Has Deunionization Led to Higher Earnings Inequality?

*Martin A. Asher and Robert H. DeFina**

One of the notable economic trends of the past 20 years is a dramatic rise in earnings inequality. That is, earnings are distributed much more unevenly across the population now than in the mid-1970s. The increase was especially pronounced in the 1980s, a period of strong overall economic growth.

In virtually all economies, and especially in a market economy like the United States, variations in earnings from one person to the next are a fact of life. Such pay differences can serve several functions. An individual's relatively high income might, for example, reflect long years of education and experience and a commensurately high level of productivity. Higher pay might also represent a reward to individuals who take greater employment and investment risks. For these reasons, at least some earnings disparity among individuals is not only commonplace but desirable.

Still, recent inequality trends have led community leaders, policymakers, and social commentators to question whether current income disparities are in the country's best interests. Some observers, such as the National Conference of Catholic Bishops, have challenged the fairness of our earnings distribution. Academic research, meanwhile, has iden-

*Martin Asher is an assistant professor of economics, College of Commerce and Finance, Villanova University, Villanova, PA. Robert DeFina is an associate professor of economics, College of Commerce and Finance, Villanova University. When this article was written, DeFina was a visiting scholar in the Research Department of the Philadelphia Fed.

tified a link between higher inequality and slower economic growth, although the key issue of cause and effect has yet to be determined.[1]

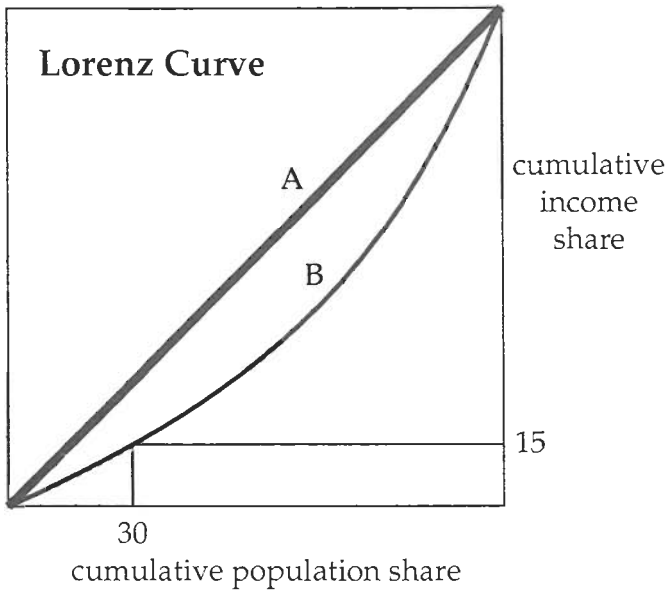
Given these concerns, interest has heightened in identifying possible reasons for the upward trend. One apparently significant source of earnings inequality is the large decrease in the unionized fraction of the labor force over the past 20 years. Depending on which group of earners is studied, "deunionization" appears to explain between 10 percent and 20 percent of the increases in inequality of the past two decades. The downward trend in unionization is unlikely to be reversed significantly. Thus, absent some offsetting changes—be they government interventions or private sector developments—a noticeable part of the unsettling rise in inequality will remain.

RECENT TRENDS

Inequality Has Been Rising... Earnings inequality refers to the degree of variation in earnings across a particular population, and it can be gauged in different ways. Two common summary measures are the Gini index and the income quintile ratio. The Gini index varies between zero and one, with values

[1]Roberto Chang's 1994 article provides an accessible review of the literature on the relationship between economic growth and income inequality.

The Gini Index of Inequality



The Gini index of inequality is based on a construct called a Lorenz curve. The Lorenz curve plots the cumulative share of the population on the horizontal axis and the associated cumulative share of income on the vertical axis. If income were distributed perfectly equally, the Lorenz curve would be a straight line, like line A in the above graph. Thus, 10 percent of the population would have 10 percent of the income, 40 percent of the population would have 40 percent of the income, and so on. In reality, income is distributed unequally, resulting in a Lorenz curve like that in line B. The curve means that a cumulative share of the population receives less than its proportionate share of income. For example, the indicated point on B shows that 30 percent of the population receives only 15 percent of total income.

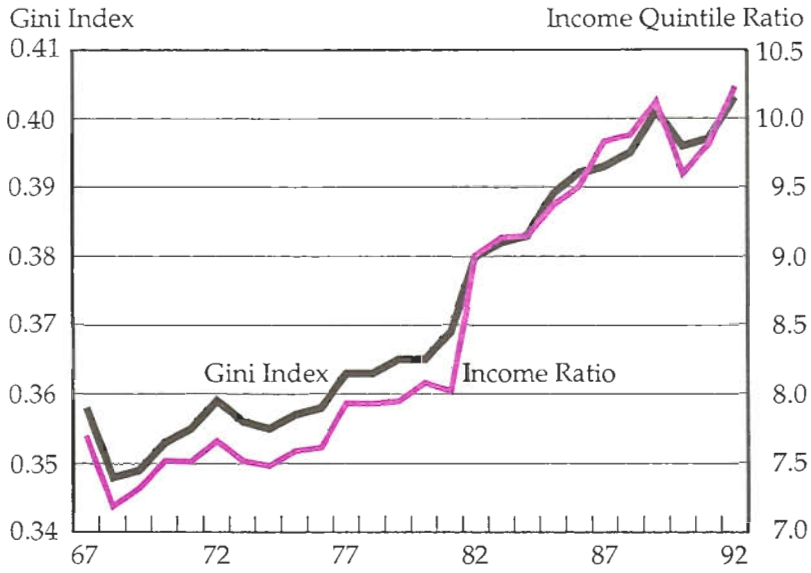
The Gini index summarizes the inequality revealed by the Lorenz curve in a single number. The index is computed by dividing the area between lines A and B by the total triangular area under line A. If income were distributed equally, the Lorenz curve (line B) would lie on top of line A. In this case, the Gini index equals zero, since there would be no area between lines A and B. Alternatively, if one person receives all income so that there is maximum inequality, the Lorenz curve would lie along the horizontal and vertical axes (the cumulative population shares would receive no income, until the last person, who receives all income). In this case, the Gini index equals one, since the area between the Lorenz curve (B) and the line of perfect equality (A) and the area under the line of perfect equality are equal. Thus, the values of the Gini index range between zero and one, with larger values indicating greater inequality.

closer to one indicating higher inequality. (See *The Gini Index of Inequality*.) The income quintile ratio is computed by dividing the average income of individuals in the highest income quintile by that of individuals in the lowest quintile. A higher ratio signals growing inequality.

Each of these measures has trended up during the past two decades, leaving measured inequality at its highest level in 25 years. (See *An Upward Trend in Inequality*.) Other measures of inequality demonstrate a similar upward trend, and the growth in inequality has not been seriously questioned.[2]

...In Good Times as Well as Bad. The forces underlying period-to-period changes in earnings inequality are complex. At times, shifts in the degree of inequality simply mirror the economy's business-cycle fluctuations. Other things being equal, economic expansions generally reduce inequality while recessions increase it.[3] The inverse link arises because lower skilled, lower paid workers are

An Upward Trend in Inequality



The above graph shows the behavior of two income inequality measures from 1967 to 1992. The Gini index summarizes the extent of inequality with values ranging from zero to one; values closer to one indicate greater inequality. The income quintile ratio is computed by dividing the average income of individuals composing the top 20 percent of all earners by the average income of the lowest 20 percent of earners. As with the Gini index, higher values indicate greater inequality.

Because of the different range of values possible for each measure—the Gini index has a maximum value of one while the quintile ratio has no maximum—different scales are used for each. The left axis refers to values for the Gini index, while the right axis refers to values for the quintile ratio. Each of the measures fluctuated with no discernible trend between 1967 and the mid-1970s. Around 1975, measured inequality began an upward trend, which continued into the 1990s. The rise was especially pronounced in the 1980s, a period of generally strong economic growth. Measured inequality currently stands at its highest level in the past 25 years.

The data used in the graph come from the federal government's Current Population Reports (P-60 series) and relate to family income. Summary data on household income are available and produce similar upward trends. Data on inequality among individual incomes are not published.

[2]The issues and studies discussed in this article are based on wage and salary data. The monetary value of employee benefits, such as health insurance, are typically not included because of a lack of data. A measure of total compensation, as opposed to wage and salary earnings, would include benefits.

[3]Empirical evidence on this point is presented in articles by Rebecca Blank and Alan Blinder (1986) and Nathan Balke and Daniel Slottje (1992), among others.

often fired first during economic downturns. In a relative sense, recessions thus cause lower income individuals to become poorer and inequality to grow.

But other things need not be equal, and temporary cycles of expansion and contraction thus need not be the only, or even the most important, underlying influence. More fundamental and long-lasting changes in the economy's structure can, and have, caused substantial movements in inequality, both in the United States and elsewhere.[4] In such cases, periods of economic growth might coincide with either rising or falling inequality.

An example of a structural change is the introduction of new technology, such as the personal computer. The development and use of personal computers can help strengthen economic growth over long periods. However, all workers might not share equally in the additional growth. Highly educated employees might be better prepared to deal with the complexities of computers than their less educated counterparts. Indeed, low-skilled employees might see their jobs eliminated as the workplace becomes increasingly computerized. Consequently, while the overall economy might improve, earnings inequality might increase.

The potential role of structural change is critical to understanding recent inequality trends, in that the rise has spanned periods of healthy overall economic growth. For example, between 1983 and 1990, the country experienced a prolonged business expansion, with real GDP growing an average of about 3.3 percent per year and the civilian unemployment rate falling from 9.6 percent to 5.3 percent. Yet, measured inequality rose steadily throughout the period and has continued to grow in the current expansion. As mentioned before, business-cycle expansions such as those in the 1980s and 1990s tend to decrease inequality. That inequality rose suggests important structural influences were also at work. The question remains as to what these are.

A burgeoning literature has examined numerous possibilities, although many have been discounted as unimportant.[5] There appears to be some agreement that technological changes, such as increased computerization, have increased the relative demand for higher paid, higher skilled workers, pulling their earnings further above those of lower paid, lower skilled individuals.[6] Some studies have also focused attention on the effects of a *sizable decrease in the fraction of the unionized labor force.*

UNIONS AND THE DISTRIBUTION OF INCOME

Greater Inequality...In theory, unions affect the distribution of earnings in several conflicting ways.[7] To some extent, unions pro-

[4]Actual examples are provided in economic historian Jeffrey G. Williamson's book, which details and analyzes movements in American income inequality during the past two centuries. Also see the 1992 study by Claudia Goldin and Robert A. Margo.

[5]John Bound and George Johnson (1992), Frank Levy and Richard Murnane (1992), and Martin Baily, Gary Burtless and Robert Litan (1993) provide an overview of possible factors, including changes in the age, gender, industry, and occupational composition of the labor force, and increases in the returns to education and skill. In addition, the January 1995 issue of the Federal Reserve Bank of New York's *Economic Policy Review* also contains numerous articles describing and analyzing recent trends in inequality.

[6]David Howell's (1995) analysis questions the importance of technological change and emphasizes other changes in managerial strategies aimed at reducing short-term labor costs.

[7]The effects of unions on the distribution of income are discussed in Richard Freeman (1980), Richard Freeman and James Medoff (1984), and Richard Freeman (1993). For a textbook discussion of these points, see Campbell McConnell and Stanley Brue (1995), especially chapter 11.

mote earnings inequality, in part because unions raise the wages of members above those of similar nonunion workers. The difference is known as the union wage premium. A 1986 book by H. Gregg Lewis collected existing estimates of the wage premium. The studies cited placed the average premium at about 15 percent, although the premium varied widely across industries and has changed over time. The wage premium also contributes to inequality because union membership historically has been concentrated among higher skilled, blue-collar workers. As a result, workers who already earn relatively high wages are pulled even higher above their lesser skilled counterparts.

...Or Less? Unions promote earnings equality in three ways. First, the imposition of union wage scales equalizes earnings across workers in a given unionized firm. For instance, cashiers in a particular supermarket would receive similar wages. Second, and in a related vein, unions tend to standardize wage rates across firms that have unionized work forces. Thus, unionized supermarket cashiers would receive similar wages, regardless of which store employs them. Finally, unions shrink the earnings differential between white-collar and blue-collar workers because union membership, which receives the wage premium, is disproportionately blue collar.

Although unions have a theoretically ambiguous effect on inequality, a long line of empirical research has found that unions have generally reduced inequality.[8] These studies suggest that the declining presence of unions in the work force during the past two decades may have contributed importantly to recent trends toward inequality.

RECENT TRENDS IN UNIONIZATION

The decline during the past 20 years in the percentage of the work force that is unionized has been dramatic. Between 1970 and 1992, this fell by half, from about 26 percent to about 13 percent. In addition, between 1980 and 1992 the absolute number of union members fell sharply. By 1992, active union membership had fallen almost 27 percent from its 1980 level. (See *Union Representation Has Fallen Markedly.*)

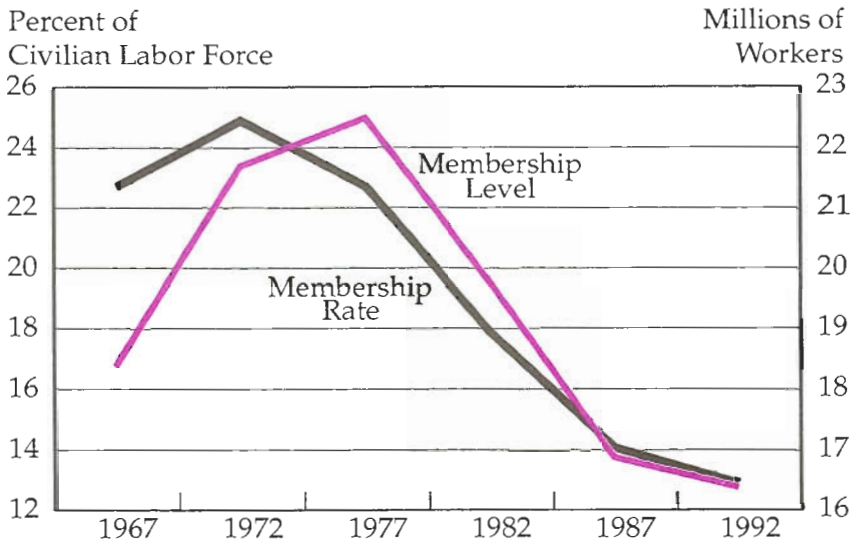
Structural Economic Change. The reasons for the decline in unionization are many.[9] A major force has been numerous structural changes that have buffeted the U.S. economy over the past two decades. A much-discussed change has been a shift in employment patterns away from traditional blue-collar, unionized manufacturing jobs toward typically less-unionized service-sector jobs. This change reflects both technological change and shifting trade patterns that have relocated manufacturing activities to lower-wage labor markets abroad. The increasing employment of women, youths, and contingent workers has likewise diminished the presence of unions, as these groups are, on average, less unionized.

Greater Managerial Opposition. In addition to structural changes, unionism has declined in the face of increased managerial opposition. Indeed, a 1985 article by Richard Freeman argues that opposition has taken both legal and illegal forms, and that overall, managerial opposition tactics have emerged as the key force behind the decline of unions. In part, managerial opposition stiffened in the 1980s as the Reagan and Bush administrations took an avowedly anti-union stance through increasingly pro-business rulings by the National La-

[8]The literature includes David McCabe (1912), Lloyd Reynolds and Cynthia Taft (1956), Richard Freeman (1980, 1982, 1993), Richard Freeman and James Medoff (1984), and David Card (1992).

[9]A detailed discussion of these factors is found in Edward Lazear, Richard Freeman, and Melvin Reder (1988) and Campbell McConnell and Stanley Brue (1995), especially chapter 10.

Union Representation Has Fallen Markedly



The above graph presents data on both the number of union members and on the union membership rate—the percent of the labor force that is unionized. The unionization rate is measured on the left axis while membership levels are measured on the right axis. Both the level and rate of membership peaked during the 1970s, then fell dramatically over the next two decades. The 1992 membership rate of 13 percent is about half its 1972 value.

The data used in the graph come from McConnell and Brue (1995) and are based on the federal government's Current Population Survey.

bor Relations Board. Freeman's estimates suggest that managerial opposition represents the single largest factor responsible for the decline in unionization rates during the 1970s and 1980s.

Business Relocations. Another factor has been the movement of production facilities from the northeast rustbelt to the south and southwest sunbelt. Analysts studying the movement have pointed to increases in the relative cost of energy over time and the resulting desire of firms to produce in more temperate climates. Some authors have argued that unions' success in generating wage premiums itself may have driven firms to the sunbelt where union organizing has been relatively less successful. Historically, the labor movement in the United States has been strongest in urban areas. Indeed, the 1981 estimates of Marten Estey indicate that New York, California, Pennsylvania, Illinois, Ohio, and Michigan—all heavily urbanized and industrialized areas—account for about one-half of union membership. By contrast, unionization rates in the South are a small fraction of the rates in the rest of the country. Why this difference exists is debatable, but strong anti-union sentiment, as demonstrated by right-to-work legislation, is often identified as a key factor.

Alternative Provision of Services. Finally, it's likely that unionism has declined because some of the services traditionally provided by unions are, to an extent, now dispensed by various levels of government and by employers. These include workplace safety regulations, improved fringe benefit packages, unemployment insurance, workers' compensation, pension plans, and limits on the length of the workweek. A 1984 study by George Neumann and Ellen Rissman presents evidence that a sizable fraction of the decline in

union membership is attributable to the alternative provision of services. Similarly, estimates presented in a 1993 analysis by Henry Farber and Alan Krueger indicate that the greater availability of benefits traditionally provided only by unions has significantly undermined the demand for union representation.

HAS DECLINING UNIONISM LED TO RISING INEQUALITY?

The foregoing discussion suggests that the decline in unionism during the past two decades may have played an important causal role in the recent and disturbing upward drift in inequality. But despite consistency in the broad trends of unionism and inequality and a theoretical basis for believing that the link is causal, the entire rise in inequality cannot reasonably be attributed to declining unionization rates.

As discussed earlier, other structural economic changes have occurred that could also have contributed to greater inequality. Many researchers, for example, have argued that changing global trade patterns, reflecting worldwide relocations of production and shifts in product demands, have hurt low-wage, low-skilled workers regardless of their union status. At the same time, higher wage, higher skilled individuals have benefited from these same developments, again, independently of union status. Thus, it's plausible that inequality grew for reasons unrelated to declining unionization. Other possible nonunion factors that may have fed rising inequality are large influxes into the labor force of young people and women, two groups that tend to have below average wages, and employment shifts from manufacturing industries to low-wage service industries.

To identify the separate contribution of deunionization to inequality trends, several studies have used statistical techniques to control for the impact of other possible sources of growing inequality. While the studies differ in the particular set of factors held constant, these factors generally include age, gender, industry, and education level of individuals in the work force.[10]

A 1992 study by David Card and a 1993 study by Richard Freeman sought to explain the rise in earnings inequality among mature private-sector male workers, roughly ages 25-54 years. Card's analysis covers 1973 to 1987, while Freeman's covers 1978 to 1988. Each study determined that decreases in unionization rates occurring over the past 20 years account for about 20 percent of the total rise in inequality. Thus, the measured effects of deunionization are large. Similar estimates were presented in a 1994 study by Amanda Gosling and Stephen Machin, who found that deunionization accounted for 15 percent of the rise in inequality in Great Britain during the 1980s.

While earlier studies focused on the sources of growing inequality among mature male workers, interest also lies in understanding the upward trend in inequality among the general population. Thus, in 1995, we conducted a study that examined a broader sample of U.S. earnings data for the period 1974 to 1989. Specifically, we studied earnings of all working-age men and women. Broadening the sample to cover individuals who are typically less unionized (young and female workers) had the expected result of lowering the estimated impact of deunionization on inequality

[10]Lynn Karoly's 1992 study and our 1994 study provide evidence that these factors probably had small, if any, effects on recent inequality trends. Nonetheless, it is important to control for these factors when trying to separately identify the role of unions. A factor that does seem to matter in recent inequality trends is a growing financial return to education and experience. That is, for a given distribution of education levels across the population, individuals with higher levels of education are experiencing faster earnings growth than individuals with lower levels.

to about 10 percent of the total rise, a smaller but still important effect.[11]

CONCLUSION

During the past two decades, earnings inequality has risen to historically high levels. The climb has sparked a debate about whether current inequality is fair and desirable and has led analysts to search for the causes of the increase. Several possible factors have been identified, among them the marked deunionization of the labor force that has occurred since the 1970s.

Careful statistical studies have shown that about 10 percent of the rise in earnings inequality among all workers and about 20 percent of the rise in inequality among mature male workers can be attributed to deunionization. As long as unionization rates fail to regain their levels of the 1970s, higher earnings inequality will remain unless some other offsetting changes occur.

[11]Our study also examined the impact of unionization trends in the public sector on inequality there. Analyzing government workers eliminates confounding factors such as changes in industry composition of the work force and shifts in trade patterns. In contrast to the private sector, unionization has been increasing in the public sector. Our analysis found that the increasing unionization has produced lower inequality than would have occurred otherwise. This finding further supports the notion that trends in unionization are a causal factor in the evolution of inequality.

REFERENCES

Asher, Martin A., and Robert H. DeFina. "A Decomposition Analysis of Recent Earnings Inequality Trends," mimeo, Villanova University, 1994.

Asher, Martin A., and Robert H. DeFina. "The Impact of Changing Union Density on Earnings Inequality: Evidence From the Private and Public Sectors," mimeo, Villanova University, 1995.

Baily, Martin N., Gary Burtless, and Robert Litan. *Growth With Equity.* (Washington, D.C.: The Brookings Institution), 1993.

Balke, Nathan S., and Daniel J. Slottje. "A Macroeconometric Model of Income Inequality in the U.S.," mimeo, August 1992.

Blank, Rebecca, and Alan Blinder. "Macroeconomics, Income Distribution, and Poverty," in Sheldon Danziger and Daniel Weinberg, eds., *Fighting Poverty: What Works and What Doesn't.* (Cambridge, MA: Harvard University Press), 1986.

Bound, John, and George Johnson. "Changes in the Structure of Wages in the 1980s: An Evaluation of Alternative Explanations," *American Economic Review,* 82 (June 1992), pp. 371-92.

Card, David. "The Effect of Unions on the Distribution of Wages: Redistribution or Relabelling?" National Bureau of Economic Research Working Paper 4195 (October 1992).

Chang, Roberto. "Income Inequality and Economic Growth: Evidence and Recent Theories," Federal Reserve Bank of Atlanta *Economic Review* (July/August 1994).

Estey, Marten. *The Unions*, 3rd ed. (New York: Harcourt Brace Jovanovich), 1981.

Farber, Henry, and Alan Krueger. "Union Membership in the United States: The Decline Continues," National Bureau of Economic Research Working Paper 4216, June 1993.

Freeman, Richard. "Unionism and the Dispersion of Wages," *Industrial and Labor Relations Review*, 34 (October 1980), pp. 3-23.

Freeman, Richard. "Union Wage Practices and Wage Dispersion Within Establishments," *Industrial and Labor Relations Review*, 36 (October 1982), pp. 3-21.

Freeman, Richard. "How Much Has Deunionization Contributed to the Rise in Male Earnings Inequality?" in Sheldon Danziger and Peter Gottschalk, eds., *Uneven Tides: Rising Inequality in America.* (New York: Russell Sage Foundation), 1993.

Freeman, Richard. "Why Are Unions Faring So Poorly in NLRB Representation Elections?" in Thomas Kochan, ed., *Challenges and Crises Facing American Labor.* (Cambridge, MA: The MIT Press, 1985).

Freeman, Richard, and James Medoff. *What Do Unions Do?* (New York: Basic Books), 1984.

Goldin, Claudia and Robert A. Margo. "The Great Compression: The Wage Structure in the United States at Mid-Century," *Quarterly Journal of Economics*, 107 (1992), pp. 1-34.

Gosling, Amanda, and Stephen Machin. "Trade Unions and the Dispersion of Earnings in British Establishments, 1980-90," National Bureau of Economic Research Working Paper 4732 (May 1994).

Howell, David R. "Collapsing Wages and Rising Inequality: Has Computerization Shifted the Demand for Skills?" *Challenge* (January/February 1995), pp. 27-35.

Karoly, Lynn. "Changes in the Distribution of Individual Earnings in the United States: 1967-1986," *Review of Economics and Statistics*, 74 (February 1992), pp. 107-15.

Lazear, Edward, Richard Freeman, and Melvin Reder. "Symposium on Public and Private Unionization," *Journal of Economic Perspectives*, 2 (Spring 1988), pp. 59-110.

Levy, Frank, and Richard J. Murnane. "U.S. Earnings Levels and Earnings Inequality: A Review of Recent Trends and Proposed Explanations," *Journal of Economic Literature*, 30 (September 1992), pp. 1333-81.

Lewis, H. Gregg. *Union Relative Wage Effects.* (Chicago: University of Chicago Press), 1986.

McCabe, David A. *The Standard Rate in American Trade Unions.* (Baltimore: Johns Hopkins Press), 1912.

McConnell, Campbell, and Stanley Brue. *Contemporary Labor Economics*, 4th ed. (New York: McGraw-Hill), 1995.

National Conference of Catholic Bishops. *Economic Justice For All.* (Washington, D.C.: United States Catholic Conference, Inc.) 1986.

Neumann, George R., and Ellen Rissman. "Where Have All the Union Members Gone?" *Journal of Labor Economics*, 2 (April 1984), pp. 175-92.

Reynolds, Lloyd G., and Cynthia Taft. *The Evolution of Wage Structure.* (New Haven, Conn.: Yale University Press), 1956.

Williamson, Jeffrey G. *Inequality, Poverty, and History.* (Cambridge, MA: Basil, Blackwell), 1991.