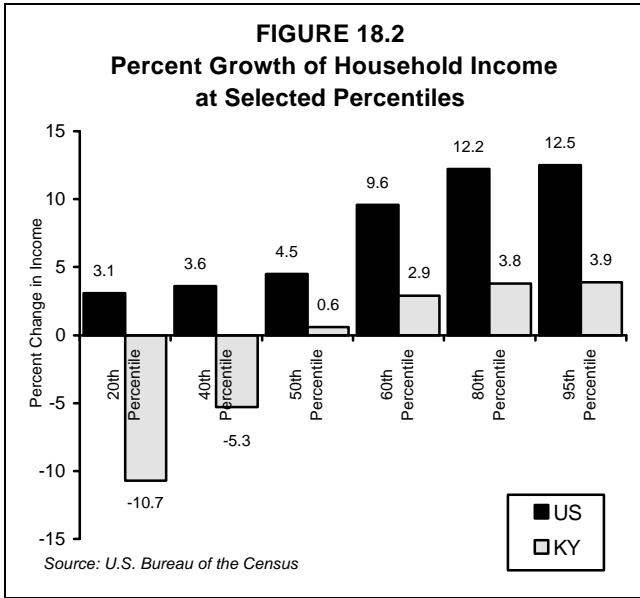


Figure 18.2 compares decade growth rates in household incomes for households at the 20th, 40th, 50th, 60th, 80th, and 95th percentiles for the United States and Kentucky. In this presentation, the differences between the United States and Kentucky are striking. While all the U.S. households studied witnessed growth in income, households on the 20th and 40th percentiles in Kentucky became significantly poorer. A household in the 20th percentile in Kentucky, for example, witnessed a 10.7 percent fall in real income. Furthermore, income growth in Kentucky lags behind that of the nation as a

whole at every percentile. That is, the Commonwealth became relatively poorer than the United States in real terms over the 1980s. It is important to recognize the uneven growth that took place in real incomes across different percentiles. Those households placed on higher percentiles received significantly greater gains to their incomes than did households below the 50th percentile. Post-World War II income growth in the United States has traditionally been distinguished by a pattern that resembles a staircase.⁴ The rich in Kentucky became richer, while the poor literally became poorer. For the United States however, both the rich and poor became richer, while the rich became relatively richer.

When combined with the results of Figure 18.2 and Table 18.1, the above discussion might appear paradoxical. If the bottom two quintiles in the United States and Kentucky both lost income shares, how does one explain the 3.1 percent increase in real income accruing to a household on the 20th percentile for the United States? The answer lies in the fact that over the decade of the 1980s, the U.S. economy's gross domestic product grew almost 29 percent. While the size of the pie increased, the portions received by different groups (quintile shares) changed. For example, all households in the United States below the 40th percentile received 15 percent of the pie in 1980, but in 1990 they received only 13 percent. However, the increased size of the slice (for U.S. households) offset the loss in economic welfare from receiving a smaller share. Poor Kentuckians however, found themselves receiving a smaller share of the pie, as well as a smaller slice; they were worse off in 1990 than they were in 1980. This disturbing finding represents an aberration in the otherwise healthy performance of the Kentucky economy. Further discussion and analysis of this finding will follow.

Table 18.3 shows ratios of mean incomes for black- compared to white-headed households, and rural compared to urban households. The disparity between black and white incomes increased over the 1980's.

In 1980, on average, black households received 66 percent of what white households received in the United States. In 1990, they received 64 percent of the average white household in-

| | US | | KY | |
|---------------------------|------|------|------|------|
| | 1980 | 1990 | 1980 | 1990 |
| Black/White Incomes Ratio | .66 | .64 | .71 | .68 |
| Rural/Urban Incomes Ratio | .90 | .86 | .85 | .83 |

Source: U.S. Bureau of the Census

⁴ Paul Krugman (1994) notes this finding for U.S. data in *Peddling prosperity: Economic sense and nonsense in the age of diminishing expectations*. New York, NY: W.W. Norton.

come. In Kentucky, the income differential was even more pronounced. It was 71 percent in 1980 and fell by 3 percent to 68 percent in 1990. Despite this adverse change, Kentucky still has a higher black/white income ratio than the United States as a whole.

Changes in the rural/urban income differential tell a similar story: the disparity increased in the previous decade for both Kentucky and the United States, with the Commonwealth's rural households receiving 3 percent less than the nation's. In 1990, rural households in Kentucky received 83 percent of what urban households received; in 1980 the corresponding figure was 85 percent. It is noteworthy, however, that while the rural/urban income ratio in Kentucky was more unequal than the nation's in both 1980 and 1990, Kentucky's inequality increased by 2 percent, while the nation's increased by 4 percent.

Interpreting the Evidence

In the light of the preceding analysis, which establishes the increased inequality in the distribution of income, it is necessary to mention several caveats which will be useful in interpreting the evidence and arriving at a conclusion. It is important to recognize that, for *most* household groups in Kentucky, real incomes rose regardless of declines in income shares. As Figure 18.3 illustrates, Kentucky households above the median were better off in 1990 relative to 1980, despite the fact that both the 3rd and 4th quintiles lost income shares. The quality of life for a household at the 70th percentile in 1990 might be equivalent to that enjoyed by a household at the 75th percentile in 1980. For example, the median income for married couples in 1989 was \$45,266 in 1989 dollars, and \$24,800 in 1979 dollars. In 1979, they would have been placed at the 74th percentile, and in 1989 at the 69th percentile. However, \$24,800 in 1979 converts into \$42,358 in 1989 dollars. In real terms, therefore, the welfare of this family has increased by 7 percent over the decade, while their position on the distribution has worsened. This point is particularly relevant to households which might have lost income share, but still realized gains in income (for example, a household in Kentucky above the 50th percentile).

While it is correct to interpret the increasing share of income received by the top quintile as evidence of the fact that the top quintile got richer, it is not correct to assume that the composition of the top quintile remained unchanged over the 1980s. Income mobility in the United States is the highest in the world, and large increases in the incomes of the rich accompanied by small decreases in the incomes of the less privileged may not be intolerable, if we all spend time at both ends of the income distribution. In fact, research by Isabill Sawhill of the Urban Institute finds that families who were in the top quintile in 1976 witnessed an 11 percent reduction in their real incomes by 1986. Despite Sawhill's research, it is difficult to believe that households in the top two quintiles in 1980 would find themselves in the bottom two 1990 quintiles.

Trends toward smaller households may exaggerate changes in the income distribution. Increasing family breakups or increases in the number of people living alone will contribute to the illusion of income inequality. A household made up of two wage earners each earning \$30,000 a year is treated as an upper middle class household earning \$60,000. If that household breaks up, it is replaced with two households, each receiving \$30,000 a year. In Kentucky, while population grew 0.7 percent between 1980 and 1990, the number of households grew by 9.5 percent. The effects of smaller households on the income shares of lower quintiles is not known. However, increasing divorce rates through the 1980s, as well as increases in the number of single-parent households and single-person households, have all contributed to a smaller average household size.

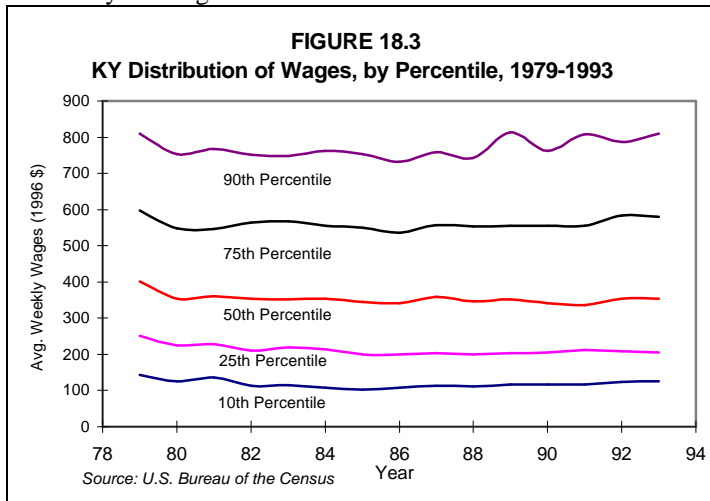
Together, these caveats suggest that the popular case for increased income inequality being detrimental to the economy is overstated. Such analyses, which are typical in the sociology or political science literature, typically ignore the idea that it is ultimately household or individ-

ual welfare that ought to be the focus of analysis. Merely reporting a degeneration in the distribution of income ignores a richer investigation that emphasizes changes in welfare and the dynamic nature of the U.S. economy.

The preceding analysis has discussed changes in the distribution of U.S. income. In the following section, evidence from the CPS on wage inequality in Kentucky is presented. The advantage of this inquiry is that we will be able to study changes in the distribution of earnings on an annual basis, an improvement over the two snapshots in time that Census data yield.

Wage Inequality in Kentucky

Figure 18.4 illustrates trends in the distribution of wage and salary earnings from 1993-1994. The horizontal axis is a simple time trend. The vertical axis measures average weekly earnings (in 1996 dollars) for workers at 10th, 25th, 50th (median), 75th and 90th percentiles of the wage and salary distribution. It is important to note that while the discussion on income inequality used households as a unit of analysis, the CPS data uses individual workers as the unit of observation. One advantage of this approach is that it is not confounded by changes in the size and structure of households. Regardless of such changes, Figure 18.4 reports the wage and salary earnings of individual workers.



The results of Figure 18.3 illustrate both cross-sectional and time-series changes in the distribution of wages. The cross-sectional, or point-in-time, differences in wages are evident from studying differences in the levels of weekly wages for a given year. In each year, we notice the skewed nature of the wage distribution; the differences in weekly wages for the lower percentiles (10th, 25th and 50th) are

less severe than the differences for the upper percentiles. Also evident from the graph is the static nature of wage growth for the lower percentiles, with higher but still moderate growth in the upper portion of the wage distribution. This analysis allows us to conclude that while changes in the wage distribution may be partially responsible for changes in the distribution of income over the same period, that relationship is tenuous. Other sources of income such as property income or returns from capital investments are also responsible for the deterioration in the distribution of income. Unfortunately, the nature of the CPS and Census data sets precludes a more detailed investigation of these hypotheses.

Some Possible Explanations

Some of the losses to the lower income classes might be explained in terms of broader issues facing the U.S. economy. They permit us to compare changes in the complexion of the U.S. and Kentucky labor force and population over the 1980s.

Kentucky's 20 percent decline in unionization rates could contribute significantly to part of the deterioration in the distribution of income. Unions typically compress the wage distribu-

tion as a result of their bargaining methods, and the decline in their membership in the 1980s, in part because of the downturn in mining, could have been particularly devastating to traditionally unionized blue-collar workers at the lower end of the distribution.

A more plausible explanation is the steady increase in economy-wide returns to skill during the 1980s, as a result of technological progress. Such innovations reward those workers who use computers by enhancing their productivity. Typically, such labor has consisted of college-educated and other highly trained workers. Furthermore, increased U.S. participation in the global economy will reward highly educated labor and discriminate against unskilled labor which is more abundant in the global economy. Studies of international trade have shown that the United States has a comparative disadvantage with regard to low-skill, labor-intensive production. While these studies are useful in explaining the declining income shares at the lower end of the distribution and increasing returns to the top quintile, they are not helpful in explaining the constancy of income share received by the lowest quintile. Further research involving disaggregation by age and education is merited if these questions are to be more fully addressed.

What is interesting about changes in the distribution of income for the decade of the 1980s is that contrary to the relative equality surrounding income growth in the post-World War II era, the past decade saw incomes rising much faster at the top end of the distribution than at other parts. Furthermore, households in the top quintiles saw their share of income rise 2 percent to 3 percent, while those in the second, third and fourth witnessed a 1 percent fall in their income share. The causes of increases in social problems over the decade among those with the lowest incomes cannot be attributed to a falling income share for the lowest income quintile. In fact, the income share for this group remained constant at 3 percent during the 1980s. In the presence of real growth in incomes, mediocre changes in the distribution of income appear to be secondary. In fact, since much of the change in the distribution of income may be explained as a result of increasing returns to skill, as well as changing demographic composition, to enjoin a policy response would be premature given the limited understanding that we have of this problem.

However, the fall in real incomes that poor Kentucky households received, as well as the sluggish 0.6 percent increase in real income at the median, call for immediate attention. Having over 40 percent of the population significantly worse off in 1990 than in 1980 represents a singular exception to the nation's growth record for the 1980s, and policymakers would do well to focus attention on the Commonwealth's record in improving the economic welfare of its citizens. In the meantime, significant improvements in economic well-being will be realized only by those at the upper end of the income distribution, those for whom the grass grew during the 1980s.