

Problems With Estimating the Union Wage Premium

By Christopher Douglas

Introduction

The “union wage premium” — the amount a union worker makes in wages and salary above a similar nonunion worker — is often used to highlight the potential value of joining a union. Unions claim that if workers unionize, their wages will increase, because allegedly the average union worker makes more than the average nonunion worker. If this were universally true, it seems like a compelling argument for enrolling in a union. However, the decline in union membership rates over the last several decades shows that an increasing number of workers have not been persuaded to join existing unions or organize new ones, suggesting that they are not convinced that becoming a union member will automatically boost their pay.

Some still maintain that union members earn significantly more, on average, than nonunion workers: the American Federation of Labor and Congress of Industrial Organizations union says that “union workers’ wages are 27 percent higher than their nonunion counterparts” and the U.S. Secretary of Labor claims that union workers make \$950 per week compared to nonunion workers’ \$750 per week.¹ But these statistics are based on a relatively simplistic view of the data. As this paper will demonstrate, there are significant challenges to using official government data to estimate the size of the union wage premium.

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Even if the available government data on wages were entirely clean and a perfect reflection of reality, its significance for current workers is limited. For instance, the fact that the average unionized worker may make more than the average nonunion worker does not necessarily mean that every current nonunion worker would be better off unionized or even could rightfully expect higher wages from becoming a union member. Whether a worker will be better off as a result of unionization is a much more complex question and needs to take into consideration other factors, such as job satisfaction, job security and other elements that might impact the value of a particular job to an individual worker.

“There are significant challenges to using official government data to estimate the size of the union wage premium.”

The complexity of this issue suggests that a much more detailed and ground-level research methodology is needed to estimate all of the potential benefits and potential drawbacks of unionization for individual workers. It would require a worker-level analysis of individual workplaces, and this type of research is time-consuming and not many have attempted it. But a recent research project deployed such a methodology and discovered results that may be surprising to many.

Brigham Frandsen, an economist at Brigham Young University, looked at the differences between workers employed at firms that narrowly voted to unionize and workers employed at firms that narrowly voted not to unionize. He then tracked the performance of these firms and the pay of individual employees over time, and found that “unionization significantly and substantially decreases establishment-level payroll, employment, average worker earnings ... and the probability of establishment survival.”² Clearly, this more detailed research paints a very different picture of the effects of unionization on workers and their earnings.

This paper discusses the difficulties of estimating the union wage premium, but also provides an analysis of the most current government data available and analyzes how this finding has changed over time. As mentioned, this analysis is of limited value for current workers considering unionization. The paper also discusses other research methods used to estimate the impact of unionization in a broader sense and of more consequence to current workers.

What the Research Literature Says

The problem with the 27 percent union wage premium figure that the AFL-CIO and others cite is that it does not take into consideration inherent differences between unionized and nonunionized workers. For instance, union workers may be more likely to work in occupations that already pay a higher wage on average compared to the occupations in which nonunion workers are more likely to be employed in. Or maybe unionized workers just happen to be older on average than nonunion workers and are therefore commanding higher wages as a result of their experience. Or perhaps union members are more concentrated in certain regions in the U.S. where the cost of living and wages tend to be higher — in the Northeast, for example.

A better analysis of the union wage premium would take these factors into account and previously published academic research has done this. Two studies worth noting use a sophisticated regression analysis to control for differences between union and nonunion workers in an attempt to estimate an “apples-to-apples” comparison of average wage differences between these different types of workers.

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In a 2002 study, economists Barry Hirsch and Edward Schumacher controlled for such factors as age, education, experience, industry and geographical region to estimate the average difference between union and nonunion worker wages. They found that the average union wage premium for private sector workers was 20 percent in 2001, down from 26 percent in 1984.³ David Blanchflower and Alex Bryson employed a similar statistical model in their 2003 study and calculated the union wage premium for private sector workers to be 16.5 percent in 2002.⁴

These studies suggest that the 27 percent union wage premium figure that the AFL-CIO and other unions tout is, at best, dated. Based on the available government data used in these types of studies, it’s likely that the average union wage premium is much lower and has declined over time.

Analysis of Current Government Data

For a more up-to-date estimation of the union wage premium, I used data from the U.S. Census Bureau’s Current Population Survey and employ a similar

regression analysis as those used in the aforementioned studies. These regressions analyses allows a comparison of the wages of workers whose only difference in the government data is whether or not they belong to a union. The results suggest that union wage premium has continued to decline since 2002, and in 2014, the CPS data show it to be an average of just 10.2 percent, including both private and public sectors.

But that’s not the end of the story, however, because it turns out that there are methodological assumptions made by the Census Bureau that bias this figure downward. The reason for this bias, in short, is that the Census Bureau imputes the wages for some survey respondents without considering whether these workers are unionized. So, even if these workers are unionized, there wages are categorized as nonunion wages by the Census Bureau.

Fortunately, the records for the survey respondents with imputed wages can be removed from the dataset and a slightly more accurate estimate of the union wage premium can be obtained, although the finding is slightly less robust as it relies on a smaller survey dataset. When this adjustment is made, the CPS data show the union wage premium in 2014 to be 14.7 percent, on average, almost half of what many unions consider it to be. The 15-year average (2000-2014) was 13.2 percent, with a high of 14.9 percent in 2010 and a low of 11.6 percent in 2009.

Sector-by-Sector Breakdown

This 14.7 percent figure is an average across all sectors of the U.S. economy, and a more detailed look at the CPS data suggests that there are important variations from this across-the-board estimation. I calculated the average union wage premium in seven different industries defined by the Census Bureau that have traditionally had a strong union presence: construction, nondurable goods manufacturing, durable goods manufacturing, wholesale trade, retail trade, transportation and warehousing, and education

and healthcare. According to the Bureau of Labor Statistics, these seven sectors comprised 47 percent of total private employment in December 2014. Graphic 1 below provides some of the businesses and jobs that would fall into these categories.

Graphic 1: Selected Businesses and Activities in Census Bureau Industry Codes

Industry Code	Businesses and Activities
Nondurable goods manufacturing	Retail bakeries, carpet and rug mills, and manufacturers of apparel, tires, medicines, paint, coatings and adhesives
Durable Goods Manufacturing	Manufacturers of computer and computer equipment, commercial machinery, motor vehicles, motor vehicle equipment, furniture, home furnishings, aerospace products and parts, and medical equipment
Wholesale Trade	Wholesalers of apparel, fabric, machinery, machine equipment and supplies, motor vehicles, motor vehicle parts and supplies, furniture and home furnishings
Retail Trade	Car dealers and department, discount, furniture, grocery and hardware stores
Transportation and Warehousing	Truck, air, rail and water transportation companies, taxis and limousines, bus service and urban transit, couriers and warehousing and storage companies
Education and Healthcare	Elementary and secondary schools, colleges and universities, physician and dentist offices, hospitals, nursing homes and home health care services

Source: U.S. Census Bureau

The findings from this sector-by-sector analysis produce a more nuanced view of the impact of unionization on average worker wages, according to government data. For instance, in two entire sectors — nondurable goods manufacturing and wholesale trade — the union wage premium is zero, or, technically, not statistically different from zero. This means that nonunion workers in these industries, on average, earn about the same as unionized workers. These industries comprise about 8 percent of the U.S. economy.

Although the union wage premium is not statistically different from zero in these industries based on 2014 government data, historical data show that a union wage premium used to exist. For example, the union wage premium in nondurable goods manufacturing

declined significantly since 1985, falling from 14.5 percent in 1985 to 8.6 percent in 1990. It fell to not statistically different from zero in 1995 and largely remained that way until 2014. So in this sector, average nonunion wages have grown faster than union wages over time.

“In two entire sectors — nondurable goods manufacturing and wholesale trade — the union wage premium is zero.”

The pattern is roughly the same in the wholesale trade industry. Here the union wage premium was 19.2 percent and statistically significant in 1985. It then fell to 8.0 percent in 1990, became statistically insignificant in 1995, and averaged -2.0 percent from 2000 to 2014, but was never statistically significant. Again, as is the case in the nondurable goods manufacturing sector, these data suggest that in wholesale trade sector, average nonunion wages rose faster than average union wages over time.

In the durable goods manufacturing and retail trade industries, the union wage premium is below 10 percent. Based on the 2014 data, the average union wage premium was 9.4 percent in durable goods manufacturing, although the 15-year average from 2000-2014 was lower, at 6.8 percent. The wage premium in retail trade was just 4.9 percent, but the 15-year average was 10.0 percent.

A significant decline in the average union wage premium occurred in the retail trade sector, which includes workers in electronic, hardware, grocery and clothing stores. It was 39.8 percent in 1985, dropped to 24.4 percent in 1990, and then continued to fall to 17.5 percent in 1995. It continued falling steadily from then until 2014, where it was 4.9 percent. As is the case a few other industries, average union wages are growing more slowly than nonunion wages over time and this is causing the union wage premium to shrink significantly.

Meanwhile, the largest union wage premiums are in the construction, transportation and warehousing, and education and health care sectors. The construction sector maintains the largest measured union wage premium at 37.0 percent in 2014. However, this was down 21 percent from the 1985 figure of 47.0 percent (although it is up slightly from 2000). The transportation and warehousing sector’s union wage premium in 2014 was 27.3 percent, but this too has decreased since 1985, falling by 38 percent. Finally, the average union wage premium in the education and health sector was smaller than these other two sectors, but, unlike most all other sectors, it has actually risen slightly over time. It was 17.8 percent in 2014, up 25 percent from 1985. Over the last 15-year period, it remained between 17.8 and 15.0 percent each year.

Graphic 2 below shows the details from this regression analysis of 15 years’ worth of wage data, with snapshots of 1985, 1990 and 1995 included as well.

Graphic 2: Union wage premium by sector, 1985-2014

Year	Construction	Nondurable Goods Manufacturing	Durable Goods Manufacturing	Wholesale Trade	Retail Trade	Transportation and Warehousing	Education and Health Care
2014	37.0%*	3.4%	9.4%*	-6.4%	4.9%*	27.3%*	17.8%*
2013	31.8%*	5.7%*	7.1%*	0.5%	4.2%	35.3%*	15.6%*
2012	32.8%*	6.7%*	11.0%*	-5.1%	5.5%*	31.7%*	16.6%*
2011	34.5%*	4.6%	10.7%*	2.4%	5.1%*	32.2%*	17.2%*
2010	30.2%*	5.2%*	11.1%*	1.0%	10.0%*	28.9%*	17.8%*
2009	28.8%*	-1.1%	-0.1%	-1.0%	10.7%*	27.4%*	15.0%*
2008	29.0%*	0.1%	6.8%*	1.9%	6.5%*	24.1%*	15.6%*
2007	31.3%*	-1.1%	8.1%*	-5.3%	12.3%*	21.8%*	14.7%*
2006	25.8%*	4.2%	5.7%*	-1.1%	10.5%*	28.5%*	15.2%*
2005	30.0%*	2.7%	7.2%*	-0.7%	13.3%*	25.7%*	16.2%*
2004	30.1%*	1.5%	4.7%*	-2.0%	13.4%*	28.7%*	17.4%*
2003	30.1%*	4.9%	7.0%*	-3.7%	14.3%*	25.7%*	16.1%*
2002	31.2%*	1.0%	5.5%*	-4.1%	16.1%*	28.7%*	16.6%*
2001	31.9%*	0.4%	2.6%	-6.5%	12.5%*	25.7%*	19.1%*
2000	32.7%*	-1.8%	5.6%	0.3%	11.0%*	29.2%*	16.5%*
2000-2014	31.1%	2.4%	6.8%	-2.0%	10.0%	27.7%	16.5%
1995	39.2%*	2.5%	3.7%*	3.0%	20.2%*	30.5%*	26.8%*
1990	30.4%*	8.6%	8.0%	7.3%*	24.4%*	29.7%*	14.3%*
1985	47.0%*	14.5%	14.4%	19.2%*	39.8%*	37.8%*	14.2%

Source: U.S. Census Bureau Current Population Survey. Asterisks indicate statistical significance at the 0.05 level.

Gender

The union wage premium also varies significantly by gender. In 2014, females received a slightly higher wage premium than men. The premium for females was 14.9 percent and for males, 13.8 percent. But from 2004 to 2009, the union wage premium for men was roughly half of that for women.

For both genders the union wage premium has decreased since 1985. It fell by 26 percent for women and 29 percent for men from 1985 to 2014. Graphic 3 displays these results in full.

The pattern of change in union wage premiums for females versus males from 1985 to 2014 deserves some attention. As seen in Graphic 3, the female wage premium has had a much more stable and gradual decline between 1985 and 2014. In contrast, until 2009, the male wage premium experienced a much sharper decline. In 2009, the male wage premium was only 7.8 percent, which was 60 percent below its 1985 value and roughly half the female wage premium. The male

wage premium then rebounded to 13.2 percent in 2010 and has hovered around that figure ever since.

Graphic 3: Average union premium by gender, 1985-2014

Year	All	Female	Male
2014	14.7%	14.9%	13.8%
2013	14.1%	14.7%	12.8%
2012	14.1%	15.6%	11.9%
2011	14.9%	15.6%	13.3%
2010	14.9%	15.8%	13.2%
2009	11.6%	14.4%	7.8%
2008	11.7%	15.3%	7.4%
2007	11.9%	14.7%	8.1%
2006	12.0%	16.4%	7.4%
2005	13.5%	16.2%	9.8%
2004	12.8%	16.5%	8.2%
2003	13.6%	15.8%	10.0%
2002	12.9%	16.0%	8.6%
2001	13.1%	17.3%	8.0%
2000	12.3%	15.7%	8.1%
2000-2014	13.2%	15.7%	9.9%
1995	16.8%	22.1%	11.4%
1990	15.5%	16.9%	12.4%
1985	21.8%	20.0%	19.4%

Source: U.S. Census Bureau Current Population Survey. All figures are statistically significant at the 0.05 level.

The recent growth in the average male union wage premium may be explained in part by the impact of the Great Recession. In a paper published by the Mackinac Center for Public Policy in 2011, I illustrated that union and nonunion companies deal with economic downturns differently. Union companies are more likely to turn to layoffs rather than wage cuts, compared to nonunion companies. Given the common use of seniority-based layoff decisions in union companies, these layoffs disproportionately affect lower-paid, junior union members. If this is the case, we would expect the data to show that the measured union wage premium had risen during an economic downturn. The relatively lower-paid union members are laid off while the senior, higher-paid union members remain at their original pay. At nonunionized companies, all workers, including most senior ones may have to take a pay cut.

Employment data seems to support this explanation. According to the Bureau of Labor Statistics, unionized employment in the durable goods manufacturing industry — a sector dominated by male workers — fell by 20.4 percent in 2009.* In contrast, nonunion employment fell by only 12.3 percent. As seen in Graphic 2, the union wage premium in durable goods manufacturing was essentially zero in 2009 (following a steady decline from 1990), but then rebounded to 11.1 percent in 2010. These factors may help explain the recent rise in average union premium in this sector and for male workers in general.

Graphic 4: Composition of industries by gender, 2014

Industry	Male		Female	
	2014	1985	2014	1985
Construction	91%	90%	9%	10%
Nondurable Goods Manufacturing	63%	54%	37%	46%
Durable Goods Manufacturing	74%	70%	26%	30%
Wholesale Trade	70%	70%	30%	30%
Retail Trade	50%	42%	50%	58%
Transportation/Warehousing	76%	76%	24%	24%
Education/Health Care	25%	27%	75%	73%

Source: U.S. Bureau of Labor Statistics

As seen in Graphic 2 above, union wage premium declined from 1985 to 2014 in the construction, durable and nondurable goods manufacturing, wholesale and retail trade, and transportation and warehousing industries. Graphic 4 illustrates that all these industries are male dominated, save the retail trade industry, which is roughly evenly split between men and women. The only industry that did not see a decline in the union wage premium during this time, and in fact saw a gain, is the education and health care industry. This is a female-dominated industry, which may help explain why the union wage premium for females did not experience as sharp of a decrease as it did for males.

Regional Differences in the Union Wage Premium

Just as the average union wage premium varies significantly by industry and gender, it also varies by geographical region. The U.S. Census Bureau categorizes the U.S. into four different regions: Northeast, Midwest, South and West. Graphic 5 shows which states make up each region.

Graphic 5: Census Bureau Regions

Northeast	Midwest	South	West
Connecticut	Illinois	Alabama	Alaska
Maine	Indiana	Arkansas	Arizona
Massachusetts	Iowa	Delaware	California
New Hampshire	Kansas	Florida	Colorado
New Jersey	Michigan	Georgia	Hawaii
New York	Minnesota	Kentucky	Idaho
Pennsylvania	Missouri	Louisiana	Montana
Rhode Island	Nebraska	Maryland	Nevada
Vermont	N. Dakota	Mississippi	New Mexico
	Ohio	N. Carolina	Oregon
	S. Dakota	Oklahoma	Utah
	Wisconsin	S. Carolina	Washington
		Tennessee	Wyoming
		Texas	
		Virginia	
		Washington, D.C.	
		West Virginia	

Source: U.S. Census Bureau

* See the BLS union membership data, available at: <https://goo.gl/ivrjt>.

Graphic 6 shows the union wage premium by geographical region. In 2014, the union wage premium was the highest in the West at 17.1 percent, followed by the Northeast, whose premium was 16.5 percent. The Midwest and South followed at 11.4 percent and 12.2 percent, respectively. As in the case generally, the union wage premium in three of the four region has decreased substantially since 1985: falling 31 percent in the West, 50 percent in the South and 51 percent in the Midwest. The union wage premium in the Northeast is actually up slightly, from 14.9 percent in 1985 to 16.5 percent in 2014. There is not large variation year-to-year in any region in recent years, and the 15-year averages land at 13.5 percent in the Northeast, 15.8 percent in the West, 10.6 percent in the South and 11.2 percent in the Midwest.

Interestingly, the Northeast region’s increase in the union wage premium is matched by the largest decrease in the unionization rate between 1985 and 2014 compared to the other regions. In 1985, 12.1 percent of workers in the Northeast were unionized, but only 4.9 percent were in 2014. Unionization rates declined in the Midwest and West as well, falling from 10.7 percent to 7.7 percent and 9.6 percent to 5.1 percent, respectively. In the South, on the other hand, the unionization rate increased from 5.8 percent in 1985 to 6.9 percent in 2014.

Graphic 6: Union wage premium by region, 1985-2014

Year	Northeast	Midwest	South	West
2014	16.5%	11.4%	12.2%	17.1%
2013	13.1%	12.2%	9.1%	19.8%
2012	16.0%	11.0%	11.5%	17.7%
2011	14.1%	12.6%	11.4%	18.3%
2010	14.8%	12.9%	14.7%	16.0%
2009	9.3%	12.9%	8.6%	14.6%
2008	12.0%	10.7%	10.8%	12.4%
2007	11.3%	8.9%	10.2%	14.1%
2006	13.1%	9.8%	8.6%	14.1%
2005	12.6%	11.4%	11.8%	15.4%
2004	14.2%	10.4%	9.8%	16.0%
2003	15.9%	11.9%	10.6%	14.8%
2002	16.2%	11.9%	8.7%	14.7%
2001	11.1%	11.0%	11.2%	15.7%
2000	13.0%	9.3%	9.7%	15.8%
2000-14	13.5%	11.2%	10.6%	15.8%
1995	19.9%	14.0%	11.6%	22.0%
1990	16.0%	14.2%	11.4%	19.2%
1985	14.9%	23.3%	24.5%	24.9%

Source: U.S. Census Bureau Current Population Survey. All figures are statistically significant at the 0.05 level.

Private and Public Sector Comparison

The union wage premium also differs between public sector and private sector employees. As previous research has found, my analysis identifies that the union wage premium tends to be higher for private sector employees compared to public sector employees.⁵ The premiums in these two cross sections also vary in how they’ve changed over time.

The union wage premium for public sector employees did not change a great deal between 1985 and 2014. It actually grew from 11.5 percent in 1985 to 14.7 percent in 2014, an 18-percent increase. For most of the last 15 years, the premium was below the 1985 mark, but it jumped significantly from 2013 to 2014, going from 8.6 percent to 14.7 percent in just one year. The lowest recorded public sector premium found in this analysis was 7.6 percent in 2009.

This growth in the public sector union wage premium diverges from the general trend of a steadily decreasing union wage premium found in the overall average and in specific industries. One potential contributing factor to this abnormal trend is the fact that the education and

health care sector is made up of more public sector employees than most other sectors. And recall that this was the only sector out of the seven analyzed that saw the union wage premium grow from 1985 to 2014.

The union wage premium in the private sector, on the other hand, follows the general trend and decreased from 1985 to 2014. In the private sector, the union wage premium was 25.0 percent in 1985 but 17.6 percent in 2014, a decrease of 30 percent. It has grown slightly over the last several years, increasing from 13.5 percent in 2008. In this analysis, the lowest recorded private sector union wage premium was 12.4 percent in 2000.

Graphic 7: Union wage premium in the public and private sectors, 1985-2014

Year	Public	Private
2014	14.7%	17.6%
2013	8.6%	16.8%
2012	10.2%	16.4%
2011	11.5%	16.8%
2010	9.2%	17.8%
2009	7.6%	14.2%
2008	9.3%	13.5%
2007	8.2%	14.4%
2006	9.7%	13.7%
2005	11.1%	15.1%
2004	9.6%	14.7%
2003	10.6%	15.4%
2002	10.0%	14.8%
2001	13.1%	13.1%
2000	12.3%	12.4%
2000-2014	10.4%	15.1%
1995	18.7%	15.3%
1990	11.1%	17.1%
1985	12.5%	25.0%

Source: U.S. Census Bureau Current Population Survey. All figures are statistically significant to the 0.05 level.

A Steady Decline in the Union Wage Premium

While regression analyses of wage data from the CPS continue to show an overall average union wage premium, an important trend is worth highlighting, and that is that the union wage premium has steadily decreased over time. This is only possible if nonunion wages are growing faster (or decreasing less) than union wages, on average. And this in fact the case in nearly every sector of the economy with unionized employees.

For instance, the inflation-adjusted nonunion weekly wage in construction increased by 12 percent from 1985 to 2014, but only increased by 1 percent for unionized employees. Similar trends were found in nondurable goods manufacturing, durable goods manufacturing, wholesale trade, retail trade and transportation and warehousing. In fact, in wholesale trade and retail trade, the real average weekly union wage actually decreased from 1985 to 2014 — by 9 and 14 percent, respectively — while it rose significantly for nonunion employees — by 18 and 35 percent, respectively.

These trends are important for young workers to consider if deciding whether to join a unionized workplace or not. If these trends hold, nonunionized workers, while not starting out at as high of pay as their unionized counterparts, might enjoy faster wage growth over time and may end up at a higher wage level later in their careers compared to where they might have been in a unionized shop.

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The results of a recent Gallup poll that surveyed union and nonunion workers about their satisfaction with various aspects of their jobs provide additional real-world support for the fact borne out in the data provided above, namely that the union wage premium has decreased significantly since 1985 and is nonexistent in several major industries.

Based on the survey, both union and nonunion workers report equal satisfaction with the amount of on-the-job stress and the amount of money they earn. On one hand, union workers express more satisfaction

with fringe benefits such as vacation time, retirement plans and health insurance benefits than nonunion workers. Nonunion workers, on the other hand, report more satisfaction with job safety, recognition for work achievements, their boss, job security, the amount of work required of the worker, chances for promotion and relations with coworkers.⁶

Poll results that find that union workers are less satisfied with aspects of their job compared to nonunion workers are not new. In their 1984 book, Freeman and Medoff, report similar findings.⁷ Economist Henry Farber, in a 1990 study, investigates the decline of unionization. Farber found that all of the decline in worker demand for union representation could be explained by an increase in nonunion workers' job satisfaction and a decline in the belief that unions could improve wages and working conditions.⁸ This is consistent with the Gallup poll results and the results from this analysis.

Limitations of Government Data

Even these regression analyses of official government data, however, may not be telling the whole story. For instance, there may be other inherent biases in the data that researchers simply cannot control for. For example, it could be the case that unions tend to organize workers in workplaces that pay higher than normal wages to begin with. And there's some evidence to this effect: unions are more likely to organize in larger, more productive workplaces, which is certainly more attractive for unions, because they can collect more in dues from firms with a larger number of employees. On average, larger, more productive workplaces pay higher wages than smaller, less productive ones.⁹ So, in this particular case, workers in these larger firms would have already been paid more than their counterparts in smaller firms, even if they weren't unionized.

These limitations of government data leave researchers in a position of not being able to confidently answer

the question about the average difference in wages between a union and nonunion worker. The data clearly suggest that the figures that unions themselves cite — 27 percent higher wages for union members — is far from correct, but they do not provide an opportunity to confidently estimate what the real average wage premium is.

Individual Workplace Studies

Recognizing the limitation of these government data, researchers have come up with new ideas on how to measure the impact of unionization on average worker wages. One method that has been used recently is to compare workers' wages at firms that narrowly voted to unionize with workers' wages at firms that narrowly voted not to unionize. Tracking these same firms and the same workers over time mitigates the aforementioned firm-size bias.

One recent study that employs this technique was conducted by Brigham Frandsen and published in 2013. Frandsen used a regression discontinuity research design and matched individual worker earnings to employers based on close union elections. He used a large dataset of firms from across the entire economy covering a span of 30 years. Union certification election results from 45,176 elections were matched with a dataset of 23 million different businesses from the Census Bureau's Longitudinal Business Database. Frandsen was able to match 82 percent of these union elections, allowing him to track the performance of individual businesses that had recently voted to unionize or recently voted not to unionize.¹⁰

To analyze the impact of unionization on individual employees employed by these firms, Frandsen relied on a dataset of individual-level earnings from the U.S. Census Bureau's Longitudinal Employer-Household Dynamics database. These data range from 1985 to 2008 and contain 2.8 billion records. Frandsen matched these records with those that had been matched from the union election database and the business database.¹¹

By comparing the wages and employment security of workers who had just voted to unionize and those who had just narrowly voted not to unionize, Frandsen was able to isolate, as best as possible, the impact that unionization had on real, individual workers. As the title of his paper states, the findings were “surprising.”¹²

Frandsen found that recently unionized firms actually reduce payroll, pay lower wages on average, hire fewer workers and were more likely to go out of business than firms that almost but did not unionize. The reduction in payroll and average lower wages at recently unionized firms was primarily caused by the more experienced and higher paid employees leaving the firms after unionization. But even workers who remain employed by newly unionized firms “are little affected on average,” according to Frandsen’s research.¹³

If the older employees who leave were relatively well paid because of the value that generated for the firm, it stands to reason why the firms that pushed these workers out through unionization also were more likely to go out of business. This creates somewhat of a conundrum for workers seeking out unionization as a means to better wages and working conditions. If they are successful in unionizing, they are more likely to be unemployed than if they were not successful in unionizing.

Frandsen’s research is probably the closest study of the real impacts of unionization on individual workers. All other efforts, many of them outlined above, must rely on aggregated government data, and these data, no matter how reliable, have inherent shortcomings and biases that researchers can only attempt to partially mitigate through statistical controls. Frandsen tracks the conditions of real workers and firms over time and isolates the unionization variable as best as possible. His findings help provide a better overall picture of the effects of unionization and should be of particular interest to employees who are considering organizing a new union in a workplace.

“Frandsen found that recently unionized firms actually reduce payroll, pay lower wages on average, hire fewer workers and were more likely to go out of business than firms that almost but did not unionize.”

Conclusion

In general, based on government survey data, the union wage premium has experienced a significant decline over the last several decades, decreasing by about 33 percent since 1985. This decline is prevalent throughout the economy, although its magnitude varies by industry, geographical location and for different types of workers. In some industries, union wage premiums have declined all the way to zero, meaning that nonunion workers, on average, make as much as unionized workers in these industries.

In contrast, in the education and health care sector, the union wage premium has averaged 16.5 percent between 2000 and 2015 and is statistically significant. It has not declined, on average, compared to its 1985 or 1990 value and in fact is up slightly. A likely explanation for this pattern is that the education and health care industries are protected by substantial barriers to entry. Public schools enjoy near monopoly status in the market for K-12 education, higher education is heavily subsidized, and hospitals are protected from competition via “certificate of need” laws and other anticompetitive regulations.

The other industries analyzed in this report have faced substantial competition in the global marketplace, as is the case in manufacturing, or from nonunion competition, as in the case in construction and transportation. In the construction and transportation industries, the average wage premium is still significant (37 and 27.3 percent in 2014, respectively)

— larger than the other five industries analyzed in this report. However, unlike the education and health sector, premiums in these industries have declined since 1985, falling by 21 percent in construction and 28 percent in transportation. The competition in these industries likely prevents unionized companies from paying wages that are substantially greater than what the market can bear. Unions need monopoly power in order to pay above market wages as to not be put at a competitive disadvantage against lower cost competitors. It is possible that if the barriers to entry in education and health care are overcome, as they were in the other industries, the union premium there would substantially fall as well.

It's important to remember that calculating the union wage premium is not an easy task, and as demonstrated, is substantially complicated. The various approaches researchers have taken to this question have produced a variety of results, all with their strengths and weaknesses. According to imperfect government survey data, unionized workers do earn more on average compared to nonunionized workers, but the difference is much smaller than the simplistic average wage figures that some unions publicize. These figures do not take into account any of the other potential factors that may contribute to some workers earning different wages than others, on average.

Finally, it's also important to remember that correlation is not causation. Just because current unionized employees earn more on average than nonunionized workers does not mean that workers will automatically give themselves a wage boost by unionizing. Further, nonunion wages are rising faster than union wages, on average, and newly unionized firms tend to do worse, suggesting that it might not be in the best interest of workers, from a wage perspective, to organize new unions.

A more detailed and robust analysis of the impact of unionization on wages and more finds that newly unionized businesses and employees actually perform

worse than businesses that almost voted to unionize but did not. Firms that unionized reduced their payroll, paid lower wages on average, hired fewer workers and were more likely to go out of business compared to their nonunionized peers. These findings may be more relevant for workers considering whether or not to unionize their workplace or join a union.

Endnotes

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- 11 Ibid.
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