Journal of Economic Perspectives—Volume 11, Number 2—Spring 1997—Pages 75–96

Institutional Changes and Rising Wage Inequality: Is There a Linkage?

Nicole M. Fortin and Thomas Lemieux

The pervasive increase in wage dispersion of the 1980s is one of the most studied aspects of the U.S. labor market (Levy and Murnane, 1992). The dramatic expansion in wage differentials between more and less educated workers has attracted particular attention, but wage differentials between younger and older workers and wage dispersion among workers with the same levels of experience and education have also expanded during this period.

Though these facts are largely unchallenged, the sources of the changes are still a matter of debate. We will explore the impact of three of the most important institutional changes of the 1980s—the decline in the real value of the minimum wage, the decline in unionization rate and the movement of economic deregulation—on rising wage inequality in the United States.[1] We will argue that about a third of the increase in male and female wage inequality during the 1980s can be traced to these institutional changes. More specifically, we find that deunionization had a significant effect on the rise in inequality for men but no effect for women. The institutional factor that really matters for women is the minimum wage. When men and women are considered together, institutions have an even larger impact on inequality

[1] Though we view these three factors as the most important sources of institutional changes, other institutional changes may have worked in opposite directions. For example, tax rates on high incomes declined during this period. Standard analysis of tax incidence predicts that before-tax wages of high-wage workers should decrease, thus reducing wage inequality (before taxes).

■ *Nicole M. Fortin and Thomas Lemieux are Associate Professors of Economics, Université de Montréal, and Research Associates, Centre Interuniversitaire de Recherche en Analyse de Organisations, both in Montreal, Quebec, Canada. Lemieux is also Faculty Research Fellow, National Bureau of Economic Research, Cambridge, Massachusetts. Their e-mail addresses are fortin@plgcn.umontreal.ca and lemieuxt@plgcn.umontreal.ca, respectively.*

for the labor force as a whole. We also find the direct impact of economic deregulation on rising wage inequality to be comparatively small.

This focus on institutional forces differs from explanations that are based on supply and demand factors. In the simple supply and demand model, the wage differential between workers with a high school education and those with a college education can expand either because of an increase in the demand for college graduates relative to high school graduates or because of a decrease in their relative supply. However, the fraction of the workforce holding a college degree—the relative supply—increased during the 1980s. Thus, in this framework, the only plausible explanation for the rise in educational wage differentials is that the rise in the relative demand for college graduates outstripped the rise in supply. Indeed, most analyses of the causes of rising wage inequality have implicated demand factors as the prominent source of change. The jury is still out on what exactly is the driving force behind these demand changes. The evidence of skill-biased technical change associated with the computer revolution is mounting (Krueger, 1993; Berman, Bound and Griliches, 1994). There also is a surge of research and debate on the potential role of expanding international trade nicely summarized in a symposium in the Summer 1995 issue of this journal (Freeman, 1995; Richardson, 1995; Wood, 1995).

However, demand-based explanations cannot easily account for certain empirical puzzles. For example, the U.S. experience of rapidly rising wage inequality was relatively unique. Except for the United Kingdom, no other country has seen as great a degree of rising wage inequality; some countries such as France and Germany saw almost no change in the distribution of wages during the 1980s. Since the labor markets of most industrialized countries were exposed to similar technological and trade shocks, the experience of the United States requires a more comprehensive explanation. The different sets of institutions in which countries operate can be part of that explanation, since labor market institutions can mitigate the impact of supply and demand changes on the structure of wages (Freeman and Katz, 1996; Freeman, 1996a).[2] For example, demand shocks have a more direct impact in the United States, where market forces have an immediate and powerful effect on wages, than in Germany, where wages are generally set through a collective bargaining process.

Even if the structure of institutions can go a long way in explaining why different labor markets respond differently to the same set of shocks, an existing institutional structure cannot explain by itself the growth in wage inequality in a particular country. However, institutional changes can become a source of rising inequality. Thus, this paper will discuss the role of institutional changes in the rise in wage inequality during the 1980s.

We focus on the 1980s because this period experienced both the most rapid

[2] Differences in supply have also been suggested as part of the explanation. Note that institutional factors like government subsidies to higher education may be a driving force behind the changes in supply.

institutional changes and the most dramatic rise in wage inequality of the recent past. Throughout the 1960s and 1970s, the relative minimum wage hovered between 42 and 54 percent of average hourly wages in manufacturing. In the 1980s, it fell from 43 percent of average manufacturing wages in 1981 to 31 percent in early 1990, but remained relatively stable during the 1990s.[3]

The unionization rate declined slowly during the 1960s and 1970s, from 29 percent in 1960 to 25 percent in 1979 (Troy and Sheflin, 1985). It then fell precipitously during the 1980s, losing almost 1 percentage point each year from 1979 to 1985 (DiNardo, Fortin and Lemieux, 1996). By contrast, the unionization rate remained relatively unchanged during the 1990s. It only fell from 16 percent in 1990 to 15 percent in 1995 (Hirsch and Macpherson, 1996). Similarly, the most important deregulatory changes occurred between 1978 and 1982. These trends in institutional forces closely mirror the evidence that the most dramatic changes in wage inequality occurred during the 1980s. By contrast, wage inequality declined during the 1970s and has only increased slightly during the 1990s (Mishel, Bernstein and Schmitt, 1996, Table 3.17).[4]

It is always dangerous to attribute to institutions, or to other factors, whatever residual cannot be otherwise explained. To avoid such pitfalls, we will focus on quantifiable measures of institutional forces and exclude factors such as cultural or social norms that may play an important role in wage determination, but are difficult to quantify. This focus on quantifiable measures of institutional forces has its advantages but also its limitations. For example, institutional changes may simply be endogenous responses to more fundamental changes in supply and demand conditions. Also, institutional changes that have a sizable impact on wages may have adverse employment effects that should be taken into account. Though these are issues of concern, we will argue that they do not change the basic nature of our conclusions. More specifically, we will show that our findings on the effect of institutions on the structure of wages are corroborated by other studies that have looked at situations where institutions changed exogenously. Furthermore, we will argue that most studies find small effects of institutions on employment.

Another related criticism of our institutional approach is that it ignores potential spillover effects. For example, a higher minimum wage may also increase the wages of workers earning slightly more than the minimum. Similarly, unions are

[3] The relative value of the minimum wage fell precipitously during the 1980s because inflation eroded its nominal value that remained fixed at $3.35 from January 1981 to March 1990. The minimum wage was raised to $3.80 in April 1990 and to $4.25 in April 1991, which represented 35 percent and 38 percent of average hourly wages in manufacturing, respectively. By 1995, it was back to 35 percent.

[4] Between 1973 and 1979, wage inequality measured by the ratio of the 90th percentile to the 10th percentile of the wage distribution (the 90/10 differential) increased by 2 percentage points for men but declined by 14 percentage points for women. Inequality then increased by 11 percentage points for men and 35 percentage points for women between 1979 and 1989. The increase continued but was more modest for men (5 percentage points) and especially women (2 percentage points) between 1989 and 1995.

widely thought to influence wages in the nonunion sector. H. Gregg Lewis, who pioneered the empirical analysis of union wage effects, recognized this inherent limitation (Lewis, 1986). We also acknowledge these problems but note that accounting for such effects would probably strengthen our results.[5]

Why Should Institutions Matter?

Before considering the evidence, we will first define what we mean by "institutions" and ask why they should matter in the determination of wages.

Legislative Interventions in the Labor Market

A first class of institutions consist of direct government legislations on the workings of the labor market. In terms of the distribution of wages, the most important interventions of this sort in the U.S. economy are the Fair Labor Standards Laws, which enact the minimum wage and overtime premia, and the Fair Employment Practices Laws, which prohibit discrimination in employment. Other antidiscriminatory legislation, such as comparable worth legislation, may have been particularly important for women.

The minimum wage sets an explicit floor on the wage distribution. By acting as a backstop for the bottom end of the wage distribution, it tends to reduce wage dispersion.[6] The magnitude of the effect of the minimum wage depends on its level relative to other wages and on the number of workers affected. By contrast, the incidence of overtime premia on the wage distribution is more ambiguous. If workers who work longer hours earn more than average and if straight-time wages are not offset, overtime premia will increase the level of wage inequality.

Similarly, the impact of fair employment practices laws on the wage distribution depends on the groups of workers affected. If the targeted groups were low-wage workers, these laws would reduce the level of wage inequality in the labor market by moving the affected workers up the distribution. But since only a fraction of low-wage workers actually benefit from these programs, their impact on wage inequality is ambiguous. For example, comparable worth practices have been shown to widen the differential between high-wage and low-wage women, because high-wage women are more likely to benefit from these legislations (Smith, 1988). On the other hand, these types of legislative interventions may have contributed to the dramatic closing of the male-female wage gap during the 1980s. Because institutions can affect men

[5] For example, Freeman (1996a) argues that the effect of deunionization on wage inequality would be larger if spillover effects were taken into account. Mishel, Bernstein and Schmitt (1996) reach a similar conclusion in the case of the minimum wage.

[6] There are some circumstances under which a higher minimum wage could increase wage inequality among workers. This would happen if the wage distribution was strongly skewed to the right and the minimum wage simply truncated the wage distribution. These circumstances are unlikely to hold since there is a clear spike at the minimum wage and the wage distribution is approximately log-normal, as shown in Figure 1.

and women so differently, it is common in this literature to consider their experiences separately.[7] In what follows, we will report results for men and women considered both separately and together.

Of all legislative interventions in the labor market, the wage floor set by the federal minimum wage is the one that changed most dramatically during the 1980s. The real value of the minimum wage decreased by more than 30 percent during the 1980s, from a high of $2.90 in 1979 to a low of $2.01 (in 1979 dollars) in 1989. The proportion of workers at or below the minimum wage in the Current Population Survey (CPS) fell from 12 percent in 1979 to 4 percent in 1988.[8] In other words, the minimum wage fell relative to wages in the overall economy and lost most of its "bite." We will examine in more detail the effect of these changes in the minimum wage but will ignore the effect of other legislative interventions, like overtime premia and fair employment practice laws, that did not change as much during the 1980s.

Collective Bargaining and Unionization

The extent of collective bargaining in a country is another important institutional factor in the determination of wages. It has been well established using a variety of data sets and estimation methods that U.S. workers covered by collective bargaining agreements earn significantly higher wages than workers in the uncovered sector (for example, Lewis, 1986). Until recently, however, the impact of collective bargaining on overall wage dispersion has been a subject of more controversy. Labor market observers have long noted that establishments in which unions bargain with employers tend to have a more compressed wage structure than comparable nonunion establishments. This is hardly surprising, since wage-setting practices are typically more standardized in unionized establishments, and the reduction of wage disparities is often a stated objective of labor unions. At first blush, it is thus tempting to conclude that an increase in collective bargaining coverage would necessarily reduce wage inequality.

Yet even if unions tend to decrease wage inequality among workers covered by collective agreements, they may still increase overall inequality by creating a wage disparity between covered and uncovered workers. The equalizing effect of unions may thus be attenuated or even reversed by this offsetting effect. The precise magnitude of the effect depends on the relative wage level of union workers and on the size of the union wage gap. If union members were highly paid workers who would earn high wages even in the absence of unionization, the extra rents they capture with unionization would increase overall wage dispersion in the economy.

[7] The question of whether inequality should by studied separately by gender requires a detailed analysis of the interaction between the wage distributions of men and women, an approach that has been explored by Fortin and Lemieux (1996a,b).

[8] These figures are computed as a weighted percentage of all workers earning up to 10 cents above the minimum wage; in other words, this range reached up to $3.00 in 1979 and up to $3.45 in 1988. The weights used are the Current Population Survey weights multiplied by the number of hours worked a week, to avoid overrepresenting part-time workers.

Because of these two potentially offsetting effects, the impact of unionization on overall wage dispersion can only be resolved empirically.

Several empirical studies show that among U.S. males, the first effect dominates the second and that unions substantially reduce wage inequality in the labor market (Freeman, 1980). However, this is not the case among females, since unionization among women is concentrated in the public sector, which tends to employ relatively skilled women. This tends to offset the equalizing effect of unions.[9]

The American rate of unionization declined precipitously during the 1980s. Current Population Survey data indicate that between 1979 and 1988 it fell from 24 percent to 17 percent among all workers and from 31 percent to 21 percent among men. This decline is even more striking when one focuses solely on the U.S. private sector. This notable change surely suggests the possibility that the decline in unionization has played a role in increasing wage inequality.

Government as a Producer and Regulator

Aside from a direct role in labor market regulation, governments may also have an indirect effect on the distribution of wages through their involvement, as producers and regulators, in the product market. For instance, the structure of wages is more compressed in the public than in the private sector, and wage inequality increased much less in the public than in the private sector in the 1980s (Katz and Krueger, 1991). But because public sector employment did not change much during the 1980s—it went from 16 percent of the labor force in 1979 to 17 percent in 1988—it could hardly have contributed much to the change in wage inequality.

Government regulation of industry may also have indirect effects on the distribution of wages. The wave of economic deregulation of the late 1970s and 1980s is another significant institutional change that could account for some of the rise in wage inequality. It has been argued that economic regulation in the product market often generates "rents" in the regulated industries (Peltzman, 1989) and that some of these rents are captured by workers. Theories of regulation then suggest that deregulation should reduce the rents accruing to well-organized groups (producers and labor) and thus reduce earnings among workers in the previously regulated industry. However, as in the case of unions, the effect of deregulation on wage inequality also depends on the earlier wage level of these workers and on how the rents were distributed among them. The expected impact of deregulation on employment was less clear. Because regulation often forced firms to service unprofitable markets and to engage in excessive service competition, it tended to increase employment beyond efficiency levels. Whether the output expansion that

[9] Among Canadian females, the wage disparity effect of unions is large enough to offset the wage compression effect (Lemieux, 1993). The similarities in the pattern and effect of unionization for U.S. and Canadian females (Lemieux, 1993) suggest that unions have little effect on wage dispersion among U.S. females. No study has yet looked explicitly at this issue for the United States.

was expected to follow from the deregulated lower output prices would increase employment beyond the prederegulation level then became an empirical question.

In the late 1970s and early 1980s, the United States deregulated transportation, communications, financial and energy industries, as shown in Table 1. This wave of deregulation has been described as one of the most important economic policy experiments of our time (Winston, 1993). Table 1 shows that employment declined substantially in some deregulated industries, such as railroads, while it increased substantially in others, such as brokerage. However, employment in the major deregulated industries remained more or less stable at around 10 percent of the workforce. This relatively small proportion will be an element to explain why we find a comparatively small impact of deregulation on the increase in overall wage inequality.

Because deregulated industries were among the most highly unionized, the labor market impact of deregulation depended in part on how union membership and union bargaining power withstood the deregulatory wave. However, the decline in unionization rates among deregulated industries, shown in Table 1, was no worse than in other industries, with the exception of trucking and telecommunications, where unionization did fall substantially. In the following analysis, we will focus on the effect of deregulation within both the union and the nonunion sectors.

Evidence on the Role of Institutional Changes

The impact of institutional or market forces is typically concentrated in specific parts of the wage distribution. For instance, the minimum wage affects the bottom end of the wage distribution, but not the upper end. Similarly, unionization and economic regulation should only matter in the parts of the distribution where a significant fraction of workers are affected by these institutional factors.

Figure 1 shows the distribution of the logarithm of wages in 1979 and 1988. Hourly wages (in 1979 dollars) is being measured on the horizontal axis; the density of (hourly) wages is being measured on the vertical axis. Panels *a* and *b* show the distribution for men and women separately, while panel *c* considers them together.[10] They are based on hourly wage data from the CPS. The samples consist of all workers ages 16 to 65. All observations are weighted by the number of weekly hours of work to reflect better the contribution of each worker to the labor market; notice that this methodology reduces the importance of the minimum wage since a large fraction minimum wage earners are part-time workers. We focus on the years 1979 and 1988 because they encompass the period during which the most dramatic institutional changes took place.[11]

[10] The graphs in Figure 1 are smoothed histograms that integrate to one, so that the area below the graph at the left of any wage level represents the proportion of workers earning less than that wage. See DiNardo, Fortin and Lemieux (1996) for more details on these kernel-smoothing methods.

[11] There are also data considerations behind this specific choice of years. The outgoing rotation group files were not available before 1979; after 1988, there is a problem with allocated wages.

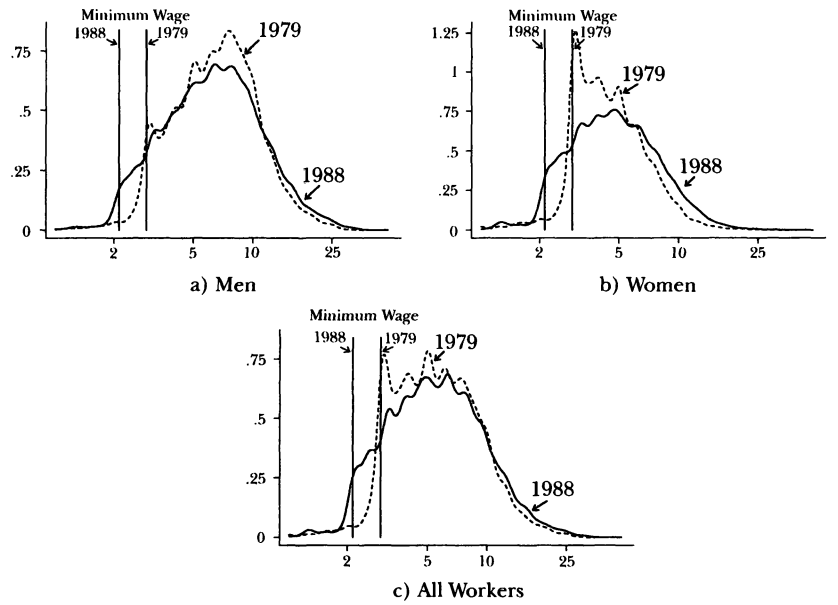
Table 1
Reform Initiatives and Unionization Rates in Major Deregulated Industries

	Percentage of the Sample		*Percentage Unionized*		*Percentage Female*	
Major Initiatives	*1979*	*1988*	*1979*	*1988*	*1979*	*1988*
Airlines	0.5	0.7	38.9	41.7	37.4	34.4
CAB Liberation of entry and discount fare experiments (mid-1970s)						
Airline Deregulation Act (1978)						
Trucking	1.4	1.5	48.1	24.5	9.6	14.1
ICC Liberation of truck rates (late 1970s)						
Motor Carrier Reform Act (1980)						
Railroads	0.7	0.4	84.8	83.1	9.0	6.5
Railroad Revitalisation and Regulatory Reform Act (1976)						
Staggers Rail Act (1980)						
Northeast Rail Service Act (1981)						
Intercity Busing	0.6[a]	0.4	45.6	41.8	39.9	29.4
Bus Regulatory Reform Act (1982)						
Telecommunications	1.4	1.3	59.9	39.9	49.4	47.2
FCC court decisions (late 1960s and mid-1970s)						
Execunet Decision (1977)						
AT&T settlement (1982)						
Cable TV	0.2	0.3	21.7	11.4	35.8	40.8
FCC Rule makings and other regulatory proceedings (late 1970s)						
Petroleum	0.7	0.5	16.9	11.3	19.3	21.4
Decontrol of crude oil and refined petroleum products (executive orders beginning in 1979)						
Natural Gas	0.2	0.2	34.5	28.9	34.5	21.0
Natural Gas Policy Act (1978)						
Banking	2.4	2.7	2.7	1.9	74.7	72.8
Depository Institution Deregulation and Monetary Control Act (1980)						
Garn-St-Germain Depository Institutions Act (1982)						
Brokerage	0.3	0.5	1.9	2.5	52.5	44.6
Security Acts Amendments (1975)						
Total in deregulated industries above	8.8	9.1	34.5	21.8	41.7	43.1
Other industries	91.2	90.9	21.8	16.7	45.2	47.6

[a] The CPS three-digit industry category for busing includes urban transit.
Sources: Winston (1993), Button and Keeler (1993) and authors' calculations.
Notes: Percentages are obtained using CPS weights multiplied by the hours worked a week to avoid overrepresenting part-time workers. They compare to those reported in Hendricks (1994), except for telecom, where he reports a 43.8 unionization rate in 1988.

The panels in Figure 1 show that the real value of the federal minimum wage, represented by the vertical line, has a dramatic impact on the distribution of wages. The effect is particularly striking for women. In 1979, the dis-

Figure 1
Distributions of Hourly Wages in Constant 1979 Dollars
(logarithmic scale used on the horizontal axis)



tribution of female wages is so compressed at the minimum wage that it represents the mode of the distribution. By 1988, however, the minimum wage lost nearly all its "bite," and only a handful of low-wage workers are still affected by this institutional factor. Though the graphical evidence is less dramatic for men, it still suggests that the minimum wage played a significant role in the collapse of the bottom end of the wage distribution. When men and women are considered together, the graphs show that the largest change in the wage distribution took place around the value of the minimum wage. Clearly, the decline in the real value of the minimum wage must be part of any attempt to explain increases in wage inequality during the 1980s.

Until recently, much of the literature on wage inequality had either not considered the role of the minimum wage or concluded that it was unimportant.[12] Given the obvious importance of changes in the minimum wage on the distribution of female wages illustrated in Figure 1, one must wonder why this explanation had

[12] One exception is Blackburn, Bloom and Freeman (1992), who find that the decline in the real value of the minimum had a significant impact on some specific wage differentials, like the high school/dropout differential for black females.

not been explored in more detail. Part of the answer is that the inequality literature has generally concentrated on the rise in the college/high school wage differential for men working full-time. Since only a very small fraction of male high school or college graduates working full-time earn the minimum wage, it plays essentially no role in changes in the college/high school wage differential for full-time male workers.

But this answer raises another question: why was there so much focus on wage differentials for full-time men and so little focus on the entire distribution of wages for the whole (full-time and part-time) female workforce? One reason is that because the female labor force participation rate has been rising, analyses of the changing female wage distribution are more likely to be afflicted by selection biases. A second reason involves data limitations; before 1976, the CPS data allows for only crude measures of hours worked, so many studies focused only the subsample of workers classified as full-time, often full-year. Rather than ignoring part-timers, here we give more weight to workers who supply longer hours to the market.

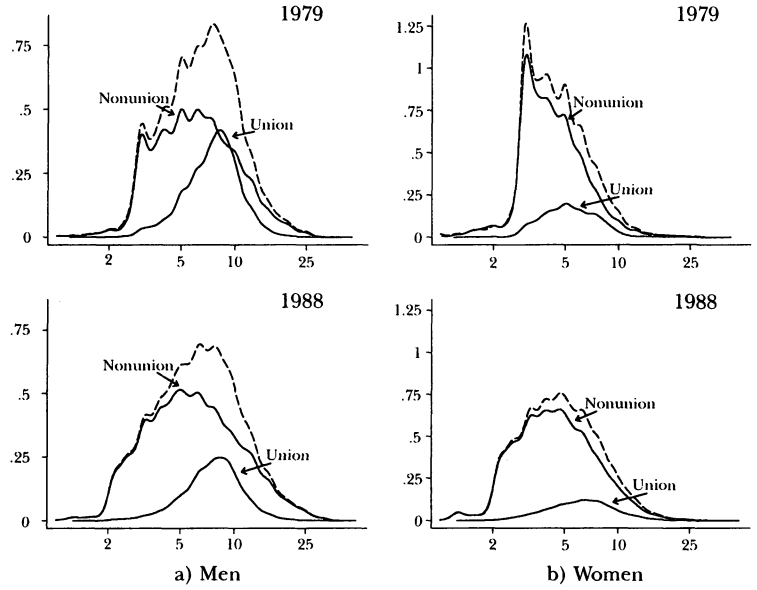
Finally, the focus on the college/high school wage differentials is consistent with labor market theories because such differentials are well suited for a supply and demand analysis, since the price and the quantity of each education class of labor is readily quantifiable. By contrast, the minimum wage has only an indirect effect on these wage differentials, since it depends on the fraction of affected workers in each group and by how much it raises the wage of these affected workers. Thus, it is not surprising that studies of wage inequality that concentrated on the analysis of standard wage differentials did not find a sizable minimum wage effect.

The overall wage distributions for men and women presented in Figure 1 reappear as the dotted lines in the panels of Figure 2. Then, each panel of Figure 2 shows a decomposition of the wage distribution into a distribution among union workers and a distribution among nonunion workers. The two distributions are scaled by the fraction of the workforce that is unionized and nonunionized, respectively, so that they sum up to the overall distribution shown by the dotted line. These graphs illustrate several points about the wage distribution.

They illustrate the well-known fact that the distribution of wages is more compressed among unionized than nonunionized men, as is clear from the two left-hand panels in Figure 2. Union workers also tend to be concentrated in the upper middle of the wage distribution. Thus, a decline in unionization can produce a widening wage distribution as workers "move" from a sector where wages are more compressed (union sector) to a sector where they are less compressed (nonunion sector), and it can also reduce the concentration of workers in the upper middle of the wage distribution (declining middle), where most union workers are located. Though the magnitude of the impact of deunionization on wage dispersion among men is not obvious from the left-hand panels of Figure 2, it surely appears plausible that deunionization has contributed to the decline of the middle of the wage distribution.

By contrast, deunionization can at best have a small impact on changes in the female wage distribution, as illustrated by the right-hand panels of Figure 2. Only

Figure 2
Distributions of Hourly Wages from the Union and Nonunion Sectors
(logarithmic scale and 1979 dollars used on horizontal axis)



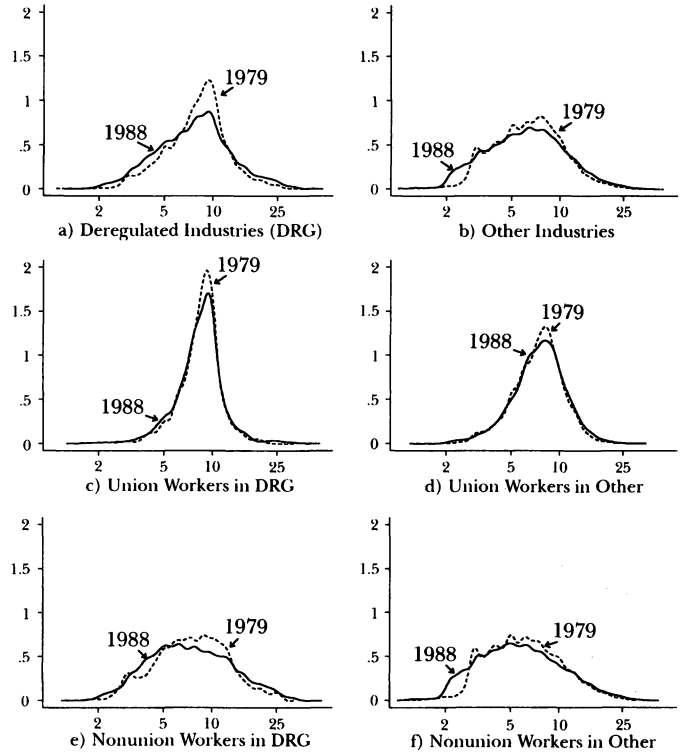
a small fraction of the female workforce is unionized (15 percent compared to 31 percent for men in 1979). A theme is becoming clear: the minimum wage has a much stronger impact on inequality of wages for women, while unionization has a stronger impact on inequality of wages for men.

The impact of deregulation, like deunionization, is primarily on the distribution of men's wages, while the effect of deregulation on the distribution of female wages is rather marginal. In fact, the effects of deregulation and deunionization turn out to be intermingled.

Figure 3 shows changes in the distribution of wages for male workers in deregulated industries (as listed in Table 1) and for unionized and nonunionized male workers in deregulated industries. Panel *a* of Figure 3 shows that the distribution of hourly wages among men in deregulated industries changed sharply from 1979 to 1988; the middle of the distribution declined. In fact, the percentage of male workers in the upper middle of the distribution, with hourly wages between $7.50 and $12.50 in 1979 dollars, fell from 52 percent to 38 percent in deregulated industries, whereas it fell only from 33 percent to 26 percent in other industries.

There is a noticeable similarity between the deregulated industries and the unionized sector in both the shape of the wage distribution and the change in that distribution that took place from 1979 to 1988. One explanation for this

Figure 3
Distributions from Deregulated and Other Industries for Unionized and Nonunionized Men
(logarithmic scale and 1979 dollars used on horizontal axis)



similarity is that deregulated industries were highly unionized with a 45 percent unionization rate in 1979 vs. a 30 percent rate in other industries. But it would be incorrect to argue that the deregulation and deunionization impacts are fully overlapping. Consider again what we called the upper middle of the distribution, with hourly wages between $7.50 and $12.50 in 1979 dollars. In the union sector, the proportion of workers in the upper middle of the distribution fell from 69 percent in 1979 to 63 percent in 1988 in deregulated industries; in other industries, it fell from 48 percent in 1979 to 46 percent in 1988. In the nonunion sector, the proportion of workers in the upper middle of the distribution fell from 38 percent in 1979 to 28 percent in 1988 in deregulated industries, whereas it fell from 26 percent in 1979 to 21 percent in 1988 in other industries. These figures suggest that even if union workers earned larger rents under regulation than did nonunion workers, and thus had more to lose under deregulation, some of the rents accruing to the regulated industries were also shared by nonunionized workers.

Measuring the Impact of Institutional Changes

In our view, the diagrams presented in the previous section make a prima facie case that a falling real minimum wage, deunionization and deregulation have contributed to greater wage inequality. For each of the three institutional changes discussed here, this section describes some straightforward calculations that show what the variance of the (log) wage distribution would have been in 1988, if each of the three institutional changes had not happened. These calculations rely on the following procedure. First, we decompose the distribution of wages into a distribution among the "affected" or "covered" workers and into a distribution among nonaffected workers, as illustrated in Figure 2 for the case of deunionization. We then summarize the main features of this decomposition using three elements: the fraction of workers "affected" by the institutional factor of interest; the mean level of log wages among affected and nonaffected workers; and the dispersion of log wages among affected and nonaffected workers. By reverting some of these measures to their 1979 level, we simulate what would have happened if the institutional changes had not taken place.

These calculations should be considered only as a first approximation. They assume that the three elements described above are sufficient to describe the changes in distribution, and they ignore, among other problems, potential differences in how the characteristics of various groups of workers—say, union and nonunion—evolved between 1979 and 1988. They also assume that these three institutional changes are mutually exclusive, although they probably are not. However, as we will explain, the estimates based on these calculations are largely consistent with more complicated studies done by us and by others.[13]

Effect of Changes in the Real Value of the Minimum Wage

We say that workers were "affected" by changes in the minimum wage if they were earning the minimum wage ($3/hour) or less in 1979 or if they were earning

[13] Some readers will find it helpful to think of the procedure here as a standard variance decomposition. The variance of a population with two groups can be decomposed into a between- and a within-group component. Here, the between-group variance reflects the wage gap between the sector affected by the institution and the sector not so affected, while the within-group variance reflects the extent of wage dispersion within these two sectors. The magnitude of both the between- and the within-group effect also depends on the percentage of affected workers. This is illustrated in the equation

$$\text{Variance} = p(1-p)(W_I - W_N)^2 + pV_I + (1-p)V_N,$$

where p represents the proportion of affected workers, W_I (W_N) represent the average log wage in institutional (noninstitutional) sector, and V_I (V_N) represents the variance of log wages in the institutional (noninstitutional) sector. The first term in the equation is the between-group variance, while the second term is the within-group variance. Intuitively, the within-group variance $pV_I + (1-p)V_N$ is a weighted sum of the variance in the two sectors. Using the standard formula for the variance, the between-group variance can be written as $p(W_I - W)^2 + (1-p)(W_N - W)^2$, where W, the overall mean, is equal to $pW_I + (1-p)W_N$. With a little algebra, the between-group variance can be rewritten as $p(1-p)(W_I - W_N)^2$.

that same wage level ($4.75/hour in 1988 dollars) or less in 1988.[14] To simulate what the distribution of wages in 1988 would have looked like if the higher 1979 minimum wage had prevailed, we replace the bottom part of the 1988 distribution of wages, the left tail below $4.75, by the actual left tail of distribution of wages in 1979. A first cut approximation to that cut-and-paste procedure simply replaces the mean and the variance of log wages among affected workers in 1988 by the mean and variance of log wages of the group of workers earning less than $3/hour in 1979. We then calculate the simulated variance of log wages with a formula that gives us the variance of the distribution for all workers when that distribution can be decomposed among the two groups.[15]

Table 2 reports the percentage of the total change in variances that can be explained by each of the three institutional changes. Note that from 1979 to 1988, the variance of log wages increased by 0.079 (34 percent) and 0.092 (56 percent) among men and women, respectively. It increased by 0.065 (27 percent) when men and women are considered together. The first row of the table shows that if the real value of the minimum wage in 1979 had prevailed in 1988, the variance of male log wages would have increased by 24.2 percent less than it actually did. The effect is larger for women; we attribute to the decline in the minimum wage 32.1 percent of the increase in the variance of female log wages. Interestingly, the effect is even larger, explaining 39.3 percent of the rise in the variance of log wages, when men and women are considered together. The reason is that the distribution for all workers changed less than the separate distributions for men and women; the minimum wage thus accounts for a higher percentage of a smaller change.

These effects for men and women are only slightly larger than those found by DiNardo, Fortin and Lemieux (1996) using a more sophisticated approach that controls for several other sources of changes in the wage distribution of workers at or below the minimum wage.[16] Other researchers have also given a prominent role to the erosion of the real value of the minimum wage in changes in the wage distribution. For example, Card and Krueger (1995) conclude that 20 to 30 percent of the rise in wage dispersion during the 1980s could be attributed to the decline in the real value of the minimum wage. Looking at the 90/10 wage differential, Mishel, Bernstein and Schmitt (1996) report even larger effects.

[14] We use $3 as a threshold to include workers that may have earned the minimum wage of $2.90 in 1979, but rounded off their answer to $3 in the CPS. The percentage of workers affected by the minimum wage in 1979 was 8 percent among men and 19 percent among women; in 1988, the percentage of workers earnings $4.75 or less was 11 percent among men and 20 percent among women.

[15] In terms of the equation in note 13, the simulated variance is thus obtained by replacing W_l and V_l, the mean and variance among affected workers, by their 1979 values.

[16] DiNardo, Fortin and Lemieux (1996) perform similar counterfactuals, but they also use a reweighting method to take account of possible changes in the characteristics of workers (age, education, and so on). These changes are not very important, which explains why their results are very similar to the one reported here.

Table 2

Percentage of the Change in the Variance of Log Wages Explained by Institutional Changes

	Percentage of the 1979–1988 Change Explained for:		
	Men	*Women*	*Men and Women*
Changes in the Real Value of the Minimum Wage	24.2	32.1	39.3
Changes in the Rate of Unionization	21.3	0.0	10.3
Deregulation[a]			
All Workers	2.6	−1.9	0.1
Union Workers	13.3	−6.2	−2.9
Nonunion Workers	1.2	−0.5	−0.3
All Workers, wage > $3.00	7.3	−1.0	5.5
Union Workers, wage > $3.00	11.5	−6.9	−4.8
Nonunion Workers, wage > $3.00	5.1	0.8	4.0

[a] The samples used for the results reported in the last three rows are limited to workers earning more than $3 (in 1979 dollars).

Effect of Deunionization

To compute the effect of deunionization on the variance of wages, we replace the 1988 unionization rate by its higher 1979 level. In terms of the bottom left-hand panels of Figure 2, this means upscaling the distribution of union workers, whose proportion increases from 21 percent to 31 percent for men, while keeping other aspects of the distributions the same. It further means that in our calculations, the fraction of affected workers increases while the mean and variance of union and nonunion log wages remain at their 1988 level.

Altering the level of unionization in this way has two opposing effects on wage dispersion. Since the variance of log wages in the union sector is smaller than in the nonunion sector, a higher proportion of unionized workers puts more weight on the low-variance sector and reduces the overall variance of log wages. On the other hand, increasing the proportion of unionized workers raises the variance between union and nonunion workers, which tends to increase the overall variance of log wages.[17] In the case of men, the former effect dominates the latter. The second row of Table 2 indicates that the variance of log wages would have increased by 21.3 percent less if the rate of unionization had remained at its 1979 level. In the case of women, however, the two effects cancel out, and deunionization explains essentially nothing in the rise in wage inequality.

Interestingly, Card (1992) and Freeman (1993) also find that deunionization

[17] This holds true as long as the unionization rate remains below 50 percent, which is always the case in U.S. data. In terms of the variance equation in note 13, it can be thought of as increasing the between-group variance given in the first term.

explains about a fifth of the increase in male wage inequality using different ranges of years from the 1970s to the late 1980s (1973 to 1987 for Card, 1978 to 1988 for Freeman).[18] Using a more sophisticated method for the 1979–1988 period, DiNardo, Fortin and Lemieux (1996) find an effect ranging from 14 percent to 20 percent on the standard deviation of wages.[19] Thus, as in the case of the minimum wage, the simple estimates given here are comparable to other results found in the literature.

Effect of Economic Deregulation

It is difficult to separate the effect of deregulation from other changes that might have occurred in these industries even if they had not been deregulated. Thus, we need to make some strong assumptions on what would have happened to the distribution of wages in deregulated industries in the absence of deregulation. As a first cut, we assume that in the absence of deregulation, the mean and the variance of log wages in deregulated industries would have changed at the same rates as in other industries. The changes that are in excess of what happened in other industries are attributed to deregulation. This leads to what is called a "difference-in-differences" approach. That is, to estimate the effect of deregulation on the mean and variance of log wages, we say that it is equal to the change in the mean (variance) of log wages in deregulated industries from 1979 to 1988 minus the change in the mean (variance) of log wages in other industries over that same time period.[20] Thus, we calculate what the variance of the log of 1988 wages would have been in the absence of deregulation by assuming that changes in the mean and variance of log wages for workers in those industries had only mirrored the change in other industries, keeping the proportion of workers within deregulated industries at its 1988 level. Suppose that Figure 2 had represented the distributions of log wages in deregulated industries and in the other sectors instead of the union and nonunion sectors. Since we revert the effect of deregulation, this would amount to a right-hand move and a narrowing of the distribution of log wages in deregulated industries in 1988 by amounts that correspond to the above excess changes.

[18] The estimated effect of deunionization presented here is similar to those of Card and Freeman because of two offsetting factors. On the one hand, the effect on the variance tends to decrease when fixed effect methods are used. On the other hand, Card and Freeman focus on a group of older workers (ages 25–65 for Card, 24–64 for Freeman) for which unions have a larger effect. Note that Card (1992) and Freeman (1993) correct for the fact that the union status of workers is determined endogenously by following the same individual over time (fixed effect approach). Similarly, Lemieux (1997) follows the same person on different jobs. These studies all find that unions have an effect on the mean of wages (10 to 15 percent) and on the variance.

[19] DiNardo, Fortin and Lemieux (1996) consider various explanations sequentially. When the effect of deunionization is analyzed after the effect of a falling minimum wage has been taken into account, the result is smaller; when deunionization is considered before the minimum wage effect, the effect is larger. This simply reflects the fact that these explanations are not mutually exclusive.

[20] In terms of the variance decomposition equation in note 13, we simulate the variance that would have prevailed in the absence of deregulation by subtracting $(\Delta W_I - \Delta W_N)$ from the 1988 value of mean of log wages in deregulated industries W_I. Similarly, we subtract $(\Delta V_I - \Delta V_N)$ from the variance V_I.

The final rows of Table 2 indicate how much of the growth in the variance of log wages can be attributed to deregulation using various subsets of workers in deregulated industries. When both unionized and nonunionized workers are considered, deregulation has a negligible effect on both men (2.6 percent) and women (0.1 percent). The effect is more sizable, however, for unionized men (13.3 percent) or for the male workforce earning significantly more than the 1979 minimum wage (7.3 percent).

The reason for the sizable effect of deregulation for these two subgroups of the male workforce can be understood by remembering the earlier patterns within deregulated industries. Figure 3 showed that inequality increased faster among unionized men in deregulated industries than among any other groups of males; in fact, the variance of log wages increased by almost 50 percent among this group of workers, compared to an increase of just 12 percent among union males in other industries and 27 percent among nonunion males in both deregulated industries and other industries. This is consistent with the view that unionized men in deregulated industries were the most directly affected by the shrinkage of the rents associated with deregulation.

It also makes intuitive sense that deregulation has more impact on inequality when minimum wage earners are excluded from the analysis. There are significantly fewer minimum wage earners in deregulated industries than in other industries—and especially fewer minimum wage earners in the unions of the deregulated industries. Thus, one might say that inequality is increasing in deregulated industries as high-wage workers lose rents, and it is increasing in the nonunion sector of other industries (partly) because of the diminishing value of the minimum wage. This gives the impression that increasing inequality was a general trend in both deregulated and in other industries, when instead it had separate institutional causes in the two sectors.

To the best of our knowledge, no other study has looked at the impact of deregulation on the overall distribution of wages. However, numerous studies have examined the impact of deregulation on union wage differentials and on wage differentials with other industries. In the most comprehensive study of pre- and postderegulation earnings in the airline industry, Card (1996) finds a modest 10 percent decline in the relative earnings of most airline workers, with the exception of airline mechanics, whose relative wages remained roughly constant. Card also finds that the increase in inequality in the airline sector is comparable with the economywide increase. In the trucking industry, Rose (1987) and Hirsch (1988) found substantial reductions in union wage premiums; in the telecommunications industry, Peoples (1989/1990) found almost no decline for female telephone operators. Looking at the evolution over time of various wage differentials for airlines, trucking, railroads, busing and telephones, Hendricks (1994) concluded that the strongest impact of deregulation occurred in trucking. Notice that the largest wage effects tend to be found in the trucking industry, which is a male-dominated industry that had a relatively high unionization rate in 1979. This is consistent with our findings that male unionized workers were the most successful at capturing the

rents created by regulation of industry, and thus they suffered the most from deregulation. In summary, economic deregulation plays at best a small role in the overall increase in wage inequality, although the effect is larger when we restrict our attention to unionized male workers.

Criticisms of the Role Attributed to Institutions

Our estimates of the effects of institutional changes are based on a simple question: what would have happened if the relevant institutions had remained as they were in 1979? A potential criticism of this approach is that institutional changes are the result rather than the cause of rising wage inequality; that is, they are endogenous. For example, deunionization and the ensuing increase in wage inequality could both be consequences of lower trade barriers, which would be the true underlying cause of the greater wage inequality. This criticism is particularly relevant in the case of the decline in the unionization rate, which, unlike the decline in the real value of the minimum wage and deregulation, cannot be traced directly to legislative actions, since there were no explicit changes to the National Labor Relations Act during the 1980s.

A response to this criticism is that the pattern of institutional changes in different countries is hard to reconcile with the view that institutions are purely endogenous. For example, collective bargaining coverage dropped sharply in the United States and the United Kingdom during the 1980s, but remained relatively constant in Canada and in continental Europe. If institutional changes were endogenous responses to more fundamental shocks resulting from globalization, these shocks would have to be larger in the United States and in the United Kingdom than elsewhere.

However, the available data shows that the relevant supply and demand shocks are roughly comparable in different countries. For instance, Card, Kramarz and Lemieux (1996) report similar changes in demand measures like the import-penetration ratio and the rate of use of computers in the United States, Canada and France during the 1980s. They also report comparable supply shocks, as measured by the change in the fraction of the workforce holding a college degree, in these three countries. This suggests that differences in labor laws, as opposed to supply and demand factors, are at the origin of the divergence in unionism in the different countries.[21]

Another often-heard criticism of our institutional approach is that factors like

[21] An explicit comparison of the United States and Canada, two neighboring economies that have many things in common, including similar collective bargaining structures, suggests that "much of the Canada-U.S. unionization gap can be attributed to intercountry differences in the legal regime pertaining to unions and collective bargaining and to differences in overt management opposition to unions (itself possibly a consequence of differences in collective bargaining laws and their administration)" (Riddell, 1993, p. 142).

the minimum wage and unionization may have employment consequences that should be taken into account in an analysis of distributional change. After all, what matters is not simply the distribution of wages among individuals holding a job, but the income distribution of all. If a higher minimum wage reduces wage inequality among those with jobs, but increases unemployment among the low-skilled, it may not reduce inequality in economic well-being. This criticism seems particularly relevant in light of the poor employment performance of countries such as France and Germany. It could be that institutions like the minimum wage and collective bargaining helped maintain the real wages of less-skilled workers in these countries, but also were responsible for high unemployment. The strong employment performance of the U.S. labor market could thus be seen as the "good side" of deunionization and the erosion in the real value minimum wage.

There is no doubt that future research should broaden the current focus on wage inequality to consider employment effects and the overall distribution of economic well-being. This broader focus should be applied to analyses of both institutions and supply and demand factors. We nevertheless think that it is important to stress the role of institutions on the distribution of wages for several reasons.

First, identifying the causes of rising wage inequality in the United States is in itself a question of interest. Even though our analysis does not fully capture the welfare consequences of the recent rise in wage inequality, it certainly matters, from both a research and a policy perspective, to know why wage inequality has increased.

Second, it would be premature to conclude that institutional factors that keep the wage distribution more equal must necessarily have large and adverse employment effects. This is only the case when the labor market is competitive and labor demand elasticities are large.[22] The magnitude of the employment effects of institutions are, therefore, an empirical question. Only a few empirical studies have investigated the employment effects of unions, and the results are inconclusive (Pencavel, 1991, p. 44). The employment effects of the minimum wage have received much more attention. Both older and more recent surveys of this research suggest, however, that the employment effects of the minimum wage are small (Brown, Gilroy and Kohen, 1982; Freeman, 1996b).

It is not clear either that institutions can explain cross-country differences in employment performance. If the institutional rigidities that benefit lower-wage workers (and thus keep wages more equal) were also the source of employment losses in countries like France and Germany, then the relative employment rate of lower-wage or less-skilled workers in these countries should have fallen more rapidly than in the United States. However, the relative employment rates of less-skilled workers have fallen at about the same rate in Europe and Canada as in the United States (Card, Kramarz and Lemieux, 1996; Nickell and Bell, 1995). This implies that cross-country differences in institutions have had little impact on changes in the relative structure of employment. This also means, however, that institutional

[22] For early statements of this view, see Stigler (1946) and Friedman (1951).

changes could not have played a sizable role in the decline in the relative employment of less-skilled workers in the United States.

The research to date certainly does not allow us to conclude that the institutional changes of the 1980s had positive effects on employment that would offset their contribution to greater inequality of wages. On the other hand, neither institutional nor demand and supply considerations can account by themselves for the differential changes in the relative structure of wages and employment in different countries. The answer probably lies in some combination of these different factors (Freeman and Katz, 1996).

Concluding Comments: An Historical Perspective

In some respects, the weakening of institutional forces in the 1980s was unprecedented in recent U.S. labor market history. But the fact that institutional changes played a role in changes in wage inequality was not unique to the 1980s. A prominent example from earlier in this century shows how institutional forces can lead to greater equality in wages, rather than inequality. The 1935–1945 period witnessed the most dramatic changes in U.S. labor market institutions of the twentieth century. Following the passage of the National Labor Relations Act in 1935, the unionization rate rose dramatically from 12 percent in 1934 to 35 percent in 1946. The first federal minimum wage laws were enacted in the Fair Labor Standards Act of 1938. By 1945, the minimum wage represented 40 percent of average hourly earnings in manufacturing, and 55 percent of nonsupervisory employees were covered. The government also involved itself in private sector wage setting through the National War Labor Board between 1942 and 1945. Interestingly, the 1935–1945 period was also an era of "great compression" of the wage distribution, as documented in Goldin and Margo (1992). They conclude that institutional changes, along with short-run events affecting the demand for labor, were the primary driving forces behind the great compression.

Thus, historical evidence from the United States, international comparisons among industrialized countries and analyses of U.S. data for the 1980s all yield the same conclusion: institutional forces simply cannot be overlooked in any serious attempt to understand the recent rise in wage inequality in the U.S. labor market.

■ *We would like to thank J. Bradford De Long, John DiNardo, Alan Krueger and Timothy Taylor for helpful comments on an earlier draft and to thank FCAR and SSHRC for financial support.*

References

Berman, Eli, John Bound, and Zvi Griliches, "Changes in the Demand for Skilled Labor Within U.S. Manufacturing: Evidence from the Annual Survey of Manufactures," *Quarterly Jour-*

nal of Economics, May 1994, *109,* 367–98.

Blackburn, McKinley, David Bloom, and Richard Freeman, "Changes in Earnings Differentials in the 1980s: Concordance, Convergence, Causes and Consequences." National Bureau of Economic Research Working Paper No. 3901, November 1992.

Brown, Charles, Curtis Gilroy, and Andrew Kohen, "The Effect of the Minimum Wage on Employment and Unemployment," *Journal of Economic Literature,* June 1982, *20,* 487–528.

Button, Kenneth J., and Theodore E. Keeler, "The Regulation of Transport Markets," *Economic Journal,* July 1993, *103,* 1017–27.

Card, David, "The Effect of Unions on the Distribution of Wages: Redistribution or Relabelling?" National Bureau of Economic Research Working Paper No. 4195, October 1992.

Card, David, "Deregulation and Labor Earnings in the Airline Industry." National Bureau of Economic Research Working Paper No. 5687, July 1996.

Card, David, and Alan Krueger, *Myth and Measurement: The New Economics of the Minimum Wage.* Princeton: Princeton University Press, 1995.

Card, David, Francis Kramarz, and Thomas Lemieux, "Changes in the Relative Structure of Wages and Employment: A Comparison of the United States, Canada, and France." National Bureau of Economic Research Working Paper No. 5487, March 1996.

DiNardo, John, Nicole M. Fortin, and Thomas Lemieux, "Labor Market Institutions and the Distribution of Wages, 1973–1992: A Semiparametric Approach," *Econometrica,* September 1996, *65,* 1001–44.

Fortin, Nicole M., and Thomas Lemieux, "Women's Wage Gains or Men's Losses: A Distributional Test of a Jobs Fund Model," mimeo, Department of Economics, Université de Montréal, March 1996a.

Fortin, Nicole M., and Thomas Lemieux, "Rank Regressions, Wage Distributions and the Gender Gap." Discussion Paper No. 9607, Department of Economics, Université de Montréal, April 1996b.

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

Freeman, Richard, "How Much Has De-Unionization Contributed to the Rise in Male Earnings Inequality?" In Danziger, Sheldon, and Peter Gottschalk, eds., *Uneven Tides: Rising Inequality in America.* New York: Russell Sage Foundation, 1993, pp. 133–63.

Freeman, Richard, "Are Your Wages Set in Beijing?," *Journal of Economic Perspectives,* Summer 1995, *9,* 15–32.

Freeman, Richard, "Labor Market Institutions and Earnings Inequality," *New England Economic Review,* May/June 1996a, 157–68.

Freeman, Richard, "The Minimum Wage as a Redistributive Tool," *Economic Journal,* May 1996b, *108,* 639–49.

Freeman, Richard, and Lawrence Katz, "Introduction and Summary." In Freeman, Richard, and Lawrence Katz, eds., *Differences and Changes in Wage Structures.* Chicago: University of Chicago Press and NBER, 1996, pp. 1–22.

Friedman, Milton, "Some Comments on the Significance of Labor Unions for Economic Policy." In McCord Wright, David, ed., *The Impact of the Union.* New York: Kelley & Millman, 1951, pp. 204–34.

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

Hendricks, Wallace, "Deregulation and Labor Earnings," *Journal of Labor Research,* Summer 1994, *15,* 207–34.

Hirsch, Barry T., "Trucking Regulation, Unionization, and Labor Earnings: 1973–85," *Journal of Human Resources,* Spring 1988, *23,* 296–317.

Hirsch, Barry T., and David Macpherson, *Union Membership and Earnings Data Book, Compilations from the Current Population Survey.* Washington, D.C.: Bureau of National Affairs, 1996.

Katz, Lawrence, and Alan Krueger, "Changes in the Structure of Wages in the Public and Private Sectors." In Ehrenberg, Ronald, ed., *Research in Labor Economics.* Vol. 12, Greenwich, Conn.: JAI Press, 1991, pp. 137–72.

Krueger, Alan B., "How Computers Have Changed the Wage Structure: Evidence from Microdata, 1984–1989," *Quarterly Journal of Economics,* February 1993, *108,* 33–60.

Lemieux, Thomas, "Unions and Wage Inequality in Canada and the United States." In Card, David, and Richard B. Freeman, eds., *Small Differences that Matter: Labor Markets and Income Maintenance in Canada and the United States.* Chicago: University of Chicago Press, 1993, pp. 69–107.

Lemieux, Thomas, "Estimating the Effects of Unions on Wage Inequality in a Panel Data Model with Comparative Advantage and Non-Random Selection," *Journal of Labor Economics,* forthcoming 1997.

Levy, Frank, and Richard Murnane, "U.S. Earnings Levels and Earnings Inequality: A Review of Recent Trends and Proposed Explana-

tions," *Journal of Economic Literature,* September 1992, *30,* 1331–81.

Lewis, H. Gregg, *Union Relative Wage Effects: A Survey.* Chicago, Ill.: University of Chicago Press, 1986.

Mishel, Lawrence, Jared Bernstein, and John Schmitt, *The State of Working America, 1996–97.* Armonk, N.Y.: M. E. Sharpe, Economic Policy Institute, 1996.

Nickell, Stephen, and Brian Bell, "The Collapse in Demand for the Unskilled and Unemployment Across the OECD," *Oxford Review of Economics Policy,* 1995, *11,* 40–62.

Peltzman, Sam, "The Economic Theory of Regulation after a Decade of Deregulation," *Brookings Papers on Economic Activity: Microeconomics,* 1989, 1–41.

Pencavel, John, *Labor Markets under Trade Unionism.* Cambridge, Mass.: Blackwell, 1991.

Peoples, James H., Jr., "Wage Outcomes Following the Divestiture of AT&T," *Information Economics and Policy Journal,* 1989/1990, *4:2,* 105–26.

Richardson, J. David, "Income Inequality and Trade: How to Think, What to Conclude," *Journal of Economic Perspectives,* Summer 1995, *9,* 33–56.

Riddell, W. Craig, "Unionization in Canada and the United States: A Tale of Two Countries." In Card, David, and Richard B. Freeman, eds., *Small Differences that Matter: Labor Markets and Income Maintenance in Canada and the United States.* Chicago: University of Chicago Press, 1993, pp. 109–48.

Rose, Nancy L., "Labor Rent and Regulation: Evidence from the Trucking Industry," *Journal of Political Economy,* December 1987, *95,* 1146–78.

Smith, Robert S., "Comparable Worth: Limited Coverage and the Exacerbation of Inequality," *Industrial and Labor Relations Review,* January 1988, *41,* 227–39.

Stigler, George, "The Economics of Minimum Wage Regulation," *American Economic Review,* June 1946, *36,* 358–65.

Troy, Leo, and N. Sheflin, *Union Source Book: Membership, Finances, Structure, Directory.* West Orange, N.J.: Industrial Relations Data and Information Services, 1985.

Winston, Clifford, "Economic Deregulation: Days of Reckoning for Microeconomists," *Journal of Economic Literature,* September 1993, *31,* 1263–89.

Wood, Adrian, "How Trade Hurt Unskilled Workers," *Journal of Economic Perspectives,* Summer 1995, *9,* 57–80.

This article has been cited by:

1. Pengcheng Du, Shuxun Wang. 2019. The effect of minimum wage on firm markup: Evidence from China. *Economic Modelling* . [Crossref]
2. Pirmin Fessler, Maximilian Kasy. 2019. How to Use Economic Theory to Improve Estimators: Shrinking Toward Theoretical Restrictions. *The Review of Economics and Statistics* **101**:4, 681-698. [Crossref]
3. Rosalia Castellano, Gaetano Musella, Gennaro Punzo. 2019. Wage dynamics in light of the structural changes in the labour market across four more economically developed countries of Europe. *Review of Social Economy* **4**, 1-39. [Crossref]
4. Efrat Herzberg-Druker, Haya Stier. 2019. Family matters: The contribution of households' educational and employment composition to income inequality. *Social Science Research* **82**, 221-239. [Crossref]
5. Chun-Chieh Huang, Juin-Jen Chang, Hsiao-Wen Hung. 2019. Progressive Tax and Inequality in a Unionized Economy. *The Scandinavian Journal of Economics* **109**. . [Crossref]
6. Ariel J. Binder, John Bound. 2019. The Declining Labor Market Prospects of Less-Educated Men. *Journal of Economic Perspectives* **33**:2, 163-190. [Abstract] [View PDF article] [PDF with links]
7. Rosalia Castellano, Gaetano Musella, Gennaro Punzo. 2019. Exploring changes in the employment structure and wage inequality in Western Europe using the unconditional quantile regression. *Empirica* **46**:2, 249-304. [Crossref]
8. Pengqing Zhang. 2019. Skill formation, environmental pollution, and wage inequality. *The Annals of Regional Science* **62**:2, 405-424. [Crossref]
9. G. Dosi, M.C. Pereira, A. Roventini, M.E. Virgillito. 2019. The labour-augmented K+S model: A laboratory for the analysis of institutional and policy regimes. *EconomiA* . [Crossref]
10. Domitilla Magni. Toward a Definition of Profit Smoothing 119-160. [Crossref]
11. Thomas J. Roulet, Lionel Paolella, Claudia Gabbioneta, Daniel Muzio. 251. [Crossref]
12. Biko Koenig. 2018. Economic Inequality and the Violation Economy. *Poverty & Public Policy* **10**:4, 505-523. [Crossref]
13. Giovanni Dosi, Marcelo C Pereira, Andrea Roventini, Maria Enrica Virgillito. 2018. The effects of labour market reforms upon unemployment and income inequalities: an agent-based model. *Socio-Economic Review* **16**:4, 687-720. [Crossref]
14. Andrew T. Young, Hernando Zuleta. 2018. Do Unions Increase Labor Shares? Evidence from US Industry-Level Data. *Eastern Economic Journal* **44**:4, 558-575. [Crossref]
15. Janet C. Gornick, Timothy M. Smeeding. 2018. Redistributional Policy in Rich Countries: Institutions and Impacts in Nonelderly Households. *Annual Review of Sociology* **44**:1, 441-468. [Crossref]
16. Qinglin Hu, Dean M. Hanink. 2018. Declining Union Contract Coverage and Increasing Income Inequality in U.S. Metropolitan Areas. *The Professional Geographer* **70**:3, 453-462. [Crossref]
17. Tim Vlandas. 2018. Coordination, inclusiveness and wage inequality between median- and bottom-income workers. *Comparative European Politics* **16**:3, 482-510. [Crossref]
18. Feicheng Wang, Chris Milner, Juliane Scheffel. 2018. Globalization and inter-industry wage differentials in China. *Review of International Economics* **26**:2, 404-437. [Crossref]
19. Oren M. Levin-Waldman. Minimum Wage and Income Distribution 109-160. [Crossref]
20. Shinji Teraji. Institutions and the Economics of Behavior I 33-76. [Crossref]

21. Giovanni Dosi, Marcelo Pereira, Andrea Roventini, Maria Enrica Virgillito. 2018. The Labour-Augmented K S Model: A Laboratory for the Analysis of Institutional and Policy Regimes. *SSRN Electronic Journal* . [Crossref]
22. Wei Zhang, Huiying Sun, Simon Woodcock, Aslam H. Anis. 2017. Valuing productivity loss due to absenteeism: firm-level evidence from a Canadian linked employer-employee survey. *Health Economics Review* **7**:1. . [Crossref]
23. Stijn Broecke, Glenda Quintini, Marieke Vandeweyer. 2017. Explaining international differences in wage inequality: Skills matter. *Economics of Education Review* **60**, 112-124. [Crossref]
24. Jiancai Pi, Yang Ge, Jun Yin. 2017. The Impacts of Rural Property Rights on Urban Unemployment, Wage Inequality, and Welfare in Developing Countries. *The B.E. Journal of Economic Analysis & Policy* **17**:1. . [Crossref]
25. Oren M. Levin-Waldman. 2017. Is Inequality Designed or Preordained?. *SAGE Open* **7**:2, 215824401770473. [Crossref]
26. Mathias Moser, Matthias Schnetzer. 2017. The income–inequality nexus in a developed country: small-scale regional evidence from Austria. *Regional Studies* **51**:3, 454-466. [Crossref]
27. Joao Paulo A. de Souza. 2017. Real wages and labor-saving technical change: evidence from a panel of manufacturing industries in mature and labor-surplus economies. *International Review of Applied Economics* **31**:2, 151-172. [Crossref]
28. Christos Pargianas. 2017. ENDOGENOUS POLITICAL INSTITUTIONS, WAGE INEQUALITY, AND ECONOMIC GROWTH. *Macroeconomic Dynamics* **21**:1, 183-213. [Crossref]
29. ###, Jin-Wook Choi. 2016. Effects of Labor Market Deregulation on the Quality of Employment. *Journal of Governmental Studies(JGS)* **22**:3, 183-205. [Crossref]
30. Cristiano Perugini, Fabrizio Pompei. 2016. Employment protection and wage inequality within education groups in Europe. *Journal of Policy Modeling* **38**:5, 810-836. [Crossref]
31. Iga Magda, David Marsden, Simone Moriconi. 2016. Lower coverage but stronger unions? Institutional changes and union wage premia in Central Europe. *Journal of Comparative Economics* **44**:3, 638-656. [Crossref]
32. Andrew T. Young, Hernando Zuleta. 2016. Golden Rules of Wages. *Southern Economic Journal* **83**:1, 253-270. [Crossref]
33. Daiji Kawaguchi, Yuko Mori. 2016. Why has wage inequality evolved so differently between Japan and the US? The role of the supply of college-educated workers. *Economics of Education Review* **52**, 29-50. [Crossref]
34. Thomas A Kochan, Christine A Riordan. 2016. Employment relations and growing income inequality: Causes and potential options for its reversal. *Journal of Industrial Relations* **58**:3, 419-440. [Crossref]
35. Milan Zafirovski. 2016. Toward Economic Sociology/Socio-Economics? Sociological Components in Contemporary Economics and Implications for Sociology. *The American Sociologist* **47**:1, 56-80. [Crossref]
36. Roxana MAURIZIO, Gustavo VÁZQUEZ. 2016. Distribution effects of the minimum wage in four Latin American countries: Argentina, Brazil, Chile and Uruguay. *International Labour Review* **155**:1, 97-131. [Crossref]
37. Roxana MAURIZIO, Gustavo VÁZQUEZ. 2016. Le salaire minimum en Amérique latine et son effet sur la hiérarchie salariale: le cas de l'Argentine, du Brésil, du Chili et de l'Uruguay. *Revue internationale du Travail* **155**:1, 109-146. [Crossref]
38. Roxana MAURIZIO, Gustavo VÁZQUEZ. 2016. Impactos distributivos del salario mínimo en América Latina. Los casos de la Argentina, Brasil, Chile y Uruguay. *Revista Internacional del Trabajo* **135**:1, 105-142. [Crossref]

39. Elena Crivellaro. The College Wage Premium over Time: Trends in Europe in the Last 15 Years 287-328. [Crossref]
40. Óscar Afonso. 2016. Effects of labour-market institutions on employment, wages, R&D intensity and growth in 27 OECD countries: From theory to practice. *Economic Modelling* **53**, 48-62. [Crossref]
41. Juin-jen Chang, Hsiao-wen Hung. 2016. TRADE UNIONS, UNEMPLOYMENT, ECONOMIC GROWTH, AND INCOME INEQUALITY. *Macroeconomic Dynamics* **20**:1, 404-428. [Crossref]
42. Shinji Teraji. Culture and Cultural Evolution 207-310. [Crossref]
43. Giovanni Dosi, Marcelo C Pereira, Andrea Roventini, Maria Enrica Virgillito. 2016. The Effects of Labour Market Reforms upon Unemployment and Income Inequalities: An Agent Based Model. *SSRN Electronic Journal* . [Crossref]
44. Thomas Longden. 2016. The Regularity and Irregularity of Travel: An Analysis of the Consistency of Travel Times Associated with Subsistence, Maintenance and Discretionary Activities. *SSRN Electronic Journal* . [Crossref]
45. Edward N. Wolff. 2015. Inequality and rising profitability in the United States, 1947–2012. *International Review of Applied Economics* **29**:6, 741-769. [Crossref]
46. Michael J. Handel. The Future of Employment, Wages, and Technological Change 1-14. [Crossref]
47. Anna Lukiyanova. 2015. Earnings inequality and informal employment in Russia. *Economics of Transition* **23**:2, 469-516. [Crossref]
48. Andreas Peichl, Nico Pestel. Earnings Inequality 765-772. [Crossref]
49. Wiemer Salverda, Daniele Checchi. Labor Market Institutions and the Dispersion of Wage Earnings 1535-1727. [Crossref]
50. Cristiano Perugini, Fabrizio Pompei. Wage Inequality between and within Education Levels in Transition Countries 170-197. [Crossref]
51. Ozan Bakis, Sezgin Polat. 2015. Wage inequality in Turkey, 2002-10. *Economics of Transition* **23**:1, 169-212. [Crossref]
52. Stijn Broecke, Glenda Quintini, Marieke Vandeweyer. 2015. Why is Wage Inequality so High in the United States? Pitching Cognitive Skills Against Institutions (Once Again). *SSRN Electronic Journal* . [Crossref]
53. Damian Grimshaw, Gerhard Bosch, Jill Rubery. 2014. Minimum Wages and Collective Bargaining: What Types of Pay Bargaining Can Foster Positive Pay Equity Outcomes?. *British Journal of Industrial Relations* **52**:3, 470-498. [Crossref]
54. David Jacobs, Chad Malone, Daniel B. Tope. 2014. Economic inequality and ideological roll-call votes: Income stratification, minority threat and support for conservative legislation. *Research in Social Stratification and Mobility* **36**, 31-47. [Crossref]
55. Denisa Maria Sologon, Cathal O'Donoghue. 2014. Shaping Earnings Insecurity: Labor Market Policy and Institutional Factors. *Review of Income and Wealth* **60**, S205-S232. [Crossref]
56. Ömer Tuğrul Açıkgöz, Barış Kaymak. 2014. The rising skill premium and deunionization. *Journal of Monetary Economics* **63**, 37-50. [Crossref]
57. Francesco Bogliacino. 2014. A critical review of the technology-inequality debate. *Suma de Negocios* **5**:12, 124-135. [Crossref]
58. Damian Grimshaw, Jill Rubery, Gerhard Bosch. The Pay Equity Effects of Minimum Wages: A Comparative Industrial Relations Approach 126-157. [Crossref]
59. Elena Crivellaro. 2014. College Wage Premium Over Time: Trends in Europe in the Last 15 Years. *SSRN Electronic Journal* . [Crossref]

60. Keith Gunnar Bentele. 2013. Distinct paths to higher inequality?. *Research in Social Stratification and Mobility* **34**, 30-57. [Crossref]

61. Michael Nau. 2013. Economic Elites, Investments, and Income Inequality. *Social Forces* **92**:2, 437-461. [Crossref]

62. CHARLOTTE BARTELS, TIMM BöNKE. 2013. CAN HOUSEHOLDS AND WELFARE STATES MITIGATE RISING EARNINGS INSTABILITY?. *Review of Income and Wealth* **59**:2, 250-282. [Crossref]

63. Andrew T. Young, Hernando Zuleta. 2013. Remeasuring labour's share. *Applied Economics Letters* **20**:6, 549-553. [Crossref]

64. Andrew T. Young, Hernando G. Zuleta. 2013. Golden Rules for Wages. *SSRN Electronic Journal* . [Crossref]

65. Anna Lukiyanova. 2013. Earnings Inequality and Informal Employment in Russia. *SSRN Electronic Journal* . [Crossref]

66. ###, Minseong Kim. 2013. Female Wage Inequality and the Minimum Wage. *Journal of Vocational Education & Training* **16**:2, 79. [Crossref]

67. Fredrik Andersson, Elizabeth E. Davis, Matthew L. Freedman, Julia I. Lane, Brian P. Mccall, Kristin sandusky. 2012. Decomposing the Sources of Earnings Inequality: Assessing the Role of Reallocation. *Industrial Relations: A Journal of Economy and Society* **51**:4, 779-810. [Crossref]

68. Nathan J. Kelly, Christopher Witko. 2012. Federalism and American Inequality. *The Journal of Politics* **74**:2, 414-426. [Crossref]

69. Andrew T. Young, Hernando Zuleta. 2012. Golden Rules for Wages. *SSRN Electronic Journal* . [Crossref]

70. Viki Nellas, Elisabetta Olivieri. 2012. The Change of Job Opportunities: The Role of Computerization and Institutions. *SSRN Electronic Journal* . [Crossref]

71. Manthos D. Delis, Iftekhar Hasan, Pantelis Kazakis. 2012. Bank Regulations and Income Inequality: Empirical Evidence. *SSRN Electronic Journal* . [Crossref]

72. Nathalie Chusseau, Michel Dumont. 2012. Growing Income Inequalities in Advanced Countries. *SSRN Electronic Journal* . [Crossref]

73. Peter Flaschel, Alfred Greiner. 2011. DUAL LABOR MARKETS AND THE IMPACT OF MINIMUM WAGES ON ATYPICAL EMPLOYMENT. *Metroeconomica* **62**:3, 512-531. [Crossref]

74. Dirk Antonczyk, Bernd Fitzenberger, Katrin Sommerfeld. 2011. Anstieg der Lohnungleichheit, Rückgang der Tarifbindung und Polarisierung. *Zeitschrift für ArbeitsmarktForschung* **44**:1-2, 15-27. [Crossref]

75. Luciano Fanti, Luca Gori. 2011. On economic growth and minimum wages. *Journal of Economics* **103**:1, 59-82. [Crossref]

76. Shinji Teraji. 2011. An economic analysis of social exclusion and inequality. *The Journal of Socio-Economics* **40**:3, 217-223. [Crossref]

77. Oren M. Levin-Waldman. 2011. From a Narrowly Defined Minimum Wageto Broader Wage Policy. *Review of Social Economy* **69**:1, 77-96. [Crossref]

78. Michael Ornstein. 2011. Cohort and Period Perspectives on Gender, Education, and Earnings in Canada. *Canadian Public Policy* **37**:Supplement 1, S95-S113. [Crossref]

79. Andrew T. Young, Hernando Zuleta. 2011. Do Unions Increase Labor's Shares? Evidence from US Industry-Level Data. *SSRN Electronic Journal* . [Crossref]

80. Elaine S. Tan. 2011. Democracy, Wages and Inequality: Political Voice and Public Finance Redistribution. *SSRN Electronic Journal* . [Crossref]

81. Theodosis L Kallenos. 2011. Trends in Cyprus Wage Inequality: The Returns to Education. *SSRN Electronic Journal* . [Crossref]

82. Julia Lane, Fredrik Daniel Andersson, Elizabeth E. Davis, Matthew Freedman, Brian P. McCall, Kristin Sandusky. 2011. Decomposing the Sources of Earnings Inequality: Assessing the Role of Reallocation. *SSRN Electronic Journal* . [Crossref]

83. Andreas Bergh, Therese Nilsson. 2010. Do liberalization and globalization increase income inequality?. *European Journal of Political Economy* **26**:4, 488-505. [Crossref]

84. Dirk Antonczyk, Bernd Fitzenberger, Katrin Sommerfeld. 2010. Rising wage inequality, the decline of collective bargaining, and the gender wage gap. *Labour Economics* **17**:5, 835-847. [Crossref]

85. Leslie McCall, Christine Percheski. 2010. Income Inequality: New Trends and Research Directions. *Annual Review of Sociology* **36**:1, 329-347. [Crossref]

86. ChangHwan Kim, Arthur Sakamoto. 2010. Assessing the Consequences of Declining Unionization and Public-Sector Employment. *Work and Occupations* **37**:2, 119-161. [Crossref]

87. Hernando Zuleta, Andrew T. Young. 2010. Re-Measuring Labor's Share. *SSRN Electronic Journal* . [Crossref]

88. Fredrik Daniel Andersson, Elizabeth E. Davis, Matthew Freedman, Julia Lane, Brian P. McCall, Kristin Sandusky. 2010. Decomposing the Sources of Earnings Inequality: Assessing the Role of Reallocation. *SSRN Electronic Journal* . [Crossref]

89. Petar Stankov. 2010. Deregulation, Economic Growth and Growth Acceleration. *SSRN Electronic Journal* . [Crossref]

90. Julio Huato, Kathryn Woodbury Zeno. 2009. Class, Race, and the Spousal Income Gap. *American Behavioral Scientist* **53**:2, 261-275. [Crossref]

91. Daniel Tope, David Jacobs. 2009. The Politics of Union Decline: The Contingent Determinants of Union Recognition Elections and Victories. *American Sociological Review* **74**:5, 842-864. [Crossref]

92. Edward N. Wolff. 2009. Are computers driving real wages down?. *Information Economics and Policy* **21**:3, 211-228. [Crossref]

93. Cristiano PERUGINI, Fabrizio POMPEI. 2009. Progrès technique et répartition des revenus en Europe. *Revue internationale du Travail* **148**:1-2, 129-157. [Crossref]

94. Cristiano PERUGINI, Fabrizio POMPEI. 2009. Technological change and income distribution in Europe. *International Labour Review* **148**:1-2, 123-148. [Crossref]

95. Cristiano PERUGINI, Fabrizio POMPEI. 2009. Cambio tecnológico y disparidad de ingresos en Europa. *Revista Internacional del Trabajo* **128**:1-2, 133-162. [Crossref]

96. Oren M. Levin-Waldman. The minimum wage and competing ethical conceptions 181-210. [Crossref]

97. Denisa Maria Sologon, Cathal O'Donoghue. 2009. Policy, Institutional Factors and Earnings Mobility. *SSRN Electronic Journal* . [Crossref]

98. Justina A. V. Fischer, Frank Somogyi. 2009. Globalization and Protection of Employment. *SSRN Electronic Journal* . [Crossref]

99. Oren M. Levin-Waldman. 2008. Characteristics of cities that pass living wage ordinances: Are certain conditions more conducive than others?. *The Journal of Socio-Economics* **37**:6, 2201-2213. [Crossref]

100. Harry Krashinsky. 2008. The Effect of Labor Market Institutions on Salaried and Self-Employed Less-Educated Men in the 1980S. *ILR Review* **62**:1, 73-91. [Crossref]

101. Yu-ling Song, Chun-yue Wang. Comparison and investigation on income disparity in China and western developed countries 1901-1906. [Crossref]

102. Cristiano Perugini, Gaetano Martino. 2008. INCOME INEQUALITY WITHIN EUROPEAN REGIONS: DETERMINANTS AND EFFECTS ON GROWTH. *Review of Income and Wealth* **54**:3, 373-406. [Crossref]

103. Nathalie Chusseau, Michel Dumont, Joël Hellier. 2008. EXPLAINING RISING INEQUALITY: SKILL-BIASED TECHNICAL CHANGE AND NORTH–SOUTH TRADE. *Journal of Economic Surveys* **22**:3, 409-457. [Crossref]

104. David Fairris, Gurleen Popli, Eduardo Zepeda. 2008. Minimum Wages and the Wage Structure in Mexico. *Review of Social Economy* **66**:2, 181-208. [Crossref]

105. Chulhee Lee. 2008. Rising family income inequality in the United States, 1968–2000: impacts of changing labor supply, wages, and family structure. *International Economic Journal* **22**:2, 253-272. [Crossref]

106. Maite Blázquez Cuesta. 2008. Low-wage Employment and Mobility in Spain. *Labour* **22**:s1, 115-146. [Crossref]

107. Mary Donegan, Nichola Lowe. 2008. Inequality in the Creative City: Is There Still a Place for "Old-Fashioned" Institutions?. *Economic Development Quarterly* **22**:1, 46-62. [Crossref]

108. Thomas Lemieux. 2008. L'évolution des inégalités dans les pays industrialisés : le point sur la situation. *L'Actualité économique* **84**:3, 241-262. [Crossref]

109. David De La Croix, Frédéric Docquier. 2007. School Attendance and Skill Premiums in France and the US: A General Equilibrium Approach*. *Fiscal Studies* **28**:4, 383-416. [Crossref]

110. Thomas Lemieux. 2007. The changing nature of wage inequality. *Journal of Population Economics* **21**:1, 21-48. [Crossref]

111. Euclid Tsakalotos. 2007. Competitive Equilibrium and the Social Ethos: Understanding the Inegalitarian Dynamics of Liberal Market Economies. *Politics & Society* **35**:3, 427-446. [Crossref]

112. Jimy M. Sanders. 2007. OCCUPATIONAL GROWTH AND THE EXPANSION OF EDUCATIONALLY-RELATED EARNING GAPS. *Sociological Spectrum* **27**:5, 555-584. [Crossref]

113. Lucio Baccaro, Diego Rei. 2007. Institutional Determinants of Unemployment in OECD Countries: Does the Deregulatory View Hold Water?. *International Organization* **61**:03. . [Crossref]

114. Maria Guadalupe. 2007. Product Market Competition, Returns to Skill, and Wage Inequality. *Journal of Labor Economics* **25**:3, 439-474. [Crossref]

115. Axel Dreher, Noel Gaston. 2007. Has Globalisation Really had no Effect on Unions?. *Kyklos* **60**:2, 165-186. [Crossref]

116. Christopher H. Wheeler. 2007. Industry localisation and earnings inequality: Evidence from U.S. manufacturing. *Papers in Regional Science* **86**:1, 77-100. [Crossref]

117. Sara Connolly, Shaun Hargreaves Heap. 2007. Preference Change and Increasing Wage Inequality. *Labour* **21**:1, 43-55. [Crossref]

118. Lane Kenworthy. 2007. Inequality and Sociology. *American Behavioral Scientist* **50**:5, 584-602. [Crossref]

119. Abigail K. Wozniak. 2007. Product Markets and Paychecks: Deregulation's Effect on the Compensation Structure in Banking. *ILR Review* **60**:2, 246-267. [Crossref]

120. Joseph Deutsch, Jaques Gabriel Silber. 2007. Earnings Functions and the Measurement of the Determinants of Wage Dispersion: Extending Oaxaca's Approach. *SSRN Electronic Journal* . [Crossref]

121. Robert H. DeFina. 2007. A Comparison of Poverty Trends and Policy Impacts for Working Families using Different Poverty Indexes. *SSRN Electronic Journal* . [Crossref]

122. Enrique Palazuelos Manso. 2006. The influence of earnings on income distribution in the United States. *The Journal of Socio-Economics* **35**:4, 710-726. [Crossref]

123. MARTHA J. BAILEY. 2006. Women's Economic Advancement in the Twentieth-Century United States. *The Journal of Economic History* **66**:2, 480-486. [Crossref]

124. Simon Mohun. 2006. Distributive shares in the US economy, 1964–2001. *Cambridge Journal of Economics* **30**:3, 347-370. [Crossref]

125. Lutz G. Arnold. 2006. Does the Choice between Wage Inequality and Unemployment Affect Productivity Growth?. *German Economic Review* **7**:1, 87-112. [Crossref]

126. Donald R. Deere, Jelena Vesovic. Chapter 6 Educational Wage Premiums and the U.S. Income Distribution: A Survey 255-306. [Crossref]

127. Noel Gaston, Axel Dreher. 2006. Has Globalisation Really Had No Effect on Unions?. *SSRN Electronic Journal* . [Crossref]

128. Christopher H. Wheeler. 2006. Urban Decentralization and Income Inequality: Is Sprawl Associated with Rising Income Segregation Across Neighborhoods?. *SSRN Electronic Journal* . [Crossref]

129. Christopher H. Wheeler, Elizabeth A. La Jeunesse. 2006. Neighborhood Income Inequality. *SSRN Electronic Journal* . [Crossref]

130. Christopher H. Wheeler, Elizabeth A. La Jeunesse. 2006. Trends in the Distributions of Income and Human Capital within Metropolitan Areas: 1980-2000. *SSRN Electronic Journal* . [Crossref]

131. Sanjay G. Reddy. 2006. Globalisation, Labour Markets, and Social Outcomes in Developing Countries. *SSRN Electronic Journal* . [Crossref]

132. Robert Carroll, David Joulfaian, Mark Rider. 2006. Income Mobility: The Recent American Experience. *SSRN Electronic Journal* . [Crossref]

133. Hartmut Egger, Volker Grossmann. 2005. Non-Routine Tasks, Restructuring of Firms, and Wage Inequality Within and Between Skill-Groups. *Journal of Economics* **86**:3, 197-228. [Crossref]

134. Milan Zafirovski. 2005. Effects of power, status and class on "who gets what" income. *International Journal of Sociology and Social Policy* **25**:12, 22-53. [Crossref]

135. Hadas Mandel, Moshe Semyonov. 2005. Family Policies, Wage Structures, and Gender Gaps: Sources of Earnings Inequality in 20 Countries. *American Sociological Review* **70**:6, 949-967. [Crossref]

136. Badi H. Baltagi, Daniel P. Rich. 2005. Skill-biased technical change in US manufacturing: a general index approach. *Journal of Econometrics* **126**:2, 549-570. [Crossref]

137. Milan Zafirovski. 2005. Labor Markets' Institutional Properties And Distributive Justice In Modern Society: A Comparative Empirical Analysis. *Social Indicators Research* **72**:1, 51-97. [Crossref]

138. Cornelia Weins. Die Entwicklung der Lohnungleichheit in Deutschland und den USA Zwischen 1980 und 2000 484-503. [Crossref]

139. Roland Bénabou. Inequality, Technology and the Social Contract 1595-1638. [Crossref]

140. Anthony B. Atkinson. Is Rising Income Inequality Inevitable? A Critique of the Transatlantic Consensus 49-73. [Crossref]

141. Rafael Di Tella, Robert MacCulloch. 2005. Gross National Happiness as an Answer to the Easterlin Paradox?. *SSRN Electronic Journal* . [Crossref]

142. Pedro S. Amaral. 2005. Turbulence, Heterogeneity and Earnings Inequality. *SSRN Electronic Journal* . [Crossref]

143. Nathan J. Kelly. 2004. Does Politics Really Matter?. *American Politics Research* **32**:3, 264-284. [Crossref]

144. Christopher H. Wheeler. 2004. On the distributional aspects of urban growth. *Journal of Urban Economics* **55**:2, 371-397. [Crossref]

145. Jorge Saba Arbache, Andy Dickerson, Francis Green. 2004. Trade Liberalisation and Wages in Developing Countries. *The Economic Journal* **114**:493, F73-F96. [Crossref]

146. Francisco Galr﹟o Carneiro. 2004. Are Minimum Wages to Blame for Informality in the Labour Market?. *Empirica* **31**:4, 295-306. [Crossref]

147. Daniel P. Rich. 2004. 6. PRODUCTIVITY, TECHNICAL CHANGE AND LABOR RELATIONS IN TRANSPORTATION INDUSTRIES. *Research in Transportation Economics* **10**, 109-135. [Crossref]

148. Anil Verma, Thomas A. Kochan. Unions in the 21st Century: Prospects for Renewal 1-16. [Crossref]

149. Jorge Arbache. 2004. Does Trade Liberalization Always Decrease Union Bargaining Power?. *SSRN Electronic Journal* . [Crossref]

150. Christopher H. Wheeler. 2004. Industry Localization and Earnings Inequality: Evidence from U.S. Manufacturing. *SSRN Electronic Journal* . [Crossref]

151. Oren Levin-Waldman. 2003. The Minimum Wage and the Cause of Democracy. *Review of Social Economy* **61**:4, 487-510. [Crossref]

152. Milan Zafirovski. 2003. Measuring and Making Sense of Labor Exploitation in Contemporary Society: A Comparative Analysis. *Review of Radical Political Economics* **35**:4, 462-484. [Crossref]

153. Carsten Eckel. 2003. Labor market adjustments to globalization: unemployment versus relative wages. *The North American Journal of Economics and Finance* **14**:2, 173-188. [Crossref]

154. Gerhard Glomm, B Ravikumar. 2003. Public education and income inequality. *European Journal of Political Economy* **19**:2, 289-300. [Crossref]

155. François Rycx. 2003. Industry wage differentials and the bargaining regime in a corporatist country. *International Journal of Manpower* **24**:4, 347-366. [Crossref]

156. Hannu Piekkola, Antti Kauhanen. 2003. Rent sharing as firm-level pay. *International Journal of Manpower* **24**:4, 426-451. [Crossref]

157. Roland Bénabou. 2003. Human Capital, Technical Change, and the Welfare State. *Journal of the European Economic Association* **1**:2-3, 522-532. [Crossref]

158. Robert Pollin. 2003. Globalization, Inequality and Financial Instability: Confronting the Marx, Keynes and Polanyi Problems in the Advanced Capitalist Economies. *SSRN Electronic Journal* . [Crossref]

159. Robert Pollin. 2003. Globalization and the Transition to Egalitarian Development. *SSRN Electronic Journal* . [Crossref]

160. Jorge Saba Arbache, Andrew P. Dickerson, Francis Green. 2003. Trade Liberalisation and Wages in Developing Countries. *SSRN Electronic Journal* . [Crossref]

161. Paolo Manasse, Luca Stanca. 2003. Working on the Train? The Role of Technical Progress and Trade in Explaining Wage Differentials in Italian Firms. *SSRN Electronic Journal* . [Crossref]

162. Roland Bénabou. 2003. Inequality, Technology, and the Social Contract. *SSRN Electronic Journal* . [Crossref]

163. Jonathan E. Haskel, Matthew J. Slaughter. 2002. Does the sector bias of skill-biased technical change explain changing skill premia?. *European Economic Review* **46**:10, 1757-1783. [Crossref]

164. Milan Zafirovski. 2002. Income inequality and social institutions: beyond the Kuznets curve and economic determinism. *International Journal of Sociology and Social Policy* **22**:11/12, 89-131. [Crossref]

165. M. Bertrand, F. Kramarz. 2002. Does Entry Regulation Hinder Job Creation? Evidence from the French Retail Industry. *The Quarterly Journal of Economics* **117**:4, 1369-1413. [Crossref]

166. Oren M. Levin-Waldman. 2002. The Minimum Wage and Regional Wage Structure: Implications for Income Distribution. *Journal of Economic Issues* **36**:3, 635-657. [Crossref]

167. Michael R. Smith. 2002. Income Inequality and Economic Growth in Rich Countries: A Reconsideration of the Evidence. *Current Sociology* **50**:4, 573-593. [Crossref]

168. Thomas C. Buchmueller, John Dinardo, Robert G. Valletta. 2002. Union Effects on Health Insurance Provision and Coverage in the United States. *ILR Review* **55**:4, 610-627. [Crossref]

169. Philippe Aghion. 2002. Schumpeterian Growth Theory and the Dynamics of Income Inequality. *Econometrica* **70**:3, 855-882. [Crossref]

170. Friedrich L. Sell. Eine Theorie zur Entlohnung des Jägers 83-102. [Crossref]

171. Xulia González, Daniel Miles. Wage inequality in a developing country: decrease in minimum wage or increase in education returns 135-148. [Crossref]

172. Philip Moss. Earnings Inequality and the Quality of Jobs: Current Research and a Research Agenda 183-225. [Crossref]

173. Jorge Saba Arbache. 2002. Unions and the Labor Market in Brazil. *SSRN Electronic Journal* . [Crossref]

174. Daron Acemoglu, Philippe Aghion, Giovanni L. Violante. 2001. Deunionization, technical change and inequality. *Carnegie-Rochester Conference Series on Public Policy* **55**:1, 229-264. [Crossref]

175. Willy W Cortez. 2001. What is Behind Increasing Wage Inequality in Mexico?. *World Development* **29**:11, 1905-1922. [Crossref]

176. Morris M. Kleiner. 2001. Intensity of management resistance: understanding the decline of unionization in the private sector. *Journal of Labor Research* **22**:3, 519-540. [Crossref]

177. Catherine SAGET. 2001. Empleo y reducción de la pobreza en los países en desarrollo. Es provechoso el salario mínimo?. *Revista Internacional del Trabajo* **120**:3, 281-317. [Crossref]

178. Catherine SAGET. 2001. Lutte contre la pauvreté et emploi dans les pays en développement: de l'utilité d'un salaire minimum. *Revue internationale du Travail* **140**:3, 287-322. [Crossref]

179. Catherine SAGET. 2001. Poverty reduction and decent work in developing countries: Do minimum wages help?. *International Labour Review* **140**:3, 237-269. [Crossref]

180. Robert Plasman, François Rycx. 2001. Collective Bargaining and Poverty: A Cross-National Perspective. *European Journal of Industrial Relations* **7**:2, 175-202. [Crossref]

181. D. Card, T. Lemieux. 2001. Can Falling Supply Explain the Rising Return to College for Younger Men? A Cohort-Based Analysis. *The Quarterly Journal of Economics* **116**:2, 705-746. [Crossref]

182. David Kucera. 2001. Foreign Trade of Manufactures and Men and Women's Employment and Earnings in Germany and Japan. *International Review of Applied Economics* **15**:2, 129-149. [Crossref]

183. John Odland, Mark Ellis. 2001. Changes in the Inequality of Earnings for Young Men in Metropolitan Labor Markets, 1979-1989: The Effects of Declining Wages and Sectoral Shifts within an Efficiency Wage Framework. *Economic Geography* **77**:2, 148-179. [Crossref]

184. Rosemary Batt. 2001. Explaining Wage Inequality in Telecommunications Services: Customer Segmentation, Human Resource Practices, and Union Decline. *ILR Review* **54**:2A, 425-449. [Crossref]

185. François Nielsen, Arthur S. Alderson. Trends in Income Inequality in the United States 355-385. [Crossref]

186. Michael J. Handel. 2001. Computers and the Wage Structure. *SSRN Electronic Journal* . [Crossref]

187. Maximo Rossi, Daniel Miles. 2001. Wage Inequality In Developing Countries: Market Forces Or Government Intervention. *SSRN Electronic Journal* . [Crossref]

188. Patrick Laplagne, Peter Marshall, Susan Anne Stone. 2001. The Role of Technology in Determining Skilled Employment: An Economywide Approach. *SSRN Electronic Journal* . [Crossref]

189. Jorge Saba Arbache. 2001. Trade liberalization and Labor Market in Developing Countries: Theory and Evidence. *SSRN Electronic Journal* . [Crossref]

190. Giorgio Brunello, Simona Comi, Claudio Lucifora. 2001. The College Wage Gap in 10 European Countries: Evidence from Two Cohorts. *SSRN Electronic Journal* . [Crossref]

191. Bradley S. Wimmer. 2000. The minimum wage and productivity differentials. *Journal of Labor Research* **21**:4, 649-668. [Crossref]

192. Damian Grimshaw. 2000. Public Sector Employment, Wage Inequality and the Gender Pay Ratio in the UK. *International Review of Applied Economics* **14**:4, 427-448. [Crossref]

193. Robert D. Plotnick, Eeugene Smolensky, Eirik Evenhouse, Siobhan Reilly. The Twentieth-Century Record of Inequality and Poverty in the United States 249-300. [Crossref]

194. Milan Z Zafirovski. 2000. Economic distribution as a social process. *The Social Science Journal* **37**:3, 423-443. [Crossref]

195. David R. Howell, Elizabeth J. Mueller. 2000. Immigration and native-born male earnings: A jobs-level analysis of the New York City metropolitan area labour market, 1980–90. *Journal of Ethnic and Migration Studies* **26**:3, 469-493. [Crossref]

196. Aage B. Sorenson. 2000. Toward a Sounder Basis for Class Analysis. *American Journal of Sociology* **105**:6, 1523-1558. [Crossref]

197. Oren Levin-Waldman. 2000. The Minimum Wage Can Be Raised. *Challenge* **43**:2, 86-96. [Crossref]

198. Andrew Heisz, Garnett Picot. 2000. The Performance of the 1990's Canadian Labour Market. *SSRN Electronic Journal* . [Crossref]

199. Philippe Aghion,, Eve Caroli,, Cecilia García-Peñalosa. 1999. Inequality and Economic Growth: The Perspective of the New Growth Theories. *Journal of Economic Literature* **37**:4, 1615-1660. [Abstract] [View PDF article] [PDF with links]

200. Jorge Saba Arbache, Francisco Galrao Carneiro. 1999. Unions and Interindustry Wage Differentials. *World Development* **27**:10, 1875-1883. [Crossref]

201. Milan Zafirovski. 1999. Probing into the social layers of entrepreneurship: outlines of the sociology of enterprise. *Entrepreneurship & Regional Development* **11**:4, 351-371. [Crossref]

202. Jorge Saba Arbache. 1999. Do unions always decrease wage dispersion? The case of Brazilian manufacturing. *Journal of Labor Research* **20**:3, 425-436. [Crossref]

203. Michael R. Smith. 1999. What is the effect technological change on earnings inequality?. *International Journal of Sociology and Social Policy* **19**:9/10/11, 23-56. [Crossref]

204. D. S. Lee. 1999. Wage Inequality in the United States During the 1980s: Rising Dispersion or Falling Minimum Wage?. *The Quarterly Journal of Economics* **114**:3, 977-1023. [Crossref]

205. Stanley Masters. 1999. The Role of Flexible Production in Earnings Inequality. *Challenge* **42**:4, 102-117. [Crossref]

206. Siobhan Austen. 1999. Norms of Inequality. *Journal of Economic Issues* **33**:2, 435-442. [Crossref]

207. JEFF BORLAND. 1999. Earnings Inequality in Australia: Changes, Causes and Consequences. *Economic Record* **75**:2, 177-202. [Crossref]

208. Andrew Newell, Barry Reilly. 1999. Rates of Return to Educational Qualifications in the Transitional Economies. *Education Economics* **7**:1, 67-84. [Crossref]

209. Neil Dias Karunaratne. 1999. Globalisation and labour immiserisation in Australia. *Journal of Economic Studies* **26**:2, 82-105. [Crossref]

210. David R. Howell. 1999. Theory-Driven Facts and the Growth in Earnings Inequality. *Review of Radical Political Economics* **31**:1, 54-86. [Crossref]

211. Jacques Pelkmans. Emerging Countries and Jobs and Wages in Europe: An Introduction 1-17. [Crossref]

212. Lawrence F. Katz, David H. Autor. Changes in the Wage Structure and Earnings Inequality 1463-1555. [Crossref]

213. Claudio Lucifora. 1999. Wage Inequalities and Low Pay: The Role of Labor Market Institutions, Knowledge, Technology, and Human Capital. *SSRN Electronic Journal* . [Crossref]

214. Lisandro Abrego. 1999. The Choice of Structural Model in Trade-Wages Decompositions. *SSRN Electronic Journal* . [Crossref]

215. Oren M. Levin-Waldman. 1999. The Rhetorical Evolution of the Minimum Wage. *SSRN Electronic Journal* . [Crossref]

216. Lester C. Thurow. 1998. Wage Dispersion: "Who Done It?". *Journal of Post Keynesian Economics* **21**:1, 25-37. [Crossref]

217. Jenny J. Lee, John Cheslock, Alma Maldonado-Maldonado, Gary Rhoades. Professors as Knowledge Workers in the New, Global Economy 55-132. [Crossref]

218. Steven McMullen. Waste and Efficiency in a Consumer Economy 144-158. [Crossref]