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Union decline lowers wages of nonunion workers

The overlooked reason why wages are stuck and inequality is growing

By Jake Rosenfeld, Patrick Denice, and Jennifer Laird • August 30, 2016

Summary: Private-sector union decline since the late 1970s has contributed to wage losses among workers who do not belong to a union. This is especially true for men, particularly non–college graduates. For nonunion private-sector men without a bachelor's degree or more education, weekly wages would be an estimated 8 percent ($58) higher in 2013 if union density remained at its 1979 levels. These lost wages due to declining union power eclipse non–college graduates' estimated 5 percent wage loss from increased trade with low-wage nations, signaling that decline in union power must receive more attention in the debate over wage stagnation and growing inequality.

Executive summary

Pay for private-sector workers has barely budged over the past three and a half decades. In fact, for men in the private sector who lack a college degree and do not belong to a labor union, real wages today are substantially *lower* than they were in the late 1970s.

In the debates over the causes of wage stagnation, the decline in union power has not received nearly as much attention as globalization, technological change, and the slowdown in Americans' educational attainment. Unions, especially in industries and regions where they are strong, help boost the wages of all workers by establishing pay and benefit standards that many nonunion firms adopt. But this union boost to *nonunion* pay has weakened as the share of private-sector workers in a union has fallen from 1 in 3 in the 1950s to about 1 in 20 today.

While we avoid strict causal claims about wage determination, the analytical approaches summarized in this report enable us to assess the independent effects of union decline on wages and lend confidence to our core contention that private-sector union decline since the late 1970s has contributed to substantial wage losses among workers who do not belong to a union. This is especially true for men. And most hurt by the decades-long decline in the nation's labor movement are those nonunion men who did not complete college, or go beyond high school—groups with the largest erosion of union membership over the last few decades.

Key findings from our report include the following:

- For nonunion private-sector men, weekly wages would be an estimated 5 percent ($52) higher in 2013 if private-sector union density (the share of workers in similar industries and regions who are union members) remained at its 1979 level. For a year-round worker, this translates to an annual wage loss of $2,704. For the 40.2 million nonunion private-sector men the loss is equivalent to $2.1 billion fewer dollars in weekly paychecks, which represents an annual wage loss of $109 billion.

- For nonunion private-sector men without a bachelor's degree or more education (non–college graduates), weekly wages would be an estimated 8 percent ($58) higher in 2013 if union density remained at its 1979 levels. For a year-round worker, this translates to an annual wage loss of $3,016. As a benchmark, consider that the wage loss from increased trade with low-wage nations (Bivens 2013) among non–college graduates is estimated to be 5 percent.

- For nonunion private-sector men with a high school diploma or less education, weekly wages would be an estimated 9 percent ($61) higher if union density remained at its 1979 levels. For a year-round worker, this translates to an annual wage loss of about $3,172.

- The effects of union decline on the wages of nonunion women are not as substantial because women were not as unionized as men were in 1979. Weekly wages would be approximately 2 to 3 percent higher if union density remained at its 1979 levels for all nonunion women; nonunion, non–college graduate women, and nonunion women with a high school diploma or less education. However the cumulate effects are still sizable. For 32.9 million full-time nonunion women working in the private sector, weekly pay would be a total of $461 million more (and roughly $24.0 billion more per year) in 2013 if unions had remained as strong as they were in 1979.

- The degree of nonunion wage decline reflects how much unionization has declined since 1979 among private-sector men (by two-thirds, from 34 to 10 percent), among women (by more than one-half, from 16 to 6 percent), and especially among non–college degree men (by more than two-thirds, from 38 to 11 percent).

- As unions have receded from the private sector, their effects on the wages of nonmembers (per percent of unionization) have declined. In recent years, these effects have fallen to between one-half and two-thirds of their late-1970s levels.

- Union decline has exacerbated wage inequality in the United States by dampening the pay of nonunion workers as well as by eroding the share of workers directly benefitting from unionization. Earlier research (Western and Rosenfeld 2011) shows that union erosion can explain about one-third of the growth of wage inequality among men and about one-fifth of the growth of wage inequality among women from 1972 to 2007. At least for middle-wage men, the impact of the erosion of unions on the wages of both union and nonunion workers is likely the largest single factor underlying wage stagnation and wage inequality.

Nonunion workers benefit from a strong union presence in their labor market in many ways. Strong unions set pay and benefits standards that nonunion employers follow. Those employers may raise pay for some workers to forestall an organizing drive, which leads to an upward adjustment in wages of workers above them, to maintain relative pay differentials (similar to the effects of minimum-wage increases).

Even absent organizing activities in their spheres, nonunion employers may also follow the standards that unions help establish through politicking for labor-friendly policies, instituting informal and formal rules governing labor conditions, and generally serving as a cultural force arguing for a "fairer share" for working men and women. (For example, highly unionized states helped lift minimum wages above the levels of states where labor

was comparatively weak.) Higher pay in organized establishments increases competition for labor so that nonunion firms lift wages to prevent their employees from leaving for higher, union wages. And in setting wages, new market entrants often look to what industry leaders are doing; when organized labor was strong, many of these leaders were unionized.

Rebuilding our system of collective bargaining is an important tool available for fueling wage growth for both low- and middle-wage workers and ending the era of persistent wage stagnation.

Introduction

Pay for private-sector workers has barely budged over the past three and a half decades. This freeze represents a dramatic change from the post-WWII period, when real wages grew steadily. The issue has captured the attention of leading policymakers, academics, and journalists, and promises to play a central role in the upcoming presidential campaign. Yet discussions of the overall trend miss important differences by subgroups. In fact, for certain types of workers, real wages today are substantially *lower* than they were in the late 1970s. This is especially true for men in the private sector who lack a college education and do not belong to a labor union.

Figure A presents annual median wages relative to their 1979 levels for private-sector full-time workers, disaggregated by sex and education. For all of our analyses, we exclude senior level managers, as our focus is on pay trends among average workers. And for all of our analyses, we exclude the wages of union workers, as this report's focus is on trends in nonunion pay in the private sector. As the figure shows, private-sector nonunion men have experienced pay stagnation relative to the end of the 1970s; their median wages are down slightly from 1979 levels. This slight decline results from divergent trends for workers with different levels of educational attainment. Pay has increased for nonunion men with a bachelor's degree or more education (not shown in figure). For those workers with less than a 4-year college degree (non–college graduates), pay is down significantly. And no group has experienced a drop-off in pay as steep as nonunion men with a high school diploma or less education. Their median wages (as of 2013) are approximately 13 percent lower than their wages in 1979.
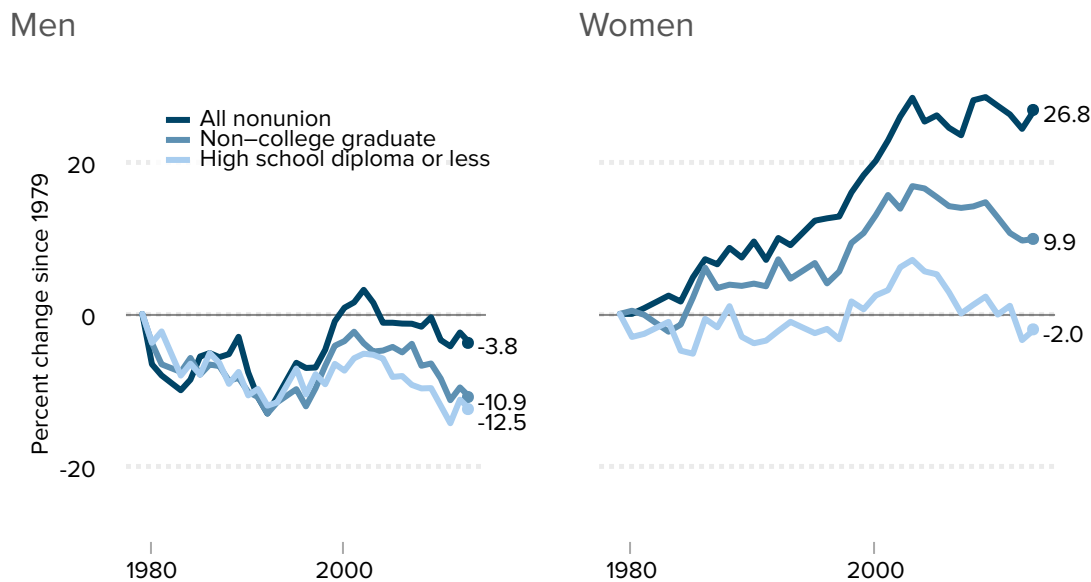
The story is different for women, and indeed were it not for steadily rising pay for many women in the private sector, the debate today would not be about the "big freeze" in wages but the "big cut." Wage growth for nonunion women has been steady, ending around 25 percent higher in 2013 than three-and-a-half-decades earlier. The exception here is among private-sector nonunion women who have a high school diploma or less education. For this group, annual median wages for much of the past decades have been relatively flat. And by 2013, women with only a high school diploma or less education had seen their wages drop below levels that prevailed in 1979.

Existing explanations for recent pay trends include globalization, technological change, and the slowdown in Americans' educational attainment.[1] Each of these accounts

Pay for most nonunion workers has stagnated

Cumulative change in annual median wages of nonunion workers in the private sector, by gender, 1979–2013

Men

Women

- All nonunion
- Non–college graduate
- High school diploma or less

Percent change since 1979

20

0

-20

-3.8

-10.9
-12.5

26.8

9.9

-2.0

1980   2000

1980   2000

Notes: Sample restricted to nonunion full-time workers in the private sector ages 16 to 64. Wages are measured in 2013 dollars. See the text and Methodological Appendix for details on the analysis.

Source: Authors' compilations from the Current Population Survey (CPS) May Supplement microdata and CPS Outgoing Rotation Group microdata.

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describes important developments contributing to pay stagnation and pay decline for certain groups of workers. Yet these explanations ignore a vital contributing factor: the near disappearance of a worker institution that once claimed over one-third of private-sector employees as members. Unions and their effects on wage trends have been studied, but the research focuses on how the shrinking number of private-sector union members reduces the wage gains that accompany membership. (Officially the private-sector unionization rate is 6.5 percent, or roughly 1 in 15 workers, but the official rate is likely overstated due to survey misclassification and therefore we consider 1 in 20 a more accurate estimate.) As **Appendix Table 1** shows, the erosion of union membership was particularly severe among men, whose membership density (unionization rate) in the private sector fell from 34 percent in 1979 to just 10 percent in 2013. The erosion was even larger among men without a college degree, falling from 38 percent to 11 percent. Union membership was not as high among private-sector women as men in 1979, just 16 percent, so the drop by 2013 to 6 percent was not as severe (the fall among non–college graduate women was the same).

As a large body of work documents, unions raise the wages of their members, especially private-sector members, relative to nonunion workers. The percent by which their wages

exceed nonunion wages is called the "union wage premium."[2] Union decline means that many workers today do not enjoy the wage premium attached to membership that they would have when organized labor remained strong. Thus deunionization—the erosion of the share of workers who belong to a union—has directly contributed to wage stagnation by reducing the fraction of the workforce receiving the union wage premium.

In this report, we take a different approach to the issue of union decline and wages. Our interest lies in the relationship between union strength and *nonunion* workers' wages. We contend that unions, especially in industries and regions where they are strong, have indirect effects on wages, helping to establish pay and benefit standards that many nonunion firms adopt. We examine 35 years of data on the American workforce and investigate the relationships between union strength within industries and regions and nonunion workers' wages. We begin in 1979 for two core reasons. First, research documents a sharp increase in earnings inequality starting around 1979.[3] Second, other research suggests a similarly timed pattern regarding deunionization: while union rolls have been declining since the 1960s, Mishel (2012) highlights an acceleration starting in the early 1980s.[4] Broadly then, both union decline and wage inequality sped up right around 1979, making it an appropriate year to begin our analyses.[5]

In the ongoing debates over wage stagnation, these indirect effects of unions have not received nearly the attention as the oft-cited accounts mentioned above.[6] Partly this is due to the difficulty in disentangling the independent effect of unions on nonunion workers' pay. Globalization, technological advances, and institutional shifts—most notably the dramatic decline of the U.S. labor movement, along with the falling real value of the minimum wage—have all affected average workers' wages. These developments are intertwined in numerous ways. For example, union decline reduced resistance to offshoring, and offshoring, or the threat thereof, emboldened employers in union negotiations. We reduce potential sources of bias in various ways, but caution that our interest is in describing population-level trends in wages for various groups of workers. Thus while we avoid strict causal claims about wage determination, we believe our various analytical approaches lend confidence to our core contention that private-sector union decline has contributed to wage losses among workers who do not belong to a union. This is especially true for men and for men who did not complete college or complete or go beyond high school who, as shown in Appendix Table 1, saw the largest erosion of union membership over the last few decades.

Why would nonunion workers benefit from a strong union presence in their labor market?

Research has identified various pathways connecting union strength to nonunion workers' pay. One is through the threat of unionization: nonunion employers worried about a possible unionization drive may match union pay scales to reduce the demand for organization. For example, Eastman Kodak, the leading producer of photographic film for much of the 20th century, was committed to keeping unions out of its major plants. Given that much of the company's workforce was anchored in highly organized New York state,

remaining union-free was no easy task. Part of the firm's strategy involved spending "substantial sums to secure its workers' loyalty," as the economic historian Sanford M. Jacoby recounts.[7] Eastman Kodak was not alone. Other major nonunion employers monitored union contracts closely in efforts to forestall organizing campaigns.[8] As one large employer reported in the late 1970s, "Because we are such a union target, we find that we have to get our start rate at or almost at the union rate."[9]

The adjustments in nonunion wages that result from a strong union presence need not be limited to those workers at risk of unionizing. Research has documented how minimum-wage increases benefit workers who earn more than the minimum, through upward wage adjustments. If a wage floor is increased by, for example, $1.75 per hour, then workers who were earning slightly above the new minimum are likely to benefit from the adjustment in order to maintain relative pay differentials in firms. Assumptions about how far this "ripple effect" extends into the pay distribution differ, but there is general consensus that raising the wage floor leads to substantial upward adjustment of pay for workers earning more than the new minimum.[10] Similarly, if a production worker at (nonunion) Eastman Kodak receives a union wage rate in order to forestall an organizing drive, her immediate supervisors likely benefit too. Research has found that lower-level managers—who, being managers, cannot unionize—benefit from a strong union presence in their surrounding labor market.[11] In this way union strength may buttress the pay not only of workers at risk of organizing, but a range of other employees as well.

Threat effects are one way in which union strength may benefit employees who do not belong to unions. The economic literature on threat effects tends to conceive of unions as an institutional impediment to market pay rates, with employers endeavoring to minimize wages in the absence of unions, and raising them above their market rate only when forced to through collective bargaining or the threat thereof. We follow more recent research on the topic that challenges this assumption by arguing that the influence of strong unions on nonunion pay scales goes beyond "threat."[12] We conceive of unions as players in a broader "moral economy" that help institute norms of fairness regarding pay, benefits, and worker treatment. These norms can extend beyond the unionized core of the workforce, affecting nonunion workers whose employers follow the standards that unions help establish. This is especially true in those times and places where organized labor is comparatively strong.

Labor movements establish these standards through various means, including politicking for labor-friendly policies, instituting informal and formal rules governing labor conditions, and generally serving as a cultural force arguing for a "fairer share" for working men and women.[13] As Western and Rosenfeld write, "When a third of the male labor force was organized, unions were national economic actors who shaped centralized wage policy."[14] They did so in a number of ways. Research has tied federal minimum wage increases to union strength.[15] Under various administrations, union leaders, together with heads of employer associations and policymakers, negotiated wage and price targets that affected whole industries.[16] At the state level, construction unions pressed to formalize the extension of their agreements to nonunion firms through state-level Davis-Bacon laws that, similar to the federal Davis-Bacon Act, require paying local prevailing wages on public works projects. Highly unionized states helped lift minimum wages above the levels of

states where labor was comparatively weak.[17] And in his interviews with nonunion employers in the 1970s, Fred K. Foulkes discovered that even those managers facing little threat of unionization in their plants monitored union contracts closely, and moved to match union scales.[18] Why? Higher pay in organized establishments increased competition for labor. And in setting wages, new market entrants often looked to what industry leaders were doing in terms of wages and benefit packages. When organized labor was strong, many of these leaders were unionized.

How this report is organized

Our goal is to build on this past research and estimate the relationship between union strength at the industry-region level and nonunion wages for particular groups of workers using various analytical approaches. In our core set of analyses we include an adjustment for labor demand at the industry-region level, helping to differentiate the effects of unions on wages from the effects of industry factors like outsourcing and technological change. And we pay particular attention to how the influence of unions on nonunion wages varies by union density (the share of workers who are union members). We display the effects of unions on nonunion wages across nearly 35 years, starting when unions were comparatively strong, to the present day, when density levels have dropped dramatically.

The report is organized as follows:

- In Section 2, we provide a brief overview of union decline in the United States. We then display updated estimates of the relationship between deunionization and nonunion wages from 1979 to 2013 for the vast majority of private-sector full-time workers. We disaggregate these effects by sex and education level, demonstrating that nonunion men without a college degree and nonunion men with a high school diploma or less suffer the most as unions recede from the private-sector economy. In this section we present the results from what we term our "mid-range" approach to estimating unions' effects on nonunion workers' pay.

- In Section 3, we provide the results from our "low-range" and "high-range" counterfactuals, and discuss the benefits and drawbacks of these various approaches.

- In Section 4, we examine whether the relationship between union strength and nonunion wages varies by density level. We display the effects of unions on nonunion wages across years, from a period when unions were comparatively strong to the present day.

- In Section 5, we offer concluding remarks, and discuss limitations and debate rival explanations for some of our core findings.

- In the Methodological Appendix, we provide further details on our analytical strategy, and include a figure based on counterfactuals dating to 1973, one of the earliest years in which we have comprehensive individual-level unionization data.

Unions and nonunion wages in the private sector, 1979–2013

Union decline in the United States from 1979 to 2013 has lowered wages of the vast majority of private-sector, full-time nonunion workers. Nonunion men without a college degree and nonunion men with a high school diploma or less have suffered the most, according to our "mid-range" approach to estimating unions' effects on nonunion workers' pay.

One in 20 private-sector workers belong to a union, down from 1 in 3 in the 1950s

Union membership peaked in the United States in the immediate post-WWII years. The great organizing drives that began after congressional passage of the National Labor Relations Act (NLRA) of 1935 resulted in the unionization of more than 1 of every 3 private-sector workers by the 1950s. Today, that fraction has fallen to approximately 1 of 20 private-sector workers—the lowest rate in over a century. The analyses in this report, which focus on private-sector workers in the post-1979 period, show that the decline is greater for those lacking a college degree, with union density falling from 38 percent among non–college graduate men in 1979 to 11 percent in 2013 (a smaller decline for non–college graduate women, from 16 percent to 6 percent).

The decades-long erosion of unions has affected all industries and regions, and set the U.S. below other advanced democracies

The reach of collective bargaining in the United States today is smaller than in other advanced democracies. For example, in France, Sweden, and Denmark over 80 percent of the total workforce (public and private sectors) is covered by union-negotiated agreements. In Germany over half of the workforce is covered, while Canada's coverage rate is approximately double that of the United States.[19]

Even at their peak, unionization rates in the United States varied dramatically by industry and location. The anchor of the U.S. labor movement was in manufacturing and extractive industries; unions never achieved comparable success in the service sector. Historically, organizing in the South proved exceptionally difficult, resulting in lower density rates in Southern states than in the Northeast and Midwest—labor's traditional stronghold.[20] The effect of geographic and industry variation is that even when the labor movement was comparatively strong, certain pockets of the private sector had almost no union presence. For example, in 1979 just 3 percent of retail workers in the South belonged to a trade union.[21] The decades-long erosion of density rates has affected all industries and all regions, extending the union-free pockets throughout the private sector.[22]

Within industries and regions, higher union density rates are associated with higher wages but the density rates have dropped sharply since 1979

Past research demonstrates that employers and workers make wage comparisons within regions and industries.[23] We follow the strategy employed in recent research and classify workers into 18 industries and four regions.[24] Our classification yields 72 industry-regions per year. In **Figure B** we plot mean unionization rates and mean log weekly wages for nonunion workers for each industry-region in 1979 and 2013. We present separate panels for men and women, and separate series for all nonunion workers and for nonunion, non–college graduate workers (those with less than a bachelor's degree). (Results are similar for workers with a high school diploma or less, although wages for the high school or less group are on average lower). Trend lines indicate the general relationship between union strength and nonunion pay. Two key patterns are evident from the figure. First, especially in 1979, wages tend to be higher in those industry-regions with higher unionization rates for both men and women. Second, union erosion is evident in the 2013 figures, with industry-region density rates well below their 1979 averages.

"Mid-range" estimates of deunionization's effects on wages control for education and other factors known to affect pay and for the lagged industry-region employment rate
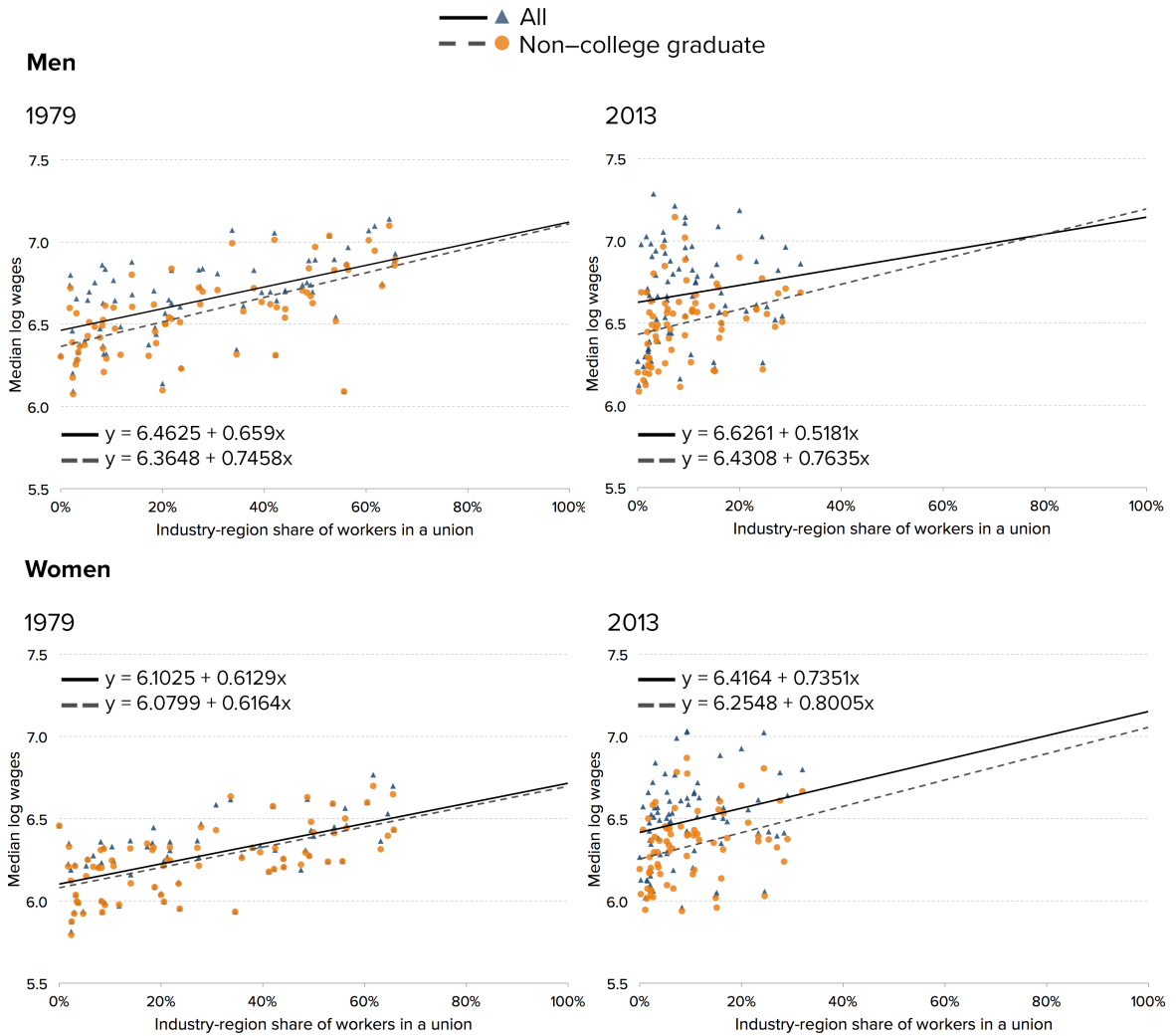
Figure B fails to account for many core factors influencing pay. To assess whether industry-region organization rates have an independent effect on nonunion wages, we run a series of multivariate models. Estimating the relationship between industry-region union density and nonunion wages is not straightforward. In this section, the empirical task is to uncover what nonunion worker pay would look like today had shares of workers in unions not declined from their 1979 levels.[25] The focus of our analyses is on nonunion private-sector full-time workers ages 16 to 64 who are not senior managers. We offer further details of our sample restrictions, data sources, and statistical methods in the Methodological Appendix.

Wages vary between types of workers and over time for a variety of reasons, including different levels of education, differences in work experience, hours worked per week, and gender. In all of our analyses, we adjust for these and other individual-level characteristics, such as race/ethnicity, the region in which one lives, whether one lives in an urban area, and occupation.[26] Adjusting for these and other factors helps us to disentangle the effect of industry-region unionization from other individual-level factors that influence wage patterns among nonunion employees.

Nonunion wages are higher in more unionized industries and regions

Relationship between industry-region unionization rates and wages of nonunion workers, by gender and education, 1979–2013

──── ▲ All
─ ─ ● Non–college graduate

Men

1979

Median log wages

y = 6.4625 + 0.659x
y = 6.3648 + 0.7458x

Industry-region share of workers in a union

2013

Median log wages

y = 6.6261 + 0.5181x
y = 6.4308 + 0.7635x

Industry-region share of workers in a union

Women

1979

Median log wages

y = 6.1025 + 0.6129x
y = 6.0799 + 0.6164x

Industry-region share of workers in a union

2013

Median log wages

y = 6.4164 + 0.7351x
y = 6.2548 + 0.8005x

Industry-region share of workers in a union

Notes: Sample is restricted to nonunion full-time workers in the private sector ages 16 to 64.

Source: Authors' compilations from the Current Population Survey (CPS) May Supplement microdata and CPS Outgoing Rotation Group microdata.

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Mid-range estimates adjust for employment demand

There is a concern that what we interpret as the influence of unions on nonunion pay really stems from broader technological and economic forces. For example, wages also

vary due to the changing fortunes of particular industries. Auto manufacturing in the upper Midwest, for example, was once a base for the powerful United Auto Workers (UAW) union, and was simultaneously a highly protected industry that faced few competitive pressures. That changed with the rise of foreign manufacturers, and with shifting employment patterns away from prior strongholds such as Detroit toward new markets in the Southern United States. Auto manufacturing also changed with the introduction of new technologies that automated numerous tasks in the production process.

Failing to adjust for these developments could lead us to misinterpret our findings. What on the surface appears to be the influence of industry-region unionization could, in fact, be due to changing employment demand in a particular labor market. Adjusting for employment demand helps alleviate these concerns. Specifically, we also include a lagged (1-year) measure of the employment rate for each of our 72 industry-regions. This measure captures the ratio of the employed to those not working in our industry-regions—the employment-to-population ratio. Given that much of the variation in unionization is between industries, we do not include a full set of industry controls (or industry "fixed-effects," in statistical terms) in our core analyses, although we do in our low-range estimates (described in the next section). As a partial corrective, we adjust for whether respondents work in manufacturing, the traditional stronghold of union strength, and for the region in which the respondent is employed.

Factors not considered in our mid-range estimates are controlled for in the next section

We consider analyses that include the employment-to-population ratio and manufacturing controls to be our mid-range set of estimates, and present the results in Figures C-E. However we conducted a number of other analyses with different specifications given that all approaches, including our mid-range one, contain shortcomings. This is due to the interconnections between unionization and economic trends in the United States. Employment demand, for example, is itself endogenous to wage trends. And whereas union decline is traditionally viewed as resulting from deindustrialization, we suggest that deindustrialization itself partially resulted from the growing weakness of organized labor. Other nations with stronger labor movements, such as Germany, maintained a core manufacturing base. Thus the decline of manufacturing, growing weakness of U.S. unions, and shifting employment patterns across the United States are all endogenous to some degree. For this reason, in Section 3 we supplement our mid-range estimates with a high-range set that excludes the employment measure, and a low-range set that replaces the industry-region employment measure with industry fixed-effects, and, in our most stringent specification, industry-region fixed-effects. The possibility of what researchers term "omitted variable bias" remains a concern, however, and we discuss the issue in further detail in Section 5.[27]

Mid-range estimates show pay has stagnated for nonunion men and less-educated nonunion women

What then is the relationship between nonunion private-sector wages and industry-region unionization? In **Figure C** we present two series. The top line represents the difference between our estimated (model-predicted) weekly wages and weekly wages at 1979 union density (our counterfactual-predicted wages) for full-time nonunion men in the private sector. The bottom line represents the difference between these two wage categories for full-time nonunion women in the private sector. We generate these trend lines in the following way: First we predict mean weekly wages based on our multivariate analysis, and allow industry-region unionization rates to vary as they do in the Current Population Survey (CPS) data. Second we fix industry-region unionization rates at their 1979 levels, and again generate predicted mean weekly wages under this new scenario. The series, then, reflects the differences between our estimated wages and our wages at 1979 union density. For example, the estimated mean wage for men in 2010 is $987 per week, and the mean wage in 2010 assuming 1979 unionization rates is $1,036 per week, so the figure presents the difference, or approximately $50 per week. Wages are measured in constant 2013 dollars. (Figure F discussed later in the report gives the estimated and at-1979-density wages from which we compute the percent increase not shown in Figure C.)

As the figure demonstrates, the decline of industry-region unionization rates is associated with sizable wages losses for private-sector men who are not union members. By 2013, average weekly wages in our counterfactual series are approximately 5 percent (or $52) higher than in our model-predicted series. For a full-time worker, this translates to $2,704 in net wage losses over the course of a full work year. Among nonunion women, the results are not as dramatic, consistent with other recent research on the topic.[28] According to our analyses, for full-time private-sector women, wages would average approximately $14 per week higher had industry-region unionization rates remained at their 1979 levels.

In **Figure D** we replicate the counterfactual analysis, except now we limit the sample to full-time nonunion workers who do not have a bachelor's degree or more education. (Figure G discussed later in the report provides the two wage levels from which we compute the percent increase not shown in Figure D.) In the late 1970s four out of five adults were not college graduates. Today, this educational category remains the majority, accounting for approximately two-thirds of the adult population.[29] And recent research on men's income inequality in particular reveals severe pay stagnation for all but the most educated workers,[30] and thus labor union decline may be most consequential for the incomes of workers lacking a college degree. This is confirmed by the figure. By 2013, we estimate that nonunion, non–college degree men working full time would earn $58 more per week if unions remained as strong as they did at the end of the 1970s. For full-time workers, this translates to an annual wage loss of over $3,000. Not only is the estimated wage loss larger for this category of workers than it is for our sample of all male workers,

Figure C

Drop in union membership has taken **$14 to $52 out of nonunion workers' weekly wages**

Additional weekly wages that nonunion private-sector workers would earn had the share of workers in a union (union density) remained the same as in 1979, 1979–2013 (2013 dollars)
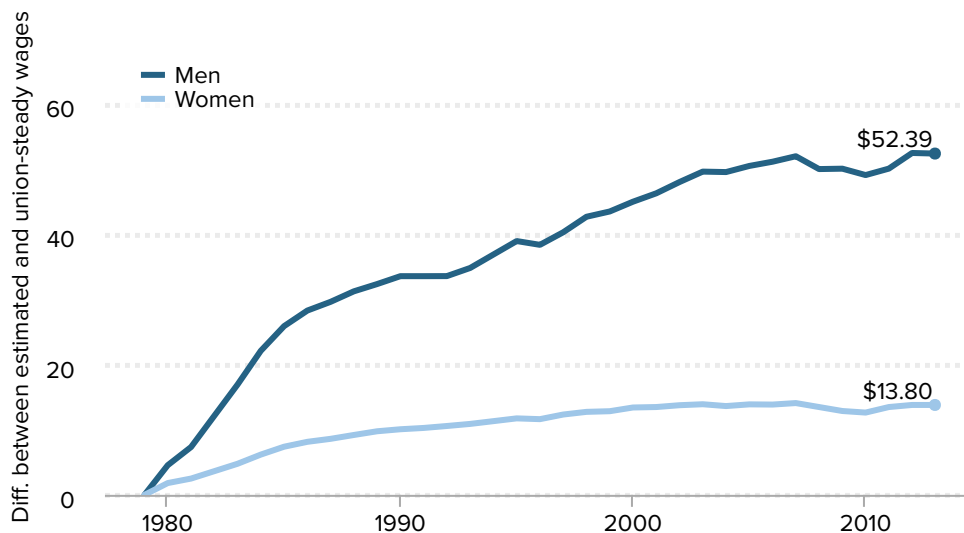
Notes: Sample restricted to nonunion full-time workers in the private sector ages 16 to 64. See the text and Methodological Appendix for details on the analysis.

Source: Authors' compilations from the Current Population Survey (CPS) May Supplement microdata and CPS Outgoing Rotation Group microdata.

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but the reduction in pay resulting from union decline constitutes a greater fraction of weekly pay, given that workers lacking a college degree earn less, on average, than all workers. Our estimates suggest that this large category of nonunion workers would earn 8 percent more if union memberships remained at late 1970s levels.

For women without a college degree, the estimated wage loss is approximately the same as in Figure A. Our estimates suggest that nonunion, non–college degree women would earn about 2 percent more (an extra $13 per week) had unions not declined from 1979 on. This reduction for nonunion, non–college degree women is a slightly larger fraction of weekly pay than for nonunion women overall, given the lower average wages of women without a college degree. The sample of women that includes those with a college degree or more education (not shown in the figure) have average predicted weekly wages that are approximately $174 higher than the sample of non–college degree women.

Figure A revealed that no group of workers has experienced as steep an erosion in pay as workers with a high school diploma or less education. In **Figure E** we replicate the counterfactual analysis, but restrict the sample to workers with no college experience. (Figure H discussed later in the report gives the estimated and at-1979-density wages from which we compute the percent increase not shown in Figure E.)

Drop in union membership has taken **$13 to $58** out of the weekly wages of workers with less than a college degree

Additional weekly wages that nonunion private-sector workers without a college degree would earn had the share of workers in a union (union density) remained the same as in 1979, 1979—2013 (2013 dollars)
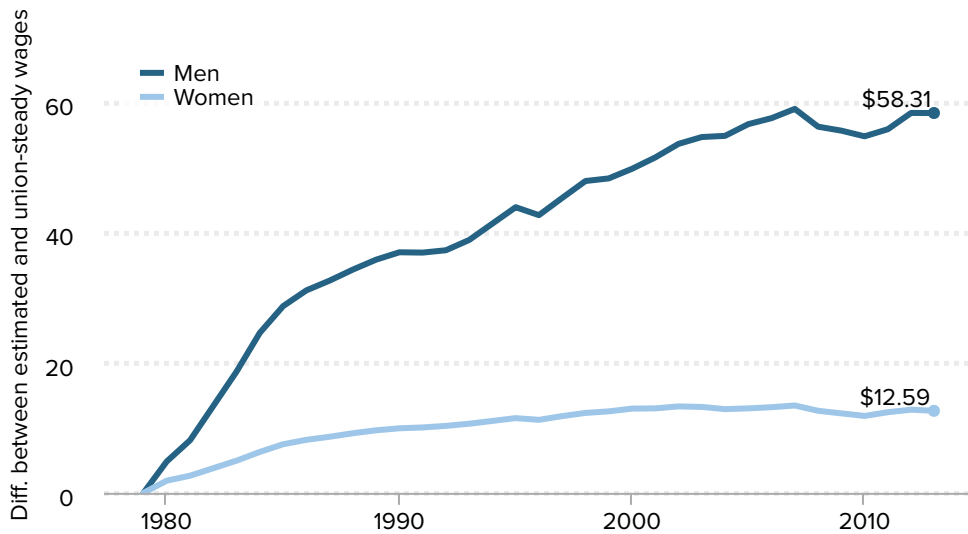
Notes: Sample restricted to nonunion full-time workers in the private sector ages 16 to 64. See the text and Methodological Appendix for details on the analysis.

Source: Authors' compilations from the Current Population Survey (CPS) May Supplement microdata and CPS Outgoing Rotation Group microdata.

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As shown in the figure, no set of workers would have benefited from a strong union presence in their particular industries and regions more than those whose formal schooling does not extend beyond high school. For men, we estimate that weekly wages would be $61 per week higher in 2013 had no union decline occurred. This would translate to an extra $3,172 over the course of a year, or a 9 percent pay hike over the model-predicted 2013 wage of $684 per week. Our analyses suggest that women with a high school diploma or less education would have also benefited from a strong labor movement. By 2013 the absolute difference in wages between our model-predicted series and our counterfactual-predicted series for women is similar to the gap displayed in Figures C and D. Given the lower average wages of women with no more than a high school diploma, however, this $13 difference in weekly pay translates to a larger wage loss relative to women who have some education beyond high school but have not earned a bachelor's degree. We estimate average weekly wages of full-time, nonunion women with no more than a high school diploma to be $515 in 2013. An extra $13 per week would raise their weekly pay by 3 percent.

Drop in union membership has taken $13 to $61 out of the weekly wages of nonunion workers with at most a high school education

Additional weekly wages that nonunion private-sector workers with a high school diploma or less would earn had the share of workers in a union (union density) remained the same as in 1979, 1979–2013 (2013 dollars)
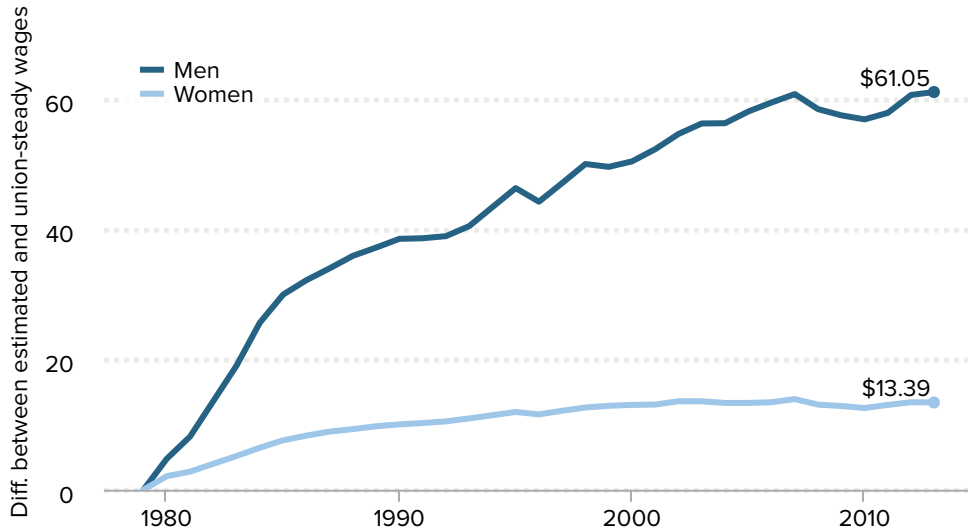
Notes: Sample restricted to nonunion full-time workers in the private sector ages 16 to 64. See the text and Methodological Appendix for details on the analysis.

Source: Authors' compilations from the Current Population Survey (CPS) May Supplement microdata and CPS Outgoing Rotation Group microdata.

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Nonunion workers' wages would be higher were unions as strong now as they were in 1979

Figures F through H summarize the results of our counterfactual exercise by presenting for men and women at decade intervals the estimated weekly wages versus wages at 1979 union density. The gaps demonstrate the growing wage erosion associated with union decline over the last three decades—especially among men. **Figure F** displays the relationships between industry-region unionization and nonunion wages for all full-time nonunion workers. Among men, gaps between our two wage series are minor in the early 1980s. By 1993, the gap grows to a substantial $35 per week, expanding to over $50 per week by 2013.

Another way of interpreting the figure is to calculate the percentage differences in wage trends over time under the two scenarios: one in which unions did decline, and the other in which unionization remained at its 1979 level. Doing so indicates that nonunion men experienced an 8 percent increase in their weekly pay over the past three decades, driven largely by the gains of those with a bachelor's degree or more education. Had unions not declined, weekly wages would have grown by an estimated 14 percent from 1979 to

Nonunion wages would get a boost by restoring union membership to 1979 level

Estimated weekly wages and weekly wages at 1979 union density for nonunion private-sector workers, by gender, select years 1979–2013 (2013 dollars)
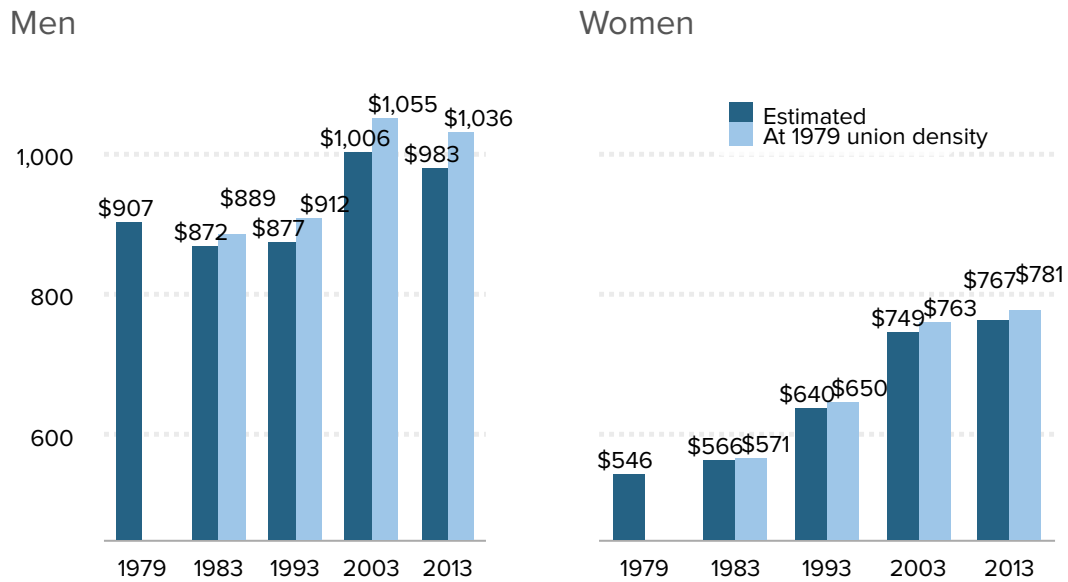
Men

Women

Notes: Sample restricted to nonunion full-time workers in the private sector ages 16 to 64. See the text and Methodological Appendix for further details on the analysis.

Source: Authors' analysis of Current Population Survey Outgoing Rotation Group microdata.

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2013.[31] Nonunion women experienced significant wage growth even with the decline of unions. Had unions remained strong, nonunion women's wages would have grown by 2 percentage points more than they did.
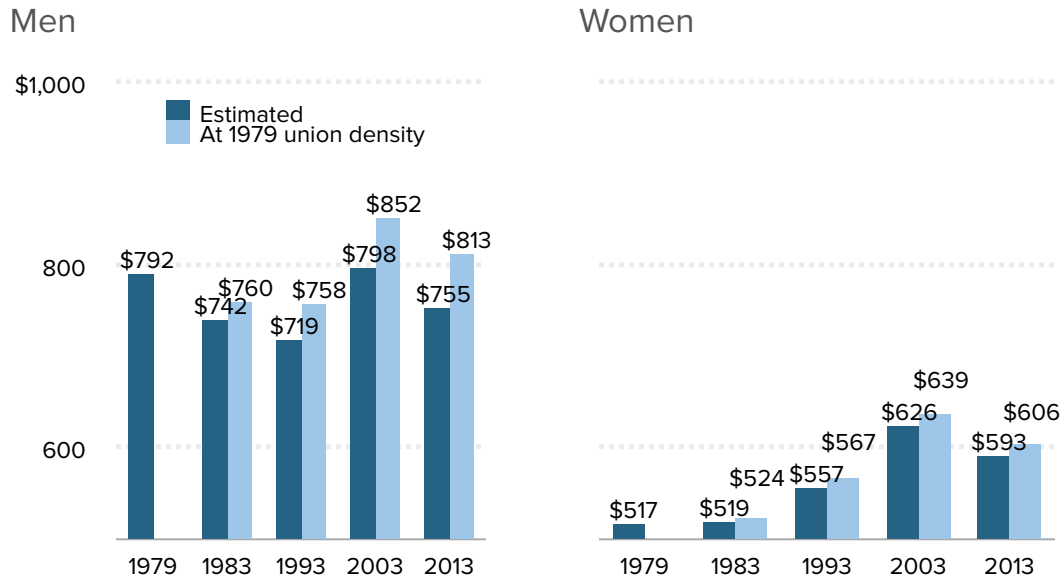
Figure G replicates Figure F except here we limit the sample to workers without a college degree. Nonunion, non–college degree men experienced a 5 percent decrease in their weekly pay over the 1979–2013 period. Absent deunionization, wages would have grown by an estimated 3 percent, an improvement of 8 percentage points. Nonunion, non–college degree women saw their weekly pay grow by 15 percent since 1979. We estimate that wage growth would be 2 points higher (17 percent) were unions as strong today as they were at the close of the 1970s.

Figure H provides similar results for those nonunion full-time workers who have a high school diploma or less education. As shown, union decline has hit the least educated workers—especially low-educated men—the hardest. Wages for nonunion men with a high school diploma or less eroded 8 percent between 1979 and 2013. Were unions still strong, wages would have not changed at all, no increase and no decrease, and would have been 9 percent higher than they actually are today. Wage growth for nonunion women with a

Nonunion wages for workers without a college degree would get a boost by restoring union membership to its 1979 level

Estimated weekly wages and weekly wages at 1979 union density for nonunion private-sector workers with less than a college degree, by gender, select years 1979–2013 (2013 dollars)

Men

Women

Estimated
At 1979 union density

Men: $1,000; 800; 600
1979: $792
1983: $742, $760
1993: $719, $758
2003: $798, $852
2013: $755, $813

Women:
1979: $517
1983: $519, $524
1993: $557, $567
2003: $626, $639
2013: $593, $606

Notes: Sample restricted to nonunion full-time workers in the private sector ages 16 to 64. See the text and Methodological Appendix for details on the analysis.

Source: Authors' analysis of Current Population Survey Outgoing Rotation Group microdata.

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high school diploma or less education, meanwhile, would have been 3 percent higher absent deunionization.
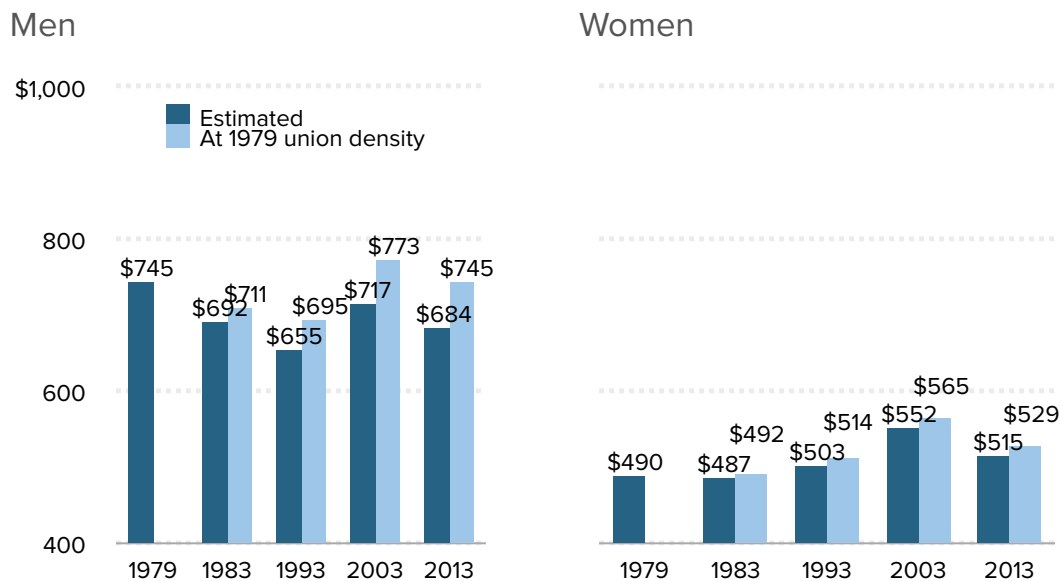
Alternative approaches to analyzing unions and nonunion wages in the private sector, 1979–2013

In Section 2 we provided the results from our midrange specification, one that adjusted not only for standard variables found to influence workers' pay, but also for workers' (lagged) industry-region employment rate. We argued that adjusting for employment demand helps alleviate the concern that what we interpret as the influence of unions on nonunion pay really stems from broader technological and economic forces. For example, the replacement of many front-line factory jobs by machines in a heavily organized

Nonunion wages for workers without more than a high school education would get a boost by restoring union membership to 1979 level

Estimated weekly wages and weekly wages at 1979 union density for nonunion private-sector workers with a high school diploma or less, by gender, select years 1979–2013 (2013 dollars)

Men

Women

Estimated
At 1979 union density

Men values:
- 1979: $745
- 1983: $692, $711
- 1993: $655, $695
- 2003: $717, $773
- 2013: $684, $745

Women values:
- 1979: $490
- 1983: $487, $492
- 1993: $503, $514
- 2003: $552, $565
- 2013: $515, $529

Notes: Sample restricted to nonunion full-time workers in the private sector ages 16 to 64. See the text and Methodological Appendix for details on the analysis.

Source: Authors' analysis of Current Population Survey Outgoing Rotation Group microdata.

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industry will reduce employment demand, dampening wages, and is also likely to be associated with a reduction in union jobs. Inclusion of this employment demand measure, then, helps us distinguish between the independent effects of union decline and the independent effects of these other, related forces.

High- and low-range estimates account for potential biases from union intervention in technology use and pay variation among industries

Unions do not sit idly when employers threaten to automate or shift jobs elsewhere. Research finds that when and where unions are strong, they are sometimes able to moderate the impact of the introduction of new technologies.[32] And data reveal a range of union densities among the advanced economies—all of which have experienced

technological change and globalization in recent decades. Thus conceptualizing unions as simply passive bystanders when employers downsize, outsource, and automate likely understates the active role many unions play in combating or at least channeling these actions in ways less detrimental to workers. For our high-range specification we remove the employment demand control from our specification, while retaining all other adjustments.

Another potential critique of our various approaches thus far is that they ignore the importance of stable industry characteristics that pattern wages for U.S. workers. Research has documented substantial pay variation among industries, even after adjusting for workers' skill.[33] And while unions declined across all industries during the period covered by our analyses, the reduction in membership was especially severe in unions' past strongholds—industries such as auto manufacturing and transportation. If characteristics specific to these industries are the real drivers of wage trends, then not adjusting for them may bias our unionization findings. What we interpret as the effect of union decline on nonunion workers' wages may in fact serve as a proxy for industry-specific factors unmeasured in the CPS.

Our low-range sets of estimates attempt to handle such omitted variable bias in two ways. First, we re-estimate our core counterfactual (displayed in Figure C) with a set of industry fixed-effects. These adjust for the influence of stable, industry-specific characteristics that may influence nonunion wage trends.[34] For our second set of low-range estimates, we replace the industry fixed-effects with industry-region fixed-effects—72 in all. These help adjust for the impact of factors that are both industry- and region-specific. For example, if transportation firms in the Midwest pay a high premium to their workers for reasons specific both to the firms' location (the Midwest) and industry (transportation), including industry-region fixed-effects helps control for these unmeasured characteristics. Here our approach focuses on the role of union decline in influencing nonunion workers' pay *within* industry-regions *over* time.

We compare the results of our various approaches in **Table 1**. The table displays the absolute dollar difference and the percentage difference in weekly wages between our estimated weekly wages and weekly wages at 1979 union density for the past three decades under the mid-range, high-range and low-range specifications. We display the results only for men and women without a college degree. For example, the mid-range estimate for men in 2013 suggests that absent union decline, nonunion, non–college degree men would earn 8 percent or $58 more per week, consistent with Figures D and G.

The high-range rows display effects of union decline on nonunion workers' pay that are larger than in our mid-range approach, considerably so for women. Nonunion women would earn nearly $19 more per week if unions retained their late 1970s membership levels—an effect size nearly 50 percent higher that of the mid-range estimate. Among nonunion men we estimate that by 2013 they would earn, on average, approximately $70 more per week if unions remained as strong today as they did in 1979.

Table 1

Union effects on nonunion, non–college degree private-sector wages, 1979–2013

Comparison of high-, mid-, and low-range estimates (2013 dollars)

	1983		1993		2003		2013	
	$	%	$	%	$	%	$	%
Men								
High-range	22.30	3.0	46.82	6.5	66.38	8.3	70.44	9.3
Mid-range	18.61	2.5	38.82	5.4	54.62	6.9	58.31	7.7
Low-range (1)	12.78	1.7	26.41	3.7	37.83	4.7	40.27	5.3
Low-range (2)	18.60	2.5%	38.38	5.3	55.08	6.9	58.62	7.7
Women								
High-range	7.34	1.4	15.72	2.8	19.77	3.2	18.65	3.1
Mid-range	4.95	1.0	10.61	1.9	13.19	2.1	12.59	2.1
Low-range (1)	4.22	0.8	9.01	1.6	11.43	1.8	10.79	1.8
Low-range (2)	6.41	1.2	13.69	2.5	17.39	2.8	16.38	2.8

Notes: Sample restricted to nonunion, non–college degree full-time workers in the private sector ages 16 to 64. The mid-range estimates are drawn from the analyses presented in Figure D; the high-range estimates come from models that remove the employment demand control; and we calculate two sets of low-range estimates: (1) models include industry fixed effects (but remove the manufacturing control) and (2) models include industry-region fixed effects (removing the manufacturing and region controls). See the text and Methodological Appendix for details on the analysis.

Source: Authors' compilations from the Current Population Survey (CPS) May Supplement microdata and CPS Outgoing Rotation Group microdata.

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Low-range estimates support conclusion that union decline has widened wage inequality

Turning to our first set of low-range results, the table reveals lower, but still substantial, effects of union decline on the wages of nonunion workers who do not have a college degree. Even with the addition of industry fixed-effects, we estimate that deunionization has reduced wages for private-sector, nonunion, non–college degree men by about $40 per week. Among women, the figures suggest membership losses are associated with weekly earnings that are approximately $11 lower per week, or $572 lower per year for full-time private-sector women who do not belong to a labor union and do not have a college degree.

Surprisingly, the inclusion of industry-region controls in our second set of low-range estimates results in larger union effects for both men and women than the first low-range approach. The table indicates that among nonunion men union decline is associated with

weekly wages approximately $59 lower than they would be if organized labor remained as strong as it was three-and-a-half decades prior, and about $16 lower for nonunion women.

Together, these low-range estimates provide further evidence that union decline has exacerbated wage inequality in the United States by dampening the pay of nonunion workers in the private sector. Indeed, our second set of low-range estimates produce similar results among men and *larger* losses among women than found in our mid-range approach, lending confidence to our core claim: earnings would be significantly higher for nonunion workers if unions remained strong.

How time trends in union density levels affect the relationship between union strength and nonunion wages

The prior sections reveal a strong relationship between the power of unions and nonunion pay in the private sector, a relationship consistently found under a variety of analytical approaches. What is left to investigate is how this relationship has changed over time. In this section we explore this issue: whether the effects vary across years, from a period when unions were comparatively strong, to the present day. After all, if we found that industry-region union density rates would have to be at least 20-25 percent to affect nonunion wages, it would carry different implications for the labor movement going forward than a finding that density rates as low as 10–15 percent have an effect. Here we examine whether the labor movement today remains associated with nonunion worker pay, despite historically low private-sector densities. In short, our research shows that in recent years the magnitude of the industry-region unionization effect (the ability of unionization to boost wages) has fallen to approximately one-half to two-thirds of what it was back in the late 1970s.

Figure I shows the percentage increase in nonunion weekly earnings for every 1 percentage-point increase in industry-region union densities for each year between 1979 and 2013 by gender. These estimates are based on analyses of weekly wages that again adjust for key correlates of pay, including education, occupation, race/ethnicity, and industry-region employment demand. Here we include nonunion workers of all education levels.

These series can be interpreted as the "size" of the union density effect over time. A larger percent change indicates a larger effect of industry-region unionization on nonunion workers' pay for that particular year, whereas a small percent change reveals that union density has very little effect on the wages of nonmembers. For example, a point estimate of .5 percent (the situation for nonunion men in 1980) indicates that a 14 percentage-point decrease in industry-region unionization (from 21 percent to 7 percent, the basic trend in private-sector density rates between 1979 and 2013) is associated with a 7 percent reduction in weekly wages (14 multiplied by .5 = 7 percent).

Figure I

The power of unions to set nonunion workers' pay has fallen since 1979

Union density effect on nonunion wages, 1979–2013
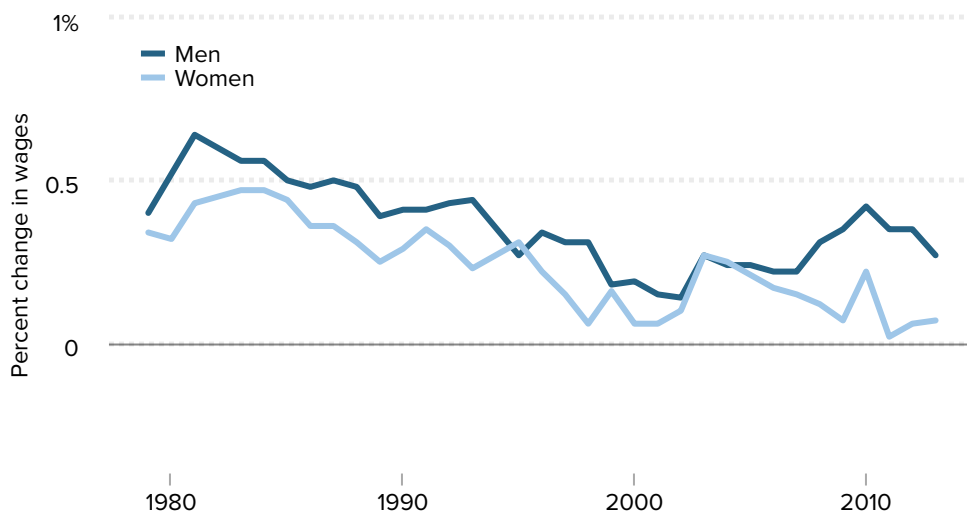
Notes: Lines show the predicted change in earnings for a 1 percentage-point increase in unionization. The sample is restricted to nonunion, full-time workers in the private sector ages 16 to 64. Wages are measured in 2013 dollars. See the text and Methodological Appendix for details on the analysis.

Source: Authors' compilations from the Current Population Survey (CPS) May Supplement microdata and CPS Outgoing Rotation Group microdata.

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As shown, for both nonunion men and women, the effect of industry-region unionization on wages is shrinking. For men, the effect of industry-region unionization on weekly wages peaks in the early 1980s.[35] By 2013, the effect of density rates on nonunion men's wages is approximately half as large as its peak level in the early 1980s. And compared with the beginning of the series (1979), by 2013 the effect of unionization on nonunion wages is a third lower. Among women, the effects of industry-region densities on nonunion wages are generally smaller, and also peak during the early 1980s. For the last years of our analysis, the effect of industry-region unionization rates on nonunion women's wages in the private sector approaches zero, revealing that density levels have fallen to such a degree that they no longer have an effect on nonunion pay.

Figures J and K repeat the exercise with samples that exclude workers with a bachelor's degree or more education and workers with additional schooling beyond a high school diploma. While the downward trends shown in these two figures are similar to that of Figure I, the effect sizes are generally larger. Consistent with our earlier findings, declining unionization has most depressed the pay of the least-educated set of nonunion workers, male workers with a high school diploma or less. Both Figures J and K reveal that in 1981, among nonunion, non–college degree men, and among men with a high school diploma or less, a 1 percentage-point increase in industry-region densities is associated with a .7 percent increase in weekly wages. By 2013, the union effect had decreased by over 40 percent. For women with a high school diploma or less, and women with less than a

The power of unions to set nonunion, non–college graduate workers' pay has fallen since 1979

Union density effect on wages of nonunion workers without a college degree, 1979–2013
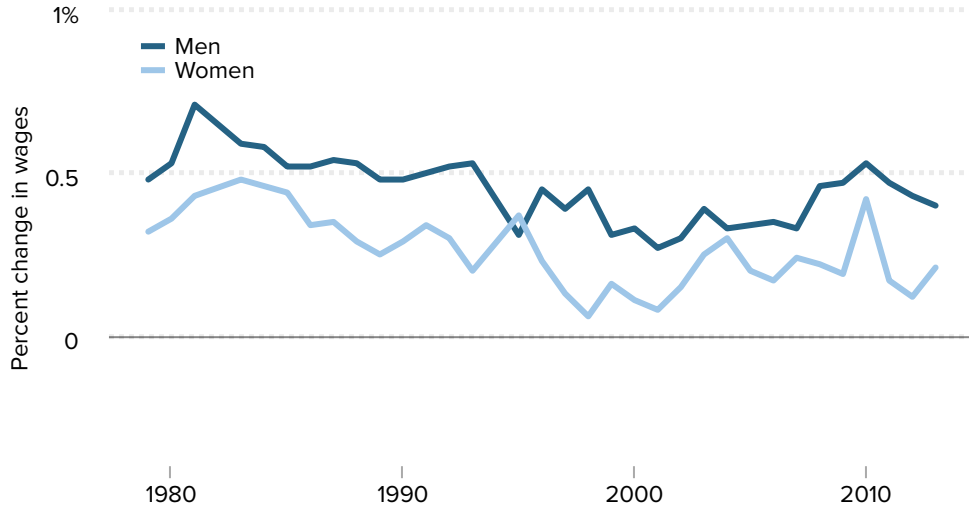
Notes: Lines show the predicted change in earnings for a 1 percentage-point increase in unionization. The sample is restricted to nonunion full-time workers in the private sector ages 16 to 64. Wages are measured in 2013 dollars. See the text and Methodological Appendix for details on the analysis.

Source: Authors' compilations from the Current Population Survey (CPS) May Supplement microdata and CPS Outgoing Rotation Group microdata.

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college degree, the effect of industry-region unionization is also highest in the late 1970s and early 1980s, and similar to Figure I our analyses indicate that in recent years noncollege women's wages in the private sector are generally unrelated to industry-region organization rates.

Standard linear regression analyses of the type we have presented thus far assume that a change in weekly wages is proportional to a change in industry-region unionization. For example, a decline in industry-region union density from 10 percent to 0 percent is assumed to have the same effect on nonunion wages as a decline from 30 percent to 20 percent. In supplementary analyses (available upon request) we relax this assumption by conducting a spline analysis. In general, the results indicate that a linear specification is reasonable for both men and women. In sum, regardless of whether we examine linear effects or relax that assumption, what remains clear is that the effect of deunionization on nonunion earnings has declined over time for both men and women.

The power of unions to set nonunion pay for workers with no more than a high school diploma has fallen since 1979

Union density effect on nonunion wages of workers with a high school diploma or less education, 1979–2013
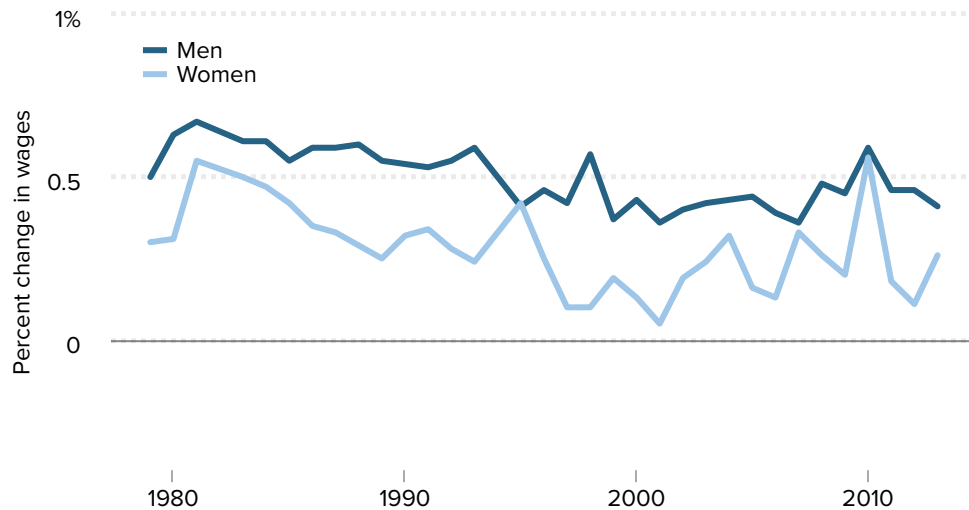
Notes: Lines show the predicted change in earnings for a 1 percentage-point increase in unionization. The sample is restricted to nonunion full-time workers in the private sector ages 16 to 64. Wages are measured in 2013 dollars. See the text and Methodological Appendix for details on the analysis.

Source: Authors' compilations from the Current Population Survey (CPS) May Supplement microdata and CPS Outgoing Rotation Group microdata.

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Qualifications and concluding remarks

The findings from the preceding sections echo a remark from Foulkes, who noted in his 1980 study of large nonunion firms, "Unions are doing much good for people who do not pay them any dues."[36] For our main set of analyses (Section 2) we estimate that weekly wages would be, on average, about $52 higher for nonunion private-sector men had union densities remained at their late 1970s levels. Union erosion is associated with weekly wages today that are approximately $14 below what they would be for nonunion private-sector women if the labor movement remained as strong as it was three-and-a-half decades back. The effects are largest for nonunion private-sector workers who have a high school diploma or less education. For full-time men who have a high school diploma or less education, union decline is associated with a 9 percent decline in their weekly pay. Nonunion women with a high school diploma or less education would earn an estimated 3 percent more today if labor unions remained as strong as they did in 1979—an extra $676 annually for working full time, year-round.

The effect of union decline on nonunion wages translates into millions of lost dollars to American workers. We estimate that in 2013 there were approximately 40.2 million private-sector men working full time who were not senior managers and who did not belong to a union. On a weekly basis, union decline has contributed to $2.1 billion fewer dollars in their pocket. Annually, that is $109 billion in lower wages. In 2013 there were approximately 32.9 million full-time nonunion women working in the private sector. Our estimates suggest weekly pay for these women would total of $461 million more if unions remained as strong as they did in 1979.[37]

We consistently find smaller effects of union decline for nonunion women compared with men. Given nonunion women's concentration in lightly organized industries and occupations, especially in years past, this result is not particularly surprising. But in recent years female employees have made up a sizable fraction of new members in successful private-sector unionization drives, such as in the Las Vegas hospitality industry. Combined with women's disproportionate share of public-sector memberships, we contend that a unionization revival would have to include a large share of female workers.

Union decline predates 1979, the year in which we base our counterfactual analyses. The CPS began including questions about union membership in the early 1970s, and in supplementary analyses presented in **Figure L** we investigate what nonunion wages would look like today if unions remained as strong as they were in 1973. Results are generally consistent with those presented in the report, specifically in Figure C, although the effect sizes are modestly larger, reflecting the higher unionization rates in the early 1970s.

As with any analysis of such scope and spanning such a long period, shortcomings remain. In Section 3 we provided a series of robustness checks on our mid-range approach. First we removed the employment-demand adjustment, which results in larger union effects on nonunion wages. Second, we included industry fixed-effects and industry-region fixed-effects, which refocused our analysis on changes in union decline within industries, and within industry-regions, over time.[38] Despite these additional restrictions, union decline continues to influence nonunion workers' wages in the private sector. Indeed, the addition of industry-region fixed-effects results in *larger* union effects for women.

We believe that our mid-range approach balances competing narratives about the role of union decline in exacerbating wage inequality, and in contributing to wage stagnation, especially for the majority of workers without a college degree. It assumes that unions are not completely endogenous to economic and technological developments while also recognizing the impact these broader forces have had on union power. The omission of industry controls would be especially problematic if unions focused their efforts on organizing those industries that already offer elevated wages. But for many industries, the historical record suggests otherwise. Take maritime employment: As labor historian Nelson Lichtenstein recounts, work along the nation's coastlines was once brutal, and the low pay and temporary contracts did little to compensate for the dangers longshoreman faced.[39] Only after organizing in unions did port employees begin to enjoy the decent pay and benefit packages now commonplace. Or take meatpacking, a job so viscerally depicted in Upton Sinclair's *The Jungle.*[40] Similar to the late 19th century, today's meatpackers are

Figure L

Union effects on nonunion private-sector wages, 1973–2013

Additional weekly wages that nonunion private-sector workers would earn had the share of workers in a union (union density) remained the same as in 1973, 1973–2013 (2013 dollars)
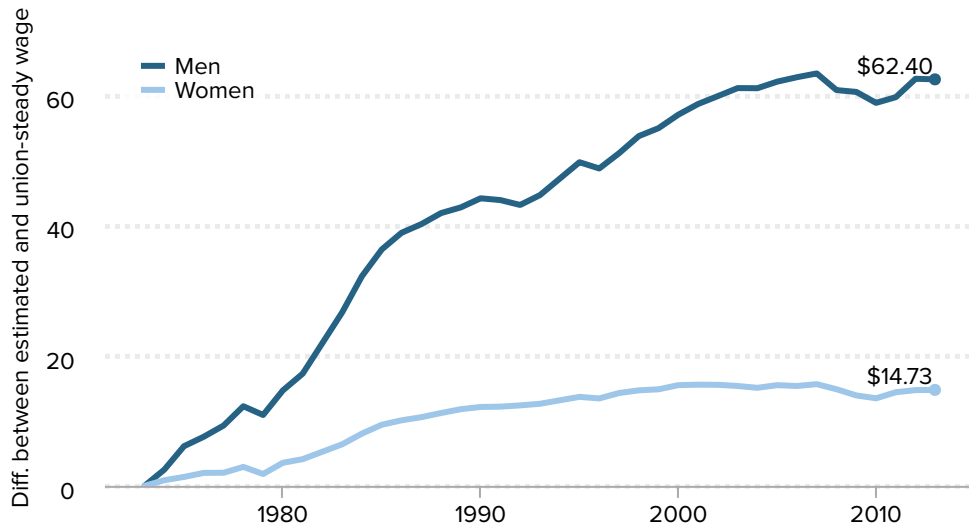
Notes: Sample restricted to nonunion full-time workers in the private sector ages 16 to 64. See the text and Methodological Appendix for details on the analysis.

Source: Authors' compilations from the Current Population Survey (CPS) May Supplement microdata and CPS Outgoing Rotation Group microdata.

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disproportionately low-skill immigrants, and earn very low pay. Annual wages for the industry average only $25,000.[41] Yet often forgotten is that meatpacking once paid well—during the few decades of the 20th century when the industry had a strong union presence.[42]

What about the joint effects of globalization and technological change? Domestic industries such as textiles have suffered as much of production has shifted to low-cost overseas suppliers. Textiles once was highly organized. To control for the contraction of employment in these and other industries in the traded goods sector, we adjust for every respondents' industry-region employment rate. The logic here is that as jobs shifted offshore, employment demand decreased in the United States. Accounting for this shift helps us disentangle the effects of globalization from those of union power. The inclusion of this control also helps alleviate concerns about the possible "spillover" effects of unions on employment. While evidence that successful organizing campaigns lower employment in unorganized firms is sparse, our inclusion of employment rates in industry-regions helps alleviate concerns about the influence of these potential union effects. And to the extent that automation has replaced many manufacturing positions, our inclusion of a control for employment in manufacturing adjusts for this development.

It is also worth noting that union decline is not simply a story of globalization and technological change. Unionization rates for truckers fell from approximately 50 percent in the early 1970s to 8 percent today. Hotels and motels, grocery stores, and other pockets of retail such as department store chains also experienced severe declines in unions. In construction, the story is similar: union density rates for the nation's construction workers plummeted from 40 percent in the early 1970s to 15 percent in 2013. Weekly wages fell too, by about $200. The fact that fewer and fewer construction workers today enjoy the union wage premium partly accounts for this drop in pay. But nonunion construction workers today earn about $60 less per week than nonunion construction workers four decades back.[43]

Other approaches to measuring union effects on nonunion wages have focused on the wages of those nonunion workers most likely to unionize if given the opportunity.[44] We adopt a different approach. First, we suggest that threat effects are likely to redound to more than simply those employees most at risk of organizing. Similar to the effects of minimum-wage increases, increasing pay for some workers to forestall an organizing drive will lead to an upward adjustment in scales for other employees in the firm. And, as we argue in Section 2, the deep institutionalization of the labor movement led nonunion employers to monitor and sometimes match union pay even when unconcerned about an organizing threat.

Another strategy would involve isolating the effect of a state's passage of right-to-work legislation on nonunion wages. Right-to-work laws ban so-called agency shops by allowing for employees to opt out of paying union dues and still receive the benefits of collective bargaining, forcing unions to devote time and resources to minimize free-riding. The logic here is that nonunion employers' worry about the threat of unionization declines with the reduction in organizing activity that accompanies the banning of agency shops. Much of the right-to-work legal activity occurred in the immediate aftermath of congressional passage of the Taft-Hartley Act in 1947. Data are not available to examine these early adopters. However, in 2001 Oklahoma enacted its right-to-work law. Unionization rates were already quite low prior to passage, suggesting a diminished threat of organizing before any legal changes were implemented. Changes in Michigan, Indiana, and Wisconsin have occurred too recently to examine their effects on nonunion wages. We would also add that the introduction of these types of laws is not a complete exogenous shock to a state. Their passage indicates a climate hostile to unionization (and union organizing efforts) that is eventually codified into law.

Conclusion

What our robustness checks make clear is that under a variety of statistical approaches, each one relaxing or strengthening certain assumptions about union decline, the impact of unions on nonunion pay is significant and substantively large. Putting our findings in a broader context reveals the power unions once had in establishing wage standards for the American workforce. There are three groups of workers whose wages have been affected by the decline of unionization. First, there are the remaining union members, who

according to research have experienced a decline in the earnings premium that comes from belonging to a union—a decline especially large for female members.[45] For instance, the union wage premium fell over the 1973 to 2009 period by nearly a third for private-sector women. Among private-sector men, after peaking in the early 1980s, the earnings premium that comes from union membership had fallen slightly by 2009. Second, there are those who were previously in a union but are not anymore, which covers 24 percent of men and 10 percent of women: these workers lost the union premium altogether and have also encountered lower indirect benefits from working in highly organized industries and locales, as our analyses indicate. And third is the largest group, nonunion workers (66 percent of men and 84 percent of women in 1979). Even at the labor movement's peak, the nonunion workforce constituted the majority of all workers. And yet a labor movement that had successfully organized a sizable share of labor markets had a strong, positive impact on the wages of the unorganized. Indeed, given its size, it is this group that would have experienced the largest absolute group gain in pay had unions remained strong. These impacts are reflected in the estimated effects of union erosion on wage inequality. Accounting for both the impact of deunionization on union workers and the impact of weaker standard-setting by unions on nonunion workers, Western and Rosenfeld (2011) estimate that union decline can explain one-third of the rise in wage inequality among men and one-fifth of the rise of wage inequality among women from 1972 to 2007.

Unfortunately for today's nonunion workers, this influence of union strength in one's industry and region appears to have waned. In Section 4 we find that in recent years the magnitude of the industry-region unionization effect has fallen to approximately one-half to two-thirds of what it was back in the late 1970s. Despite this decline, it should encourage organized labor and its allies that it retains a strong influence on nonunion pay, especially among men with a high school diploma or less. Still, unions' sparse presence in many industries and regions eliminates their ability to influence what nonunion firms do in various ways. For one, nonunion employers are increasingly unlikely to fear a threat of unionization. As we note in the Introduction, responding to possible unionization threats through increasing wages is one pathway through which unions raised pay for nonunion workers in past periods. With organizing efforts at a standstill throughout much of the private sector, typical nonunion employers now have little to fear. Given the ongoing attacks on existing unions, labor leaders are doing all they can to hold onto their remaining terrain. As economist Matthew Bidwell has summarized, "Unions are on the decline. It's easy to quash them if they try to organize."[46]

We contend that unions' influence on nonunion pay once extended beyond these threat effects. But their ability to maintain wage and benefit standards rested on their political and economic power, and their salience throughout the culture. As the labor activist Richard Yeselson has observed, the labor movement in America once claimed "a broad institutional legitimacy grounded in their ubiquitous presence."[47] That presence has vanished throughout much of the private sector, rendering unions unable to exert the same political, economic, and cultural influence over the working lives of average Americans, union and not.

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Methodological Appendix

Our primary analyses draw on CPS data from 1979 to 2013. The CPS is conducted by the Bureau of Labor Statistics, and is a monthly survey of 50,000 to 60,000 households. The CPS first included questions on union membership in its 1973 May survey. All the analyses from 1979 to 1981 in this report are based on the CPS-May files. For 1983 to 2013, we rely on the CPS-merged outgoing rotation group (MORG) data sets. No CPS survey contained a union question in 1982. For many of the figures, we generate estimates for 1982 by averaging results from 1981 and 1983. We follow a similar procedure for 1994, since we exclude 1994 data due to the lack of a wage allocation item that year. We provide more details on wage allocation below.

While all the analyses in this report are new, much of this section is based off the Appendix in Rosenfeld 2014.[48]

Sample construction

All of our analyses are limited to nonunion private-sector workers who report positive wages and report working 30 or more hours per week and are between the ages of 16 and 64. We exclude top-level managers along with the self-employed. The self-employed are ineligible for union membership. Research has found that the inclusion of respondents with allocated earnings (i.e., CPS survey respondents whose wages are imputed because they did not provide wage data) results in biased regression coefficients, and for this reason we exclude allocated earners, following the procedure outlined in Hirsch and Schumacher (2004). We follow the procedure of economist Thomas Lemieux (2006) and adjust top-coded earnings by 1.4, after limiting the sample to workers reporting hourly

wages between $1 and $100 in 1979 dollars. The CPS changed its industry codes in various years. To create a consistent industry classification spanning the 1979–2013 period, we follow the procedure outlined by Rosenfeld 2014, 205–207.

The numerator of our key predictor, percent unionized in each of our 72 industry-regions, is simply the total number of union members employed in that industry-region for each particular year. The denominator represents the total number of employed respondents who are not senior managers in that industry-region per year. We construct our industry-region employment variable as follows: We consider respondents to be employed if they are working or "with job, not at work." We consider respondents to be not employed if they are unemployed or out of the labor force. We calculate the employment-to-population ratio before dropping senior managers and those with missing or imputed earnings information.

Our 18 industries are: 1) agriculture/forestry/fisheries, 2) mining, 3) construction, 4) manufacturing durables, 5) manufacturing nondurables, 6) transportation, 7) communications, 8) utilities/sanitary services, 9) wholesale trade, 10) retail trade, 11) finance/insurance/real estate, 12) business repair services, 13) repair services, 14) recreation/entertainment services, 15) professional services, 16) grocery store retailing, 17) auto manufacturing, 18) printing/publishing. Our four region groupings are: 1) Northeast, 2) North Central, 3) South, and 4) West.

We adjust all earnings by the CPI-U-RS, following recent research on wages and inequality.[49] Note that the choice of conversion measure matters only for the inequality estimates depicted in Figures A and B. Constant conversion factors, whether the CPI-U-X1 or the RS, do not affect our model-generated counterfactual estimates depicted in the other figures in the report.

Details of Section 2 analyses

For our model-predicted wage series, referred to in the text as our "estimated" weekly wages, we regress weekly wages for private-sector workers who are not union members on the following set of covariates: industry-region unionization (described above), a one-year lagged version of the industry-region employment rate (described above), four mutually exclusive race/ethnicity measures (non-Hispanic white, non-Hispanic African-American, non-Hispanic other, and Hispanic), four mutually exclusive education measures (less than high school, high school diploma or equivalent, some college, four or more years of college), potential experience and potential experience squared, a set of four occupational measures (professional/managerial, production, service, farm/forestry/ fisheries), hours worked per week, a measure of whether the respondent lives in a metropolitan area, year dummies, and a dummy indicating whether the respondent works in the manufacturing sector. Wages are measured in constant 2013 dollars, and models are weighted to be representative of the active workforce. For our analyses of non–college degree and high school or less workers, we replicate the model described above but limit the sample first to those workers with less than a bachelor's, and then to those workers with a high school diploma or less. We cluster our standard errors by industry-region in all models.

Our counterfactual series replicates the model described above except we set the industry-region unionization rates at their 1979 levels. That is, we solve the regression equation by plugging in the observed values for every other covariate except for industry-region unionization. For example, for each individual in the dataset, we treat that individual as if their industry-union rate was equal to the 1979 rate (regardless of what the true rate is in that particular year), leave all other covariate values equal to their observed values, and compute their predicted weekly wage using the estimated model equation.

Instead of modeling log weekly wages, we estimate generalized linear models (GLM) specifying a log link and gamma distribution family.[50] While estimating a log-linear model and then applying an appropriate smearing factor to retransform the dependent variable will improve the mean predicted wages relative to exponentiating log wages, this approach does not ensure that predictions for individual cases are particularly accurate, and there is little consensus regarding what smearing factor is preferable. Our approach does not require transformation of the dependent variable in the first place or retransformation post-estimation in order to predict values of the dependent variable in its raw-scale. We experimented with other common approaches, such as retransforming our predictions to the original scale following the estimation of log-linear ordinary least square (OLS) models using naive and Duan smearing estimators. Results are available upon request. In general, the GLM approach produces slightly larger counterfactual wage estimates than retransforming and using the Duan smearing estimators.

Details of Section 3 analyses

In Section 3 we repeat the counterfactual process described above under various specifications. We generate our high-range estimates by replicating the core model without the industry-region employment rate. We generate the first of our low-range estimates by dropping the manufacturing control and adding in 18 industry dummies. We generate the second of our low-range estimates by dropping the manufacturing and region controls, and adding in 72 industry-region dummies.

Details of Section 4 analyses

Figures I–L are based on annual GLM regressions of log weekly wages. We divide the industry-region unionization coefficients by 100 to get the predicted change in earnings for a 1 percentage-point increase in unionization (rather than a 100 percent increase in unionization). We then take the exponent to get the odds ratio. Finally, we subtract 1 to get the percent change in predicted weekly earnings for a 1 percentage-point increase in industry-region unionization.

Data on the erosion of union membership

Trends in union membership density among private-sector workers, by gender and
education, 1979–2013

	1979	1983	1993	2003	2013	Change 1979–2013
Men						
All workers	34%	25%	17%	12%	10%	24%
Workers without a college degree	38%	29%	20%	14%	11%	27%
Workers with a high school diploma or less	39%	31%	21%	14%	11%	28%
Women						
All workers	16%	12%	8%	7%	6%	10%
Workers without a college degree	16%	13%	9%	7%	6%	10%
Workers with a high school diploma or less	18%	14%	10%	7%	6%	12%

Notes: The table shows the proportion of each group that belonged to a union in each year. The sample is restricted
to full-time workers in the private sector ages 16 to 64. See the text and Methodological Appendix for details on the
analysis.

Source: Authors' compilations from the Current Population Survey (CPS) May Supplement microdata and CPS Outgo-
ing Rotation Group microdata.

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Endnotes

1. For a comprehensive examination of how the interrelationship between technological change and educational attainment has exacerbated inequality, see Goldin and Katz 2008. For a critique of the technological explanation for pay disparities, see Shierholz, Mishel, and Schmitt 2013.

2. For a classic formulation, see Freeman and Medoff 1984. For differences in union wage premiums in the private and public sectors, see Rosenfeld 2014, chapter 2.

3. Autor, Katz, and Kearney 2006; 2008; Western and Rosenfeld 2011: Figure 1.

4. Mishel 2012. See also the review of the union decline literature in Clawson and Clawson 1999.

5. Table A1 in the appendix displays unionization rates for various educational groups between 1979 and 2013.

6. Western and Rosenfeld 2011 is an exception.

7. Jacoby 1997, 64.

8. Ibid., 44-45. For the estimation of union threat effects, see Farber 2005; Leicht 1989; Neumark and Wachter 1995.

9. Foulkes 1980, 154.

10. See Harris and Kearney 2014; Shierholz 2009 for recent estimations of the minimum wage's "ripple effect."

11. Rosenfeld 2006.

12. See Western and Rosenfeld 2011.

13. Walters and Mishel 2003.

14. Western and Rosenfeld 2011, 518.

15. Kau and Rubin 1978.

16. Matusow 1998; Ulman 1998.

17. Cox and Oaxaca 1982.

18. Foulkes 1980, 156.

19. Rosenfeld 2014, Figure A.1. We use membership rates instead of coverage rates in our estimates of U.S. data due to measurement error on the coverage question. Given the small difference between membership and coverage rates in the institutional context of the United States, the choice of measure makes little difference, but our choice produces slightly *smaller* results than if we used the Current Population Survey's collective-bargaining coverage measure.

20. Despite this difficulty, membership rates in Alabama and Tennessee peaked at approximately a quarter of the workforce—over twice the national rate today.

21. Authors' estimates of CPS data.

22. Western and Rosenfeld 2011, Figure 4.

23. Foulkes 1980; Hyman and Brough 1976.

24. Rosenfeld 2014; Western and Rosenfeld 2011. Dividing up the labor force into more detailed geographic or industry categories would result in group counts too small to generate reliable estimates. See Western and Rosenfeld 2011, 523 for further justification of our industry-region classification.

25. In separate analyses we begin with a base year of 1973 instead of 1979, since 1973 was one of the first years the CPS included questions about union membership in its surveys. We display the results of this counterfactual in Figure L.

26. For a full list of covariates, see the Methodological Appendix.

27. See also Rosenfeld 2014, 221 for a discussion of the trade-offs involved in capturing union effects on nonunion wages.

28. Western and Rosenfeld 2011.

29. Ryan and Bauman 2016.

30. Eckstein and Nagypal 2004, Figures 6 and 7.

31. We calculate the first scenario by subtracting the wage at 1979 union density from the 2013 estimated wage and dividing by the 1979 wage. We calculate the second by subtracting the wage at 1979 union density from the 2013 estimated wage and dividing by the 1979 wage.

32. Fernandez 2001.

33. Krueger and Summers 1988; but see Gittleman and Pierce 2011.

34. For both low-range specifications, we drop the manufacturing dummy from the models, as the industry fixed-effects and industry-region fixed-effects effectively control for this sector's influence on pay.

35. We are unable to generate estimates for 1982 and 1994. See the Methodological Appendix for details.

36. Foulkes 1980, 154.

37. The aggregate losses for all members of the worker groups discussed are calculated by taking the rounded dollar average weekly wage loss per nonunion worker from Figures C and E and multiplying by the total number of nonunion full-time workers in the private sector by gender.

38. Less than half of the variation in union density between 1979 and 2013 is within-industry-region.

39. Lichtenstein 2004, 719.

40. Sinclair 1906.

41. Data from the Bureau of Labor Statistics Occupational Employment Statistics series. See here for more: http://www.bls.gov/oes/current/oes513023.htm.

42. See here for details: http://www.cepr.net/index.php/blogs/beat-the-press/meatpacking-didnt-always-have-bad-pay.

43. Authors' analyses of microdata from the Current Population Survey May Supplement and Outgoing Rotation Group.

44. Farber 2005.

45. Rosenfeld 2014: Figure 3.1.

46. Quoted in *Knowledge@Wharton* 2012.

47. Yeselson 2012.

48. See especially pp. 201–207 for more details on the CPS and sample construction. A full set of model results for all of the analyses are available upon request.

49. See Meyer and Sullivan 2013; Bivens and Mishel 2015.

50. See Kleykamp 2013 for a similar approach.

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