

FIGHTING \$15?

An Evaluation of the Evidence and a Case for Caution



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With an Introduction by **MICHAEL SALTSMAN**

**Employment
Policies**

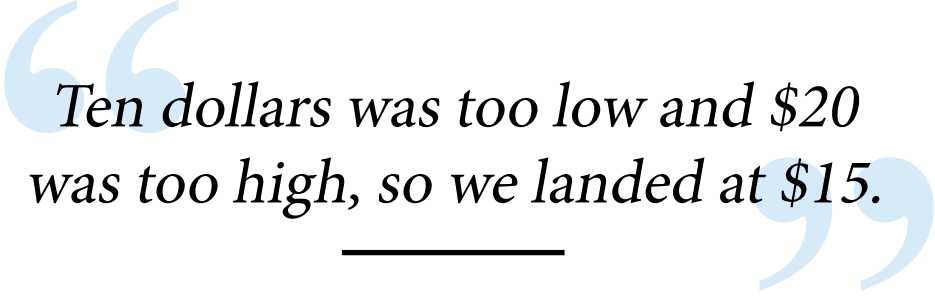
I N S T I T U T E



FIGHTING \$15?

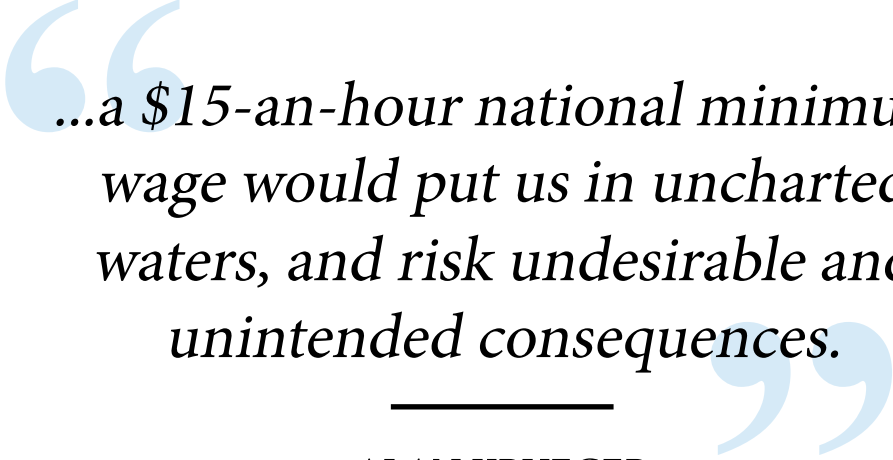
An Evaluation of the Evidence and a Case for Caution

Edited by **LIAM SIGAUD** and **MICHAEL SALTSMAN**



*Ten dollars was too low and \$20
was too high, so we landed at \$15.*

KENDALL FELLOWS
Service Employees International Union



*...a \$15-an-hour national minimum
wage would put us in uncharted
waters, and risk undesirable and
unintended consequences.*

ALAN KRUEGER
Princeton University
Former Chairman, President Obama's Council of Economic Advisers

INTRODUCTION:

A CASE FOR CAUTION

MICHAEL SALTSMAN

EMPLOYMENT POLICIES INSTITUTE

In his 2013 State of the Union, President Obama called for a 25 percent increase in the federal minimum wage, to \$9 an hour. Five years later, the Democratic Party promised a minimum wage increase of more than 100 percent, to \$15 an hour.

This radical evolution in what constitutes an acceptable minimum wage can be credited to the Service Employees International Union (SEIU), which starting in 2012 invested more than \$100 million to normalize the concept of a \$15 minimum wage. The SEIU has succeeded in its political goal; today, anything less than a demand for a \$15 minimum wage is considered unacceptable to organized labor, and the Democratic Party has adopted the policy as part of its national platform.

But political success doesn't translate to economic success, and the \$15 experiment has a more-mixed record on this point. A 2017 analysis from researchers at Harvard and Mathematica Policy Research, covering more than a dozen cities in the San Francisco Bay Area, found each \$1 increase in the minimum wage was associated with a 14% increase in closures for median-rated restaurants. In Seattle, a team of researchers at the University of Washington identified a significant loss of work hours for affected employees, such that workers who were supposed to gain a boost in pay were instead no better off than before.

These consequences shouldn't come as a surprise, given the lack of precedent for a minimum wage as high as \$15 an hour. The first federal minimum in 1938 was \$0.25 an hour, or \$4.20 in 2015 dollars. It began primarily as a skilled minimum wage, applied to industries such as mining, manufacturing and transportation. As it expanded to include jobs in the service industry, the minimum wage in effect became a wage floor for unskilled labor. Adjusted for inflation, the federal minimum wage has been as high as \$10.90 an hour, in 1968, and as low as \$3.93, in 1948. But the average federal minimum wage

over its 80-year history in the U.S. has been \$7.40 an hour--roughly half of the proposed \$15 standard.

As this book describes, moving to a \$15 standard would expand coverage of the minimum wage to a level previously unheard of.

Today, less than 3% of the

hourly workforce earns the minimum wage; by contrast, a \$15 minimum wage would cover 44% of the hourly workforce in 2020. Considering that minimum wage coverage has historically ranged from 1.5 to 4 percent of this workforce, this figure should rightly shock members of Congress considering whether to support \$15.

In an era of wage demands where \$15 is the baseline standard, it's easy to forget that even more-modest increases in the minimum wage have been shown to negatively impact employment for less-skilled workers. The consensus from the empirical literature on this topic,

There's a strong case for caution on a \$15 minimum wage. The question is, will Congress heed the evidence?

as summarized in a 2015 paper from the Federal Reserve Board of San Francisco, was clear: "...the overall body of recent evidence suggests that the most credible conclusion is a higher minimum wage results in some job loss for the least-skilled workers—with possibly larger adverse effects than earlier research suggested."

Even Bill Clinton (who signed an increase in the federal minimum wage in 1996) understood that trade-offs exist. After approving a 21-percent increase in the federal minimum wage, then-President Clinton was confronted in 1998 with a proposal for a further 40-percent wage hike. In a January 1998 memo, the President's economic advisers called the increase "too aggressive" (even with a strong economy) and were unequivocal in their opposition: "[This] proposal could prove damaging to the employment prospects of low-skilled workers, as well as to the general macroeconomic performance of the economy."

The President took their advice, but the 40-percent increase did eventually pass in 2006, and it phased in between 2007 and 2009. Subsequent research has shown that the increase worsened the effects of the Great Recession; according to one study by economists at the University of California-San Diego, this federal wage hike was responsible for 14 percent of the decline in employment during the recession. The Congressional Budget Office warned that raising the federal minimum wage by another 40 percent (to \$10.10) would cost the country an estimated half-million jobs. Should a \$15 minimum wage be pursued, this book suggests as many as 2 million jobs. Even that figure could be conservative, as it doesn't account for the impact of a sharp 604-percent increase in the minimum wage for

tipped employees that's been embraced by organized labor. Currently, tipped employees are guaranteed the same minimum wage as all other employees; with their tips, they report earning more than \$14 an hour on average. A New York-based labor group called ROC has spent millions of dollars advocating to eliminate the tipping system in favor of a higher flat wage. Most tipped employees are strongly opposed to this change--one survey found that 97 percent prefer the status quo--and have organized against ROC's efforts to change it. More than their income is at risk: One study looking at past changes in the tipped minimum wage found an industry-wide decline in employment associated with each tipped wage increase.

The best case against a higher minimum wage might be its irrelevance. Since the last increase in the federal minimum wage was fully phased-in in 2010, both the number and percentage of people earning it has fallen every year, as employees earn raises through their own initiative. Multiple studies confirm that a majority of minimum wage employees--who are disproportionately young and less-educated--earn a raise within one to 12 months on the job. For employees who are older and/or have children, better alternatives exist--including the Earned Income Tax Credit, which operates through the tax code instead of a mandate on employers. Thanks for the EITC (also called the Working Americans Credit), the effective federal minimum wage for many single parents is already above \$10 an hour.

There's a strong case for caution on a \$15 federal minimum wage. The question is, will Congress heed the evidence?

FIGHTING \$15?

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CHAPTER 1:

MINIMUM WAGES IN THEORY AND PRACTICE

MARK J. PERRY

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When municipalities, counties or states consider implementing minimum wage legislation, policymakers need to accurately assess the economic impacts of those proposed minimum wage laws, both while such legislation is being considered and after a minimum wage law has gone into effect. A proper understanding of the economic effects of government price controls in general, and of minimum wage legislation specifically, requires an understanding of some basic principles of economics.

The goal of this chapter is to present an overview of the standard economics textbook treatment of the minimum wage and to extend that standard textbook discussion in three ways that might help policymakers gain a greater understanding of the possible negative employment effects of a higher minimum wage. I outline what I see as three possible shortcomings of the standard economic approach to the minimum wage and propose some common sense ways to enrich, enhance and supplement the analysis of minimum wage laws.

To provide a quick overview of some key economic issues before discussing the details, let's start with the standard economic analysis of the minimum wage, which helps answer the question: If the minimum wage goes up by X% or by X dollars per hour, what effect will that have on low-skill employment levels in a given jurisdiction? That question, and its answer, should obviously be of great interest to policymakers considering a new minimum wage law.

FIGURE 1. THE STANDARD ECONOMIC MODEL OF THE MINIMUM WAGE

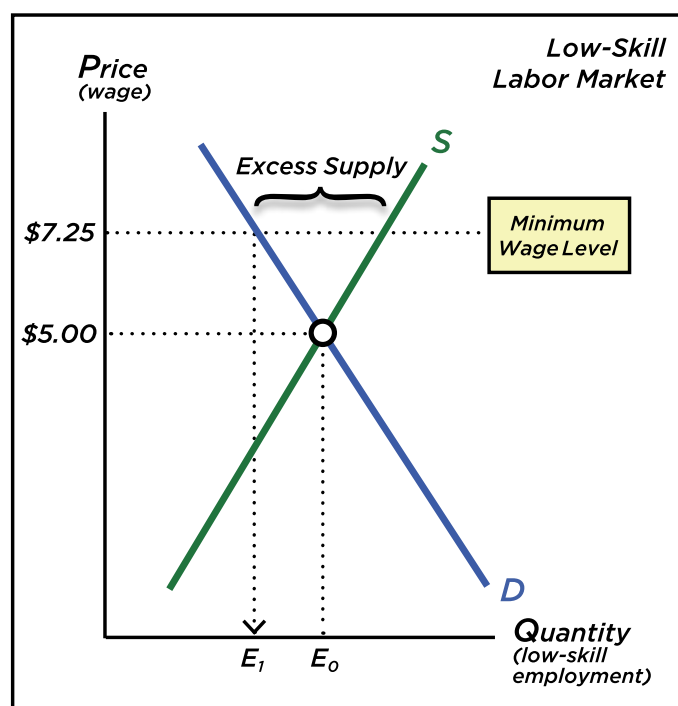


Figure 1 above represents the standard economics textbook presentation of the effects of minimum wage laws that artificially raise wages for low-skilled workers (to \$7.25 an hour in this case) above the market-clearing equilibrium wage (\$5 an hour in this case). According to

economic theory, the effects of a government-imposed price floor include the following:

- a) a decrease in the number of low-skilled workers employed (from E_0 to E_1 in Figure 1);
- b) an increase in the number of low-skilled workers seeking employment at the new higher wage, which has increased by \$2.25 an hour (or 45%) in the case above;
- c) an excess supply of low-skilled workers, which increases the unemployment rate for those workers.

While some variation of the diagram above appears in almost every economics textbook, and provides the standard economic analysis of price floors and the minimum wage, there are some shortcomings of this standard analysis. Although the standard economic analysis of the minimum wage is a great starting point, I outline three ways below that the standard analysis can be extended to help policymakers assess the full impacts of higher legislated wages for low-skilled workers.

I. THE IMPACT OF THE MINIMUM WAGE ON HOURS WORKED

The standard economic analysis of the minimum wage in Figure 1 shows the “Quantity of Low-Skill Employment” on the horizontal axis. Other diagrams and textbooks use terms like “Quantity of Labor” or “Quantity of Workers” or simply “Employment” to label the horizontal axis. However, to help assess the full impact of minimum wage laws on local labor markets, we could supplement the traditional economic model with an alternative model where its horizontal axis would represent the “Quantity of Low-Skill Labor *Hours*.”

From a practical business standpoint, employer demand for unskilled and low-skilled workers is more accurately described in terms of the “number of labor hours” demanded rather than the “number of low-skilled workers” demanded. When businesses budget their labor costs and determine staffing levels to manage those costs, employers are more concerned about the *number of hours their employees are scheduled to work during a given period*, like the next week or month, than the number of workers employed at that business. And when a firm is forced to respond to an increase in the minimum wage that significantly increases its labor costs for low-

skilled workers, it probably first considers adjusting (reducing) the number of work hours scheduled to contain costs before it would adjust (reduce) the number of workers.

For example, suppose that to control and maintain labor costs at their previous level, a firm responds to a 20% increase in the minimum wage with a comparable percentage decrease in the number of hours scheduled for low-skilled workers, possibly with increased expectations of work effort. The same number of low-skilled workers might be employed, but each of their weekly work hours might be reduced, possibly to the point that their weekly earnings remain roughly the same as before the minimum wage increase went into effect. To the extent that there are negative employment effects of an increase in the minimum wage, it would tend to show up more as a reduction in the *number of hours of low-skill labor demanded* by employers rather than a reduction in the *number of low-skilled workers employed*.

Therefore, the supply/demand diagram used to analyze the effects of a minimum wage increase would be more realistic if the horizontal axis was labeled “Quantity of Low-Skilled Labor *Hours*.” The empirical studies of the effects of the minimum wage, to the extent that they don’t already, should analyze the response that employers make to the *number of work hours demanded following minimum wage hikes*. As an example, the well-known Card-Krueger study of the minimum wage¹ only looked at staffing levels at fast food restaurants before and after a minimum wage hike, and *not at the number of hours scheduled* by employers at those restaurants.

SUMMARY: Studies that find no detectable decreases in the number of low-skilled workers employed following minimum wage hikes don’t necessarily prove that there are no negative effects on low-skilled workers who manage to keep their job. It’s very possible that the negative effects of minimum wage increases on low-skilled workers could show up in reductions in the number of hours worked, which might leave their weekly wages unaffected or could even reduce total earnings for those workers. Jurisdictions that pass minimum wage laws and want to accurately assess the impact of those laws should pay close attention to changes in the average number of weekly or monthly work hours by low-skilled workers following higher mandated minimum wages.

¹Card, David, and Alan Krueger. 1993. “Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania” *The American Economic Review*, Vol. 84, No. 4: 772-93.

II. THE IMPACT OF THE MINIMUM WAGE ON HOURLY WORKER COMPENSATION

The standard economic model in Figure 1 shows the hourly Price (wage) on the vertical axis, as is standard practice in almost every economics textbook. However, it would be more accurate to label the vertical axis instead as “Hourly Compensation,” since even most low-skilled, entry-level workers receive some non-wage fringe benefits that might include the following: free or reduced cost uniforms; free or discounted meals at restaurants; free or reduced cost merchandise at retailers; medical, vision and dental insurance; prescription drug coverage; 24-hour nurse line access; short term disability insurance and term life insurance; a 401(k) retirement savings plan; educational assistance; vacation and paid holidays; travel and entertainment discounts; and flexible hours.

If the availability of those fringe benefits seem unrealistic for low-skilled workers, consider that many of them are currently available to hourly restaurant crew workers at McDonald’s (“subject to availability and certain eligibility requirements and restrictions”).

As George Mason University economist Don Boudreaux commented on the Café Hayek blog² in 2015, “Although it is practically impossible for outside investigators to observe, much less to accurately quantify, any movements along most of these margins, who can doubt that movements often occur along these margins [following minimum wage hikes]?”

Especially when we consider that the \$15 an hour state minimum wage laws passed in California (from \$10 an hour) and New York (from \$9 an hour) in 2016 will increase the annual cost of employing a minimum wage worker by \$10,000 and \$12,000 respectively (plus additional employer-paid payroll taxes), it seems almost certain that employers in those states will be forced to make adjustments to non-wage forms of compensation just to stay in business.

Even without precise measurements of non-monetary compensation, by labeling the vertical axis in the standard economic model as “Hourly Compensation” (instead of “Hourly Wage”) we would more accurately describe the supply and demand conditions affecting minimum wage increases, and could capture graphically the possible adjustments to non-wage forms of com-

pensation. The standard economic model only considers how changes in the monetary wage affect employer demand for low-skilled workers, and therefore ignores the more nuanced effects of how total hourly compensation (and non-wage fringe benefits and non-wage job attributes) might also change in response to minimum wage hikes.

SUMMARY: To the extent that increases in the monetary minimum wage are offset by employers reducing the non-wage fringe benefits offered to their employees to remain profitable, even low-skilled workers who remain employed will not necessarily be better off from a minimum wage hike. Those workers’ total compensation could stay the same, or may even be reduced if the reductions in non-wage attributes more than offset the increase in monetary wages. In the same way that a tenant who is able to find a rent-controlled apartment in Manhattan will pay a below-market rent, but will also have to live in a necessarily reduced-quality housing unit, *the unskilled worker who manages to keep or find a job following an above-market minimum wage hike will likely work in a reduced-quality work environment with significantly reduced non-wage attributes and fringe benefits.*

Further, if employers offset higher minimum wages with reductions in non-monetary forms of compensation, researchers finding that a higher minimum wage doesn’t have negative employment effects might draw the incorrect conclusion that a higher minimum wage has no negative effects on minimum wage workers. By labeling the vertical axis as “Hourly Compensation,” we would account more realistically for the fact that employers of low-skilled workers have many non-wage margins (fringe benefits and job attributes) that can be adjusted to help control labor costs following a minimum wage hike. Those adjustments to hourly compensation would be to the detriment of low-skilled workers, and should be included when cities, counties and states try to accurately assess the full impact of minimum wage increases on low-skilled workers.

²Boudreaux, Don. 2015. “More on the Principles of Economic Principles,” *Café Hayek*. Available at: <http://cafehayek.com/2015/10/on-the-principles-of-economic-principles.html>

FIGURE 2. THE STANDARD STATIC ECONOMIC MODEL OF THE MINIMUM WAGE VS. A DYNAMIC MODEL

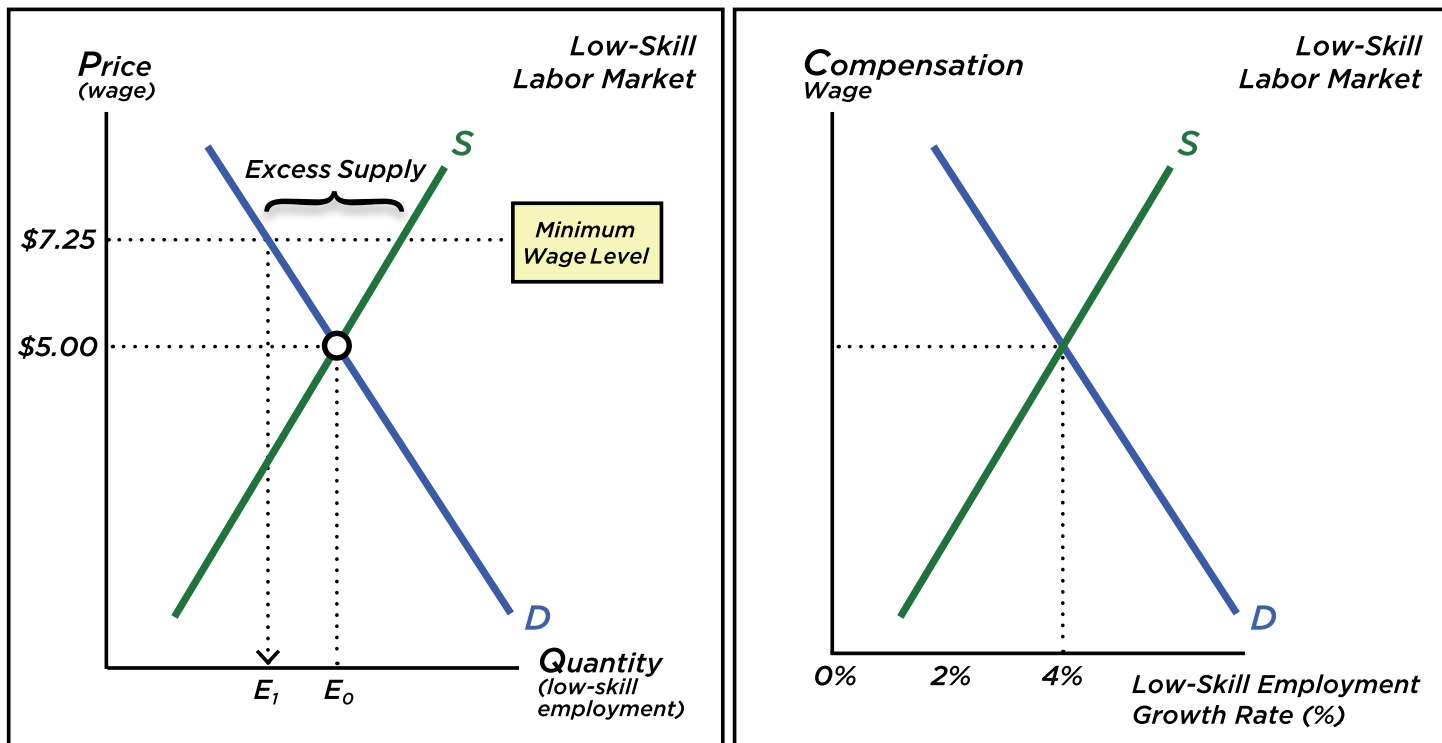
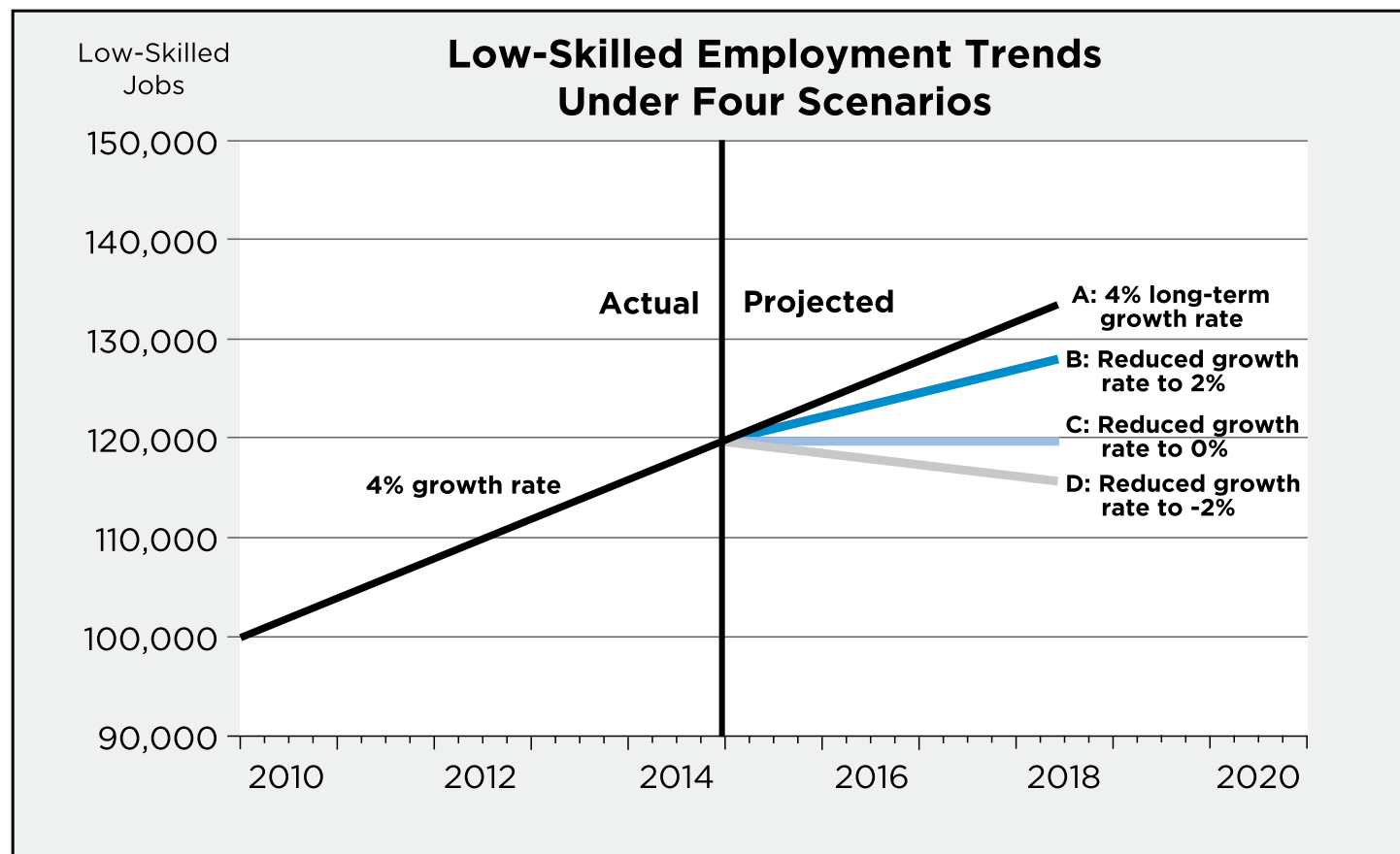


FIGURE 3. LOW-SKILLED EMPLOYMENT GROWTH TRENDS UNDER FOUR SCENARIOS



III. THE IMPACT OF THE MINIMUM WAGE ON THE RATE OF CHANGE (OR GROWTH RATE) IN LOW-SKILL EMPLOYMENT LEVELS (OR HOURS)

The standard supply and demand model on the left in Figure 2 presents the static model of the minimum wage as it is typically presented (same as Figure 1), and includes no dimension of time it just shows the Total Quantity of Low-Skill Employment at a given point in time. A more realistic, dynamic model of the market for low-skilled workers could show the horizontal axis labeled as the “Rate of Change in Low-Skill Employment (or Hours) per Month/Year,” or as the “Low-Skill Employment (or Hours) Growth Rate” (see right chart on the previous page in Figure 2).

Even when minimum wage hikes don’t necessarily result in reductions in *employment levels* for low-skilled workers, higher mandated labor costs could still have a negative impact on labor markets by reducing the pre-existing growth rates in employment. In that case, research that finds *no negative employment effects* following minimum wage increases may not be uncovering the whole story. For example, suppose that the number of restaurant workers employed at a new higher minimum wage actually increases following a mandated increase in the minimum wage. This might suggest that there are no negative employment effects of a minimum wage hike. But the relevant question should be: *How does that increase in low-skill restaurant jobs compare to what would have happened to those jobs without the minimum wage increase?*

Figure 3 on the left helps to illustrate various possible dynamic effects of a minimum wage hike by showing four possible growth trends in restaurant jobs following an increase in the minimum wage:

Scenario A would be a continuation of a 4% long-term growth rate trend in restaurant jobs;

Scenario B represents a reduction in the growth rate of restaurant jobs from 4% to 2%;

Scenario C shows a reduction in the growth rate of restaurant jobs from 4% to 0%;

Scenario D indicates a reduction in the growth rate of restaurant jobs from 4% to -2%.

Let’s assume that Scenario B might be the most likely outcome – restaurant employment levels are still increasing following a minimum wage hike, but at a slower rate (2%) than before (4%). For example, suppose that restaurant jobs in a given state had been increasing at an annual rate of 4%, or by 5,000 workers per year, due to normal economic growth and increases in that area’s population. Following a minimum wage increase to \$15 an hour that imposes significantly higher labor costs on employers, it’s possible that the growth in restaurant jobs could be cut in half to only a 2% growth rate and from 5,000 to 2,500 workers per year. Research would show that the number of restaurant jobs is still increasing, but at a much slower rate because of the higher minimum wage. The increase by 2,500 jobs in the year following the minimum wage hike makes it appear that there is a positive employment effect, even though there is actually a net loss of 2,500 food jobs when we consider *the 2,500 additional jobs that would have been created in the absence of the minimum wage hike*.

As an example, the *National Employment Law Project* (NELP) released a report in 2016 titled “Raise Wages, Kill Jobs? Seven Decades of Historical Data Find No Correlation Between Minimum Wage Increases and Employment Levels.”³ Jim Tankersley of the *Washington Post* called the NELP report “a really, really ridiculously simple way of looking at minimum wage hikes” and “the *most un-nuanced* analysis of the effects of minimum wage hikes that you’ll ever see.”⁴ Part of Tankersley’s criticism centers around the issues raised above:

The NELP study simply investigated one question: One year after the [minimum] wage went up, were there more jobs or less? They did not look at rates of change. They found that 68% of the time, total jobs went up across the economy. Retail jobs increased 73% of the time. Hospitality employment rose 82% of the time.

There are plenty of reasons total employment could keep rising even if minimum-wage hikes were holding down job growth, the simplest being, the economy was growing at a strong enough clip to offset any damage from the hike.

³ Sonn, Paul and Lathrop, Yannet. 2016. “Raise Wages, Kill Jobs? Seven Decades Of Historical Data Find No Correlation Between Minimum Wage Increases And Employment Levels,” National Employment Law Project.

⁴Tankersley, Jim. 2016. “Here’s a really, really, ridiculously simple way of looking at minimum wage hikes,” *The Washington Post*.

In other words, it's not a significant or meaningful finding that employment levels might have increased following a minimum wage hike, without considering important questions like: How much *more* would employment levels have risen without an increase in the minimum wage? How did the rate of change in jobs (or the growth rate in jobs) after the minimum wage hike compare to the rate of change in jobs (or job growth rate) *before* the government-mandated increase? Further, finding that employment levels have increased following minimum wage hikes doesn't necessarily mean that low-skilled workers haven't experienced any negative effects, which might include: a) reductions in work hours (see Section I above) and b) reductions in non-wage benefits and job attributes that made low-skilled workers worse off (see Section II above).

To more fully understand and accurately evaluate the impacts of minimum wage hikes, we need a dynamic economic model rather than the standard static model, and researchers should be investigating the rates of change or growth rates in low-skill jobs (or hours worked) and not merely the level of low-skill employment. Labeling the horizontal axis as "Changes in Low-Skill Employment (or Hours)" or the "Growth Rate in Low-Skill Jobs (or Hours)" would help to more realistically model the effects of minimum wage hikes. The dynamic approach to modeling the market for low-skilled workers as illustrated in the right chart in Figure 2 above would help to capture the possible negative effects that minimum wage hikes might have on reducing the growth rate in jobs for low-skilled workers, and thereby reducing employment opportunities for those workers. To fully assess the impact of minimum wage hikes on local labor markets, policymakers, their staffs, and researchers should pay close attention to *changes in employment growth rates* following increases in local minimum wages.

CONCLUSION

In this chapter, I've suggested that a richer and more accurate and nuanced analysis of the minimum wage could be achieved by doing the following:

- a) labeling the horizontal axis in Figure 1 as "Hours of Low-Skill Work" as a supplement to the standard label of "Number of Employees" to more accurately describe the staffing decisions of employers following minimum wage hikes (Section I);
- b) labeling the vertical axis of in Figure 1 as "Compensation per Hour" (as an alternative to the "Wage per Hour") to capture changes (reductions) in fringe benefits and changes in non-wage job attributes following minimum wage hikes (Section II);
- c) introducing a dynamic aspect to employer responses to higher labor costs by labeling the horizontal axis in Figure 1 as the "Growth Rate in Low-Skill Jobs or Hours of Work" (Section III).

Research that fails to find negative employment effects from minimum wage hikes when focusing mainly on employment levels might not be uncovering other negative effects on low-skilled workers including: a) reductions in hours worked leading possibly to lower weekly earnings, b) reductions in fringe benefits and non-wage job attributes leading to lower hourly compensation and less favorable working conditions, and c) reductions in the job growth rate leading to fewer employment opportunities for low-skilled workers in the future. For cities, counties and states that are considering raising their local minimum wages to \$15 an hour and are attempting to measure the impact of higher wages on local labor markets, the implications of this chapter for policymakers are as follows: Pay close attention to changes in hours worked, changes in workers' hourly compensation, and changes in the employment growth rates for unskilled, low-skilled and limited-experience workers.

CHAPTER 2:

WHO'S AFFECTED BY A \$15 MINIMUM WAGE?

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WILLIAM EVEN
MIAMI UNIVERSITY

In 2015, the federal minimum wage was \$7.25 and the Bureau of Labor Statistics (BLS) reports that, of the 78.2 million workers aged 16 and older in the U.S. that were paid hourly rates, 870,000 were paid a wage of exactly \$7.25 per hour.⁵ Another 1.7 million hourly workers were paid wages below the federal minimum. In total, these 2.6 million workers made up 3.3 percent of all hourly workers in the U.S.

This chapter considers the history of the number of workers paid the minimum wage and projects how the landscape would change if the minimum wage were increased to \$15 in 2020. In particular, this chapter provides a description of the type and share of workers that were paid at or below the minimum wage over the past 20 years.

In contrast to the statistics provided annually by the BLS, this chapter estimates the share of workers at or below the federal minimum wage as well as the share at or below the relevant state minimum wage. Over the years, the number of states with a minimum wage above the federal minimum has risen. As we will show, this has led to a decrease in the fraction of workers at the federal minimum wage. Also, unlike the BLS figures, we describe the characteristics of workers at the minimum

wage that is relevant for their state of residence.

Our projections of the effect of a \$15 minimum wage in 2020 are rather startling. Assuming no job loss but modest wage growth between 2015 and 2020, we estimate that a \$15 minimum wage would cause the percentage of hourly workers paid the minimum wage to increase from 3.3 percent in 2015 to 44.0 percent in 2020. Clearly, a \$15 minimum wage would cause significant compression of the wage distribution among hourly workers.

Our analysis does not consider the detailed effects of a \$15 minimum wage increase on employment (see chapter 3 for a discussion of that topic), though an estimate following a methodology developed by the Congressional Budget Office suggests substantial job loss would occur.

DATA AND METHODS

Since 1995, the federal minimum wage has increased in nominal terms from \$4.25 to \$7.25. This increase was the result of five separate increases that occurred in 1996 (to \$4.75), 1997 (to \$5.15), and three consecutive \$0.70 increases in 2007, 2008, and 2009. There has been no change in the federal minimum wage since 2009.⁶

⁵The reports on the characteristics of minimum wage workers between 2002 and 2015 are available from the Bureau of Labor Statistics at <http://www.bls.gov/opub/reports/archive.htm>

⁶This chapter uses the Outgoing Rotation Groups of the Current Population Survey between 1995 and 2015 to estimate the number of hourly workers paid at or below the minimum wage. Unlike the BLS, we also estimate the fraction of hourly workers paid at or below the minimum wage applicable in the worker's state of residence. In addition, we compute the fraction of all wage and salary workers paid at or below the minimum wage. Wage and salary workers includes hourly workers as well as workers paid on a salary basis, but excludes self-employed workers. To estimate an hourly wage for salaried workers, we divide usual weekly earnings by usual weekly hours. We predict usual weekly hours for those workers who report variable hours.

Over the past 20 years, the number of states with a minimum wage exceeding the federal minimum has gradually risen. As shown in figure 1, in 1995, there were nine states that imposed a minimum wage above the federal level. This had risen to 30 states by 2007 and fell sharply to 15 in 2010 after the federal hikes between 2007 and 2009 surpassed many of the state laws. Since 2010, the number of states with a minimum above the federal minimum has returned to its earlier peak of 30.

Figure 1 also shows the percentage of workers that are employed in states with a minimum above the federal minimum. This peaked at nearly 70 percent in 2007 and then fell sharply after the federal hikes from 2007 to 2009. As the number of states with a minimum above the federal level rose since 2010, the percentage of workers employed in states with a minimum above the federal minimum stood at approximately 60 percent in 2015. This is in stark contrast to the 10 percent of workers that were employed in states with a minimum above the fed-

eral level in 1995. The importance of state-specific laws has grown over time.

The consequence of federal and state laws on the overall level of the minimum wage is presented in figure 2. The federal minimum wage represents its value at the beginning of each year so that the July 2009 increase to \$7.25 doesn't appear in the graph until 2010. The state minimum wage is also measured at the beginning of each year and an employment weighted average is calculated across the states. A comparison of the average federal and state minimum wages shows that the gap between the two reached its peak of \$1.30 in 2007. After the 2007-2009 federal increases took effect, this disparity dropped to \$0.20 by 2010 but subsequently increased to \$0.70 in 2015.

As noted earlier, the BLS routinely provides updates on the characteristics of workers earning at or below the federal minimum wage. As the gap between federal and state minimum wages grows, the number of workers at

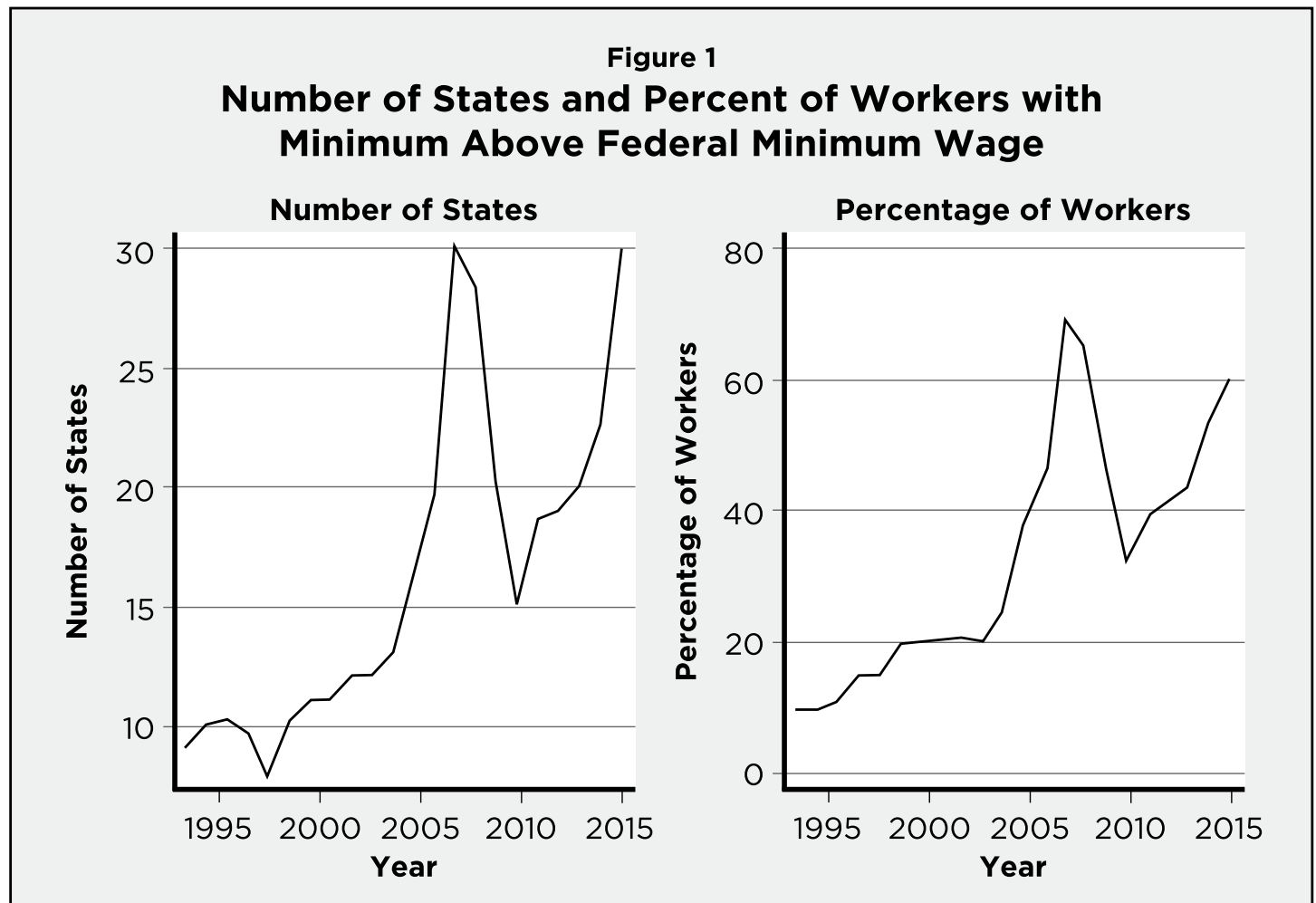
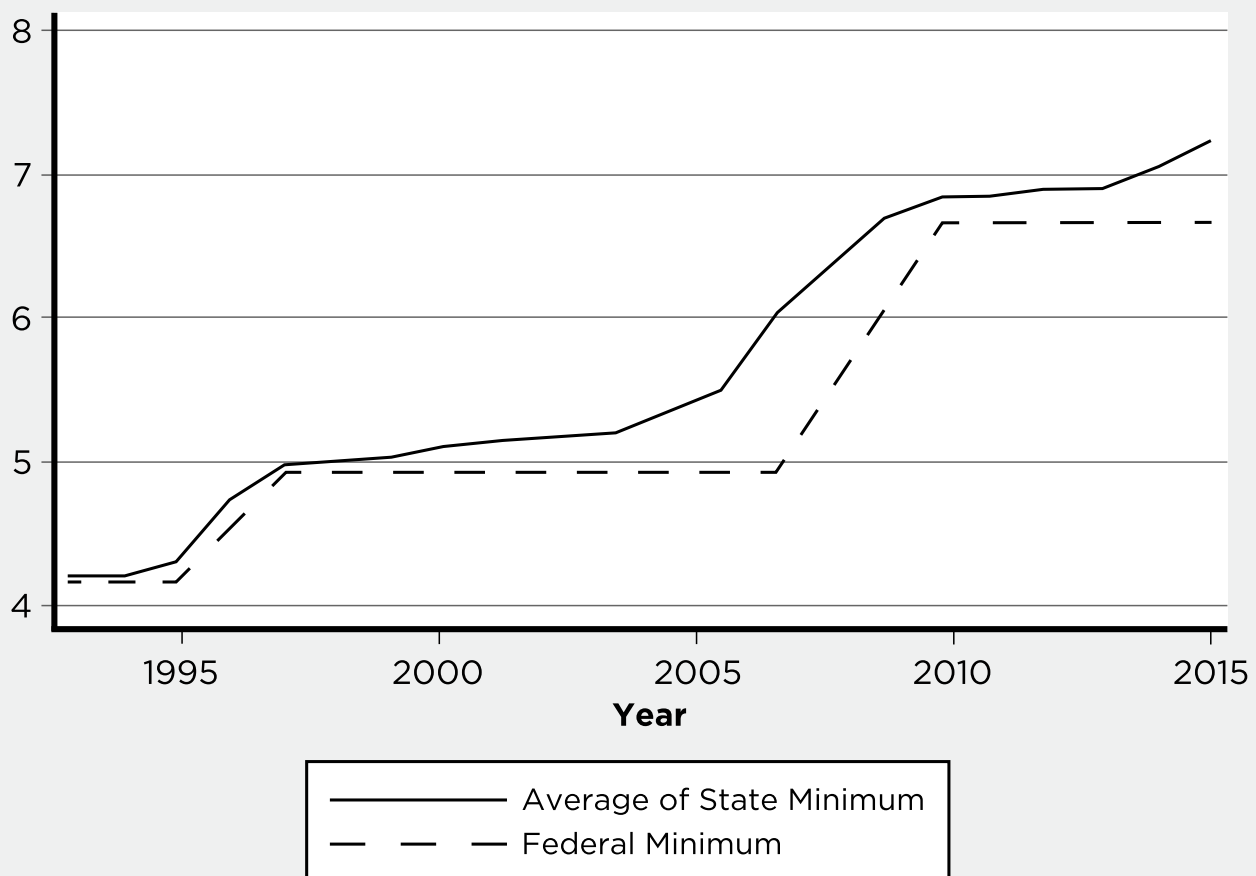


Figure 2
Federal and State Minimum Wages: 1994-2015



Average of state minimum is an employment weighted mean across states.
 Minimum wages are averaged across the 12 months of the year.

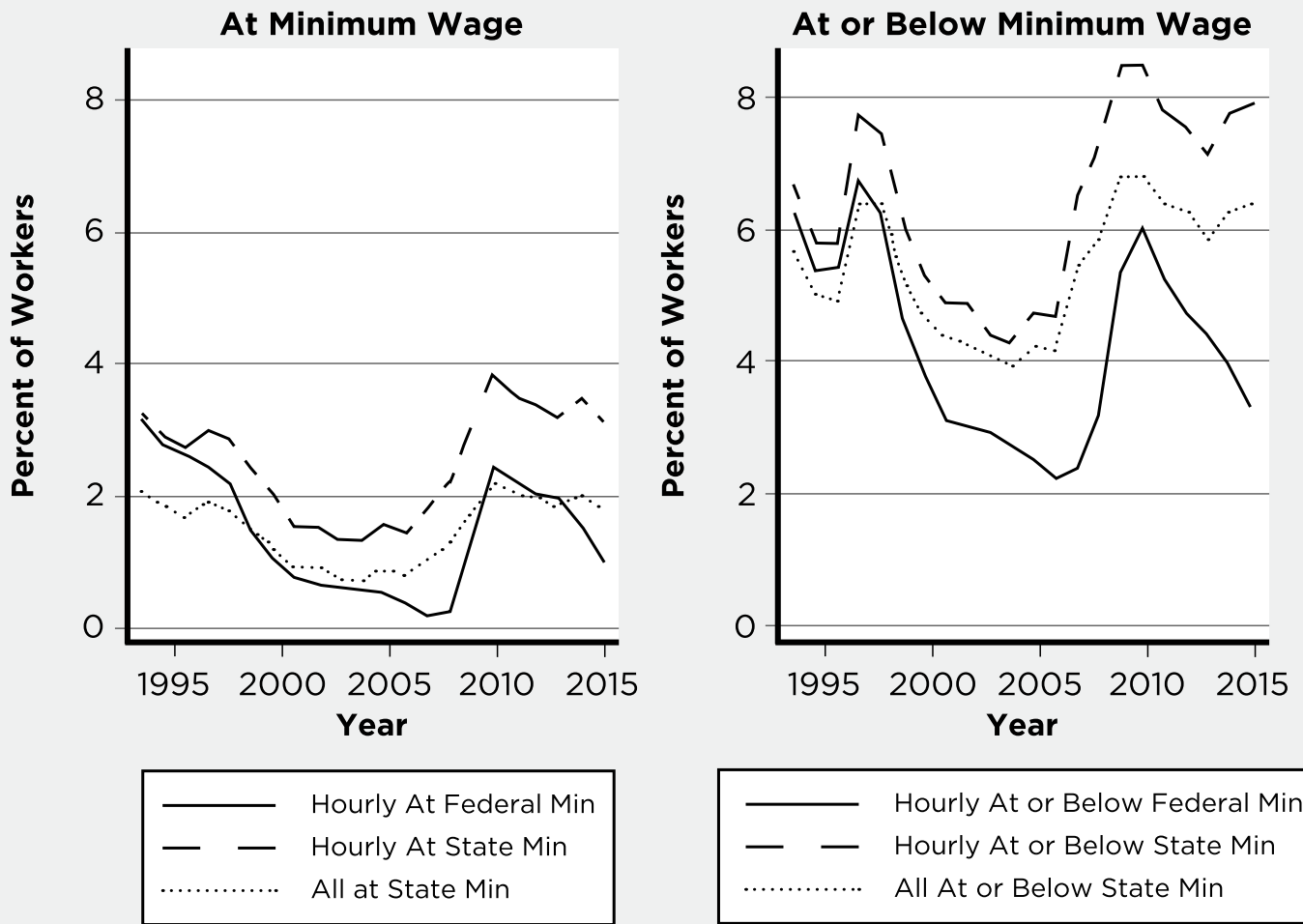
the federal minimum will shrink. Moreover, it is likely that many of the workers in states with a minimum wage above the federal minimum would earn the federal minimum in the absence of their states' laws. For example, if the federal minimum is \$7.25 and a state has a minimum wage of \$8.00, many (but not all) of those earning \$8.00 in the state would earn \$7.25 without the state law.

Since the importance of state laws has varied over time, we think it is useful to compare estimates of the number of workers at the state and federal minimums to get a sense of the relative importance of the state laws over time. Also, unlike the BLS estimates, we provide separate estimates for hourly workers as well as wage and salary workers (i.e., all workers except the self-employed).

Figures 3 and 4 present estimates of the percentage and number of workers at the minimum wage and at or below the minimum wage. Separate estimates are provided based on whether the relevant minimum wage is the federal or the relevant state minimum, and for hourly workers only versus all wage and salary workers.

As of 2015, 1.1 percent of hourly workers were earning the federal minimum wage and 3.3 percent were earning a wage at or below the federal minimum. In contrast, 3.2 percent were earning the relevant state-specific minimum wage and 7.8 percent were at or below the minimum wage. If the universe of workers is expanded from hourly to all wage and salary workers, the percent at or below the minimum drops to 6.3 percent in 2015 because most non-hourly workers are not paid wages at

Figure 3
Percentage of Workers At or Below Minimum Wage



The state minimum wage is the greater of the federal or state minimum wage.
Hourly refers to those workers paid by the hour. All includes both hourly and non-hourly workers, but excludes the self-employed.

or below the minimum.

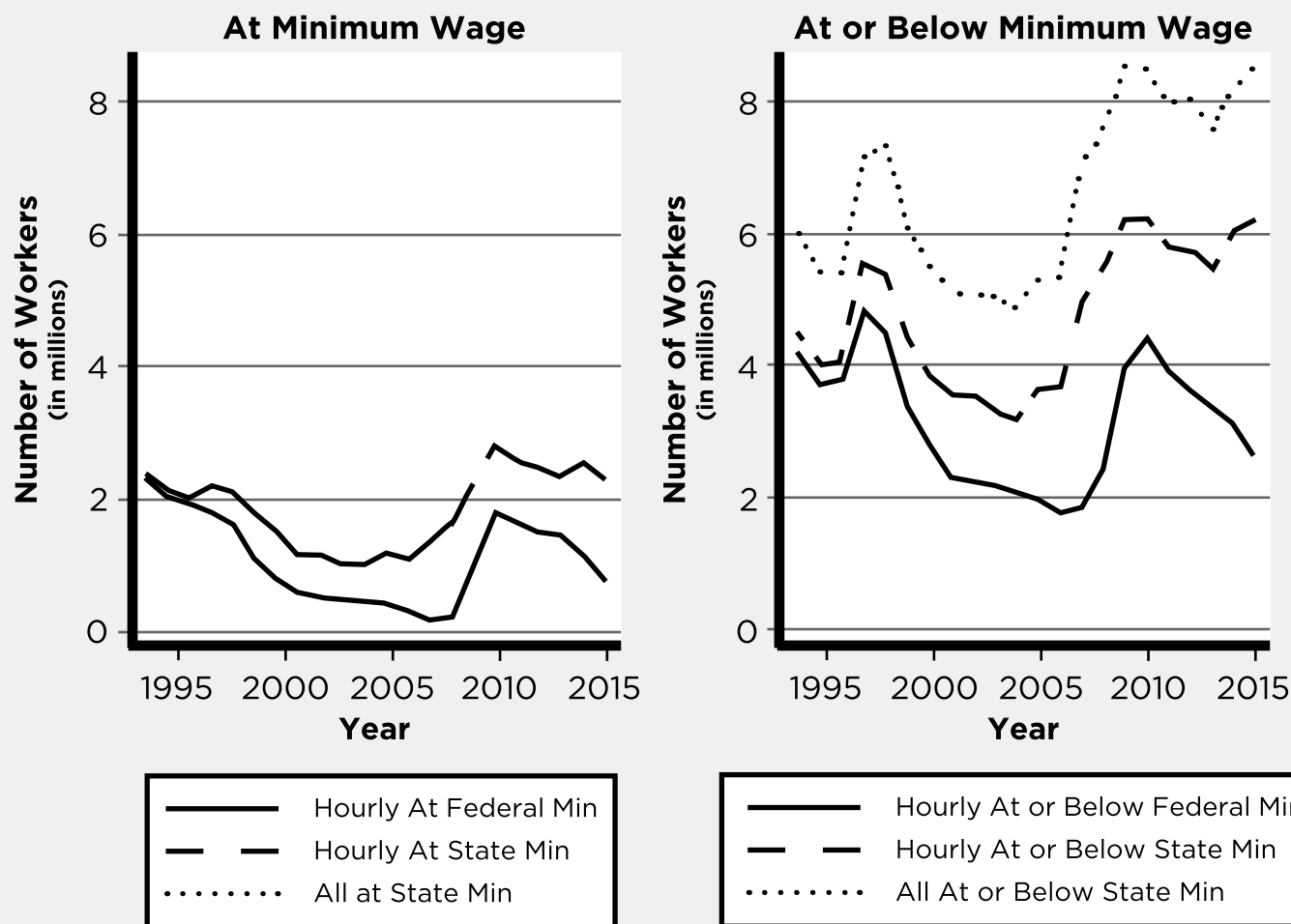
Over the past 20 years, the percent of hourly workers at or below the minimum has varied significantly. It fell from 1995 through 2007 as nominal wages generally grew and more states passed minimum wage increases that pushed workers above the federal minimum. When the federal minimum wage increased from \$5.15 to \$7.25 between 2007 and 2009, the percent of workers at the federal minimum rose to 2.5 percent by 2010 but steadily declined to 1.1 percent in 2015.

Overall, figures 3 and 4 illustrate several important points. First, the percent of workers earning the minimum wage tends to fall over time when the minimum

wage is held steady. This is partly due to the fact that nominal wages tend to rise over time. Second, when the federal minimum wage is increased, the percentage of workers at or below the minimum wage rises sharply. Third, the percent of workers at or below the minimum wage is quite sensitive to whether it is based on the federal minimum wage or the minimum wage that is relevant in each state. Over time, the importance of this difference has fluctuated as the number of states with a minimum wage above the federal minimum has varied.

Figure 5 shows the importance of the state minimum wage relative to the median wage in the economy compared to the percentage of workers at the state mini-

Figure 4
Number of Minimum Wage Workers



The minimum wage is the greater of the federal or state minimum wage. Hourly refers to those workers paid by the hour. All includes both hourly and non-hourly workers, but excludes the self-employed.

minimum. The ratio of the minimum to the median wage is calculated by state and an employment weighted average is presented for all the states combined. The graph shows a strong relationship between the two variables. As either the federal or state minimum wage rises relative to the median wage in the economy, the percentage of workers at the minimum wage rises sharply.

Figure 6 shows that the percentage of workers at the minimum wage has always been higher among teenagers (age 16-19) than among older workers (age 25 and up). It also shows that, in the face of minimum wage hikes, the percent of teens earning the minimum wage rises much faster than it does for other groups. This is

to be expected since teens are much more likely to have wages that are clustered at low levels and more likely to be affected when the minimum wage increases. As an illustration, when the federal minimum wage rose from \$5.15 to \$7.25 between 2007 and 2009, the percentage of teens at the state-specific minimum rose by 8 percentage points (from 7.8 to 15.8 percent). On the other hand, the percentage of workers over age 25 earning the state-specific minimum wage rose by 0.7 percentage points (from 0.7 to 1.4 percent).

In 2015, 12.8 percent of teen workers were paid the state-specific minimum wage. For workers aged 25 and over, only 1.1 percent were at the state-specific mini-

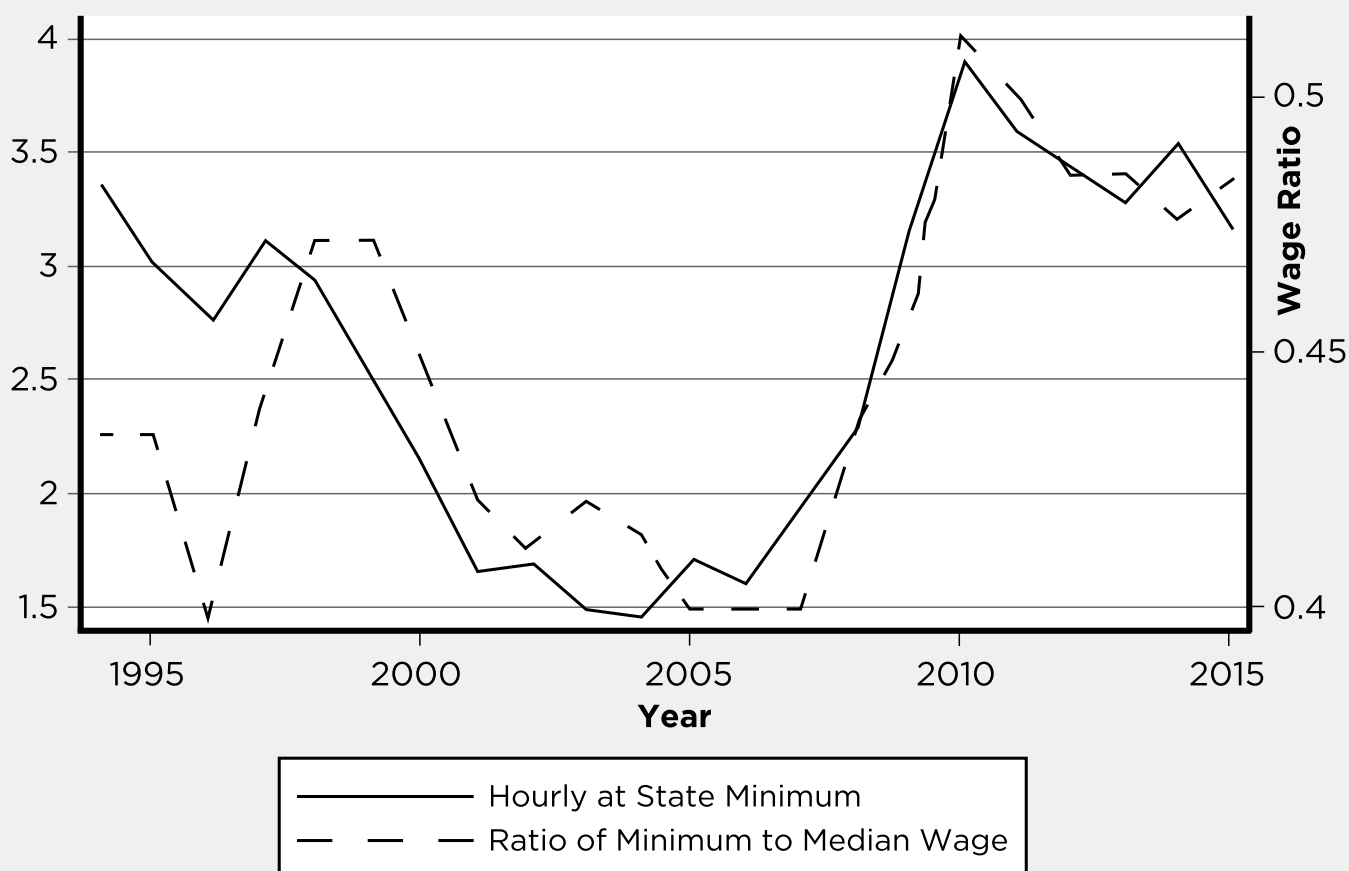
mum. Consequently, if the minimum wage is increased in all states, the fraction of workers impacted will be much higher among teen than adult workers. It is important to emphasize that this is a comparison of the *fraction* of workers affected, not the number. Teens represent a much smaller share of the work force than adults, so the *number* affected by a minimum wage hike is greater among adults than teens. We estimate that approximately 4 million teens would be affected by a minimum wage hike to \$15, whereas nearly 41 million workers over age 25 would be affected.

Figure 7 compares the percentage of workers at the state-specific minimum wage across race and Hispanic status. Over the 1995-2015 time period, white workers have generally (though not always) been the least likely to be earning the minimum wage. In 2015, the percentage of workers at the minimum wage was respectively

1.8, 2.0 and 2.5 for white, African-American, and other races. Hispanic workers are much more likely than any racial group to be earning the minimum wage. The percentage of workers earning the minimum wage has been substantially higher among Hispanics than other workers every year from 1995 and 2015. In 2015, 4.0 percent of Hispanic workers earned the state-specific minimum wage. This compares to 1.9 percent among all workers. Minimum wage hikes will therefore have a proportionately larger effect on the Hispanic population.

A breakdown of the percentage of workers earning the state-specific minimum wage by gender is given in figure 8. Over the 1995-2015 time period, women have always been more likely to be paid the minimum wage than men. The sex-difference in the share of minimum wage workers fell until the federal minimum wage hikes in 2007-2009 and has grown since then. As of 2015, the

Figure 5
Percentage of Hourly Workers at Minimum Wage
vs. Ratio of minimum to Median Wage



CHAPTER 2: WHO'S AFFECTED BY A \$15 MINIMUM WAGE?

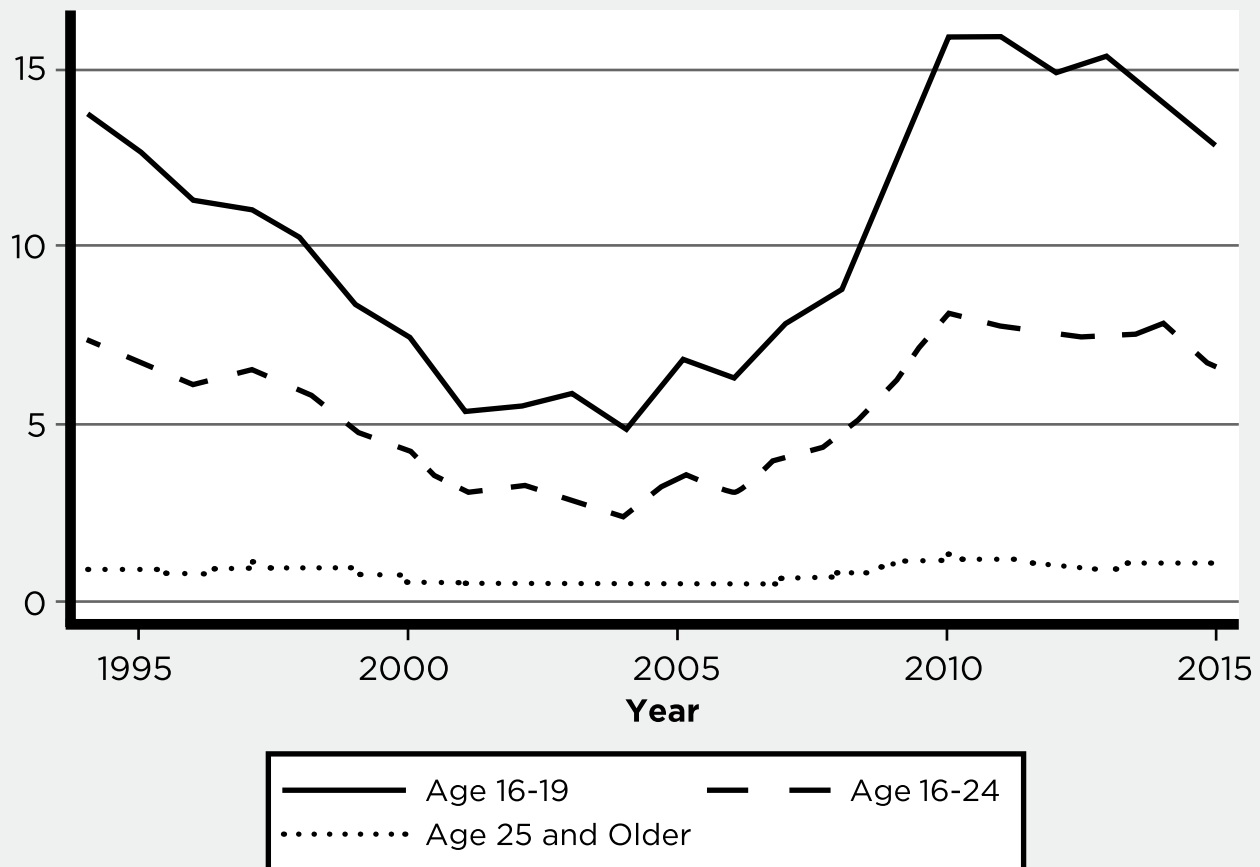
percentage of workers earning the state-specific minimum wage was 1.5 and 2.3 for men and women, respectively.

Figure 9 shows the percentage of workers earning the state-specific minimum wage for different education groups. Not surprisingly, the percentage earning the minimum is greatest among the least educated group: those with less than a high school diploma. As of 2015, the percentage of workers earning the minimum wage was 7.5 percent among workers with less than a high school diploma, 2.3 percent among those with a high school diploma, 2.0 among those with some college, and 0.3 percent among those with at least a bachelor's degree. Clearly, a minimum wage hike will have much larger effects on less educated workers.

The average family income of minimum wage

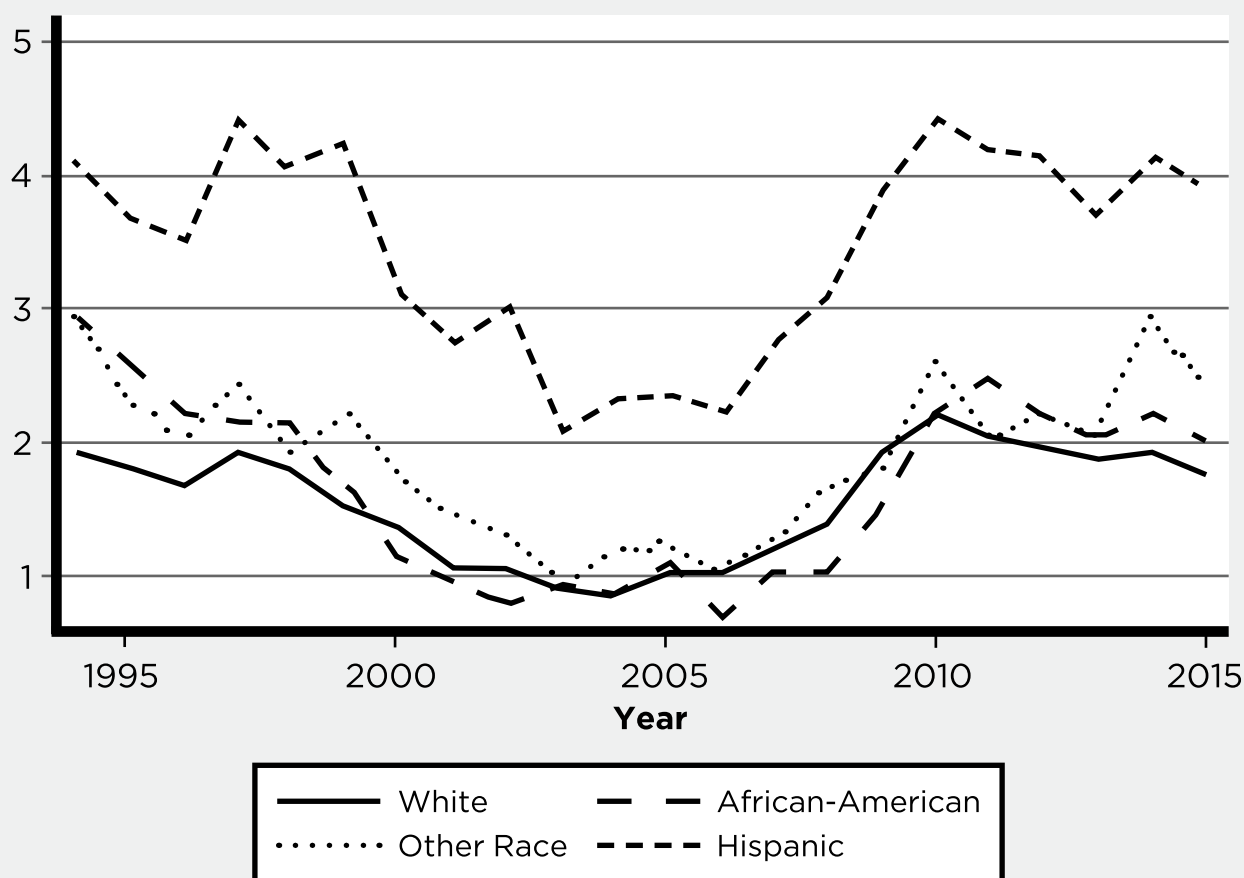
workers is compared to that for all workers in figure 10. While minimum wage workers are generally in families with lower than average incomes, after converting to 2015 dollars to remove the effect of inflation, the average family income of minimum wage workers has hovered around \$50,000 over the past 20 years. Despite the large changes in the real value of the minimum wage due to a combination of changes in federal and state laws, the average family income of the workers earning the minimum wage has been relatively constant. Finally, the share of workers paid the minimum wage by firm size is presented in figure 11. Since the monthly Current Population Survey (CPS) data does not report on a worker's firm size, we used the March Supplement to the CPS to calculate this variable. In the March data, hourly earnings are not reported, so we imputed an hour-

Figure 6
Percentage of Workers Earning
Minimum Wage by Age Group



Minimum wage workers are those that earn the state-specific minimum wage.

Figure 7
Percentage of Workers Earning
Minimum Wage by Race and Hispanic Status



Minimum wage workers are those that earn the state-specific minimum wage.

ly wage by dividing weekly earnings by weekly hours. We defined a worker as earning the minimum wage if their imputed wage was within 25¢ of the minimum.

The firm size results reveal that workers at small firms are more likely to be paid the minimum wage than workers at large or medium-sized firms. As of 2015, the percentage of workers earning the state-specific minimum wage was 2.6, 2.4, and 1.5 for firms with 1-9, 10-99, and 100 or more workers, respectively.

In sum, the extent to which the minimum wage “binds”, as measured by the percentage of workers that earn the minimum wage, has varied significantly over time. Generally speaking, when the federal and state minimum wages were held steady, the percentage of workers earning the minimum wage fell as wage growth in the economy pushed many workers above the mini-

um wage. The importance of state-specific laws has been rising over the past 20 years, but the trend was reversed by the federal hikes from \$5.15 to \$7.25 between 2007 and 2009 that pushed the federal minimum above many state minimums. Since 2010, states have passed a series of minimum wage increases that pushed the importance of states laws close to the peaks realized prior to the federal hikes that began in 2007.

THE EFFECT OF A \$15 MINIMUM WAGE IN 2020

To illustrate the dramatic impact a \$15 minimum wage would have on the American economy, this section provides a comparison of the number and characteristics of minimum wage workers given the current laws in 2015 versus our projections for 2020. To project the number and characteristics of minimum wage workers

Figure 8
Percentage of Workers Earning Minimum Wage by Gender

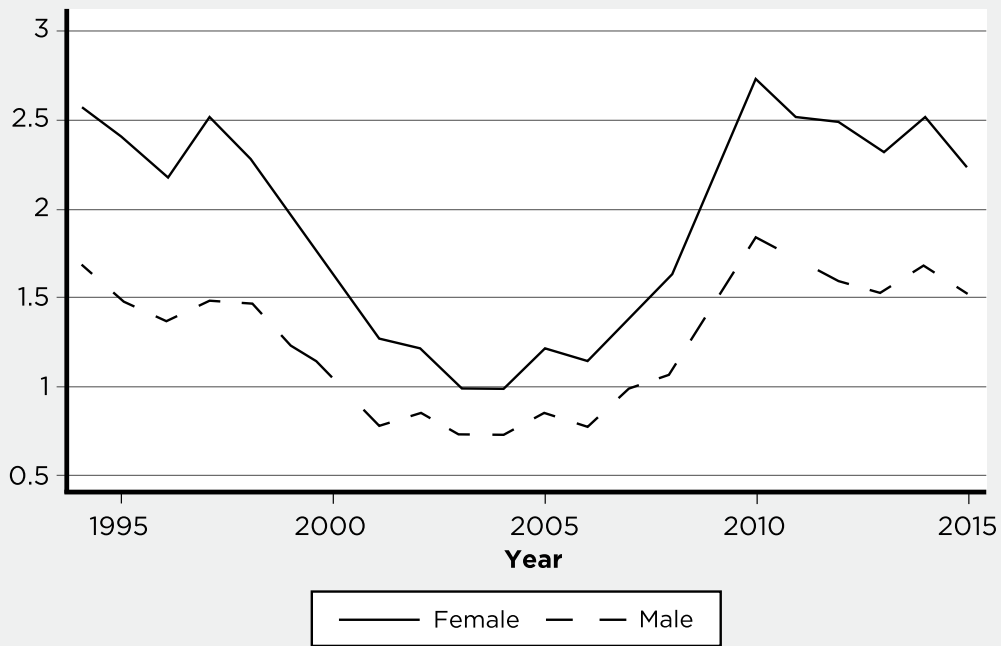
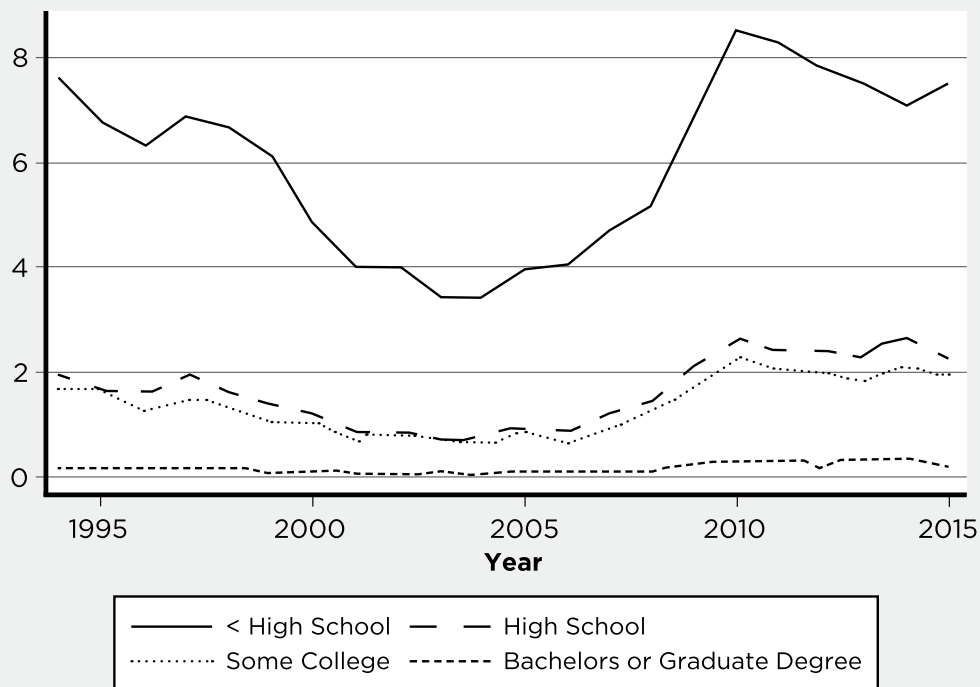
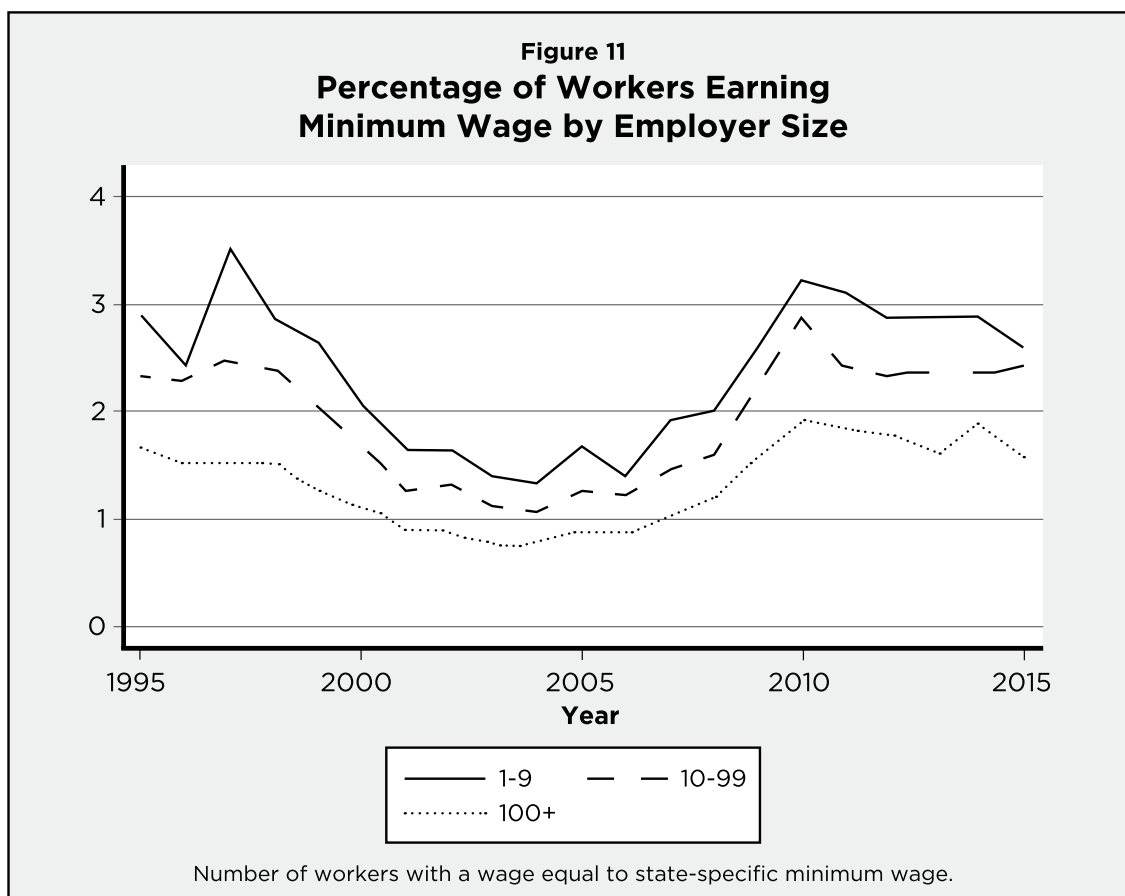
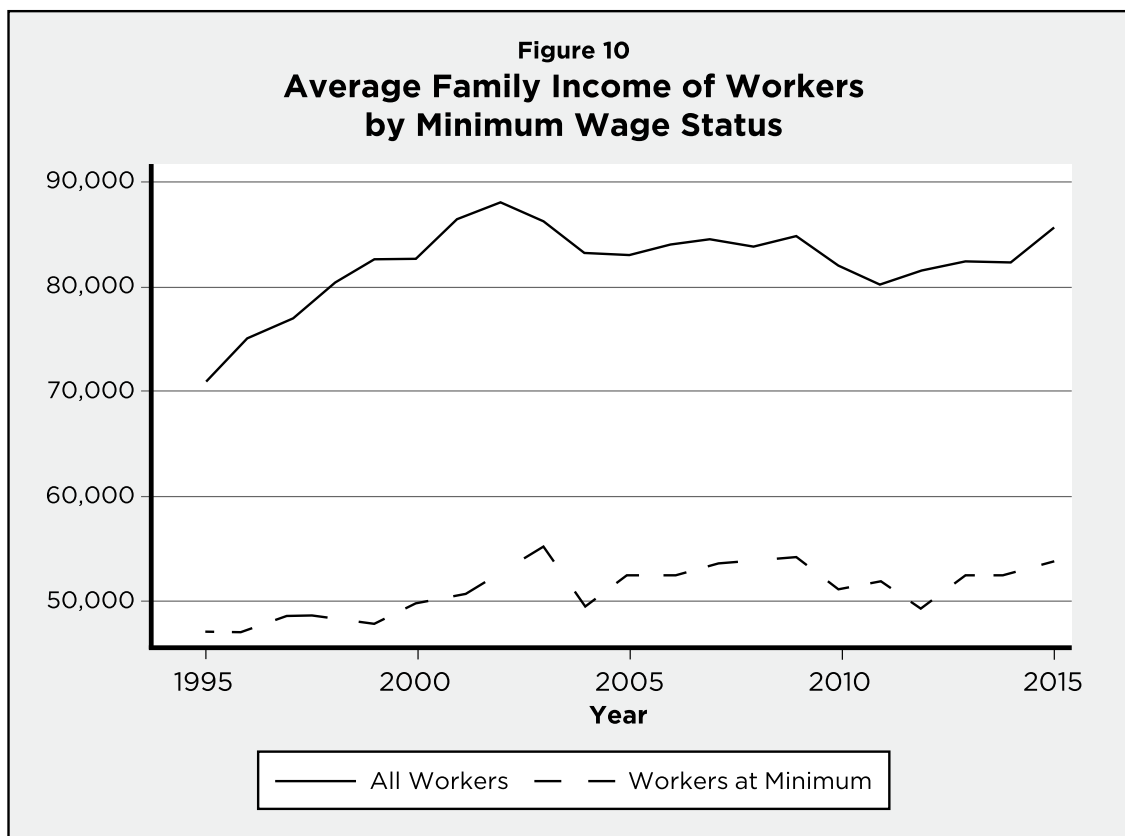


Figure 9
Percentage of Workers Earning Minimum Wage by Education





CHAPTER 2: WHO'S AFFECTED BY A \$15 MINIMUM WAGE?

in 2020, we start with the 2015 Current Population Survey (CPS). Consistent with projections from the Congressional Budget Office (CBO), we assume that the labor force will grow by 0.6% per year.

For each wage and salary worker, we estimate an hourly wage rate in 2015 using the same methods described in the prior section. We then assume that every worker's hourly wage rate grows by 3.1 percent annually based on economic projections from the CBO for 2015-2020. For each state, we estimate the minimum wage that would exist in 2020 based on laws in effect in 2016, including legislated increases for the future. For states that index the minimum wage for inflation, we assume 2.1 percent annual inflation to forecast the growth of the minimum wage between 2016 and 2020.⁷

To account for the fact that some workers' wages will be increased due to minimum wage hikes, any worker whose wage was at or above the 2015 minimum wage but below the 2020 minimum has their wage rate increased to the 2020 minimum. For example, if a state's minimum wage was \$9 in 2015 and is projected to grow to \$12 by 2020, anyone who had a wage above \$9 in 2015 and has a projected wage below \$12 by 2020 would have their projected wage increased to \$12 in 2020.

For workers who earned below the minimum wage in 2015 who are still predicted to earn below the projected minimum for 2020 after adding wage growth, we increase their hourly wage by the projected increase in the minimum wage between 2015 and 2020. For example, if a state has a minimum of \$9 in 2015 that is projected to grow to \$12 by 2020, a worker who had an \$8 wage in 2015 (\$1 below the minimum) has their projected wage for 2020 increased to \$11.00 (\$1 below the 2020 minimum).

Using the above methods, we can compare the pool of workers at or below the minimum wage in 2015 based on the current legislation to our projections for 2020 if there was a federal increase to \$15. For simplicity, our analysis assumes that the minimum wage would cause no job loss. Table 1 (see Appendix A) provides estimates of the percentage of workers earning the minimum, and earning the minimum wage or less in 2015 and 2020. Separate estimates are provided for hourly workers and for all wage and salary workers (which excludes the self-employed). The table also presents separate estimates for each state along with the state-specific minimum wage in 2015 and the projection for 2020 based on

legislation passed by July 2016.

For the U.S. as whole, we estimate that the percentage of hourly workers at the minimum wage would grow from 3.3 to 43.9 percent if the minimum wage was increased from 2015 values to a \$15 minimum in 2020. For wage and salary workers, we estimate the percentage earning the minimum wage would grow from 1.9 to 30.3 percent. The percent of hourly workers at the minimum wage would be over 10 times higher than the 20 year peak of 3.9 percent realized in 2010. A \$15 minimum wage would be epic in terms of the percentage of workers that would be affected.

Not surprisingly, our projection of the percentage of workers that would be earning the \$15 minimum wage varies substantially across the states. In the case of hourly workers, the percentage projected to be at a \$15 minimum ranges from a low of 30.3 percent in Washington D.C. to a high of 52.2 percent in Mississippi.

Table 2 (see Appendix A) provides a comparison of the percentage of workers at the minimum wage by demographic group in 2015 versus what is projected for 2020 with a \$15 minimum wage. The statistics reveal which workers are most likely to be affected by a \$15 minimum. For some demographic groups, more than half of wage and salary workers would be earning the minimum wage. For example, with a \$15 minimum wage, we project that 86.3 percent of 16-19 year olds and 62.2 percent of 20-24 year olds would earn the minimum wage. We also estimate that 67.8 percent of wage and salary workers with some high school (but no diploma) would earn the minimum wage. Retail trade and the arts, entertainment, recreation, accommodations and food services industry would have 52.4 and 59.9 percent of workers earning the minimum wage, respectively. The data also show that the percentage of wage and salary workers at a \$15 minimum wage would be much higher among small firms than among larger firms.

Table 3 (see Appendix A) shows the average family income of workers who would earn the minimum wage in 2015 versus our projections for 2020. It is important to point out that we do not adjust family income for any effects that the minimum wage would have on family income in our projections. The changes in family income are driven entirely by changes in the group of workers that would be at the minimum wage, not the minimum wage increase itself.

The figures show that family income (average and

⁷Our estimates ignore city specific minimum wage laws because of the difficulty in identifying the geographic boundaries relevant to the city laws in the CPS data.

median) is higher among workers that are paid wages above the minimum than among workers that are paid the minimum. Also, an increase in the minimum wage to \$15 would create a group of workers at the minimum wage from higher income families. As the minimum wage is increased, its rewards generally go to newly affected workers from higher income families.

All of our analysis to this point assumes that a \$15 minimum wage will not cause any job loss. While the extent or existence of job loss is a controversial subject, the Congressional Budget Office reviewed the wide range of studies on the subject and concluded that there would be job loss from a minimum wage hike. Using the CBO assumptions regarding employment losses from a minimum wage hike, we estimated the potential job loss from a hike to \$15 beginning in 2020 is approximately two million jobs. This estimate used the same employment elasticities assumed by the CBO and allows for CBO projections of wage and employment growth between 2015 and 2020. It also factors in state minimum wage increases that will occur due to existing legislation, including increases in 2020. An increase to \$15 phased in between 2020 and 2026, as has been proposed in Congress, would reduce employment by roughly 850,000 jobs--given natural wage growth, as well as states that will have independently raised their minimum wages to \$15 prior to 2026.⁸

CONCLUSION

In this chapter, we described the characteristics of minimum wage workers over the past 20 years and projected the impact of a \$15 minimum in 2020. The evidence shows that the importance of the federal minimum wage has gradually waned as many states have passed minimum wage increases that exceed the federal level. As of 2015, nearly 60 percent of workers were employed in one of the 30 states with a minimum wage above the federal minimum. As of 2015, only 1.1 percent of hourly workers earned the federal minimum wage, but 3.1 percent earned the relevant state minimum.

If the federal minimum wage rises to \$15 in 2020, we project that the percentage of hourly workers earning the minimum wage would approach 44 percent. The percentage of all wage and salary workers at the minimum is projected to reach 30 percent. Keep in mind that this compares to a range of approximately 1.5 to 4 percent of hourly workers at the minimum over the past 20 years. A \$15 minimum wage would create a seismic shift in the share of workers at the minimum wage. Our estimates assume no job loss and therefore are likely to overstate the percentage of workers that would be at the minimum wage. Given the magnitude of the wage increases for many workers, it is difficult to project the size of the job loss since the U.S. has never experienced a minimum wage increase that reaches this high into the wage distribution and affects so many workers and employers.

Our analysis also shows how the effect of a \$15 minimum would differ across demographic groups. As expected, less educated and younger workers would be impacted more than older workers with more education. Also, female, Hispanic, and African American workers would be impacted more. For example, assuming no job loss, we project that nearly 9 out of 10 teenagers (aged 16 to 19) would be earning the minimum wage if it increased to \$15 in 2020. We also project that over half of black and Hispanic hourly workers would earn the minimum wage, as would nearly half of all hourly female workers. The U.S. economy has never come close to this high a fraction of workers at the minimum wage. With such a large fraction of workers at the minimum wage, one must wonder how it would affect work incentives. With such a large increase in labor costs, it will be difficult for employers to differentially reward its more productive workers with higher wages. One might also be concerned that the returns to a college degree would be reduced, at least in terms of the wage increase that a college degree brings. Instead, the college degree's return may come entirely from the ability to get a job, since many low skill workers will be priced out of the labor market.

⁸The estimates rely on CPS data from 12/2017 through 11/2018 (the most recent 12 months of data). The projected minimum wage for each state is based on current law (provided by EPI) and adjustment for states with indexing between 2019 and 2020. We use the CBO forecast of inflation for 2019 (2.2%) to adjust the 2019 minimum for a 2020 forecast. We use the CBO forecast of inflation for 2019-2026 (2.2%) to adjust the 2019 minimum for a 2026 forecast. We also assume that wages would grow by 3.4% in 2019 based on CBO projections for growth in Employment Cost index and employment would grow by 0.6%. It's worth noting that our analysis does not account for city-specific minimum wages. To the extent that city-minimums exceed state minimums, our estimates of employment loss will overstate the true employment loss, with the caveat that those jobs may instead be lost independent of this estimate.

CHAPTER 3:

EMPLOYMENT IMPACTS OF A HIGHER MINIMUM WAGE⁹

DAVID NEUMARK

UNIVERSITY OF CALIFORNIA-IRVINE

Policymakers and the public have, in recent years, strongly embraced higher minimum wages to try to increase income from work. As was noted in chapter 2, 30 states (including the District of Columbia) currently have minimum wages above the federal level, ranging from small differences of less than five percent to a differential of nearly 60 percent for Washington, D.C. (Figure 1). City-level minimum wages that are much higher than state minimum wages are also being enacted with increasing frequency. For example, San Francisco and Seattle now have minimum wages of \$15, Los Angeles is scheduled to reach \$15 in 2020, and Oakland’s minimum wage exceeds \$13. States are also getting into the act, with both California and New York enacting legislation to eventually take the statewide minimum wage to \$15. Finally, the national movement for a \$15 minimum wage achieved increasing momentum with U.S. Senator Bernie Sanders’ presidential campaign in 2016.

The main argument for a minimum wage is that it helps poor and low-income families achieve a sufficient level of income. Such benefits would come, of course, from higher wages for affected workers. The potential downside of a minimum wage, however, is that it may discourage employers from using low-wage, low-skill workers. If there is no job destruction, then a minimum wage is bound to help low-wage workers and low-income families, even if, as research shows, the targeting of low-income families using the minimum wage

is rather scattershot (Lundstrom, forthcoming). But if minimum wages destroy jobs for low-skill workers, then minimum wages create both winners and losers, and the job losses have to be weighed as a cost against the benefits of a higher minimum wage for some workers and families.

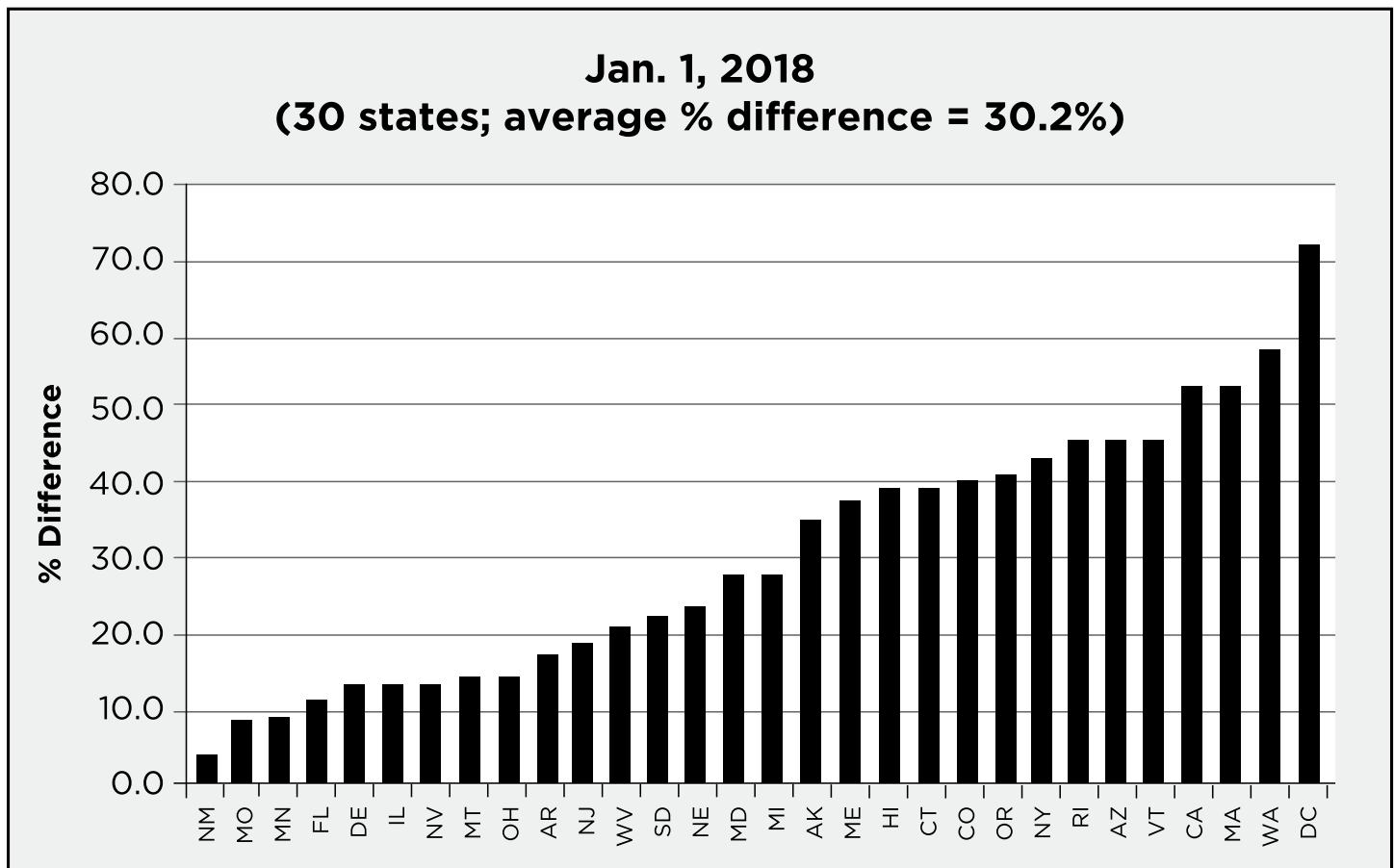
It is important to reiterate this last point: job losses from a higher minimum wage do not, in and of themselves, answer the question of whether a higher minimum wage is good policy or bad policy. The distributional effects are paramount. But evidence on whether there are job losses helps answer the question of whether a higher minimum wage is a free lunch, or whether, instead, a higher minimum wage presents policymakers with a decision between higher wages for some at the cost of fewer jobs for others.

Many minimum wage advocates have adopted the free lunch argument, based on claims about what the research says about the employment effects of minimum wages. As perhaps the most prominent example, Paul Krugman stated, in a *New York Times* op-ed in 2015, that “[t]here’s just no evidence that raising the minimum wage costs jobs, at least when the starting point is as low as it is in modern America.”

In this chapter I explore what we actually know about the employment effects of the minimum wage. I conclude that while the question is surely contested, and there are conflicting studies, much evidence – in-

⁹Much of the material in this paper is drawn from Neumark (2016). The author received a modest honorarium from the Employment Policies Institute for writing this essay, but the contract gives me sole authority over its contents. Thus, the views expressed are my own.

FIGURE 1: PERCENT DIFFERENCES BETWEEN STATE AND FEDERAL MINIMUM WAGES, 2018



cluding some of the best recent evidence – points to job losses for the least-skilled workers. In contrast, only a highly selective reading of the evidence emphasizing the methods of one group of researchers, or a reliance on flawed methods of aggregating across studies, can lead to a conclusion like the one espoused by Krugman. I then move on, briefly, to the much more speculative question of the employment effects of a \$15 minimum wage – speculative because there simply is no data for the United States on the kinds of increases that a \$15 minimum wage would entail.

II. OLDER RESEARCH ON THE EMPLOYMENT EFFECTS OF MINIMUM WAGES

Because the minimum wage literature covers scores of studies over many decades, I cover the older literature with brief reference to earlier summaries of the evidence, before turning in more detail to a spate of recent evidence. The older studies of the employment effects of minimum wages mainly used aggregate time-series data

for the United States, estimating the effects of changes in the national minimum wage on employment rates of 16 to 19 year olds (“teenagers”). A comprehensive summary of these early studies found elasticities for teen employment clustered between -0.1 and -0.3 (Brown et al., 1982).

Research beginning in the early 1990s exploited the emergence of a number of states raising their minimum wages above the federal minimum. This variation made it possible to use state-level panel data to compare changes in employment between states that did and did not raise their minimum wage – with the latter serving as “controls” for factors such as a common business cycle – and hence helped researchers more convincingly untangle the effects of minimum wages from other aggregate influences on teen employment (or employment of other low-skill groups). The range of estimated employment effects widened, in part because the state variation in minimum wages presented researchers with a greater variety of ways to estimate employment effects.

Neumark and Wascher (2007) surveyed evidence

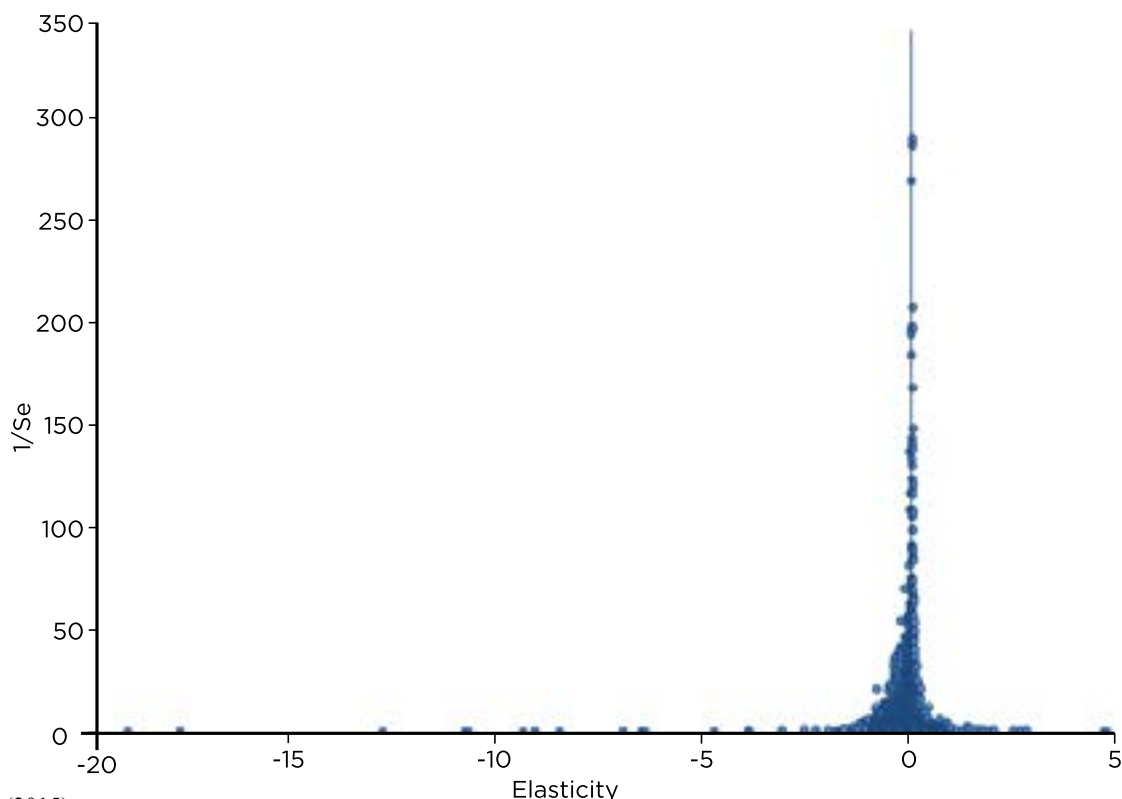
from more than 100 studies from this new generation of research, most for the United States. The survey did not simply tabulate the estimates, but rather attempted to identify the most reliable studies and to summarize the evidence from them. It concluded that the strong preponderance of the evidence pointed to disemployment effects of the minimum wage. Nearly two-thirds of all the studies surveyed gave consistent evidence of negative (although not always statistically significant) effects of minimum wages, while only eight gave a relatively consistent indication of positive employment effects. In addition, among the 33 that were viewed as providing the most credible evidence, 28 – or 85 percent – pointed to negative employment effects. Moreover, disemployment effects of minimum wages were strongest when researchers focused on the least-skilled workers most affected by minimum wages. One might disagree with our assessment of what were the most reliable studies, but it is, nonetheless, most accurate to characterize the overall literature this survey covers as providing a rather clear signal of negative employment effects for

the least-skilled workers most likely to be affected by minimum wages.

III. META-ANALYSES

Three fairly recent meta-analyses – which average estimates across studies in a variety of ways – challenge this conclusion (Doucouliagos and Stanley, 2009, hereafter DS; Schmitt, 2015; and Belman and Wolfson, 2014). Schmitt (2015) emphasizes evidence from DS, shown in figure 2, arguing that the estimates are “heavily clustered at or near zero employment effects” (p. 551). That might be a reasonable first impression from the figure. But as DS report, the mean elasticity across the studies summarized in the graph is actually around -0.19 – right in the middle of the range of elasticities from Brown et al. (1982). It is, however, hard to discern this from Figure 2 because the vertical line in the figure is drawn at zero, and, despite most credible studies of minimum wages yielding elasticities in the range of, say, -0.5 to 0.1 , in the figure the elasticities range from about -20 to 5 (that is, 40 to 50 times larger than the endpoints of this range), making it

FIGURE 2: ESTIMATED MINIMUM WAGE EFFECTS IN THE LITERATURE



Source: Schmitt (2015).

nearly impossible to see the graph's central tendency.¹⁰

In fact, DS focus more on the issue of publication bias in the published literature on minimum wages – that is, whether decisions, conscious or not, of editors and authors lead to an overrepresentation in the published literature of estimates showing disemployment effects of minimum wages. However, it is very hard to distinguish between publication bias and other sources of patterns in the published evidence consistent with publication bias. For example, meta-analyses like DS argue that if negative estimates of minimum wage effects have larger standard errors, this is evidence of publication bias. However, the same phenomenon can arise if studies using better research designs lead to “truer” estimates, which happen to be negative, and which have larger standard errors because they demand more of the data.

Moreover, averaging across estimates from studies of minimum wage effects, as meta-analyses do, is problematic. First, the population studied varies, and this and other factors can influence how binding the minimum wage is, generating variation in estimated effects that there is no reason to simply average. For example, Neumark and Wascher (2007) document how studies that more sharply focus on workers most likely to be affected by minimum wage increases reveal clearer evidence of disemployment effects. Among other factors potentially influencing the magnitude of the effect is of course how binding the minimum wage is, which may not be captured well in a linear or log-linear model (Neumark and Wascher, 2002; Thompson, 2009), and which can influence whether minor non-employment adjustments such as converting benefits to wages can accommodate the increase, or whether employment reductions are more likely.

Second, meta-analyses often assign more weight to estimates that are more statistically precise (e.g., Belman and Wolfson, 2014), even though the most rigorous empirical methods are likely to be less precise because of more rigorous research designs – exactly what we see in many of the new studies discussed below. Yet it is precisely the studies using the most rigorous methods – if valid – that should receive the most (if not all the) weight. Moreover, if we think the studies using less-rigorous methods (e.g., failing to instrument for an endogenous policy, or using a less-saturated model that does not account for some sources of heterogeneity

bias) lead to biased estimates, we should not incorporate these studies at all in “aggregating” across the research literature – even less should we up-weight the biased estimates because they have smaller standard errors. For example, based on his research discussed below, Dube (2011) argues that much of the state panel data research was invalid, and generating valid causal estimates of the effects of minimum wages requires comparing geographically close areas. If he is right, then there is no reason to include the state panel data studies in averages of estimated minimum wage effects, and more generally, geographically-proximate methods should not be down-weighted because they produce less precise estimates, which they do (Neumark et al., 2014a).

In short, in economic research there really is no substitute for critical evaluation of alternative studies to select those we view as most rigorous. The meta-analysis “paradigm” for combining estimates from many similar studies – say, randomized trials of a drug (Hunt, 1997) – carries over poorly to the minimum wage literature (and likely many other literatures in economics). One might want to argue for the merits of some recent studies (discussed below) that do not find disemployment effects of minimum wages, relative to the studies emphasized in the review by Neumark and Wascher (2007). But the meta-analyses do not provide convincing evidence with which to reject the conclusions of that review.

IV. RECENT STUDIES USING ALTERNATIVE RESEARCH STRATEGIES

The past seven or eight years have witnessed a wave of research studies that move beyond the traditional approach to using state-level panel data to estimate the employment effects of minimum wages. Based on alternative research designs, Allegretto et al. (2011, ADR) and Dube et al. (2010, DLR) provide the most trenchant criticism of the conclusion that minimum wages reduce low-skilled employment. ADR and DLR studies speculate that state minimum wages tend to increase in states and years when labor market conditions for less-skilled workers were in decline relative to other states and relative to labor market conditions for other workers in the same state, generating a spurious negative relationship between minimum wages and low-skilled employment. These studies also assert that restricting comparisons to what happens in nearby states, when minimum wages

¹⁰The figure in the original Doucouliagos and Stanley paper restricts the range of the x-axis much more severely. It is unclear where Schmitt's version of the figure comes from; I suspect it is from an unpublished version of the paper.

increase in one state but not another one close by, solves this problem because nearby states were subject to the same kinds of labor market conditions that may be spuriously correlated with minimum wage increases, and hence the “close comparisons” better isolate the true effects of minimum wages. Using these close comparisons, both studies find disemployment effects that are near zero. The evidence in ADR is for teenagers, while the evidence in DLR is for restaurant workers. However, most existing work is on teenagers, so the conclusions in ADR provide the more important contrast with other research finding disemployment effects.¹¹

In two studies with Ian Salas and William Wascher (Neumark et al., 2014a, 2014b), we re-analyzed these studies, disputing many of their conclusions. First, we presented evidence that nearby states (or, in the case of DLR, cross-border counties) do not provide better controls for estimating the employment effects of minimum wages. Second, we suggested that when controls states are picked more by the data, rather than just assuming that “close is always better,” the evidence again supports the conclusion that minimum wages reduce employment of less-skilled workers and of teens in particular, for whom we estimate employment elasticities near to -0.15 .¹² Most recently, Allegretto et al. (2017, ADRZ) offer some rebuttals to our papers.

Our debate with the authors of these two studies has continued (Neumark and Wascher, 2017), and readers will have to reach their own conclusions from what has become a quite technical debate. However, there are now a number of other studies that also consider the problem of control states and labor market shocks correlated with minimum wage increases – the same concern raised by ADR and DLR – and the findings from this budding literature may be more instructive (and certainly easier to parse) about the employment effects of minimum wages.

These studies (as well as those just discussed) are summarized in Table 1. The key point Table 1 reveals is that most of these different approaches point to disemployment effects of minimum wages for low-skilled

workers, often finding stronger disemployment effects than my co-authors and I have reported.

One exception is Totty (2017), who uses a factor model that is a bit more flexible than the standard panel data approach in constructing controls, but still not as flexible as letting the data freely dictate what the control states are. He concludes that the estimated employment effects for restaurant workers are close to zero, while for teens estimates are in the -0.03 to -0.07 range and statistically insignificant.

By contrast, Powell (2016) improves upon Neumark et al. (2014b) to develop a synthetic control approach that can be applied to the minimum wage case with multiple treatments and continuous variation, and which simultaneously estimates the weights on different states as controls as well as the minimum wage effect. This appears to be the most satisfactory and flexible approach, to date, of letting the data choose control states, and generates a statistically significant estimated elasticity for teens of -0.44 .

Baskaya and Rubinstein (2015) also confront the issue of an endogenous relationship between teen employment and minimum wages, but using an instrumental variables (IV) approach. They instrument for state minimum wages with the federal minimum wage interacted with the propensity for states to let the federal minimum wage bind, purging the estimated minimum wage effect of the variation that could come from state policymakers responding to state-level economic conditions. Consistent with minimum wages being increased when youth labor market conditions are strong – in contrast to the conjecture in ADR and DLR – their IV estimates point to stronger disemployment effects than many past studies, with an elasticity of employment for teenagers in the range -0.3 to -0.5 .

Clemens and Wither (2016) confront the same issue in a different way. They focus on the 2007-2009 federal minimum wage increases, comparing changes in employment for those whose wages were swept up by the federal increases (because of lower state minimum wages), to changes for workers who earned wages that were low but above the levels to which the federal mini-

¹¹Gittings and Schmutte (2016) report similar results on employment effects, using approaches similar to those in Allegretto et al. Addison et al. (2013) also use similar methods to estimate effects for teens and restaurant workers from the three-step federal minimum wage increase over 2007-2009. They find limited overall evidence of disemployment effects; the elasticities vary from positive to negative, but tend to be more negative but also statistically insignificant. However, for teens there is stronger evidence of disemployment effects when the recession hit, with an estimated significant elasticity of -0.34 at the average unemployment rate in 2008-2009. I do have concerns about what we can learn about minimum wage effects on employment, which are hard to identify in ideal conditions, during a turbulent time for the labor market like the Great Recession.

¹²Neumark et al. (2014b) also discuss another specification issue raised in the Allegretto et al. and Dube et al. studies concerning detrending the data. In my view, however, the more cogent challenge in the earlier studies comes from the issue of the choice of control states, which is why I emphasize that issue here.

minimum wage increased. This approach helps circumvent the issue of spurious correlations between employment changes and minimum wage changes across states, by using within-state variation in effects of minimum wage changes, although there is a challenge (noted above) in estimating the effects of minimum wages during the tumultuous Great Recession period. They find an employment elasticity for directly affected workers of about -0.97 , which is likely larger (negative) compared to other studies because it is calculated for a more directly targeted group of workers. Nonetheless, this elasticity may be more relevant to policy, because it measures employment effects among those most directly affected – and hence most directly helped, potentially – by a minimum wage increase. When they apply these methods to teenagers or restaurant workers, the estimate is smaller in absolute value, reflecting the fact that not all teenagers or restaurant workers are affected by the minimum wage.

Thompson (2009) – which actually predates ADR and DLR – uses an alternative approach that also sidesteps the problem of the choice of control states, comparing areas (rather than workers) within states, which permits him (like Clemens and Wither) to control for shocks to state economies in an unrestricted way. Using the variation in state minimum wages generated by the federal increases in 1996 and 1997, Thompson shows that the state-level analyses that characterize nearly all U.S. minimum wage studies mask adverse effects in counties where wages are lower and workers are lower skilled, and hence minimum wages are more binding. For example, for counties in the bottom third of the teen earnings distribution within a state, a 10 percent federal increase in a year reduced the teen employment share around 3 percent, while at the state level the estimated effects are small and not statistically significant.¹³

Thompson's results do not change the answer to the question of how a higher state minimum wage affects teen or low-skill employment at the state level. However, they do imply that minimum wages have adverse effects exactly where they are intended to do the most good – where skills and wages are low. Moreover, his results raise doubts about appealing to small estimates of minimum wage effects on employment from state-level studies to argue that city-level minimum wages will not cause job loss – especially for cities or for disadvantaged sections of cities where minimum wages would

affect many workers.

Liu et al. (2016) address the concerns raised by ADR and DLR by directly controlling for common shocks to economically-integrated areas. They estimate a standard fixed-effects model at the county level but including interactions between dummy variables for each quarter and Bureau of Economic Analysis (BEA) “Economic Areas.” Because of how such areas are defined, they should experience common economic shocks, and since some of them cross state lines, minimum wage effects can be identified from state variation within these areas (see, e.g., Johnson and Kort, 2004). The idea, in the context of the recent literature, is that the BEA designations explicitly identify cross-border areas that are good controls for each other. Liu et al. find strong evidence of disemployment effects for the youngest group covered in their data (14-18 year-olds), which are diminished only slightly – to an elasticity of -0.17 – when the Economic Area-quarter interactions are included.

Finally, a different approach taken in recent research focuses on the dynamic effects of minimum wages – how they might affect job growth and hence employment over the longer term, even if the immediate effects are small. One way to motivate a more slowly evolving, longer-term effect via job growth is that when new firms are created, they can choose their technology to minimize costs given the prices of current inputs, including low-skilled labor. But the technology is then relatively fixed, with limited possibility for adjustment if, say, the minimum wage increases. Over time, though, firms created after a minimum wage increase will use technologies that economize more on low-skilled labor, so that employment responds little right away to a minimum wage increase, but over time more low-skilled jobs are eliminated. Meer and West (2016) find evidence consistent with this story, finding a longer-run elasticity for *overall* employment of about -0.05 . This paper is unique, I believe, in reporting negative effects for overall employment, and such a conclusion merits further scrutiny. However, the authors do present some evidence that these negative results come from industries with larger shares of low-skilled workers, although there are some exceptions.

Table 1, summarizing this recent wave of evidence, makes it absolutely clear that many recent studies find that higher minimum wages reduce employment of teens, and of low-skilled workers more generally. The

¹³ This estimate cannot be compared directly to other elasticity estimates because there is no population count in the data source used.

TABLE 1: RECENT ESTIMATES OF MINIMUM WAGE EFFECTS ON UNSKILLED EMPLOYMENT

Authors	Employment elasticity and groups studied	Data/Approach
<i>Geographically-proximate designs</i>		
Dube, Lester, and Reich (2010)	Near zero for teens and restaurant workers	Paired counties on opposite sides of state borders
Allegretto, Dube, and Reich (2011)	Near zero for teens	States compared only to those in same Census division
Gittings and Schmutte (2016)	Near zero for teens; larger negative elasticities in markets with short non-employment durations (-0.1 to -0.98) and smaller positive elasticities in markets with long non-employment durations (0.2 to 0.46)	States compared only to those in same Census division
Addison et al. (2013)	Varying sign, more negative, generally insignificant for restaurant workers and teens; stronger negative at height of Great Recession (-0.34)	Similar methods to Dube et al. (2010) and Allegretto et al. (2011) restricted to 2005-10 period
Slichter (2016)	-0.04 (teens)	Comparisons to bordering counties and other nearby counties
Liu et al. (2016)	-0.17 (14-18 year-olds)	Comparisons within Bureau of Economic Analysis (BEA) Economic Areas (EA) that cross state lines, with controls for EA-specific shocks
<i>Other approaches</i>		
Thompson (2009)	-0.3 (for teen employment share)	Low-wage counties vs. higher-wage counties in states
Clemens and Wither (2016)	Appx. -0.97, for those directly affected by minimum wage increase	Targeted/affected workers versus other low-wage workers in states affected by federal increases
Baskaya and Rubinstein (2015)	-0.3 to -0.5 for teens	States, using federally-induced variation as instrumental variable
Neumark et al. (2014a, 2014b)	-0.14/-0.15 for teens, -0.05/-0.06 for restaurant workers	States compared to data-driven choice of controls (synthetic control), and state panel data
Dube and Zipperer (2015)	-0.051 (mean) and -0.058 (median) for teens	States compared to data-driven choice of controls (synthetic control)
Powell (2016)	-0.44 for teens	States compared to data-driven choice of controls (synthetic controls, estimated simultaneously with employment effect)
Totty (2017)	-0.01 to -0.03 for restaurant workers; -0.03 to -0.07 for teens	States compared to data-driven choice of controls (factor model)

Notes: The table reports my best attempts to identify the authors' preferred estimates reported in the papers.

exceptions in recent work that find no evidence of employment effects generally come from the one specific way of estimating the employment effects of minimum wages focusing on geographically-proximate controls. My work with Salas and Wascher has criticized this approach as obscuring the disemployment effects of minimum wages. But even putting this criticism aside, Table 1 shows that a variety of other methods in the most recent research – all of which in one way or another address the same criticism of the standard panel data approach in

ADR and DLR – conclude that minimum wages reduce teen and low-skilled employment.

To be sure, the evidence on the employment effects of minimum wage remains contested. Indeed, ADRZ cite a couple of other studies by subsets of the authors of that paper that criticize some of the studies I have just discussed. Still, this overview of the research shows that many types of studies continue to show disemployment effects of minimum wages, in addition to helping to clarify what types of studies do and do not lead to this

conclusion. In addition, this overview – summarized in Table 1 – demonstrates that blanket statements that there is no evidence showing that minimum wages in the United States reduce employment is false, and can only be supported by either ignoring or dismissing much of the evidence.

V. A \$15 MINIMUM WAGE?

The existing evidence from past U.S. minimum wage increases cannot speak directly to the employment effects of a \$15 minimum wage. Undergraduate econometrics students are taught to be very wary of using regression models to predict the effects of policy changes well outside the range of the data, and we simply have no evidence on such large minimum wage increases.

One thing we do know is that a \$15 minimum wage will impact far more workers than the current minimum wage, especially in lower-wage states and lower-wage areas of states. For example, simple calculations I did for California suggested that a \$15 minimum wage phased in over many years would come to affect about 22 percent of workers in the state's highest-wage counties, but nearly 50 percent of workers in low-wage counties (and these are low-wage counties in a high-wage state!).¹³ Chapter 2 of this book provides more detailed estimates of how many workers a \$15 minimum wage would affect.

Beyond knowing that a \$15 minimum wage will affect a very large share of workers, especially in low-wage states, we can only speculate about its impact on the labor market.¹⁴

Keep in mind that a \$15 minimum wage corresponds to full-time, annual earnings of around \$30,000; median U.S. weekly earnings for full-time workers, at an annual level, were around \$43,000 in 2016.¹⁵

I find it hard not to be gravely concerned that imposing this level of a wage floor on such a high share of workers

(in many regions) will lead to major employment disruptions, given that the high share of workers affected is likely to sharply limit employers' ability to mitigate the effects of the higher wage floor through other means – including lower benefits and substitution towards capital or higher-skilled labor – and to limit some potentially offsetting effects from higher morale (even more speculative!) and lower turnover.

As an example, Holtz-Eakin and Gitis (2015), using assumptions based on the Congressional Budget Office (2014) minimum wage study, projected that a bill to raise the federal minimum wage to \$15 by 2020 would reduce employment by 3.3 million jobs relative to what it would be otherwise; and this is the low estimate in their study. I of course do not know if this estimate is correct. Nonetheless, if we use a relatively modest employment elasticity of -0.1 , this estimate seems to be the right order of magnitude. For example, assuming the share affected would be 25 percent, using an increase of 87 percent (\$15 versus \$8.13, which was the current average minimum wage across all states in 2016), then with a -0.1 elasticity and with July, 2016 employment of about 125 million workers, the predicted cost in terms of lost jobs is 2.64 million. It seems plausible, however, that the disemployment effects would exceed a merely proportional response to the minimum wage increase – so the elasticity should be a larger negative number for a minimum wage increase affecting a much larger share of workers than for the share affected by past increases. This is speculative, but these considerations lead me to believe that it is far more likely that the job losses from an increase to a \$15 minimum wage will be larger than what we would project from applying existing elasticities, rather than smaller.

¹³Dube (2013) refers to this specification as his “fully saturated” model, which augments two-way fixed effects (state and year fixed effects) with controls for state-specific linear time trends and census division-specific year effects.

¹⁴For instance, in 2013, 39 percent of poor individuals were employed and 46 percent of the working poor earned wages such that they would be affected by a federal minimum wage hike to \$10.10 per hour.

¹⁵Earlier studies that reached this conclusion include Council of Economic Advisors (1999) and Turner (1999).

CHAPTER 4:

WILL A \$15 MINIMUM WAGE SAVE MONEY FOR TAXPAYERS?

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Policymakers advocating higher minimum wages have long touted their potential to alleviate poverty (Clinton 2016, 2006; Obama 2013; Roosevelt 1937). The 2016 Democratic Party platform called for a \$15 federal minimum wage by 2020, thereafter automatically indexed to inflation, largely on anti-poverty grounds:

“Democrats believe that the current minimum wage is a starvation wage and must be increased to a living wage. No one who works full time should have to raise a family in poverty. We believe that Americans should earn at least \$15 an hour.” (Democratic Party Platform, 2016)¹⁶

While conceding that minimum wage hikes could induce job loss, a 2014 Congressional Budget Office (CBO) report claimed that raising the minimum wage could be an effective anti-poverty strategy. The report forecasted that an increase in the federal minimum wage from \$7.25 to \$10.10 would result in a 900,000-person reduction in poverty over a two-year period, represent-

ing a 2 percent decline in the poverty rate (CBO 2014). This forecast was based on assumptions that a \$10.10 minimum wage would (i) generate only small adverse employment effects, (ii) set in motion modest macroeconomic growth, and (iii) induce wage spillovers to those earning above the new statutory minimum wage. These assumptions, while controversial and often incongruous with important findings in the literature, are central to the anti-poverty message embraced by minimum wage advocates.

In an attempt to broaden political support for higher minimum wages beyond traditional progressives, proponents have increasingly claimed that minimum wage hikes will serve small government ends (Sanders 2016). Advocates argue that by raising the incomes of the poor, minimum wage increases will reduce eligibility for and dependence on means-tested public welfare programs, leading to a reduction in government spending. Among those on the political right seduced by this argument include former Pennsylvania Senator and Republican presidential candidate Rick Santorum and the late

¹⁶Former Secretary of State and 2016 Democratic presidential candidate Hillary Clinton expressed support for both a \$12 and \$15 federal minimum wage on anti-poverty grounds. At a Fight for \$15 rally in June 2015, Clinton stated: “All of you should not have to march in the streets to get a living wage, but thank you for marching in the streets to get that living wage...No one who works an honest job in America should have to live in poverty. No man or woman who works hard to feed America’s families should have to be on food stamps to feed your own families.” (Hillary Clinton, Fight for \$15 Rally, June 7, 2015) Vermont Senator Bernie Sanders made a similar argument as part of his 2016 presidential campaign: “A family struggling to subsist on a lower income will also have greater difficulty adequately caring for its children...This can include struggles such as putting away savings toward higher education, feeding the children a healthy diet, having the leisure time and money to accompany a child during play or take them to extracurricular activities, and being unable to clothe or house them adequately — all important factors in the future outcomes of children. These negative consequences on child outcomes create a cyclical effect, and children born in poverty are more likely to continue to be poor. In short, the effects of a non-living wage are not only felt by individuals who receive it, but by all sectors of society.” (Sanders, 2016, campaign website at FeelTheBern.org)

founder of the Eagle Forum, Phyllis Schlafly.

This chapter reviews the empirical evidence to shed light on three key questions stemming from the claims summarized above:

- (1) Have past state and federal minimum wage increases been effective at alleviating poverty?
- (2) Have past state and federal minimum wage increases led to reductions in means-tested public program participation and public expenditures on these programs?
- (3) If implemented, how likely is an increase in the federal minimum wage from \$7.25 to \$15 to reduce poverty, dependence on means-tested public assistance programs, and net welfare spending?

The answers to the above questions are no, no, and not very. In the following pages I explore the reasons upon which these conclusions are based.

II. PAST MINIMUM WAGE INCREASES, POVERTY AND MEANS-TESTED PUBLIC PROGRAMS

Poverty Effects. While there is substantial controversy in the labor economics literature as to the magnitude of the adverse employment effects of minimum wage increases (see Chapter 3), there is much less controversy in the literature on the effectiveness of minimum wages in reducing poverty. A large published literature, based largely on data drawn from the Current Population Survey (CPS) and the Survey of Income and Program Participation (SIPP), has explored the effects of minimum wage increases on poverty (Addison et al. 2008; Burkhauser and Sabia 2007; Card and Krueger 1995; Dube 2013; Gundersen and Ziliak 2004; Neumark and Wascher 2002; Sabia 2014; Sabia and Burkhauser 2010; Sabia and Nielsen 2015; Sabia et al. 2015). Most of these studies have exploited within-state variation in minimum wages to identify their poverty effects in a “difference-in-differences” (or two-way fixed effects) empirical framework. Other studies (such as Clemens and Wither 2016) have exploited heterogeneous bite in federal minimum wages across states and workers to identify the poverty effects of increases in the minimum wage.

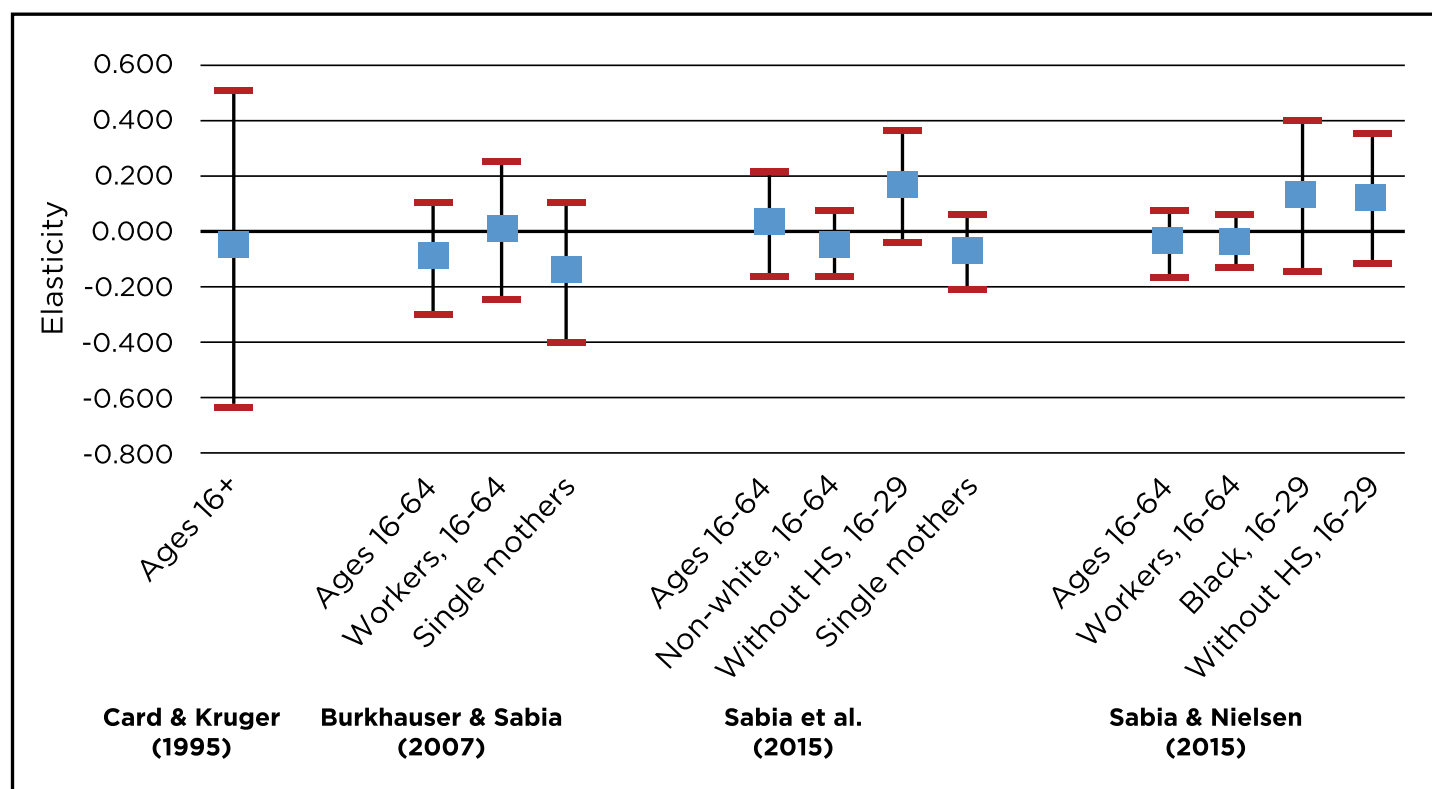
The results from these studies overwhelmingly show little evidence that minimum wage increases are an effective anti-poverty tool. This is true across studies that have examined poverty effects among all working-age individuals, less-educated individuals, non-whites, and single mothers (Sabia and Nielsen 2015). It is also true of a recent study that explored the poverty effects of increases in the minimum cash wage paid to tipped employees, often restaurant workers (Sabia, Burkhauser, Mackay 2016). Interestingly, minimum wage increases have also been found to be ineffective in alleviating poverty *among workers* (Burkhauser and Sabia 2007; Sabia and Nielsen 2015; Sabia 2014), which suggests that adverse employment effects alone cannot explain the ineffectiveness of higher minimum wages as a poverty fighting strategy (Sabia and Burkhauser 2010).

Figure 1 shows the findings from key studies examining the net poverty effects of minimum wages (Card and Krueger 1995; Burkhauser and Sabia 2007; Sabia et al. 2015; Sabia and Nielsen 2015). The 95 percent confidence interval is depicted for each estimate of the elasticity of poverty with respect to the minimum wage. An elasticity shows the percent change in poverty that is associated with a 1 percent increase in the minimum wage.

For example, an elasticity of +0.1 can be interpreted as: A 10 percent increase in the minimum wage is associated with a 1 percent increase in the poverty rate. If the black vertical line connecting the red horizontal lines at either end of the confidence interval contains an elasticity estimate of zero, then, with 95 percent confidence, one cannot reject the hypothesis that minimum wages have no statistically significant effects on net poverty. Across each of the studies highlighted in Figure 1, we find no evidence that minimum wages are an effective anti-poverty strategy. In each case, the 95 percent confidence interval includes a zero policy effect.

While the empirical evidence in support of poverty alleviating effects of higher minimum wages is very weak, one working paper was very influential in the 2014 CBO report that concluded that a higher minimum wage would reduce net poverty by nearly one million individuals. Dube (2013) challenges the consensus of a two-decade literature on methodological grounds. This study argued that the “canonical” difference-in-difference approach most commonly used in the literature produced estimates of poverty effects of minimum wages that were biased toward zero. In Dube’s preferred empiri-

FIGURE 1. ESTIMATED ELASTICITIES OF POVERTY WITH RESPECT TO MINIMUM WAGE



Source: Card and Kruger (1995); Burkhauser and Sabia (2007); Sabia et al. (2015); and Sabia and Nielsen (2015)

Notes: Single mothers sample is restricted to single female household heads aged 18-to-64 in Burkhauser and Sabia (2007) and single female household heads aged 15-to-55 in Sabia et al. (2015).

cal model¹⁷, he finds that minimum wage increases are associated with statistically significant, large reductions in poverty. In particular, he concludes that a 10 percent increase in the minimum wage is associated with a 2.4 to 3.6 percent reduction in poverty (an intent-to-treat estimate), effects that are quite large (in terms of effects of the treatment on the treated) when we consider the share of poor individuals affected by minimum wages.¹⁸

While the results of this study are intriguing, the Dube-preferred research design has been met with substantial criticism. Neumark et al. (2014) shows that this empirical approach obscures adverse employment effects of higher minimum wages (see Chapter 3), which would tend to overstate the income enhancing and poverty alleviating impacts of minimum wage hikes. Moreover, there is evidence that the Dube-preferred research design fails an important falsification test. Using the

identical approach that Dube (2013) used, researchers have examined the effect of minimum wage increases on poverty among those *who do not work* (Sabia 2014) and on non-working individuals living in households *without any other workers* (Sabia et al. 2016). If the research design were valid, then minimum wages should have no effect on poverty among these individuals given that an individual can only be lifted out of poverty from a minimum wage hike if he is working and earning the minimum wage or if other household members are. But in each case, the Dube approach fails these “placebo tests.” His model shows—fairly implausibly—that minimum wage increases reduce poverty among non-workers. Thus, while the CBO report appeared to give substantial attention to the Dube (2013) study, more rigorous analyses suggest it is far too soon to overturn the overwhelming consensus in the literature that minimum

¹⁷Dube (2013) refers to this specification as his “fully saturated” model, which augments two-way fixed effects (state and year fixed effects) with controls for state-specific linear time trends and census division-specific year effects. A recently updated version of this paper (Dube 2018) produces a very similar pattern of results to Dube (2013).

¹⁸For instance, in 2013, 39 percent of poor individuals were employed and 46 percent of the working poor earned wages such that they would be affected by a federal minimum wage hike to \$10.10 per hour. Dube (2018) estimates poverty elasticities with respect to the minimum wage of up to -0.5 to -0.7 in the lowest deciles of the family income distribution. These intent-to-treat estimates are much larger than wage elasticities with respect to the minimum wage estimated for low-skilled workers.

wages are ineffective at reducing net poverty.

Why are minimum wage increases largely ineffective at alleviating poverty despite policymakers' claims to the contrary? The reasons have been well-documented in the economics literature for many decades. In his seminal article in the 1946 *American Economic Review*, Nobel laureate George Stigler (1946) wrote:

"The connection between hourly wages and the standard of living of the family is thus remote and fuzzy. Unless the minimum wage varies with the amount of employment, number of earners, non-wage income, family size, and many other factors, it will be an inept device for combating poverty even among those who succeed in retaining employment. And if the minimum wage varies with all of these factors, it will be an insane device." (Stigler 1946, p. 363)

Minimum wage increases have been documented to be imprecisely targeted to poor individuals for a number of reasons. First, Card and Krueger (1995) show many poor individuals do not work and are therefore unlikely to benefit from minimum wage increases. In 2014, just 35 percent of poor individuals (those living in households with incomes less than 100 percent of the federal poverty line) were employed at any point during the year. Even when we include the near poor in our definition of poverty (those with household incomes of 100 to 150 percent of the federal poverty line), only 44 percent of these individuals were employed.

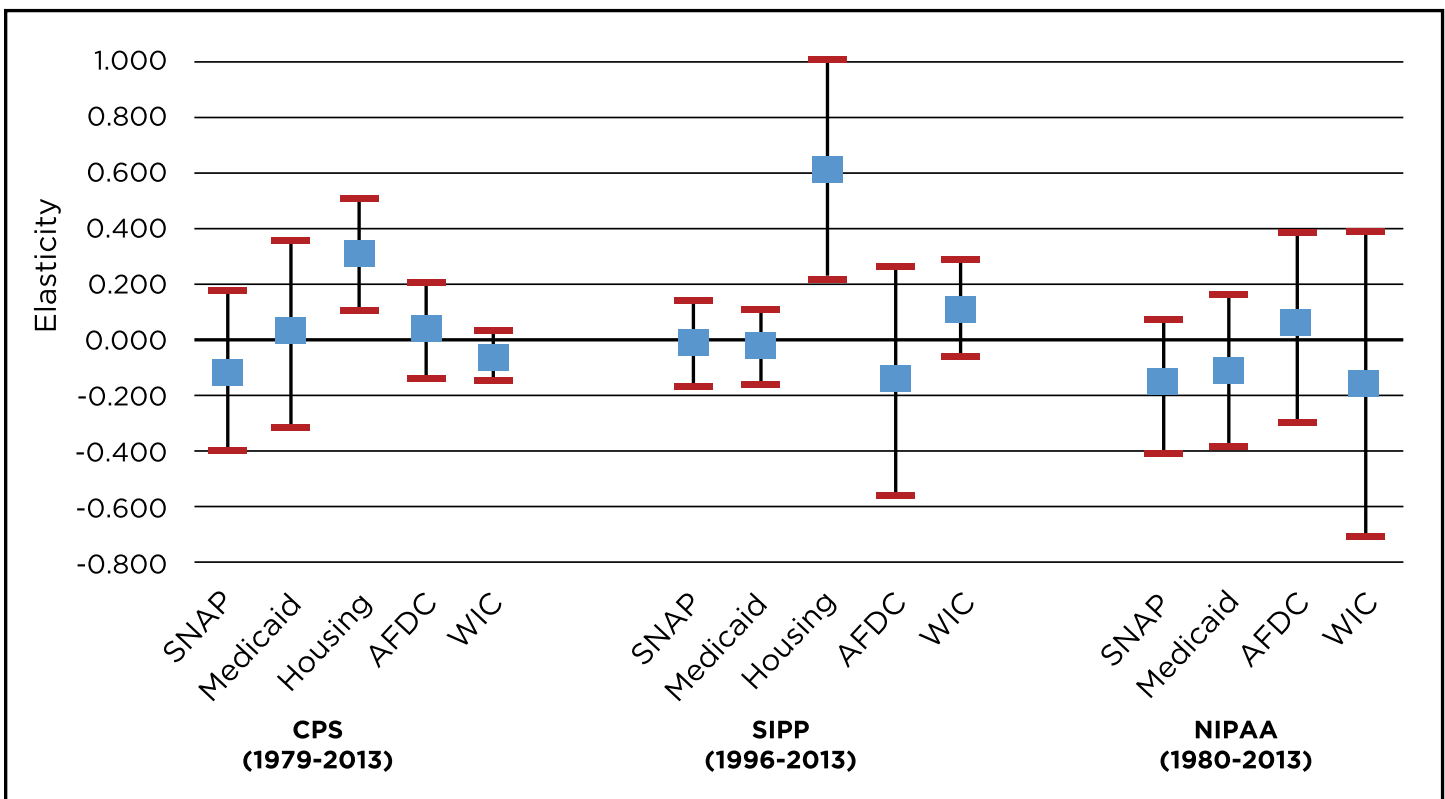
Second, among poor individuals who do work, many do not directly benefit from most minimum wage increases. In an analysis of a previously proposed \$7.25 federal minimum wage, Sabia and Burkhauser (2010) draw data from the Current Population Survey (CPS) and find that almost three-quarters of poor workers earn wages above \$7.25 per hour and did not directly benefit from such increases. Sabia and Nielsen (2015) find a similar pattern of results in the Survey of Income and Program Participation (SIPP). While poor workers who earn more than \$7.25 could see earnings gains if (i) firms substitute higher-skilled poor workers for lower-skilled poor labor, (ii) higher-skilled poor workers' labor contracts (e.g. union contracts) are explicitly tied to minimum wage levels, or (iii) firms pay efficiency wages to induce greater effort or preserve equity, recent evidence in the U.S. suggests that the benefits of minimum wage-induced wage spillovers are likely overstated (Autor et al. 2016). And while recent work by Lundstrom (2014)

suggests that the share of poor workers affected by minimum wage increases may have modestly improved during the Great Recession, largely due to stagnant wages, it is clear that the vast majority of poor individuals will not gain from large minimum wage increases.

While ineffective targeting of minimum wages to poor individuals is one reason for the failure of minimum wages to reduce net poverty, another is the adverse labor demand effects of higher minimum wages among affected poor and near poor individuals. The best evidence we have (see Chapter 3) suggests estimated elasticities ranging from -0.1 to -0.3 for low-skilled individuals, with rates that are three to four times larger for affected low-skilled workers.

A handful of studies have used longitudinal data to explore poverty effects of minimum wage increases. Such analyses are important because they allow us to examine poverty transitions of poor and near-poor individuals who are affected by minimum wages. Using matched CPS data to explore family-specific flows of poverty following minimum wage increases, Neumark and Wascher (2002) find that while minimum wage increases raise the income of some affected workers, lifting them out of poverty, other near-poor individuals see adverse employment or hours effects that plunge them into poverty. Sabia et al. (2016) and Sabia and Nielsen (2015) find a similar pattern of results using SIPP data. In summary, minimum wages appear to have little effect on net poverty. They simply redistribute income among low-skilled poor and near-poor households, spreading the misery around.

Means-Tested Public Program Effects. In the same way that the poverty effects of minimum wage increases are theoretically ambiguous, so are the effects of minimum wage increases on public program participation. If minimum wage hikes increase the earnings of individuals living in poor or near-poor families, these earnings gains may push families over family income eligibility thresholds for means-tested public programs, thus reducing the receipt of benefits. Moreover, earnings gains among public assistance recipients could reduce benefits received during the phase-out portion of income eligibility. On the other hand, if minimum wage increases cause adverse labor demand effects, this could induce earnings losses that increase means-tested public program participation. Thus, in the same way that minimum wage hikes may redistribute poverty, they may redistribute program participation among eligible and near-eligible

FIGURE 2. ESTIMATED ELASTICITIES OF PUBLIC ASSISTANCE RECEIPT/ SPENDING WITH RESPECT TO MINIMUM WAGE

Source: Sabia and Nguyen (2016)

Notes: In the CPS and SIPP estimates, sample is restricted to women ages 16-to-54 for AFDC and WIC, and individuals ages 16-to-64 for all other programs.

ble individuals.

The existing empirical evidence on the effect of minimum wage increases on means-tested public program participation is more limited than the poverty literature; moreover, the findings from this literature are much more mixed. A few studies find that minimum wage increases are associated with increases in welfare caseloads (Page et al. 2005) or declines in the probability that welfare recipients escape the welfare rolls (Brandon 2008; 1995), largely due to adverse employment effects. One recent study finds no net impact of minimum wage increases on welfare participation (Sabia and Nielsen 2015).

Garnering much more attention in policy circles, however, are studies that reach the opposite conclusion, particularly those of West and Reich (2015; 2014).¹⁹ Using the research design advocated by Dube (2013), West and Reich (2015) find that a 10 percent increase in the minimum wage is associated with a 2.4 to 3.2 percent decline in Supplemental Nutrition Assistance

Program (SNAP) participation and a 1.9 percent reduction in public spending on the SNAP program. West and Reich (2014) find a similar pattern of results when estimating the effect of minimum wage hikes on Medicaid participation. However, given that the specification chosen by West and Reich (2015; 2014) obscures adverse employment effects of the minimum wage, these estimates should be viewed with some degree of skepticism, particularly given the findings of Neumark et al (2014).

A study by Sabia and Nguyen (2016) attempts to reconcile the diverse findings from the above literature. They conclude that the explanations for differences in findings across the above-described studies include (i) differences in the magnitude of the impacts of minimum wage increases over the state business cycle (such as larger adverse employment effects during recessions), (ii) important policy changes that impacted eligibility for means-tested public programs, such as state waivers to federal welfare guidelines and the 1996 Personal Re-

¹⁹Earlier studies that reached this conclusion include Council of Economic Advisors (1999) and Turner (1999).

sponsibility and Work Opportunity Reconciliation Act, and (iii) differences in research design.

Sabia and Nguyen (2016) draw national data from four government sources— CPS, SIPP, Department of Health and Human Services, and National Income and Product Accounts—to provide the most comprehensive study of the effects of minimum wage increases on means-tested program participation and public expenditures. They examine a wide set of public programs, including the Supplemental Nutrition Assistance Program, Medicaid, housing assistance programs (e.g. Section 8 housing), Temporary Assistance for Needy Families (TANF/AFDC), and the Special Supplemental Nutrition Program for Women, Infants and Children (WIC). And they examine minimum wage effects over a three decade period, which included recessions (including the Great Recession) and economic recoveries.

Their results show that minimum wage increases are largely ineffective at reducing net means-tested public program participation (Figure 2; CPS and SIPP results). In almost all cases, the 95 percent confidence interval includes zero. In the cases where it does not, housing assistance, there is evidence that increases in the minimum wage *increase* program participation. In addition, they find no evidence that increases in the minimum wage reduce government spending on these means tested public programs (Figure 2, NIPA results).

The results in Figure 2 can be explained by the fact that (i) minimum wage increases redistribute income among eligible and near-eligible individuals, causing some near-poor workers to exit public assistance programs, but also causing other welfare recipients to remain on welfare programs due to diminished job options (see estimates from Sabia and Nguyen 2016 in Table 1

TABLE 1. ESTIMATES OF THE RELATIONSHIP BETWEEN MINIMUM WAGE INCREASES AND TRANSITION PROBABILITIES ONTO AND OFF OF PUBLIC ASSISTANCE, SIPP, 1996-2013

	Working Age		Non-White		Ages 16-29 Without HS		Single Mothers Ages 16-45 Without HS	
	<i>Transition Onto</i>	<i>Transitions Off Of</i>	<i>Transition Onto</i>	<i>Transitions Off Of</i>	<i>Transition Onto</i>	<i>Transitions Off Of</i>	<i>Transition Onto</i>	<i>Transitions Off Of</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SNAP	0.007	-0.127	0.016	-0.184*	-0.081***	0.333	-0.111	-0.059
	(0.008)	(0.086)	(0.012)	(0.113)	(0.030)	(0.602)	(0.481)	(0.373)
N	974,035	54,178	289,181	28,957	99,294	5,135	3,788	4,260
Medicaid	-0.010	-0.191**	-0.012	-0.153	-0.007	-0.471**	-0.420	-0.555
	(0.012)	(0.082)	(0.032)	(0.115)	(0.091)	(0.202)	(0.304)	(0.482)
N	926,640	101,573	265,727	52,411	79,420	25,009	3,820	4,228
Housing	-0.001	-0.499	-0.007	-0.495	-0.030*	-1.421**	0.003	-1.257
	(0.005)	(0.366)	(0.010)	(0.463)	(0.017)	(0.652)	(0.110)	(1.864)
N	1,016,134	12,079	310,704	7,434	101,995	2,434	7,399	649
AFDC^a	-0.001	-0.045	0.000	-0.136	0.020	-0.844	0.014	-0.255
	(0.007)	(0.512)	(0.018)	(0.458)	(0.049)	(1.117)	(0.154)	(0.663)
N	438,113	9,392	143,420	6,040	47,906	1,704	6,290	1,758
WIC^a	-0.006	-0.160	-0.016	-0.292	0.035	-0.237	0.033	0.158
	(0.009)	(0.203)	(0.024)	(0.247)	(0.102)	(0.538)	(0.122)	(0.828)
N	422,850	24,655	135,060	14,400	44,212	5,398	6,062	1,986

*** significant at 1% level ** significant at 5% level * significant at 10% level

Source: Sabia and Nguyen (2016)

TABLE 2. EMPLOYMENT-TO-POPULATION RATIO ACROSS THE HOUSEHOLD INCOME DISTRIBUTION, MARCH 2015 CPS

Income-to-Need Ratio	Did Not Work	Worked at Least 500 Hours	Worked Full-Time, Year-Round
	(1)	(2)	(3)
Less than 1.00	35.2	27.2	11.5
1.00 to 1.49	55.5	49.5	28.9
1.50 to 1.99	63.4	57.7	38.2
2.00 to 2.99	73.2	67.8	48.1
3.00 and above	83.8	79.4	63.3

Notes: Tabulations include individuals aged 16 to 64, whether living alone or in households, using data drawn from the 2015 March Supplement of the Current Population Survey. The former are classified by the ratio of total personal income to the poverty level for one-person households; individuals in households are classified by the ratio of total household income to the size-adjusted poverty level for their household.

TABLE 3. EMPLOYMENT-TO-POPULATION RATIO AMONG RECIPIENTS OF MEANS-TESTED PUBLIC ASSISTANCE, MARCH 2015 CPS

	Did Not Work	Worked at Least 500 Hours	Worked Full-Time, Year-Round
	(1)	(2)	(3)
SNAP Recipients	49.6	41.9	21.6
Medicaid Recipients	44.8	38.0	20.7
Housing assist Recipients	46.6	38.1	18.0
AFDC Recipients	40.9	31.5	10.2
WIC Recipients	55.3	45.0	20.5

Notes: Tabulations include individuals aged 16 to 64 using data drawn from the 2015 March Supplement of the Current Population Survey.

below), and (ii) minimum wage increases are very poorly targeted to those on welfare. For these reasons, prior minimum wage increases have been an ineffective welfare reform policy.

III. TARGET EFFICIENCY OF \$15 MINIMUM WAGE

There is strong reason to expect that a \$15 minimum wage is likely to induce adverse employment effects that will undermine the goal of alleviating poverty and reducing dependence on means-tested welfare programs. But there is another reason why a \$15 minimum wage is a poor policy tool to alleviate poverty: poor target ef-

ficiency. Table 2, column (1) above uses data from the March 2015 CPS to show the employment-to-population ratio of individuals ages 16-to-64 by the income-to-needs ratios (INR) of their households. For example, in 2014 (the calendar year that corresponds to household income in the March 2015 CPS), the federal poverty line (FPL) for a household of size 3 is \$19,790. An individual with an income of \$49,475 living in a household of size 3 would therefore have an income-to-needs ratio of 2.5. The findings in column (1) suggest that those living in poverty (INR < 1.0) or near poverty (1.0 < INR < 1.5) are much more likely to be non-workers (working zero

TABLE 4. THE DISTRIBUTION OF WORKERS BY INCOME-TO-NEEDS RATIOS OF HOUSEHOLD, MARCH 2015 CPS

Income-to-Need Ratio	Hourly Wage Categories ^a						Percentage of Workers Earning Between			
	\$0.01-\$7.24	\$7.25-\$9.99	\$10.00-\$11.99	\$12.00-\$14.99	\$15.00-\$19.99	\$ 20.00 & over	Total	\$7.25-\$15.00	\$7.25-\$10.00	\$7.25-\$12.00
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Less than 1.00	6.2	35.6	24.2	14.4	7.9	11.7	100.0	7.3	9.2	10.5
1.00 to 1.49	4.3	32.8	23.2	20.2	11.4	8.0	100.0	9.9	11.4	13.1
1.50 to 1.99	3.7	21.6	23.3	20.0	16.6	14.7	100.0	10.5	11.4	10.5
2.00 to 2.99	3.1	17.6	17.0	21.2	20.1	21.1	100.0	24.0	23.3	23.0
3.00 or Above	2.1	7.5	7.6	10.7	18.5	53.7	100.0	48.4	44.6	42.9
Whole Category Share^b	2.6	12.2	11.4	13.5	17.9	42.4	100.0	100.1	99.9	100.0

Notes: Estimated wages are obtained using data from the March 2015 Current Population Survey Outgoing Rotation Group.

^aFor hourly workers, wage rates are based on a direct question concerning earnings per hour in their current primary job; for non-hourly workers, wages are calculated as the ratio of reported weekly earnings to weekly hours worked. Household income data used to calculate income-to-needs ratios come from retrospective information from the previous year because that is the period for which it is reported. Wages are for the current year (2015) reported in 2015 dollars.

^bShare of all workers with wage earnings in each category.

hours and zero weeks in 2015) as compared to those living in households with higher income-to-needs ratios. Thus, minimum wage hikes are unlikely to help many poor and near-poor individuals who do not work.

In columns (2) and (3), we use alternate definitions of employment in the prior year: employment of at least 500 hours in 2014 (column 2), and full-time year-round employment, defined by the Bureau of Labor Statistics as employment of at least 50 weeks per year at 35 hours per week (column 3). These statistics are even starker, suggesting that rates of part-time and full-time employment among individuals who are poor (27.2 percent and 11.5 percent, respectively) and near-poor (49.5 percent and 28.9 percent, respectively) are substantially lower than for those living in households with income-to-needs ratios greater than 3.0.

Table 3 shows analogous employment rates (see Panels I through III) for those receiving means-tested public assistance, again using the March 2015 CPS, across the public programs examined by Sabia and Nguyen (2016). The results show that employment rates for welfare recipients are much lower than for non-participants. The vast majority of those who receive SNAP, Medicaid, housing assistance, AFDC and WIC are not employed part-time or full time and thus are less likely to be transitioned off of these programs via hikes in the

minimum wage. Together, the findings in Tables 2 and 3 suggest that policies promoting employment are more likely to reduce poverty and public expenditures on welfare programs than higher minimum wages.

Next, to explore the target efficiency of minimum wages to poor workers and workers receiving means-tested public benefits, we examine those who are employed (using the more liberal definition above: employment of at least 500 hours per year) and show the hourly wage distribution by the income-to-needs ratios of their households. These findings are shown in Table 4 above.

We find that 37.1 percent of all employed 16-to-64 year-olds workers earn between \$7.25 and \$14.99 per hour and would be affected by a \$15 minimum wage. Therefore, it is not surprising that in contrast to past minimum wage hikes, increasing the federal minimum wage by 107 percent from \$7.25 to \$15 will affect the vast majority of poor (74.2 percent) and near-poor workers (76.2 percent). However, when we examine the target efficiency of a \$15 minimum wage (column 8 of Table 3), we find that among those workers who will be affected, only 7.3 percent live in households with incomes below 100 percent of the federal poverty threshold and 27.7 percent live in households with incomes below 200 percent of the federal poverty threshold. The vast majority of affected individuals are, therefore, non-poor.

TABLE 5. EVIDENCE ON POOR TARGETING OF HIGHER MINIMUM WAGE TO WELFARE RECIPIENTS, MARCH 2015 CPS

	Percent affected by \$15 minimum wage who receive welfare	Percent affected by \$10 minimum wage who receive welfare	Percent affected by \$12 minimum wage who receive welfare
	(1)	(2)	(3)
SNAP	11.6	14.0	14.9
Medicaid	13.0	15.0	15.9
Housing assistance	1.4	1.4	0.9
AFDC	0.9	1.2	1.8
WIC	1.9	2.3	2.5
Any program	20.7	24.0	25.6

Notes: Estimates are obtained using data from the March 2015 Current Population Survey Outgoing Rotation Group. For hourly workers, wage rates are based on a direct question concerning earnings per hour in their current primary job; for non-hourly workers, wages are calculated as the ratio of reported weekly earnings to weekly hours worked. Program participation, except for housing assistance, is measured using retrospective information from the previous year because that is the period for which it is reported. Wages are in 2015 dollars.

For example, 48.4 percent of those who would be affected by a \$15 minimum wage live in households with incomes over three times the federal poverty line. Note that when we compare a \$15 minimum wage to a \$10 minimum wage endorsed by then [Republican Presidential Candidate Donald Trump] (column 9 of Table 3) or the \$12 minimum wage initially endorsed by Secretary Hillary Clinton (column 10 of Table 3), the target efficiency of a \$15 minimum wage is *worse* than for lower minimum wage levels.

The same is true when we examine the targeting of a \$15 minimum wage to those receiving means-tested public assistance programs. Table 5 shows the share of workers affected by various minimum wage proposals (\$15, \$12, and \$10) that receive public assistance. We find that only about one-fifth to one-quarter of affected individuals receive some form of means-tested public assistance. Moreover, looking at individual programs, a very small share of workers affected by these federal minimum wage hike proposals receive SNAP, Medicaid, TANF, Housing Assistance, or WIC benefits. Again, the targeting of a minimum wage hike to those receiving public assistance is poorest for a \$15 minimum wage relative to lower minimum wage levels.

IV. CONCLUSIONS

Advocates of increasing the minimum wage to \$15 have argued that such a hike will alleviate poverty and reduce public expenditures on means-tested public benefits. But a review of the literature on the effects of past minimum wage increases on poverty and means-tested public benefits provides little support for these claims. The vast majority of poor individuals and individuals on welfare do not work part-time or full-time and will not gain from increases in the minimum wage. Among those workers who are affected, adverse employment effects will redistribute poverty and program participation among poor and near-poor individuals.

Finally, a \$15 minimum wage is a very inefficient anti-poverty tool, even among workers. Only 7.3 percent of workers ages 16-to-64 affected by a \$15 minimum wage are poor and just 20.7 percent receive any form of means-tested public assistance (SNAP, Medicaid, housing assistance, AFDC or WIC). The vast majority (48.4 to 72.4 percent) of those affected by a \$15 will be non-poor workers. Interventions that encourage rather than discourage employment, are well-targeted to those in poverty, and promote longer-run human capital invest-

CHAPTER 5:

PRICE IMPACTS OF A \$15 MINIMUM WAGE

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Note: This report was authored while Sherk was employed as a research fellow at the Heritage Foundation. It is reprinted with the Foundation's permission. You can download the original report here: <https://www.heritage.org/jobs-and-labor/report/15-minimum-wages-will-substantially-raise-prices>

Raising the minimum wage creates winners and losers. Those workers who receive higher pay benefit. But the money for that higher pay comes from somewhere. Advocates for a minimum wage hike usually argue that “somewhere” means profits. They present starting-wage increases as a way to redistribute wealth from business owners to low-wage workers.

Reality is not so simple. Economic research consistently finds that businesses pass minimum-wage costs on to their customers through price increases. Most minimum-wage employees work for small firms in competitive markets. These companies have small profit margins. They can only pay higher wages if they raise prices. Customers—not business owners—pay that cost.

Consequently, minimum-wage increases do little to redistribute wealth. Some low-income families benefit from higher wages, but many more low-income families are hurt by higher prices. Overall minimum-wage effects are more regressive than sales-tax increases.

Some advocates have produced studies claiming that mandatory \$15-an-hour starting wages would only slightly increase prices in the fast-food sector. These

studies contained numerous analytical errors, including the assumption that a large portion of the wage costs simply disappear. Correcting these errors shows that mandatory \$15 starting wages would increase fast-food prices by at least one-fourth.

MINIMUM-WAGE COSTS BORNE BY CUSTOMERS

Many Americans believe that minimum-wage increases transfer income from business owners to their workers. This impression is incorrect. Most firms employing minimum-wage workers are relatively small businesses, such as fast-food restaurants or “Mom and Pop” retail stores.²⁰ These firms typically operate in highly competitive markets. As a result, they have fairly low profit margins. The typical fast-food restaurant, for example, earns between 3 cents and 6 cents of profit on each dollar of sales.²¹ Most minimum-wage employers could not take the entire cost of higher wages out of their profits, even if they wanted to. And if their profit margins fell significantly, many of these small business

²⁰Over three-fifths of workers who receive the federal minimum wage work in two economic sectors: “retail trade” or “leisure and hospitality” (which includes restaurants). See U.S. Bureau of Labor Statistics, “Characteristics of Minimum Wage Workers, 2015,” Table 5, April 2016, <http://www.bls.gov/opub/reports/minimum-wage/2015/pdf/home.pdf> (accessed September 9, 2016). Note: A substantially larger share of workers earning “below the minimum wage” work in the leisure and hospitality sector than workers who are paid exactly the minimum wage. This is because federal law allows restaurants to pay hourly rates below the minimum wage, provided their employees earn more than the minimum wage after tips. However, the survey used to construct these tables does not include tips in its definition of hourly wages. Consequently, many restaurant employees appear to make less than the minimum wage, even though their actual income may be substantially higher after taking tips into account.

²¹IBISWorld, “Industry Report 72221a: Fast Food Restaurants in the US,” May 2013, and National Restaurant Association, Restaurant Operations Report: 2013–2014 Edition, p. 102.

owners would seek different lines of work. When starting wages rise, these businesses pass the cost on to their customers and employees.

Most discussion of minimum-wage increases focuses on the employees: Some receive higher pay—at the cost of others being forced to work fewer hours, or being let go.²² Relatively little attention is paid to how minimum-wage increases affect prices. But customers provide the revenues that cover business expenses. When costs rise, businesses generally compensate by raising prices. Minimum-wage increases are no exception.

Of course, most firms cannot raise prices by themselves without losing business to competitors. A unilateral increase in McDonald's burger prices would send diners to Burger King or Wendy's. But when cost increases hit every firm in an industry, these firms can collectively raise prices. Though higher prices will drive some customers away, no single firm faces a competitive disadvantage.

As a result, most affected businesses respond to mandatory starting-wage increases by raising prices. As the federal Minimum Wage Study Commission found, "The most common types of [employer] responses to the increase in the minimum wage were price increases and wage ripples. No single type of disemployment response was reported with nearly the frequency of these."²³ Customers, not business owners, pay for minimum-wage increases.

RESEARCH: PRICES RISE

Economists have not studied the minimum wage's price effects as extensively as its employment effects. But the research they have conducted points to higher prices.

Sarah Lemos of the University of Leicester surveyed roughly 30 studies conducted before 2005 examining minimum-wage price effects.²⁴ These studies found that minimum-wage increases have relatively small effects

on the overall price level. They reported that a 10 percent minimum-wage increase raises overall prices by about 0.2 percent to 0.3 percent. Most businesses pay more than the current minimum wage, so minimum-wage increases do not affect their costs or prices very much. But Lemos found that studies of industries with higher concentrations of minimum-wage workers generally showed larger price effects.

One noteworthy study that Lemos surveyed examined the federal minimum wage in the 1970s.²⁵ The federal minimum wage affects Southern businesses more than Northern firms.²⁶ Southern states have lower living costs and lower wages than the rest of the U.S.; these differences were even greater in the 1970s than today. The study found the South's higher effective minimum wage increased service prices. Each 10 percent difference in the effective minimum wage raised Southern service prices by 2.7 percent. It had no effect on the prices of manufactured goods.

This finding fits with economic theory. Southern manufacturers compete nationally and internationally. Higher effective Southern minimum wages do not affect their competitors in other states or countries. Affected manufacturers cannot raise prices without losing customers. However, services are local. Restaurants and hotels paying higher wages compete with local companies whose costs have also risen. Such companies can, and do, respond by raising prices.

More recent research comes to the same conclusion as the studies Lemos surveyed. Daniel Aaronson, Eric French, and James MacDonald, researchers at the Federal Reserve Bank of Chicago and the Department of Agriculture, published a study in 2008 examining how restaurants respond to minimum-wage increases.²⁷ They used Consumer Price Index (CPI) data and examined the 1996–1997 federal minimum-wage increase. They found that a 10 percent increase in the minimum wage raises overall restaurant prices approximately 0.7 per-

²²See, for example, Jeffrey Clemens and Michael Wither, "The Minimum Wage and the Great Recession: Evidence of Effects on the Employment and Income Trajectories of Low-Skilled Workers," University of California at San Diego, November 24, 2014, <http://econweb.ucsd.edu/~mwithers/pdfs/Effects%20of%20Min%20Wage%20on%20Wages%20Employment%20and%20Earnings.pdf> (accessed September 9, 2016).

²³Muriel Converse et al., "The Minimum Wage: An Employer Survey," in Report of the Minimum Wage Commission (Washington DC: U.S. Government Printing Office, 1981), pp. 241–341.

²⁴Sara Lemos, "A Survey of the Effects of the Minimum Wage on Prices," *Journal of Economic Surveys*, Vol. 22, No. 1 (2008), pp. 187–212.

²⁵Walter Wessels, *Minimum Wages, Fringe Benefits and Working Conditions* (Washington, DC: American Enterprise Institute, 1980).

²⁶In 1979, the federal minimum wage covered about one-tenth of workers in Massachusetts, New Jersey, and New York. It covered approximately one-fifth of workers in Alabama, Arkansas, and Mississippi. Author's analysis using data from the 1979 Current Population Survey Outgoing Rotation Groups.

²⁷Daniel Aaronson, Eric French, and James MacDonald, "The Minimum Wage, Restaurant Prices, and Labor Market Structure," *The Journal of Human Resources*, Vol. 43, No. 3 (Summer 2008), pp. 688–720.

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cent. Unsurprisingly, they found larger effects in restaurants that employ more minimum-wage workers. Prices increased twice as much—by approximately 1.5 percent—at fast-food restaurants. In lower-wage regions, fast-food prices rose 1.8 percent. Aaronson, French, and MacDonald concluded that their results are consistent with restaurants passing the full cost of minimum-wage increases on to customers, although their results were too imprecise to ascertain whether this actually occurred.

In 2010, Denis Fougère, Erwan Gautier, and Hervé Le Bihan, researchers at the Bank of France, criticized the econometric model that Aaronson and his co-authors used.²⁸ They concluded that that model inaccurately estimates minimum-wage price effects.²⁹ They used data from the French version of the CPI and examined how France’s annual minimum-wage increases affect restaurant prices. They concluded that a 10 percent minimum-

wage increase raises restaurant prices by approximately 1 percent, although it takes one to three years for price increases to fully materialize.³⁰

Their estimate was higher than that found by Aaronson and his coauthors. That difference may result from Fougère and his colleagues using a better methodology; it could also occur because France has a higher minimum wage than the United States. Consequently, French minimum-wage increases have a greater effect on restaurant costs. Fougère and his coauthors found somewhat less than full-cost pass-through, but they could not rule out the possibility that French restaurants passed on the entire cost of minimum-wage increases to their customers.³¹

One exception to the general finding that restaurants pass almost all minimum-wage cost increases directly to customers comes from Daniel MacDonald and Eric

TABLE 1: CUSTOMER RESPONSIVENESS TO RESTAURANT PRICES

Study	Change in Sales Following 10% Price Increase
All Food Away from Home	
• Andreyeva et al. (2010), survey of 13 studies	-8.1%
Fast Food	
• Richards and Mancino (2014)	-7.4%
• Jekanowski et al. (2001)-1992	-18.8%
• Jekanowski et al. (2001)-1982	-10.2%
• Brown (1990)	-10.0%
• Okrent and Kumcu (2014)	-9.0%
• Okrent and Alston (2012)	-1.3%
Average Fast Food Response	-9.5%
Median Fast Food Response	-9.5%

Sources: Compiled by author. See Appendix B.

²⁸Denis Fougère, Erwan Gautier, and Hervé Le Bihan, “Restaurant Prices and the Minimum Wage,” *Journal of Money, Credit, and Banking*, Vol. 42, No. 7 (October 2010), pp. 1199–1234.

²⁹They conduct Monte Carlo simulations and show that a linear model with distributed lags and an aggregate price index will asymptotically converge to the true value of price pass-through. However, the speed of this convergence is slow and in “small” samples (that is, the sizes currently available to researchers) this model will systematically overstate the speed of price adjustment. Moreover, a linear distributed lag model with aggregate price data produces very high standard deviations across simulations in small samples (on the order of twice the true-effect size in the data-generating process); results using this model are estimated very imprecisely.

³⁰More precisely, they found an increase of approximately 1 percent for traditional sit-down restaurants and 1.2 percent for fast-food restaurants. See Fougère, Gautier, and Le Bihan, “Restaurant Prices and the Minimum Wage,” p. 1227.

³¹Their confidence interval on their estimates included values consistent with full cost pass-through.

³²Daniel MacDonald and Eric Nilsson, “The Effects of Increasing the Minimum Wage on Prices: Analyzing the Incidence of Policy Design and Context,” Upjohn Institute Working Paper 16-260, 2016.

TABLE 2: FAMILIES WITH MINIMUM WAGE WORKERS AND BURDEN OF PRICE INCREASES, BY QUINTILE

Quintile	Share of Families with a Minimum Wage Worker	Minimum Wage-Driven Price Increases as a Percent of Annual Family Spending	
	by Income Quintile	by Income Quintile	by Consumption Quintile
1st (lowest)	22.4%	0.59%	0.63%
2nd	19.9%	0.50%	0.56%
3rd (middle)	22.5%	0.51%	0.56%
4th	24.1%	0.54%	0.57%
5th (top)	22.5%	0.58%	0.52%

Source: Thomas MaCurdy, “How Effective Is the Minimum Wage at Supporting the Poor?” *Journal of Political Economy*, Vol. 123, No. 2 (2015), pp. 497 and 545, Tables 4 and 5.

Nilsson, two researchers from California State University at San Bernardino.³² They found that consumers bear only half the cost of minimum-wage increases through higher prices. However, these researchers used a similar approach to Aaronson and his coauthors. Fougère and his colleagues also found less than full-cost pass-through in their French data when they used that econometric model.³³ Most other studies have found that businesses pass either the vast majority, or all, of the costs of starting-wage increases to their customers.

Even left-leaning researchers come to this conclusion. Sylvia Allegretto and Michael Reich are economists at the University of California at Berkeley. Both publicly advocate raising the minimum wage. These researchers examined how San Jose’s 2013 starting-wage increase (to \$10 an hour) affected restaurant prices.³⁴ Using online menu data, they concluded that San Jose

restaurants passed essentially the full-wage increase on to their customers.

Emek Basker and Muhammad Khan, researchers at the Census Bureau and the Islamic Development Bank, respectively, came to a similar conclusion in 2016.³⁵ These researchers used data from a community survey used to estimate cost-of-living differences between cities.³⁶ This survey records the price of a McDonald’s quarter-pounder, a regular Pizza Hut cheese pizza, and Kentucky Fried Chicken fried drumsticks across America. They found that a 10 percent increase in required starting wages raises the price of burgers and pizza by about 1 percent. Curiously they found little effect on KFC chicken prices.³⁷ They report that their findings are consistent with full pass-through of costs to consumers—if payrolls account for half of fast-food restaurants’ costs.

³³Fougère, Gautier, and Le Bihan, “Restaurant Prices and the Minimum Wage,” Table 2. Full pass-through in their data corresponded to a long-run elasticity of 0.15. They estimated elasticities ranging between 0.012 and 0.148 when they used aggregated price data and a linear distributed lags model, with the exact coefficient highly sensitive to choice of control variables. A related concern is that Fougère, Gautier, and Le Bihan found that prices take one to three years to fully adjust to price increases. MacDonald and Nilsson only looked at a four-month window surrounding minimum-wage hikes, so they may have missed part of the total effect.

³⁴Sylvia Allegretto and Michael Reich, “Are Local Minimum Wages Absorbed by Price Increases?” Institute for Research on Labor and Employment Working Paper No. 125-15, December 2015.

³⁵Emek Basker and Muhammad Taimur Khan, “Does the Minimum Wage Bite into Fast-Food Prices?” *Journal of Labor Research*, Vol. 37 (2016), pp. 129–148.

³⁶Council for Community and Economic Research, “Cost of Living Index,” <https://www.coli.org/> (accessed September 8, 2016).

³⁷Allegretto and Reich examined menu price responses for hamburger, pizza, and chicken dishes separately. They found somewhat smaller price increases for these goods than for the entire universe of menu items they examined.

³⁸Basker and Khan (2016) present data showing labor expenses are almost half of sales revenue in the fast-food sector. This is at odds with almost all other data sources on this topic. For example, the Census Bureau’s 2012 Economic Census reported that “limited-service restaurants” (aka fast food) had payrolls of \$45.4 billion on sales of \$185.4 billion in 2012. Payrolls thus represent 24.5 percent of their total revenues. See also IBISWorld, “Industry Report 72221a: Fast Food Restaurants in the US,” May 2013, which reports payrolls account for 26 percent of fast-food restaurants’ total revenues.

TABLE 3: WINNERS AND LOSERS FROM MINIMUM WAGE INCREASES, BY INCOME QUINTILE

Average net benefit, in 2010 dollars

Quintile	Families with Minimum Wage Worker	Families without Minimum Wage Worker	All Families
1 st (lowest)	\$521	-\$74	\$60
2 nd	\$427	-\$86	\$16
3 rd (middle)	\$412	-\$114	\$5
4 th	\$318	-\$154	-\$40
5 th (top)	\$172	-\$250	-\$154
All Families	\$370	-\$136	-\$23

Source: Thomas MaCurdy, “How Effective Is the Minimum Wage at Supporting the Poor?” *Journal of Political Economy*, Vol. 123, No. 2 (2015), pp. 497 and 545, Tables 4 and 5.

Interestingly, most data show that fast-food restaurants spend only a quarter of their budget on wages and benefits.³⁸ Basker and Khan’s findings thus suggest that restaurants may raise prices more than what is necessary to cover costs.

HIGHER PRICES REDUCE SALES

Customers typically buy less at higher prices. This particularly applies to restaurants. Eating out is a luxury for most Americans; as it becomes more expensive, they cut back. Fast-food customers are especially price sensitive. Table 1 shows how Americans react to higher restaurant prices. The table shows estimates of how much sale volumes fall when prices rise 10 percent. The first row shows the conclusion of a meta-analysis conducted by economists in the U.S. Department of Agriculture (USDA) Economic Research Division in 2010.³⁹ Across 13 studies of food away from home (both fast-food restaurants and traditional restaurants) the USDA economists estimate that a 10 percent price increase causes sales to fall by 8.1 percent.⁴⁰ Restaurants lose business when prices rise, even when competitors raise prices, too.

The following rows show every study conducted on fast-food price responsiveness since 1990.⁴¹ These studies (unsurprisingly) show fast-food customers to be even more price sensitive than restaurant customers overall. On average, they find that a 10 percent increase in restaurant prices causes fast-food sales to drop 9.5 percent.

This price sensitivity means that restaurants must raise prices by more than the amount by which minimum-wage increases raise costs. When they raise prices, they lose business. But restaurants must still cover fixed costs like rent, marketing, and utilities. That requires additional price increases.

REGRESSIVE PRICE INCREASES

Customers pay for higher starting wages through higher prices. This complicates many minimum-wage advocates’ Robin Hood narrative. They often argue that raising starting wages redistributes income from wealthy business owners to poorer workers. But higher minimum wages actually transfer wealth from customers to workers. Many of those customers have low incomes, while many low-wage workers come from afflu-

³⁹Tatiana Andreyeva, Michael W. Long, and Kelly D. Brownell, “The Impact of Food Prices on Consumption: A Systematic Review of Research on the Price Elasticity of Demand for Food,” *American Journal of Public Health*, Vol. 100, No. 2 (February 2010), Table 1.

⁴⁰Food away from home showed the greatest price response of any of the food categories that Andreyeva et al. (2010) surveyed. Note: They examined the uncompensated elasticity of demand, not the income-compensated elasticity of demand.

⁴¹This includes the fast-food studies included in the Andreyeva et al. (2010) estimates of food away from home, and more recent studies that this author identified in the economic literature.

ent families. The poor do not obviously benefit.

Thomas MaCurdy, a Stanford University economist, studied this dynamic.⁴² He examined the 1996–1997 federal minimum-wage increase using two federal surveys.⁴³ Table 2 draws on his findings. It shows the percentage of families with workers directly affected by the minimum-wage increase, broken down by family-income quintile.

MaCurdy found that minimum-wage workers live in families across the income distribution. While they personally have low wages, many live with family members who earn considerably more. Just over 20 percent of the poorest fifth of American families include a minimum-wage worker. A similar proportion of families in the richest fifth do, too. About one in five workers in the second, middle, and fourth income quintiles also include minimum-wage employees. Some poor workers benefit from minimum-wage increases (if they keep their jobs). But a sizeable portion of the benefits go to middle-class and upper-middle-class families.

Price increases caused by minimum-wage increases may disproportionately hit lower-income families. For example, low-income and middle-income families eat more fast food than high-income families. To the extent a minimum wage increase raises fast-food prices, it will hurt the poor and middle class more than the wealthy. MaCurdy also investigated this, finding the minimum-wage increase disproportionately raised prices on the poor.⁴⁴

On average the 1996–1997 federal minimum-wage increase raised prices 0.59 percent on families in the bottom income quintile—slightly more than any other income quintile. Many economists believe that consumption measures living standards better than income. (Some families with low incomes nonetheless enjoy relative affluence, such as retirees drawing on substantial savings.) So MaCurdy also examined families by consumption quintiles. This showed the costs falling even more heavily on the poor. The minimum-wage in-

crease raised prices for the poorest consumption quintile by 0.63 percent. Prices rose just 0.52 percent in the top consumption quintile.

Minimum-wage-driven price increases raise prices disproportionately on goods and services purchased by the poor. Viewed as a consumption tax, the minimum wage charges the poor higher rates than the middle class or the rich. This makes minimum-wage increases' price effects more regressive than sales taxes.

Table 3 shows MaCurdy's analysis of the net redistributive effects of minimum-wage increases. He optimistically assumed that minimum-wage increases eliminate no jobs.⁴⁵ He then analyzed who gained and lost from wage and price changes.

MaCurdy found that even under this best-case scenario, the minimum wage only marginally transfers income to the poor. On average, the 1996–1997 minimum-wage increase raised annual incomes in the bottom and second quintiles by \$60 and \$16 (in 2010 dollars), respectively. It did this by lowering incomes by \$40 and \$154 in the fourth and top quintiles, respectively. The average family lost \$23.⁴⁶ The net redistribution occurred because upper quintiles spend more money in total than the lower quintiles. Consequently, they pay more of the price burden than lower-income families, even though the higher prices represent a smaller portion of their overall income.

MaCurdy also found that mandatory starting-wage increases hurt most low-income families: 78 percent of families in the bottom quintile had no minimum-wage workers. They did not benefit from the increase; however, they did face higher prices. On average, these higher prices cost them \$74 a year. The average benefit occurred because the smaller number of winners in the bottom quintile gained more than the losers lost.

These figures represent an idealized scenario under which no employees lose their jobs. The net benefit for low-income families turns negative if significant job losses occur. Unfortunately, workers from low-income

⁴²Thomas MaCurdy, "How Effective Is the Minimum Wage at Supporting the Poor?" *Journal of Political Economy*, Vol. 123, No. 2 (2015), pp. 497–545.

⁴³The Survey of Income and Program Participation (SIPP) and the Consumer Expenditure Survey (CE).

⁴⁴MaCurdy assumed that employers passed the entire cost of the minimum-wage increase to their customers through price increases with no employment response. He then used data from an input-output model of the economy and the Consumer Expenditure Survey to track how much prices rose for each income and consumption quintile.

⁴⁵MaCurdy recognizes that layoffs may well occur; he assumed they do not as an analytical exercise to determine how increases would affect the poor under the ideal scenario in which they face no job losses.

⁴⁶The average net loss occurs because the government taxes away part of the higher wages that minimum-wage workers earn, but does not compensate families for the higher prices they pay. These taxes thus siphon off part of the gains to those who benefit from minimum-wage increases without reducing the costs to those who lose through higher prices.

families are disproportionately likely to lose their jobs when the minimum wage rises. Economists have found that employers shift their hiring toward teenagers from affluent backgrounds (and away from unskilled adults) after the minimum wage increases.⁴⁷

MaCurdy concluded that minimum-wage increases are an ineffective anti-poverty tool. Even under the best-case scenario they transfer few net resources to low-income families. They also hurt more poor families than they help.

UNREALISTIC PRICE FORECASTS

Even minimum-wage-hike advocates recognize their proposals will increase prices.⁴⁸ Unfortunately, many have unrealistic expectations about how much prices would rise. Two widely reported studies estimated that \$15 starting wages would only modestly affect fast-food prices. These studies make price consequences seem trivial. They are also deeply flawed.

Researchers at Purdue University's School of Hospitality and Tourism Management released the first study.⁴⁹ They estimated the typical fast-food restaurant's sales and expenses. They then calculated how much costs would increase under \$15-an-hour starting wages. Their conclusion: just 4.3 percent.

This finding received significant media attention. The Washington Post gave it a full write-up.⁵⁰ CBS News covered it.⁵¹ Many papers reported on it nationwide.⁵² This reporting highlighted the conclusion that \$15 minimum wages would barely raise fast-food prices—just 22 cents more for a Big Mac. Virtually no reporters exam-

ined how the researchers reached this conclusion. Had they looked deeper, they would have found two enormous flaws.

First, the Purdue researchers estimated fast-food balance sheets by adding median expenses for food, utilities, and labor.⁵³ However, the sum of the median of each expense category will not, in general, sum to total expenses. Averages work that way; medians do not. The data they used warned of this with boldfaced capitalized warnings.⁵⁴ The Purdue researchers added the medians anyway.

As a result, their derived expenses and profits come to just 92 percent of total sales. Fully 8 percent of total outlays disappeared.⁵⁵ This hole in restaurant balance sheets absorbed much of the cost of \$15 starting wages. It was a mathematical error that made \$15 starting wages seem affordable.

Second, the Purdue researchers assumed that higher prices would not affect fast-food sales. Fast-food sales actually fall sharply when prices rise (as Table 1 shows). This means that fast-food restaurants cannot, for example, cover a 10 percent increase in costs by raising prices 10 percent. Their sales will drop at the higher prices. Consumer price sensitivity means that restaurants must raise prices by more than the amount by which their labor costs increase. The Purdue study ignored this dynamic entirely.

PERI STUDY'S PROBLEMS

These flaws render the Purdue study essentially meaningless. Although that study received widespread

⁴⁷Laura Giuliano, "Minimum Wage Effects on Employment, Substitution, and the Teenage Labor Supply: Evidence from Personnel Data," *The Journal of Labor Economics*, Vol. 31, No. 1 (January 2013), pp. 155–194.

⁴⁸See, for example, John Schmitt, "Why Does the Minimum Wage Have No Discernible Effect on Employment?" Center for Economic Policy Research, February 2013, <http://cepr.net/documents/publications/min-wage-2013-02.pdf> (accessed September 8, 2016).

⁴⁹News release, "Study: Raising Wages to \$15 an Hour for Limited-Service Restaurant Employees Would Raise Prices 4.3 Percent," Purdue University, July 27, 2015, <https://www.purdue.edu/newsroom/releases/2015/Q3/study-raising-wages-to-15-an-hour-for-limited-service-restaurant-employees-would-raise-prices-4.3-percent.html> (accessed September 8, 2016).

⁵⁰Roberto Ferdman, "What Paying Fast Food Workers a Living Wage Would Do to the Price of a Big Mac," *The Washington Post*, July 30, 2015, <https://www.washingtonpost.com/news/wonk/wp/2015/07/30/what-doubling-the-minimum-wage-would-do-to-the-price-of-a-big-mac/> (accessed September 8, 2016).

⁵¹Erik Sherman, "With \$15 Hourly Wages, What Happens to Fast-Food Prices?" *CBS Money Watch*, July 29, 2015, <http://www.cbsnews.com/news/with-15-hourly-wages-what-happens-to-fast-food-prices/> (accessed September 8, 2016).

⁵²Google News search for "fast food prices 4.3 percent Purdue," <https://www.google.com/search?q=fast+food+4.3+percent+prices+purdue&ie=utf-8&oe=utf-8&q=fast+food+4.3+percent+prices+purdue&tbm=nws> (accessed August 8, 2016).

⁵³This data came from the National Restaurant Association's 2013–2014 Restaurant Operations Report.

⁵⁴National Restaurant Association, 2013–2014 Restaurant Operations Report, p. 8. The warning reads "It will become evident in the reading of this report that columns do not total when medians are involved. The reason behind this is, EACH LINE ITEM IS ANALYZED SEPARATELY!" (Emphases in original.)

⁵⁵Author's calculations using data from *ibid.* and Richard Ghiselli and Jing Ma, "The Minimum Wage, a Competitive Wage, and the Price of a Burger: Can Competitive Wages Be Offered in Limited Service Restaurants?" Purdue University School of Hospitality and Tourism Management, July 2015.

media coverage, economists have paid little attention to it. Instead, serious supporters of \$15 starting wages point to the research of economists at the Political Economic Research Institute (PERI) at the University of Massachusetts at Amherst. In a 2015 working paper, Robert Pollin and Jeannette Wicks-Lim analyzed the consequences of a \$15 mandate on the fast-food sector.⁵⁶

The PERI economists used a more sophisticated method than the Purdue researchers to estimate by how much \$15 starting wages would cause fast-food prices to rise over four years. They accounted for customer price sensitivity and used reliable sources to estimate total costs. They concluded that fast-food restaurants could cover \$15 starting wages with a combination of 12 percent higher prices and revenues generated by trend sales growth. Under their scenario, fast-food employment growth would slow down, but the fast-food industry would not lose jobs.

Advocates use this study to argue that requiring \$15 starting wages would have only moderately negative side-effects. Unfortunately, Pollin and Wicks-Lim also made serious errors. Three main errors drive their conclusion.

First, they assumed that nationwide fast-food sales rise without fixed costs increasing as well. They modeled fast-food sales rising at a 2.5 percent annual rate.⁵⁷ Pollin and Wicks-Lim then calculated by how much variable costs, such as for food and labor, would rise to cover those higher sales. But they assumed that fixed costs, such as rent and marketing, would not increase at all.

That assumption is wrong. Fixed costs must rise to achieve trend sales growth.⁵⁸ That trend growth comes from opening new restaurants, increased advertising, and otherwise expanding the fast-food market. These activities increase fixed costs. If fixed costs stayed constant

as industry-wide sales increased, fast-food restaurants would enjoy steadily rising profit margins. They do not.

This error creates a more sophisticated hole in fast-food balance sheets: By assumption, revenues rise while fixed costs remain frozen. In their model this difference between revenues and expenses helps pay for the wage increases.⁵⁹ The PERI researchers, like the Purdue researchers, assume that much of the cost of a \$15 minimum wage simply disappears.

Second, Pollin and Wicks-Lim greatly underestimate how much price increases affect fast-food sales. They calculate price sensitivity by averaging two of the estimates listed in Table 1, Okrent and Alston (2012) and Okrent and Kumcu (2014). But Okrent and Alston is an extreme outlier, estimating much lower price sensitivity than the other studies. Looking at just these two studies implies that 10 percent higher fast-food prices reduce sales by 5 percent—about half of what the other studies find. USDA economists estimated much greater price responsiveness across the entire restaurant sector. It seems unlikely that fast-food customers care less about prices than customers in traditional sit-down restaurants. The PERI model requires that they do.

Third, the PERI study assumed unrealistically large savings from reduced turnover. Higher minimum wages reduce employee turnover, saving employers costs associated with filling vacant positions. Accounting for this makes sense, but Pollin and Wicks-Lim exaggerated these savings. The PERI study relied on a study of hotel-staff-turnover costs.⁶¹ That study found that staff turnover costs hotels an average of \$4,700 per position. Pollin and Wicks-Lim applied that same figure to fast-food restaurants.

They should not have done so. Replacing more-skilled employees costs more than filling less-skilled positions. The hotel-turnover study looked at several dif-

⁵⁶Robert Pollin and Jeannette Wicks-Lim, "A \$15 U.S. Minimum Wage: How the Fast-Food Industry Could Adjust Without Shedding Jobs," Political Economy Research Institute Working Paper No. 373, January 2015, http://www.peri.umass.edu/fileadmin/pdf/working_papers/working_papers_351-400/WP373.pdf (accessed September 9, 2016).

⁵⁷This rate is in line with the recent trend of sales-volume increases.

⁵⁸"Fixed costs" is used in this section to refer to costs that are not directly affected by rising or falling sales volume. Advertising costs are not, strictly speaking, fixed. However, falling sales due to higher prices do not mean that fast-food companies can spend less on advertising.

⁵⁹Actually, this hole in restaurant balance sheets more than pays for \$15 starting wages. Their model concludes that fast-food restaurants have \$2 billion in additional revenue "available for other uses" even after raising starting wages to \$15. These additional funds come from the false assumption that fixed costs do not rise along with trend sales growth.

⁶⁰The USDA researchers estimated an average price sensitivity for the restaurant sector of 0.81 (so, a 10 percent increase in prices reduces sales 8.1 percent), with a lower bound on the 95 percent confidence interval for that estimate of 0.56. The Pollin and Wicks-Lim estimate of 0.5 for just the fast-food sector thus lies below the 95 percent confidence interval for the entire restaurant sector. This seems implausible. See Andreyeva, Long, and Brownell, "The Impact of Food Prices on Consumption: A Systematic Review of Research on the Price Elasticity of Demand for Food."

ferent positions. It found smaller costs when less-skilled positions turn over: \$2,100 for a hotel line cook; \$1,300 for room service wait staff. Moreover, cooking fast food generally requires fewer skills than hotel cooking. Assuming that fast-food restaurants pay more than double the turnover costs of hotel cooks seems implausible.

Other research also suggests that Pollin and Wicks-Lim overestimated turnover costs. A McDonald's executive published experiments that the company conducted to reduce turnover.⁶² That study revealed that McDonald's internally estimates vacancies cost \$788 to fill. Pollin himself published a study in 2000 that directly surveyed California businesses about turnover.⁶³ Restaurants reported turnover costs between \$614 and \$736 per position. True turnover costs are almost certainly much less than \$4,700 per position in the fast-food industry.⁶⁴

In the PERI model, fast-food restaurants recoup about one-fifth of the cost of \$15 starting wages through lower turnover. More realistically, they would only recoup about 3 percent.⁶⁵ Overestimating turnover costs causes the PERI study to underestimate the cost of \$15 starting wages.⁶⁶

SIGNIFICANTLY HIGHER PRICES AND FEWER JOBS

Had the PERI economists corrected these problems

their analysis would have revealed that \$15 starting wages have large negative consequences. Table 4 shows what the PERI model would show if Pollin and Wicks-Lim made three improvements to their calculations:

1. Assuming that fixed costs grow at the same rate as trend sales growth, instead of assuming that fixed costs remain unchanged when trend sales increase;
2. Using the average responsiveness of fast-food sales to price increases found by academic economists instead of looking at only two studies, one of which is an extreme outlier⁶⁷; and
3. Modeling turnover costs of \$1,000 instead of \$4,700 per fast-food employee vacancy.⁶⁸

The corrected PERI model shows that \$15 starting wages significantly increase fast-food production costs. Turnover savings and balance sheet holes no longer absorb much of this increase. In response, the restaurants must raise prices. This causes sales volume to drop; food and labor costs fall proportionately as well. Nonetheless, the original price increase no longer covers fixed costs, such as rent and marketing, at the reduced sales volume. So the restaurants must increase prices yet more. Prices finally reach an equilibrium level where the slightly higher revenues from the price increases and the

⁶¹Timothy R. Hinkin and J. Bruce Tracey, "The Cost of Turnover: Putting a Price on the Learning Curve," *Cornell Hospitality Quarterly*, Vol. 41, No. 3 (2000), pp. 14–21.

⁶²Michael Harris, "An Employee Retention Strategy Designed to Increase Tenure and Profitability in the Fast Food Industry," a dissertation presented in partial fulfillment of the requirements for the degree of Doctor of Business Administration, The University of Phoenix, December 2010, <http://pqdtopen.proquest.com/doc/860122562.html?FMT=AI> (accessed September 9, 2016).

⁶³Robert Pollin and Mark Brenner, "Economic Analysis of Santa Monica Living Wage Proposal," Political Economy Research Institute Research Report No. 2, August 2000, Table S-4, http://www.peri.umass.edu/fileadmin/pdf/research_brief/RR2.pdf (accessed September 9, 2016).

⁶⁴Note that \$4,700 is about half the \$10,080 that Pollin and Wicks-Lim estimate the 2.4 million fast-food workers who make less than \$9.50 an hour earn in total annual earnings. Even the liberal Center for American Progress estimates that turnover costs represent 16 percent of base earnings when firms replace employees who earn less than \$30,000 a year. The PERI estimates imply that turnover costs roughly three times that proportion in the fast-food industry. This seems highly implausible. See Heather Boushey and Sarah Jane Glynn, "There Are Significant Business Costs to Replacing Employees," Center for American Progress, November 16, 2012, p. 2, <https://cdn.americanprogress.org/wp-content/uploads/2012/11/16084443/Costof-Turnover0815.pdf> (accessed September 9, 2016).

⁶⁵Author's calculations assuming 100 percent annual turnover rates and per-employee turnover costs of \$1,000.

⁶⁶A related issue is that Pollin and Wicks-Lim overestimate turnover rates in the fast-food sector. They cite data from a 2010 report that estimated turnover in the fast-food industry of 120 percent. See J. Bruce Tracey and Timothy Hinkin, "Contextual Factors and Cost Profiles Associated with Employee Turnover," in Cathy A. Enz, ed., *The Cornell School of Hotel Administration Handbook of Applied Hospitality Strategy* (Los Angeles: Sage Publishing, 2010), pp. 736–753. However, that study simply references a 2006 online article that, in turn, referenced research conducted in 2000 by a talent management consulting firm. See news release, "Employee Turnover Depresses Earnings, Stock Prices by 38%, Nextera Research Study Shows," Nextera Enterprises, August 8, 2000, <http://www.prnewswire.com/news-releases/employee-turnover-depresses-earnings-stock-prices-by-38-nextera-research-study-shows-72762742.html> (accessed September 9, 2016). The height of the tech bubble occurred in 2000, and employee turnover was particularly high that year. It seems likely that turnover in the fast-food industry is currently lower. Bureau of Labor Statistics data from the Job Openings and Labor Turnover Survey data show that private-sector quit rates have fallen roughly one-fifth since 2000. The National Restaurant Association's 2013–2014 Restaurant Operations Report reports median turnover among hourly employees in limited-service restaurants of 74 percent (see exhibit D-5). Overestimating initial turnover rates causes Pollin and Wicks-Lim to overestimate the savings from reduced turnover.

reduced variable costs (such as employment and food) from lower sales fully offset the higher wage rate.

These corrections reveal that \$15 starting wages would significantly hurt the fast-food industry. The corrected PERI model shows that prices ultimately rise by 24 percent, while employment falls by 21 percent relative to trend, and 13 percent in absolute levels.⁶⁹ That represents 900,000 fewer fast-food jobs.⁷⁰ Under more realistic assumptions, the PERI model finds that a \$15 minimum wage would hurt many fast-food workers and customers.

This author conducted similar analysis for The Heritage Foundation.⁷¹ That analysis did not model turnover-cost reductions, and used a slightly different data source, which showed that fixed costs represent a larger share of total expenses than the PERI researchers

modeled.⁷² That analysis also assumed that \$15 starting wages would increase labor costs more than PERI did.⁷³ This author's analysis concluded that \$15 starting wages would ultimately increase prices by 38 percent, while reducing fast-food employment by 36 percent.

On the whole, the corrected PERI model appears more reflective of the likely effect of mandatory \$15 starting wages than this author's earlier analysis. Nonetheless, both models show large price and employment effects. Contrary to advocates' claims, requiring \$15 starting wages would significantly raise prices and reduce employment in the fast-food sector.

TABLE 4: CONSEQUENCES OF \$15 STARTING WAGES IN THE FAST FOOD INDUSTRY

Percent Change in:	Corrected PERI Model	Heritage Foundation Estimate
Prices	24%	38%
Employment Relative to Trend	-21%	-36%
Employment Levels	-13%	—

Note: The Corrected PERI model shows the results of the PERI model, adjusted to assume that (1) fixed costs grow at the same rate as trend sales growth instead of remaining constant, (2) the price elasticity of demand in the fast food sector is -0.946 instead of 0.5, and (3) turnover costs are \$1,000 per position in the fast food industry and turnover rates are initially 100 percent a year, instead of \$4,700 on 120 percent annual turnover.

Source: Author's calculations using data from Robert Pollin and Jeanette Wicks-Lim, "A \$15 U.S. Minimum Wage: How the Fast-Food Industry Could Adjust Without Shedding Jobs," Political Economy Research Institute, January 2015, http://www.peri.umass.edu/fileadmin/pdf/working_papers/working_papers_351-400/WP373.pdf (accessed September 8, 2016), and James Sherk, "Higher Fast Food Wages: Higher Fast Food Prices," Heritage Foundation Issue Brief No. 4722, September 4, 2014.

⁶⁷This average price elasticity of demand is -0.946 as shown in Table 1.

⁶⁸This calculation also assumes annual turnover rates of 100 percent instead of 120 percent, as discussed in footnote 47.

⁶⁹Author's calculations replicating the model presented in Pollin and Wicks-Lim, "A \$15 U.S. Minimum Wage: How the Fast Food Industry Could Adjust Without Shedding Jobs," and making the adjustments described in the text above. See Appendix 1 for details.

⁷⁰Assuming a 2.5 percent annual trend growth in fast-food employment shows 4.2 million fast-food workers by year five of the Pollin and Wicks-Lim model. A 21 percent reduction of that employment level means 876,000 fewer fast-food jobs.

⁷¹James Sherk, "Higher Fast-Food Wages: Higher Fast-Food Prices," Heritage Foundation Issue Brief No. 4722, September 4, 2014, <http://www.heritage.org/research/reports/2014/09/higher-fast-food-wages-higher-fast-food-prices>.

⁷²Both The Heritage Foundation and PERI used analysis from IBISWorld, "Industry Report 72221a: Fast Food Restaurants in the US." Heritage's report was published in September 2014 and used data from the May 2013 industry analysis. PERI's January 2015 report used data from the October 2014 industry analysis. Fixed costs dropped from an estimated 41 percent to 34 percent of total sales from the May 2013 to October 2014 reports.

⁷³The Heritage analysis used data from the Bureau of Labor Statistics' May 2013 Occupational Employment Statistics (OES) showing that the average fast-food cook earns \$9.04 an hour, and assumed that average wages would rise to \$15.50 per hour thereafter—a 71 percent increase in labor costs. PERI notes that lower-wage employees tend to work fewer hours than higher-wage employees, and thus the average employee's wage does not equal the average hourly wage that employers pay. PERI combined data from the OES and Current Population Survey to estimate the distribution of wages in the fast-food industry, as well as "ripple effects" from a \$15 mandate. They estimate current average hourly wages of \$10.16 in the fast-food sector, which would rise to \$16.11 with \$15 starting wages. This represents a 59 percent increase in average labor costs. The Heritage model also assumed a price elasticity of demand of -0.946.

⁷⁴The October 2014 IBIS estimate of fixed costs is closer than the May 2013 report to the amounts that McDonald's and Wendy's report on their 10-K forms to the Securities and Exchange Commission for company-owned restaurants. (See footnote 53.) The PERI labor-cost-increase calculations are more comprehensive and probably more accurate than this author's earlier calculations, which did not account for lower-wage employees working fewer hours. (See footnote 54.)

HIGHER PRICES NEGATE ANTI-POVERTY EFFECTS

Consumers pay for higher minimum wages through higher prices. Large minimum-wage increases require large price increases. The burden of these price increases falls disproportionately on low-income and middle-income Americans. These price increases are more regressive than sales taxes.

This dynamic largely negates minimum-wage increases' anti-poverty effects. Everyone in society—not just business owners—pays the costs through higher prices. Meanwhile, the benefits go to families up and down the income distribution. On balance, minimum-wage increases provide little net benefit to the poor; in fact, more low-income families lose than gain. Minimum-wage increases do not accomplish what their supporters claim they will.

CHAPTER 6:

EVALUATING CITIES' EXPERIENCES WITH LOCAL MINIMUM WAGES

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Recent political discussion, by major figures in both parties, of the minimum wage has focused on raising the federal minimum wage from its current level of \$7.25 to \$12 or even \$15. Despite the rhetoric about the federal minimum wage during the political campaign season, it is far more realistic to think that states and especially localities will enact a \$15 minimum wage than the federal government. For example, in April 2016, Gov. Jerry Brown signed legislation that will raise California's minimum wage to \$15 by 2022, as did Gov. Andrew Cuomo of New York, phasing it in fully across the state by 2021.⁷⁵ Some localities have been even more aggressive on timing. Seattle, WA required large employers to pay \$15 starting January 1, 2017, while San Francisco, CA reached that level on July 1, 2018.⁷⁶ In 2015, there were proposals or ballot initiatives by a number of states and localities to raise their minimum wages to \$15.⁷⁷

Given the greater likelihood of a \$15 minimum wage at the state and city levels, it is important to consider what the consequences may be, especially if the federal minimum wage is not raised to that level. This chapter

reviews previous evidence on citywide minimum wages and discusses several unique conceptual issues that arise when minimum wage policy is implemented at the city-level. It is important to note that even when the evidence from the \$15 implementation starts to trickle in from Seattle, WA, San Francisco, CA and other places, serious concerns will arise about the generalizability of the results. The early adopters are "superstar cities" that have extremely high cost-of-living, high nominal wage levels, and rich natural endowments. The idea that the findings on the labor market from a \$15 minimum wage in Seattle would translate easily to low cost-of-living cities in the Midwest or South is unlikely.

Why are citywide minimum wages different? The effects of city-level minimum wage hikes differ from federal or even statewide regulations due to mobility. First is business mobility. For some industries, it is possible to move outside the narrow political jurisdiction that enacts the minimum wage ordinance, while still retaining much of its customer base. Second is worker mobility. In many jurisdictions, workers commute into the city from outside of city boundaries. This means that

⁷⁵See State of California, "Fact Sheet: Boosting California's Minimum Wage to \$15/Hour." Available at:

⁷⁶https://www.gov.ca.gov/docs/Fact_Sheet_Boosting_Californias_Minimum_Wage.pdf and New York Department of Labor, "Minimum Wage." Available at: <http://www.labor.ny.gov/workerprotection/laborstandards/workprot/minwage.shtm>, Accessed August 1, 2016.

⁷⁷City of Seattle Office of Labor Standards. "Seattle's New Minimum Wage Ordinance." Available at: http://www.seattle.gov/Documents/Departments/CivilRights/mwo-large_employers-english.pdf and <http://sfgov.org/olse/minimum-wage-ordinance-mwo>, Accessed August, 1, 2016.

⁷⁸See Tung, Lathrop, and Sonn (2015).

⁷⁹See Reich et al., (2016) for an example of such multiplier effects, which tend to rely on simulations using IMPLAN.

the so-called “winners” from such increases may not be city residents. It also suggests that alleged “multiplier effects” – possible increases in consumer demand from low-income households receiving a boost in income – would to some extent occur outside of the political jurisdiction passing the citywide minimum wage.⁷⁸ Moreover, worker mobility suggests that some of the potential gains from raising the hourly minimum wage are diluted due to longer commuting times and higher transportation costs.⁷⁹

The remainder of this chapter is arranged as follows: Section II discusses recent history of local minimum wage ordinances; Section III reviews existing studies on citywide minimum wages; Section IV discusses the American Community Survey (ACS); Section V analyzes issues related to mobility and presents empirical evidence; Section VI calculates estimates of job losses for different minimum wage thresholds and different employment elasticities for 179 localities with 50,000 or more workers; and Section VII offers some concluding remarks.

BRIEF HISTORY OF MINIMUM WAGES AT THE CITY LEVEL

Both Santa Fe, NM and San Francisco, CA passed citywide minimum wages in 2003 and implemented them within several years. Until 2012, those were the only cities to successfully pass minimum wage ordinances substantially above the federal level.⁸⁰ Some states, when debating raising the minimum wage statewide, preempted cities from passing their own ordinances.⁸¹ In 2012 and 2013, several additional cities in California, New Mexico and near Washington D.C. passed ordinances to phase in higher wages over several years. By January 2014, the only cities to have implemented minimum wages were Albuquerque, NM (\$8.60); Bernalillo, NM (\$8.50, part of the Albuquerque MSA); San Francisco, CA (\$10.74, with additional mandates related to health insurance and paid sick leave); San Jose, CA (\$10.15);

Santa Fe, NM (\$10.51); SeaTac, WA (\$15, an outlying suburb of Seattle); and Washington, D.C. (\$8.25).⁸² At the same time, 21 states (and hence, all cities within that state) had minimum wages exceeding the federal threshold of \$7.25. The range varied considerably, from \$7.40 in Michigan to \$9.32 in Washington.

The landscape fundamentally changed during 2014 and continues to the present. In 2014, twelve localities passed ordinances. In addition to a wider range of cities or counties within California and New Mexico passing minimum wage ordinances (often phasing them in over several years), both Seattle, WA and San Francisco, CA passed ordinances raising the minimum wage to \$15 over several years. In addition, a more widely dispersed set of cities with lower costs of living – including Chicago, IL (\$13) and Louisville, KY (\$9) – passed ordinances. In 2015, sixteen localities passed ordinances. Another major city – Los Angeles, CA – passed a \$15 ordinance, phased in over several years. And again the cities were more geographically dispersed, including Portland, ME (\$10.68); Kansas City, MO (\$13); Birmingham, AL (\$10.10); St. Louis, MO (\$11); Johnson County, IA (\$10.10); Lexington, KY (\$10.10); and Bangor, ME (\$9.75).⁸³

In summary, citywide minimum wages were limited to small geographic pockets with either high cost-of-living or extremely progressive cities until 2014. Since then, a wider range of cities in lower cost-of-living areas have passed ordinances.

PREVIOUS EVIDENCE ON CITYWIDE MINIMUM WAGES

The two major cities with a prolonged experience with citywide minimum wages are Santa Fe, NM and San Francisco, CA.⁸⁴ Of the two, it is well recognized that San Francisco is a “superstar city,” and in many respects findings from its labor market may not generalize more broadly.⁸⁵ In addition to a minimum wage, San Francisco also passed a pay-or-play health insur-

⁷⁹Recent work by Agrawal and Hoyt (2016) discusses assumptions under which commute times can be used to measure welfare effects of policies.

⁸⁰National Employment Law Project (2016) NELP’s accounting differs from Yelowitz (2012), who notes that Albuquerque, NM had a minimum wage effective 2007, and Washington, DC had a minimum wage effective 1993.

⁸¹Brennan Center for Justice at NYU School of Law (2004).

⁸²Berman and Company, (2014).

⁸³Kansas City, Louisville and Lexington had pre-emption lawsuits which may delay or stop implementation (National Employment Law Project, 2016).

⁸⁴Yelowitz (2012) argues that of the four cities that have increased minimum wage levels, two present serious issues for empirical work. Albuquerque, NM had increases that were small (its minimum wage in 2011 is the same as New Mexico’s and is \$0.25/hour higher than the federal minimum) and Washington, DC has a labor force with a disproportionate share of public workers (nearly 25% of workers were in the public sector; in contrast, around 15% of workers in the New York City metro area were public employees).

ance mandate and a paid sick leave mandate, both of which raise the hourly compensation cost.⁸⁶ Although San Francisco's experience may be helpful for ordinances in Seattle, Los Angeles, or other extremely high cost-of-living cities, the results from Santa Fe are likely more informative for cities in Alabama, Iowa, Illinois, Kentucky, Maine, and Missouri.

SANTA FE'S EXPERIENCE: HIGHER UNEMPLOYMENT AND JOB LOSS

Although no one would argue that Santa Fe's cost-of-living or economy is a perfect comparison for cities like Louisville, KY; Lexington, KY; Portland, ME; Kansas City, MO; Birmingham, AL; St. Louis, MO; Johnson County, IA; or Bangor, ME, of the limited cities that have citywide minimum wages and where there is credible evidence, it is by far the most comparable.

In February 2003, the Santa Fe City Council approved the most expansive minimum wage ordinance to that point. After sixteen months of legal wrangling, on June 24, 2004, a New Mexico state court judge upheld Santa Fe's so-called "living wage" law, and the ordinance immediately went into effect. The New Mexico Court of Appeals upheld this ruling on November 30, 2005, affirming the lower court ruling that the city had the power to set a minimum wage for private employers.⁸⁷ Santa Fe's initial minimum wage implementation in June 2004 provides a compelling case study for a wide variety of cities. The change was dramatic (a 65 percent increase, going from \$5.15 to \$8.50 per hour) and unlike other cities, other confounding labor market policies that affect low-wage workers (like San Francisco's health insurance mandate) were not present. Santa Fe was supposed to implement a \$9.50 minimum wage in 2006 and a \$10.50 minimum wage in 2008, but the last increase did not occur. In recent years, Santa Fe modified a number of the original provisions (like the minimum wage exception for small businesses, which created a "cliff" for hiring the 25th employee) and then

indexed the \$9.50 minimum wage for inflation. Had Santa Fe not slowed down their minimum wage schedule, the citywide minimum wage in 2015 would have been approximately \$1 per hour higher than the \$10.66/hour level in 2014.⁸⁸

Thus, the most compelling work focuses on the large-scale implementation in June 2004. There are two sets of studies done on Santa Fe's \$8.50 implementation. One group (Yelowitz 2005a, 2005b; Pollin and Wicks-Lim 2005) relies on publicly-available data from the Current Population Survey (CPS), and examines Santa Fe's labor market experience relative to the rest of New Mexico. Another (Potter, 2006) relies on non-public ES-202 data.⁸⁹ Yelowitz's (2005a) work on Santa Fe – subsequently replicated by Pollin and Wicks-Lim (2005) – shows that unemployment went up by 9.0 percentage points, and usual hours of work went down by 3.5 hours per week for workers with a high school degree or less. Importantly, 621 individuals became unemployed above-and-beyond the effects on labor force participation.

Several studies (Yelowitz 2005a, 2005b; Pollin and Wicks-Lim 2005) relied on monthly CPS data in their analysis. A casual reading of the abstracts or introductions of the papers might lead one to think that significant differences exist, but a more careful inspection shows this is not the case. Yelowitz (2005b) finds that there is complete agreement about the appropriateness of the CPS micro-data set for the analysis of the minimum wage ordinance, the time period analyzed (January 2003-June 2005), the empirical methodology, the demographic variables used, and the inherently flawed approach of observing time trends in Santa Fe alone. Pollin and Wicks-Lim (2005) independently replicate the large negative effects of the Santa Fe citywide minimum wage ordinance on the labor market. They explicitly present evidence that the probability of unemployment went up by 9.0 percentage points among individuals with 12 or fewer years of education. This compares with the 9.1 percentage point increase found in Yelowitz (2005a) and

⁸⁵The "superstar city" term —popularized in a study by Gyourko, Mayer and Sinai (2013) — was meant to explain rising housing prices in some localities relative to others. They argue that lack of available land combined with an attractive location may lead to above-average rates of growth in house prices as high-income individuals drive up the price.

⁸⁶Ahn and Yelowitz (2015) explore employment effects of paid sick leave mandates.

⁸⁷See Yelowitz (2005b).

⁸⁸More recent changes in Santa Fe are difficult to analyze empirically because other localities (Albuquerque, Santa Fe County, and the entire state of New Mexico) made changes from the federal minimum wage, making clean comparisons with Santa Fe far more difficult.

⁸⁹The discussion of Santa Fe here follows Yelowitz (2014) closely.

⁹⁰See Pollin, Robert. 2004. "Santa Fe Living Wage Ordinance." Available at: http://www.yelowitz.com/pollin_santa_fe_report_p_41.pdf.

is not a substantive difference. Yelowitz (2005a) finds a 3.5 hour reduction in weekly work hours for this same group, and Pollin and Wicks-Lim (2005) do not dispute this. Given the baseline work hours of 38.16 per week, this translates into a 9.2% reduction in full-time equivalent employment.

Given these similarities between Yelowitz (2005a, 2005b) and Pollin and Wicks-Lim (2005), where is the disagreement? Is a rise in the likelihood of unemployment by 9 percentage points a bad thing? Pollin (2004) – in a report written before the Santa Fe minimum wage ordinance went into effect – states, “*Since the purpose of raising minimum wage laws is to improve living standards and create better employment opportunities for the working poor, a rise in unemployment or business flight from the city would obviously be unintended and undesirable consequences of passing such a measure into law.*”⁹⁰ Despite using unemployment as a measure of poor labor market health both before and after the Santa Fe ordinance in other contexts, Pollin and Wicks-Lim (2005) curiously argue that in Santa Fe’s context the rising unemployment is a sign of improving labor market health and increased opportunities. They note that the unemployment rate is defined by unemployed workers relative to the labor force (those employed plus those searching for a job). If more people search for but are unsuccessful at finding a job, both the labor force participation rate and the unemployment rate rise. Thus, in the Santa Fe context, they interpret rising unemployment in conjunction with rising labor force participation as a sign of a better labor market, not a worse one.

Do the findings from Santa Fe support such a conclusion that unemployment was simply driven up by rising labor force participation? Pollin and Wicks-Lim’s (2005) own analysis (Tables 2 and 3, p. 8-9), demonstrates the answer is clearly no. Table 3 in their paper shows that unemployment went up by 9.0 percentage points and labor force participation went up by 5.1 percentage points. The increase was not one-for-one;

although rising labor force participation explains part of the increase in unemployment, job loss explains an important part as well. To illustrate this, consider Table 2 (column 1) in their paper.⁹¹ Prior to the minimum wage ordinance, the Santa Fe adult population with 12 or fewer years of education was 32,199, the labor force participation rate was 70.3% and the unemployment rate was 5.1%. Using their own estimates, labor force participation went up by 5.1 percentage points due to the minimum wage ordinance. Thus, it grew from 70.3% to 75.4%, or from 22,631 people to 24,278 people (75.4% x 32,199 adult population), a change of 1,647 participants in the labor force. The unemployment rate went up by 9.0 percentage points due to the minimum wage ordinance. It grew from 5.1% to 14.1%, or from 1,155 people to 3,423 (14.1% x 24,278 labor force participants), a change of 2,268 in the unemployed. By correctly applying the numbers of their empirical model – the same one used by Yelowitz (2005) – we find that approximately 621 more individuals became unemployed than entered the labor force. The unemployment rate was driven upwards by both increased labor force participation and job loss/layoffs.

In addition to studies relying on the CPS, there are a series of reports from the University of New Mexico’s Bureau of Business and Economic Research that rely on ES-202 data, a data collection program compiled by New Mexico’s Department of Labor that generally finds little effect on the labor market.⁹² These UNM reports contain some serious flaws relative to the CPS analysis done by Yelowitz (2005a,b) and Pollin and Wicks-Lim (2005). First, they rely on non-public data. Second, and more importantly, the ES-202 administrative data fundamentally limit the questions that can be asked. The UNM studies neither separate the analysis by less educated workers, nor do they examine hours of work, an important labor market outcome that responded to Santa Fe’s ordinance. Third, many of the conclusions in the UNM studies use small businesses (those with less than

⁹¹Pollin and Wicks-Lim (2005) inappropriately compare what happened in Santa Fe in columns (2) and (3) of their “Table 2.” That is, they do not compare Santa Fe to other cities and are thereby missing other confounding time-series factors (like the growing economy) that mask the true impact of the minimum wage ordinance.

⁹²See Santa Fe Living Wage Publications Prepared by the Bureau of Business and Economic Research, Accessed July 31, 2016. Available at: <https://web.archive.org/web/20140831002022/http://bber.unm.edu/pubs/sflw.htm>.

⁹³The original Santa Fe ordinance created a “cliff” because then all employees would be required to be paid \$8.50 per hour rather than \$5.15. Thus, the marginal cost (in addition to the 25th employee) would be \$3.35 per hour x 2000 hours x 24 employees, or \$160,800 for the first 24 employees.

⁹⁴For information on how the San Francisco minimum wage has risen from 2004 onward, see City of San Francisco Office of Labor Standards Enforcement, “Minimum Wage Ordinance (MWO).” Available at: <http://sfgov.org/olse/minimum-wage-ordinance-mwo>

25 employees) as a “control group.” However, the logic of using small businesses as a control group in this context is deeply flawed. By “control group”, economists mean a set of businesses that would respond in much the same fashion to all other aspects of the economy except that the group is unaffected by the minimum wage policy. Santa Fe’s ordinance dramatically affected small businesses by creating strong incentives for them not to grow. A business with 24 full-time employees, each earning \$5.15 per hour (the federal minimum wage at the time) would face a “hiring cliff” from the 25th employee of roughly \$160,000 per year.⁹³ As a result of these limitations, UNM’s conclusions are not reliable.

SAN FRANCISCO’S EXPERIENCE: JOB LOSS FOR TEENAGERS

San Francisco implemented an \$8.50/hour citywide minimum wage in 2004.⁹⁴ In the years following the minimum wage increase, San Francisco added an employer health insurance mandate (“San Francisco Health Care Security Ordinance,” implemented in 2008) and a paid sick leave ordinance (“San Francisco Paid Sick Leave Ordinance,” implemented in 2007). Taking into account all these mandates, San Francisco’s nominal “compensation floor” – that is, the minimum nominal expenditure for a typical employee in the city boundaries—was \$12.38/hour in 2011 (Yelowitz, 2012). This consisted of a wage floor of \$9.92/hour, a health insurance contribution of \$2.06/hour, and a paid sick leave contribution of approximately \$0.39/hour.

Yelowitz (2012) uses sizable samples from the publicly-available household data from the Census Bureau’s American Community Survey (ACS) spanning the 2005-2010 period and focuses on 24 “superstar” cities. He focuses on San Francisco’s compensation floor increase from 2005-2010 and compares the labor market effects there to other superstar cities as opposed to surrounding suburbs. Since the analysis uses household-based data, Yelowitz is able to conduct a comprehensive examination of labor market outcomes, focused on vulnerable groups. For example, teenagers are a group that may be particularly impacted by rises in the minimum wage. The results strongly suggest that rising compensation floors adversely affected the labor market for teenagers but not other workers. For teenagers, increasing the compensation floor by \$1 (in constant 2010 dollars, making it substantially smaller than the actual increase in San Francisco from 2005-2010) leads to (all other

things being equal) a reduction of 26 work hours per year, a reduction in labor force participation of roughly 2 percentage points, an increase in unemployment of 4.47 percentage points, and a reduction in current work activity of 3.2 percentage points. In contrast, the labor market results on all adults are statistically indistinguishable from zero. The results for teenagers are from an econometric model that carefully accounts for city-specific factors, time-specific factors, and city-specific time trends. The results are robust to including alternative representations of San Francisco’s compensation floor, where assumptions are varied on the costs of the health insurance and sick leave mandates.

The impacts of the San Francisco minimum wage hike were earlier analyzed in Dube, Naidu, and Reich (DNR, 2007). They restrict their attention to the restaurant industry and find no detectable employment loss, examining the initial increase in the February 2004 minimum wage from \$6.75/hour to \$8.50/hour using survey responses collected in the beginning and end of 2004. To arrive at their conclusions, the authors created a survey that was then administered to restaurants in San Francisco and the East Bay. In addition to concerns about firm-level data (discussed below), the DNR approach is open to other criticisms, including the non-response rate of the telephone survey (over 60 percent), the creation of sampling weights to account for non-response, and the limited time frame. In stark contrast, the response rates to the ACS are nearly 100 percent (because participation is compulsory), much higher than in voluntary firm-based surveys.

In a different study that examined citywide minimum wages in San Francisco, Santa Fe, and Washington, D.C., Schmitt and Rosnick (2011) conclude there is “little evidence that the three citywide minimum wages had any systematic effect on employment in low-wage establishments, including the fast-food industry, the broader food-services sector, and retail trade.” They analyze the Bureau of Labor Statistics’ Quarterly Census of Employment and Wages (QCEW), and use the following jurisdictions as control groups for San Francisco: “the suburbs as Marin, San Mateo, and San Francisco counties; the control city as Oakland; and the Oakland suburbs as Alameda and Contra Costa counties.” Although using geographically proximate areas as a control group has intuitive appeal, it is not at all clear that one would expect similar labor market responses to changes in the minimum wage; in short, these areas may

not be satisfactory control groups. Indeed, DNR specifically examines employment responses in tourist areas of San Francisco, noting that “demand for restaurant meals by tourists may be relatively less elastic, leading to a smaller disemployment effect in restaurants serving tourists than in other restaurants” (DNR, 2007, p. 533). The main methodological point is that there is broad agreement that San Francisco may have characteristics that make it different from many other locations, including other geographic areas in its proximity. As one example, the population density (people per square mile) within the city of San Francisco is much different than most other cities within the San Francisco Primary Metropolitan Statistical Area (PMSA). The 2000 Census reveals a population density of approximately 16,600 in San Francisco, compared with 7,600 in San Mateo and 6,700 in South San Francisco. Density in the entire PMSA is approximately 5,300, again suggesting that the central city differs in important ways from the rest of the metro area.

Although there are certainly some benefits from using a firm-based survey, such data has drawbacks relative to a household-based survey. First, it is not possible to measure work intensity in the QCEW (e.g., hours of work). To the extent that hours are scaled back but jobs are not completely eliminated, such behaviors are impossible to detect in the QCEW. Other outcomes measured at the individual-level - like labor force participation and unemployment - also cannot be measured in the QCEW. Second, the use of firm-level data makes it difficult to measure the incidence of rising compensation floors. The main reason that DNR focus on the restaurant industry is that restaurants “employ a large fraction of all minimum wage workers,” yet the authors note that more than two-thirds of all restaurant workers earn substantially above the state or federal minimum wage (DNR, 2010, p. 948). Thus, even in an industry where the law might be thought to have the most impact, a large majority of workers are unaffected by the law. One cannot directly analyze how the minimum wage affects certain target groups — such as teenagers — with such data, and a number of studies focus on this age group.

DATA AND METHODOLOGY – LABOR MARKETS, POLITICAL JURISDICTIONS AND DATA DEFINITIONS

This analysis relies on the ACS, previously used in Yelowitz (2012), Yelowitz and Corder (2015, 2016), and Corder and Yelowitz (2016). The 2014 ACS is a 1% sample of the United States; the 3,132,610 individuals, when weighted, represent the U.S. population of 318,857,056.

One key benefit for examining citywide minimum wages with the ACS is the sizable sample in conjunction with fine-grained geographic identifiers. The ACS asks respondents both about where they live and where they work (conditional on working and being age 16 or over). For place of residence, the 2014 ACS contains 2,351 separate “Public Use Microdata Areas” – or “PUMAs” – which are nested within a state, contain at least 100,000 people, are built on census tracts and counties, and are (or should be) geographically contiguous.⁹⁵ For example, Los Angeles County – which contains the city of Los Angeles – has 69 PUMAs for where people live (Yelowitz and Corder, 2015, Appendix A). These same 2,351 geographies map into 980 “Place of Work” PUMAs – or “POWPUMAs.”⁹⁶ For example, the 69 PUMAs that make up Los Angeles county are grouped into one “Place of Work” PUMA.

To examine the effects of citywide minimum wages, two important considerations must be kept in mind. First, the labor market and employment effects depend on where people work, not where they live. Thus, the 980 “Place of Work” PUMAs are relevant. As will be demonstrated, many workers commute into these 980 geographies from outside of them (based on their residence identifiers). Second, these 980 geographies often encompass not only the dominant city’s political boundaries, but also other smaller cities and unincorporated areas. For example, Yelowitz and Corder (2015) show that some of the 69 Los Angeles PUMAs (which are all subsumed in the one POWPUMA) likely have one-quarter or more businesses (and employment) in unincorporated areas. Moreover, the “Los Angeles labor market” not only includes Los Angeles city, but dozens of smaller cities. In fact, continuing with the Los An-

⁹⁵See U.S. Census Bureau. Accessed August 1, 2016. “Public Use Microdata Areas (PUMAs).” Available at: <https://www.census.gov/geo/reference/puma.html>.

⁹⁶See IPUMS USA, Available at: https://usa.ipums.org/usa/resources/volii/puma_migpuma1_pwpuma00.xls

geles example, there are 141 unique Census “places” (and one “missing place” for other areas) within the 69 PUMAs/1 POWPUMA. The dominant geographic area, of course, is “Los Angeles city, CA” with 3,792,621 of the 9,818,605 residents. Other major cities include Long Beach, Glendale, Santa Clarita, etc. This highlights an important challenge in computing employment effects based on place-of-work: a citywide minimum wage in Los Angeles affects essentially 38.6% of the POWPUMA workers, assuming that employment is spread uniformly across Census places in proportion to the population residing there.⁹⁷

For each of the 980 work locations, a bridge file between PUMAs and “Census Places” (essentially cities), obtained from the Missouri Census Data Center, was used to compute the fraction of a “Place of Work” PUMA that likely worked in the “dominant city.” Then, new weights were created for each worker to accurately predict the impact of a citywide minimum wage that was implemented in only the dominant city’s jurisdiction, but nowhere else in the labor market.⁹⁸ For example, in the 2014 ACS, 46,824 unweighted individuals report working in Los Angeles POWPUMA. They represent 4,761,955 total workers, of whom 4,273,285 live in the 69 Los Angeles PUMAs, and 488,670 live outside of them. For the analysis below, each worker’s weight is adjusted by 0.386 (38.6%) to reflect the 1,839,395 workers who are assumed to work within the city boundaries. This was done for each “dominant city.” Almost every POWPUMA mapped into a different “dominant city,” so the 980 labor markets translate into 972 “Census Places.”⁹⁹

The final sample consists of individuals aged 16 and over who worked in the past 12 months, where a wage rate could be assigned. Several variables related to the labor market were used to create an hourly wage rate. First, annual hours of work were computed using usual hours worked per week and weeks worked per year. Weeks worked in the 2014 ACS fall into six bins: 1-13 weeks, 14-26 weeks, 27-39 weeks, 40- 47 weeks, 48-49 weeks, and 50-52 weeks worked during the past 12 months. Using the methodology of Yelowitz (2012),

who uses the 2005-2007 ACS (which has actual weeks worked), average weeks were assigned to each bin corresponding to 7.38004 for 1-13 weeks, 21.2193 for 14-26 weeks, 33.058 for 27-39 weeks, 42.3805 for 40-47 weeks, 48.1903 for 48-49 weeks, and 51.8484 for 50-52 weeks. An individual’s annual wage and salary income was divided by annual hours worked to impute a wage rate. A common problem with such an imputation technique is that some individuals have very low (or high) wage rates. In simulating the effects of a \$15 minimum wage (or \$12 minimum wage), the imputed wage rate was adjusted for the federal, state, or citywide minimum wage in effect as of January 1, 2014. Thus, all workers were assigned a wage rate of at least \$7.25/hour (the federal minimum wage) if their imputed wage rate was less than that, and to the higher state or city minimum wage if relevant. By making such adjustments, the impact on employment from raising the minimum wage is likely understated.

MOBILITY: CONCEPTUAL ISSUES AND EMPIRICAL EVIDENCE

As noted in the introduction, mobility likely plays a more important role with citywide minimum wages than with state or federal minimum wages. Yelowitz (2005b) notes that in the context of the Santa Fe minimum wage, the possibility that firms can “escape” the ordinance by relocating outside of the jurisdiction is more plausible, since they can still retain many local customers. The city of Santa Fe encompasses only 37 square miles – just under 2 percent of the county’s 1909 square miles. A business at the center of the city could relocate less than 3.5 miles away to escape the ordinance. Less than half of the residents in Santa Fe County live in the city proper, and, as of 2015, the population outside the city lines was growing faster than that within the city itself.

Perhaps just as important is worker mobility. In many jurisdictions, workers commute into the city from outside the city’s boundaries. To the extent that worker mobility exists and is substantial, this suggests that some of the potential gains from raising the hourly minimum wage are diluted due to longer commuting times and

⁹⁷In reality, one might suspect that the dominant city has a larger proportion of total employment relative to outlying areas, when compared with where people reside. The job loss calculations likely understate both the size of the labor market and job loss from raising the wage floor.

⁹⁸A handful of labor markets potentially have additional cities implementing citywide minimum wages. For example, the San Jose, CA labor market POWPUMA includes Sunnyvale, CA, which enacted its own minimum wage ordinance. The simulations below only consider minimum wage changes in the dominant city.

⁹⁹New York City encompassed 5 POWPUMAs, and the other “dominant cities” that spanned more than one POWPUMA included Amarillo, TX; Holland, MI; Kansas City, MO; and Oklahoma City, OK.

higher transportation costs. It also means that many of the so-called “winners” from a citywide minimum wage are not residents of the political jurisdiction, and competition for jobs within the city will become more intense relative to jobs outside of the city.

To examine the potential for spillover effects outside of the political jurisdiction, we examine two pieces of evidence. First, Table 1 (see Appendix C) presents data on both residential population and land mass within a “Census Place” (essentially a city) and also within the Core Based Statistical Area (CBSA, essentially a “labor market”) for each of the 100 largest CBSAs (out of 917 in total, excluding those in Puerto Rico).¹⁰⁰ With only a few exceptions (9 out of 100 – El Paso, TX; Colorado Springs, CO; San Antonio, TX; Albuquerque, NM; Jacksonville, FL; Wichita, KS; Fresno, CA; Tucson, AZ; San Jose, CA), the majority of residents within the labor market live outside of the political boundaries of the dominant city. In addition, 41 out of 100 markets have less than one-fifth of the population residing within the boundaries of the dominant city. To the extent that entry-level employment is spread out in roughly a similar fashion to residents, this suggests a great deal of competition from outside of the political jurisdiction. This table also computes land mass (in square miles) for both the “dominant city” and the CBSA. Land outside of the dominant city suggests a mechanism through which some businesses could avoid labor market regulations like citywide minimum wages, yet still retain their customer base. As can be seen, only a handful of locations have more than 10% of their land mass within the political boundaries of the dominant city, and 36 of 100 markets have at least 98% of their land mass outside of the dominant city. Hence, for at least some kinds of businesses that do not rely on the amenities of the dominant city, relocation may be a realistic possibility.

To further explore these issues, Table 2 (see Appendix C) turns to the 2014 ACS, where workers are analyzed rather than residents. Estimates are presented for the 179 cities (out of 972) with at least 50,000 workers in the “dominant city” (using the adjustments to the POWPUMA discussed above). In contrast to Table 1, “local workers” here simply defined as residing in the POWPUMA; to illustrate from the example discussed before, any worker who reported living in one of the 69

Los Angeles PUMAs and working with the Los Angeles POWPUMA would be counted as a “local worker.” Importantly, such workers need not live in the “dominant city.” Thus, “non-local” workers will tend to have relatively long commutes (i.e. in the running example, commuting in from outside of Los Angeles County). The incidence of extremely long commutes among workers varies considerably by city. Perhaps unsurprisingly, 99% of workers in Honolulu, HI are local (although they may not live within the city boundary). Out of the 179 cities, only 10 cities (Honolulu, HI; Boise City, ID; Las Vegas, NV; Tucson, AZ; Laredo, TX; Denver, CO; Charleston, SC; Phoenix, AZ; Eugene, OR; San Diego, CA) have the overwhelming majority (95% or more) of workers as “local workers.” There are 14 cities (Arlington, VA; Alexandria, VA; Washington, DC; Richmond, VA; St. Louis, MO; Kansas City, KS; Columbia, MD; Boston, MA; Baltimore, MD; Chesapeake, VA; St. Paul, MN; New York, NY; Newport News, VA; Norfolk, VA) where a majority of workers are non-local; in such areas, one may expect mobility and competition from non-local workers to dissipate any gains from raising the minimum wage at the city level.

CONCLUSIONS

For nearly a decade after Santa Fe and San Francisco passed citywide minimum wage ordinances, activity in other localities was essentially dormant. In the last few years, activity has picked up significantly. The experience of early-implementing cities – especially Santa Fe – provides a cautionary tale on how the labor market will perform with citywide minimum wages, and its experience is likely to be applicable to many other locations that are considering such policies. In addition to effects on employment, this chapter has demonstrated that in many locations, workers who reside in the city will not be the ones who experience higher wages, and that commuting times and transportation costs are likely to dilute the wage gains.

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¹⁰⁰See Wikipedia, “List of core-based statistical areas.” Available at: https://en.wikipedia.org/wiki/List_of_Core_Based_Statistical_Areas. CBSAs have “a high degree of social and economic integration with the core as measured by commuting ties.” Population estimates from 2010 are derived from the Missouri Data Center.

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CHAPTER 7:

LABOR UNIONS' MOTIVATIONS IN SUPPORTING \$15

RICHARD BERMAN

CENTER FOR UNION FACTS

The Fight for \$15 pretends that it is a grassroots coalition of disgruntled employees fed up over low pay. While the media is willing to play into this narrative, anyone who does even the slightest amount of digging finds that the movement owes its existence to tens of millions of dollars of funding from labor unions, chiefly the Service Employees International Union (SEIU). This begs the question: What's in it for Big Labor?

The Fight for \$15 doesn't come cheap. The Workers Organizing Committees (WOCs) that organize and carry out the protests; the high-priced activist spokespersons who act as faces of the campaign and put forth the minimum wage talking points; and the slick, behind-the-scenes PR strategy – all come at a major cost.

According to an analysis by the Center for Union Facts, The SEIU spent at least \$20 million on the Fight for \$15 in 2015. Approximately \$16.4 million went to WOCs, while \$1.7 million went to the public relations firm Berlin Rosen, which is tasked with generating the campaign's sympathetic media attention.

From 2012 through 2015, the union spent \$44.6 million on WOCs and PR services alone. During that same period, the SEIU's total spending could exceed \$70 million.

At first glance this seems like a giant waste of union members' money. Only about two percent of minimum wage employees are unionized. And, according to the Bureau of Labor Statistics, the average private-sector union member earns \$917 a week or \$23 an hour full-

time, about 50 percent more than the \$15 minimum wage unions are championing.

Why would unions be willing to spend so much of their members' dues on a cause that doesn't seem to directly impact them? It's certainly more than just making common cause with other service-sector employees.

HISTORICAL REASONS FOR FUNDING MINIMUM WAGE CAMPAIGNS

AUTOMATIC PAY TRIGGERS

Historically, labor unions have supported and funded efforts to raise the minimum wage because many collective bargaining agreements explicitly tie wage increases further up the union scale to the minimum wage.

The United Food and Commercial Workers (UFCW) union explained that the practice is commonplace, writing that “oftentimes, union contracts are triggered to implement wage hikes in the case of minimum wage increases.” The UFCW suggested this was “one of the many advantages of being a union member.”

Examples include:

- Cal Fire Local 2881, which represents 6,000 California firefighters, has a provision in its contract where the salaries of entry-level firefighters rise with minimum wage increases. This contract has led to some entry-level employees earning more than their supervisors, whose pay

is not subject to an automatic increase with the minimum wage.

- A number of collective bargaining agreements signed by the Union of Needletrades, Industrial and Textile Employees (UNITE) mandated that “[w]henver the federal legal minimum wage is increased, minimum wage [in the agreement] shall be increased so that each will be at least fifteen (15%) percent higher than such legal minimum wage.”
- Similarly, UFCW Local 1099’s agreement with CVS stated, “In the event Federal Minimum Wage increases, the Employer agrees to implement a start rate at \$.15 above minimum wage effective the year following the Federal Minimum Wage increase.”
- An SEIU Local’s agreement orders that “[t]he minimum hourly wage rates shall exceed any statutory applicable minimum wage rate by fifty cents.”

AUTOMATIC CONTRACT RENEGOTIATION

Sometimes, minimum wage increases may not trigger a direct increase further up the wage scale yet still trigger a return to the bargaining table where bigger raises can be negotiated before the next round of bargaining. For example:

- An agreement by the Retail, Wholesale, & Chain Store Food Employees Union Local 338 says, “In the event of an increase in Federal or State minimum wage requirements, the employer agrees to meet and discuss those rates impacted by the new minimum wage.”
- UFCW 1262 agreed with several grocery store chains that, “Should any law be enacted by any state or the federal government which increases the minimum wage, the parties will meet to discuss the effects on employees.”

TODAY’S REASONS FOR FUNDING MINIMUM WAGE CAMPAIGNS

DIRECT INCREASES IN MEMBER PAY AND RELATED DUES

While the historical reasons for Big Labor’s backing of minimum wage increases still have relevance, today’s support largely stems from the fact that current minimum wage increases are so large that many union members themselves are directly affected.

A \$15 minimum wage – double the historical inflation-adjusted average – would affect hundreds of thousands of union members in the country, increasing their paychecks and increasing associated dues payments to union bosses.

For example, according to the Bureau of Labor Statistics, the median weekly wage for a unionized food-prep employee is now \$515 or just under \$13 an hour full-time. (The numbers are similar for personal-care and health-care-support employees.)

The Employment Policies Institute used Census Bureau data to estimate that roughly 223,000 union members in California will receive a direct pay increase by the time the law is fully implemented. A majority of the affected employees are concentrated in four industries: retail, health care, education and public administration.

From this perspective, a \$15 minimum wage is a good investment for labor unions. The SEIU local in California that represents health-care employees spent about \$1.6 million to collect the signatures needed to qualify the \$15 ballot measure that forced Gov. Brown’s hand. In return, union members earning less than \$15 an hour will collectively receive an estimated annual earnings increase of \$883 million in 2022, when the law is fully phased in for them. (Retirement pensions, which are a percentage of employees’ salaries, will also rise.)

Some of these earnings are then kicked back to the union in the form of more dues money. Given that most dues payments are a percentage – typically 1% to 2% -- of employees’ wages, this means that California unions can expect an additional \$9 to \$18 million in associated dues dollars.

INDIRECT PRESSURE TO RAISE WAGES FURTHER UP THE SCALE

Even if union members are not directly affected by a \$15 wage and even if their contracts do not directly

trigger wage hikes or wage renegotiations, they can still benefit from a wage hike because of the indirect upward pressure it puts on union wages further up the scale.

For example:

- A past president of the California State Employees Association, J.J. Jelincic, predicted that a \$15 minimum wage would affect more than those just earning less than this threshold: “My experience is that when you raise the floor, it creates tremendous pressure for raises at least a few rungs up.”
- Mario Cilento, president of the New York state AFL-CIO, was even more explicit when his state passed a \$15 minimum-wage requirement in April, saying: “Those of you making 16 or 17 or 18 dollars an hour, the next time your union goes in to negotiate, they’re going to ask for 19 and 20 and 21 dollars and up!”

TOOL TO INCENTIVIZE USE OF UNION LABOR

Unions also support minimum wage increases because they can be used as a cudgel to increase unionization rates. And the bigger the minimum wage, the bigger the cudgel. Unions use minimum wages to increase unionization rates in two ways:

First, a minimum wage increase eliminates one of the main selling points of using non-unionized labor: its (generally) cheaper price. A minimum wage increase artificially inflates the price of non-union labor to unionized levels, which reduces the competition unions face from cheaper, non-unionized labor.

Second, labor unions often negotiate exemptions from minimum wage laws ostensibly because labor union contracts provide their own pro-worker provisions. In reality, however, these carve-outs provide a major incentive to use cheaper, unionized labor.

- For instance, unions such as Unite Here, which represents hospitality workers, have pursued higher minimum wage requirements as an organizing tool to encourage hotels to welcome the union in and thus exempt themselves from an onerous wage law.
- Numerous California cities such as Los Angeles, San Francisco, San Jose, Oakland, and Santa Monica have all given unions waivers from their

recent minimum wage laws. The difference in pay can be stark: The Los Angeles Times reports that at the unionized Sheraton Universal Hotel, employees are paid California’s current minimum wage of \$10, but those doing the same job at the non-union Hilton across the street make \$15.37 under the city’s hotel minimum wage law.

A 2004 study in the *Journal of Human Resources* by economists William Wascher, Mark Schweitzer and David Neumark found that lower wage union workers typically see a boost in employment and earned income following a mandated wage hike.

A BID TO REGAIN RELEVANCE

Finally, unions support minimum wage increases in a bid to remain relevant. Private-sector unionization has fallen from 17.7 million in 1983 to 7.6 million in 2015 – or 16.8 percent of employees to 6.7 percent. Big Labor sees the service sector – particularly the four million American fast food employees – as a potentially untapped resource to reverse this slide. Hence the demand for \$15 and a union.

However, even with minimum wage victories in several states, the SEIU has had essentially zero success in increasing unionization. This has caused some union members to be skeptical of the campaign. One SEIU organizer told Reuters that members would get “restless” if the campaign didn’t increase union membership within a few years. Given that their dues are financing the campaign, this sentiment is understandable.

A POOR USE OF UNION MEMBERS’ DUES

Union members pay a significant fee – sometimes \$1,000 a year or more – to be a part of their union. This is money that could otherwise be spent on car payments, childcare, or housing costs. Union members should expect that their dues be spent on initiatives that will improve their working lives by securing better wages, benefits, and working conditions.

Instead, they’ve seen a huge proportion of their hard-earned dues frittered away on a quixotic quest to unionize fast food employees. Though unions will continue to pay for this campaign for the foreseeable future, they may have to stop when union members recognize that their leadership has sold them a bill of goods.

CHAPTER 8:

FRANCHISEES AND MINIMUM WAGE IMPACTS

LLOYD CORDER

CORCOM, INC., CARNEGIE MELLON UNIVERSITY AND UNIVERSITY OF PITTSBURGH

One unique feature of recent local minimum wage battles is the focus on franchise businesses. Some policymakers have contended that branded businesses, such as those owned and operated by franchisees, have a greater capacity to absorb and financially support a minimum wage increase to \$15 than other similarly situated small businesses.

In Seattle, for instance, a minimum wage of \$15 took effect in 2015 with multiple phase-in paths that depended on the business size (as measured by number of employees), with smaller businesses granted more time to adapt to the mandate. Under the Seattle law, an independent, locally-owned franchise business is treated like a larger corporate entity from which the franchise business gets its brand name and trademark.

Justifying this treatment, Brian Surrat, director of the city's Office of Economic Development, stated "franchises are different, in that they are part of a network, with built-in economies of scale and support with advertising, supply chain management and menus." Similarly, Washington State's Attorney General Robert Ferguson, in a legal brief defending Seattle's law before the 9th District Court of Appeals stated, "franchisees enjoy a unique economic advantage that gives them the ability to more easily absorb an accelerated wage phase-in."

Does this argument have any merit? If the minimum wage is increased to \$15, how will small business entrepreneurs respond? Will they absorb the cost or pass it on to customers and employees by raising prices, trim-

ming their workforce, or cutting hours? Are franchises likely to have an easier time adjusting to this mandate than other similar businesses?

To find out, I talked to 612 small business owners in late 2015. Through a national survey sponsored by the Employment Policies Institute, feedback from industries that typically employ minimum wage workers, such as restaurants and hotels, was collected regarding what they plan to do if their minimum hourly salary increases to \$15. To see if there was a difference between what franchise and non-franchise businesses think, half (n=307) of the interviews were with franchise owners and the other half (n=305) were with non-franchise business owners.

The findings indicate that neither franchise nor non-franchise businesses will be able to easily absorb higher wages. Franchise businesses are not more capable of taking on these costs because they have a brand name. This is because most franchises are under contract with locked-in royalty payments that will not be renegotiated if their labor costs are increased. So the only way they can cope with a minimum wage increase is to pass along the added costs to consumers or reduce expenses by cutting staff and hours and pursuing automation. A mandate to raise the minimum wage to \$15 may help a few employees earn higher wages, but consumers will pay more and other employees will have their hours cut or lose their jobs altogether.

Here's a summary of who responded to this study:

Franchises are not intrinsically more profitable businesses because they are branded.

They will find ways to off-load wage increases.

Description of franchise and non-franchise business.

	Franchise	Non-Franchise
	307	305
Number of Employees		
Fewer than 10	32%	52%
10-24	36	27
25-49	21	11
50+	10	12
Industry Segment		
Beauty	5	16
Child Care	24	12
Health & Fitness	11	17
Lodging	16	10
QSR	11	10
Restaurant (Sit-Down)	8	9
Retail Food	19	10
Retail Shopping	5	16
Years in Business		
1-3 Years	33	18
4-9 Years	35	28
10 Years or More	31	53
Profitable, Last Fiscal Year		
Yes	76	82
No	24	18
% Staff Paid Minimum Wage		
1-49%	22	17
50-100%	35	22
None	44	62

- Nine out of ten (90%) had 50 employees or fewer.
- Three-fourths (76%) have four or fewer locations nationwide, with over half (56%) having only one.
- Two-thirds (61%) have operated their business for 5 years or longer.
- Four out of five (79%) turned a profit last year, but 21% did not.
- Two-thirds (67%) of the franchises have 10 or more employees compared to half (48%) of the non-franchises. More employees paid a higher minimum wage means a higher operating cost.
- Almost half (45%) of the franchises have been in operation for three years or less, compared to one-third (30%) of the non-franchises. Younger, less established businesses are typically at greater risk to cost and market pressures than those who have built a loyal customer base.
- Three-fourths (76%) of the franchises said they were profitable in 2014, slightly lower than those running non-franchises (82%). The one out of four (24%) franchise businesses who are

Look at some of the differences between franchise and non-franchise businesses listed in the table. As a group, franchises are likely to have more staff, have shorter operational tenures and are less likely to turn a profit than non-franchises.

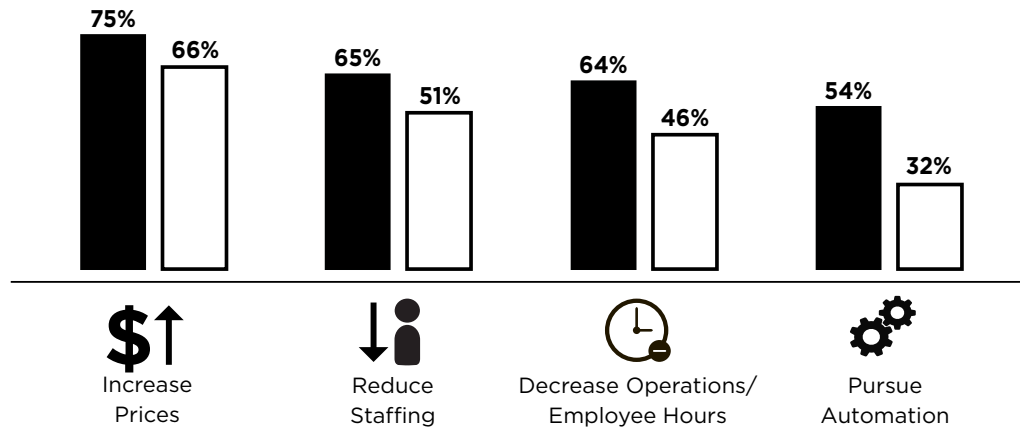
CHAPTER 8: FRANCHISEES AND MINIMUM WAGE IMPACTS

not profitable will be in even greater peril if new costs are added.

- About half (47%) of the businesses have employees who are paid the applicable state/local

minimum wage, with franchise owners (56%) being more likely than non-franchise owners (38%) to employ minimum wage workers. The percentage of these businesses' entire workforce that is paid minimum wage varies greatly, with

■ Franchises □ Non-franchises



✓ 10+ Above Total %
✗ 10+ Below Total %

Number of Employees

Fewer than 10	✗		✗	✗
10-24				
25-49	✓			✓
50+		✓	✓	✓

Industry Segment

Beauty	✗	✓ ✗	✗ ✗	
Child Care		✗ ✗	✗	✗ ✗
Health & Fitness	✗ ✓	✗	✗ ✓	✗
Lodging	✓	✓	✓	
QSR	✓	✓	✓	✓ ✗
Restaurant (Sit-Down)	✓	✓ ✓	✓ ✓	✓
Retail Food	✓ ✗	✓ ✗	✗	✗
Retail Shopping	✗ ✗	✗	✗ ✗	✗

Years in Business

1-3 Years	✓		✓	✓
4-9 Years			✓	
10 Years or More				

Profitable, Last Fiscal Year

Yes				
No	✓	✓		✓

about one-in-five (19%) saying less than half (50%) of their staff is paid minimum wage, while one-fourth (28%) says 50 percent or more are paid that wage. Likewise, franchises are more likely to employ a greater overall percentage of minimum wage worker than are non-franchises. This is because the labor cost of franchise businesses could be exponentially higher than non-franchise businesses.

The survey results clearly show that any changes to the applicable minimum wage are going to affect both franchise business owners and non-franchise business owners. However, these changes will be more impactful to franchise owners because, as a group, they are more likely to employ minimum wage workers and their overall workforce is comprised of a larger percentage of the minimum wage workers. In essence, this is the opposite of what some policymakers have asserted.

Entrepreneurs will respond to an increase in the minimum wage by raising prices, reducing staff, scaling back operations and relying more heavily on automation.

Over half (56%) of franchise owners and one-third (38%) of the non-franchise business owners have employees who receive the applicable state/local minimum wage. These businesses are likely to take a series of steps to offset the cost of a \$15 minimum wage.

As shown in the figure below, many of these business owners anticipate some dramatic changes if the wage increase becomes law:

- The majority will raise prices, so consumers will spend more in the future for less than what they are getting today. Franchises (75%) are more likely to do this than non-franchises (66%).
- The majority will cut staff. Again, franchises (65%) will be more likely to resort to layoffs than non-franchises (51%). Considering the impact of this change, the workers who retain their jobs will be expected to be more efficient and produce more than they do currently.
- Many will cut employees' hours. More franchises (64%) say they will do this than non-franchises (46%). If this is indeed the case, it is unclear whether an increase in the hourly wage

will actually result in more take-home pay for employees.

- Expect more automation, especially from franchises (54%) and even some non-franchises (32%). Automation will further reduce the need for employees.

Looking at these predictions by industry subgroups, those with 50 or more employees are more likely than others to reduce staffing, cut employees' hours, and pursue automation. The lodging and restaurant industries are even more likely than others to implement these responses. More than 80 percent of franchise quick service restaurant owners said they are likely to reduce hiring compared to 58 percent of non-franchise quick service restaurant owners. Nearly 90 percent of franchise hotel owners said they are likely to raise room rates compared to 70 percent of non-franchise hotel owners. More of those who did not earn a profit last year are also planning to make changes compared to those businesses that were profitable.

Based on these responses, many non-franchise owners are likely to take a variety of measures to offset the costs of increasing the minimum wage to \$15. But, as a group, franchise business owners are even more likely to implement cost-cutting strategies.

Most franchises pay royalty fees and are under contracts that cannot be renegotiated, so there are few economies of scale to easily absorb wage increases.

Franchise business owners typically pay a percentage of their revenue each month (called a "royalty fee") to their franchisor, which covers the shared cost of services like marketing and advertising. Some proponents of higher minimum wages have suggested the franchisor could reduce the royalty fee and thus enable the franchise owner to better adapt to higher labor costs. However, half (49%) of all franchise owners say that they would still have to pay for the services currently covered by their franchisor's royalty fee if those royalty fees are eliminated. Only 13 percent said they would not have to pay for those services, and 37 percent were unsure.

Franchise owners also said that they would not be able to renegotiate their franchise contract should labor costs rise in their market. In fact, only 8 percent said they could renegotiate the contract, forty-eight percent said they could not renegotiate and the other 43 percent were unsure. To clarify the impact of this, 86 percent of

NATIONAL BUSINESS OWNER SURVEY METHODS

A total of 612 franchise business owners (n=307) and non-franchise business owners (n=305) were interviewed by phone (along with a few online participants who were invited based on available email contacts) between October 26, 2015 and December 7, 2015.

Businesses owners were selected proportionally at random from the top 24 Metropolitan Service Areas (MSAs) in eight industry categories that employ large proportions of people at or near the minimum wage, and where the franchise business model is widely-used. Industry categories included:

1. Beauty
2. Child care
3. Health and fitness
4. Lodging
5. QSR (Quick Service Restaurants)
6. Restaurants (Full Service)
7. Retail food
8. Retail shopping

To ensure a representative sample, interview quotas were established for each of the MSAs and the eight industry categories for both franchise and non-franchise owners based on the proportions of businesses identified in the database.

The franchise owner contact list of approximately 12,300 was purchased from FRANData, an industry source for franchise information and analysis. The non-franchise owner contact list of approximately 18,500 was created through Reference USA, an extensive business database that identified businesses based on a number characteristics, including whether they are a franchise.

franchise business owners (who could answer the question) will not be able to renegotiate contracts with their franchisor to absorb the increased labor cost, and nearly 80 percent of the same said that their royalty fees currently pay for advertising, marketing and other services and cannot be reduced without having to pay for those costs themselves.

CONCLUSION

In the coming years, policymakers at the federal, state, and local levels will face a familiar trade-off when deciding whether to raise the minimum wage: Higher wages for some employees versus lost jobs for others. If they decide that the lost jobs are worth it, however, these survey results suggest that there's no rationale for treating franchise businesses differently than small businesses in the final wage law and that doing so would exacerbate the negative consequences that are typically associated with wage increases.

CHAPTER 9:

BETTER ALTERNATIVES TO RAISING THE MINIMUM WAGE

ANDY PUZDER

The flaws of the minimum wage as a public policy tool are discussed earlier in this book and well-documented. In addition to its role in reducing job opportunities for entry-level jobseekers, minimum wage hikes generally do not effectively target poor households.

Economists from Miami and Trinity University analyzed Census Bureau data to estimate that only nine percent of those affected by a \$12 federal minimum wage would be single parents. On the other hand, 61 percent would be secondary or tertiary earners in a family, supplementing household income rather than driving it. In fact, they conclude that the average household income of those affected by a \$12 minimum wage is \$55,750 – far above the federal poverty line.

It's no surprise then that minimum wage increases have historically failed to measurably impact the poverty rate. For instance, a Cornell University study looked at the 28 states that raised their minimum wages between 2003 and 2007 and found little-to-no associated reduction in the poverty rate.

OTHER SOCIAL WELFARE PROGRAMS ARE ALMOST AS BAD

Other social welfare programs that try to address poverty also have significant shortcomings. It has been 50 years since President Lyndon Johnson declared a War on Poverty, and it's now clear that poverty won. The poverty rate in 2017 of 12.3 percent has only marginally im-

proved since the federal government first implemented Johnson's anti-poverty programs – despite \$22 trillion spent on social welfare programs over this timeframe, and \$1 trillion more being spent each year (see Fig. 1).

A big part of the problem is that, while well-intended, not all government assistance programs succeed in putting people on a path to financial independence.

Existing anti-poverty programs have dismal track records for many reasons, but they fail mainly because they create perverse incentives that reward staying in poverty rather than escaping from it.

Existing welfare programs essentially pay people to stay poor, leading them to decline career opportunities that could improve their lives because accepting those opportunities would threaten their valuable welfare benefits. In this sense, many such programs actually punish people who work.

Take, for instance, the Supplemental Nutritional Assistance Program (SNAP), better known as food stamps. Eligibility for food stamps ends when annual income exceeds 130 percent of the poverty line, which is about \$25,000 for a family of four. A two-earner household each earning \$8.25 an hour or less, working a full-time schedule of 35 hours a week, could still qualify for these benefits. But as soon as they get much of a raise or work more – both of which should be encouraged – they lose access to these valuable benefits.

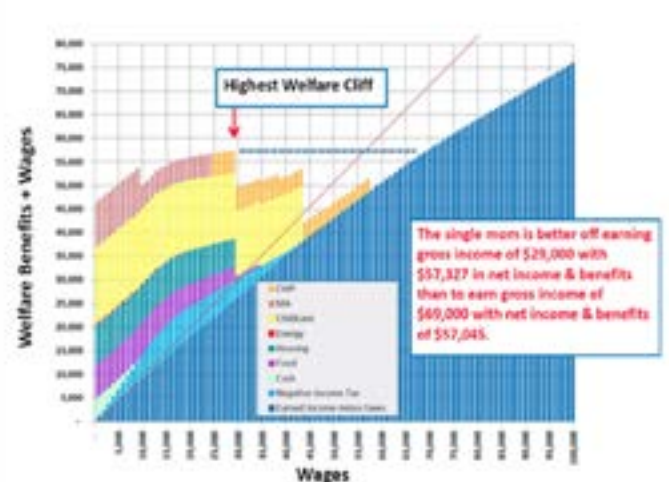
As a result of such perverse incentives, food stamp usage only increases. In 2000, 17 million Americans re-

FIG. 1: US POVERTY RATE (%)



Source: US Census Bureau

FIG. 2: THE “WELFARE CLIFF”



Source: Gary Alexander, PA Sec. of Public Welfare

ceived food stamps, compared to 42 million in 2017.

Medicaid has seen similar trends. In most states, Medicaid eligibility for adults ends when annual income exceeds 138 percent of the poverty line. Understandably, some employees choose to work less and keep the thousands of dollars' worth of medical benefits instead of working a little more and losing all of them.

Policy analysts have totaled up the value of all welfare benefits to conclude that a single mother is better off earning \$29,000 per year than earning \$69,000 per year because of the impact of welfare benefits and taxes. The mother earning \$29,000 would net \$57,327 in total income after welfare benefits, while the single mother earning \$69,000 would net \$57,045 in total income after taxes. This effect is called the “welfare cliff” (see Fig. 2).

With this incentive structure, it's easy to understand why the poverty rate hasn't markedly improved. The impact a loss of government benefits has on financial security for people living in poverty can be draconian. It can lock them into poverty by making the chasm between government dependence and independence too broad to cross. And trying to help these people with a minimum wage increase will only compound their problems by making the best antipoverty program – a job – more difficult to attain.

THE EARNED INCOME TAX CREDIT (EITC) IS A SUCCESS

Despite the failure of minimum wage increases and anti-poverty programs to encourage self-sufficiency, there is one program among the hundreds that has had remarkable success in allowing employees to climb the ladder of success: The Earned Income Tax Credit (EITC).

Perhaps the biggest problem with the EITC is the name. It is wonky, confusing, and difficult to remember. In fact, polls show that only 29 percent of Americans have even heard of it. It's a safe bet that only slightly more know what a tax credit is. A better name would convey a more positive image of the credit, while being easier to remember. Yet it would still be an accurate definition. The name “Working Americans Credit” (WAC) fulfills this criteria and this chapter will refer to it as such.

Rather than imposing ever-higher minimum wages or doubling down on failing social welfare programs, policymakers should pass bipartisan proposals that expand and improve the successful WAC to truly reduce poverty and improve the economy for working class Americans.

Working Americans Credit Parameters 2018

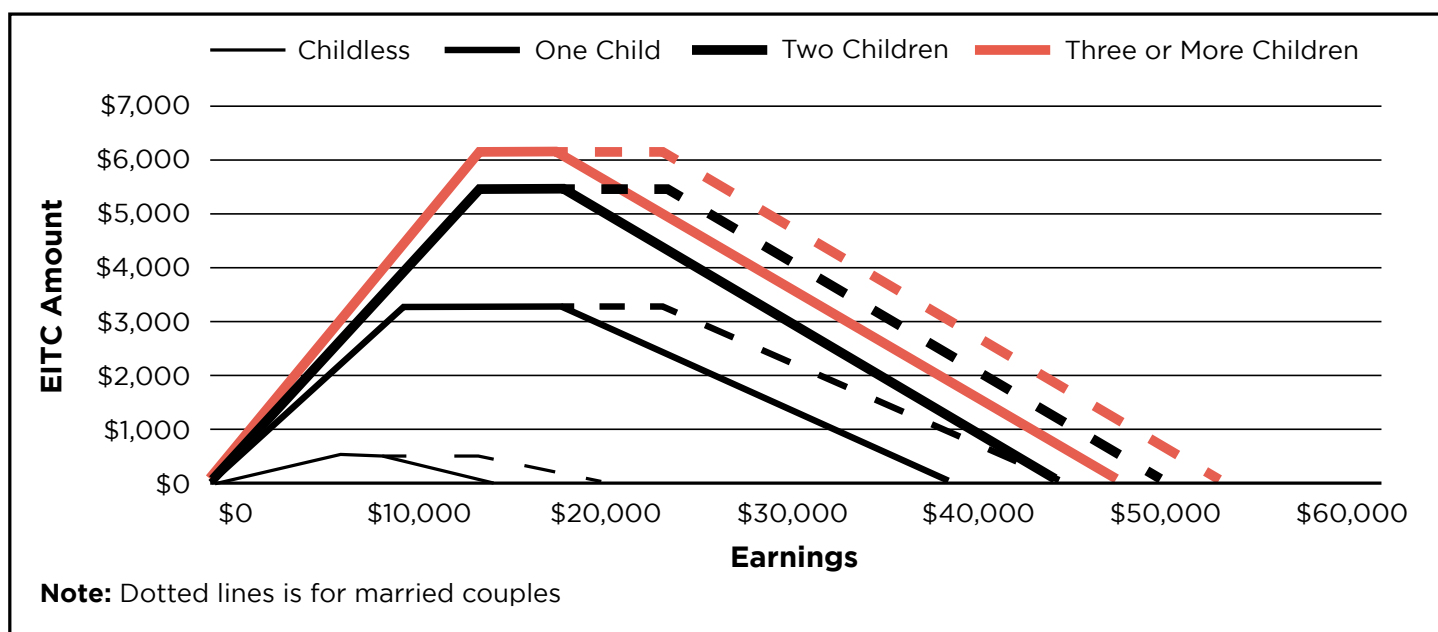
Earned Income Tax Credit Parameters, 1975-2018

[Dollar amounts unadjusted for inflation]

Calendar Year	Credit Rate (Percent)	Minimum Income for Maximum Credit	Maximum Credit	Phaseout Rate (Percent)	Phaseout Range [1]	
					Beginning Income	Ending Income
2018						
No Children	7.65	6,780	519	7.65	8,490	15,270
One Child	34	10,180	3,461	15.98	18,660	40,320
Two Children	40	14,290	5,716	21.06	18,660	45,802
Three Children	45	14,290	6,431	21.06	18,660	49,194

Source: Tax Policy Center

FIG 3: SHAPE OF WAC



HOW AND WHY THE WORKING AMERICANS CREDIT WORKS

THE STRUCTURE OF THE WAC

The WAC directly supplements entry-level employees' incomes at a sliding scale through the tax code, overcoming the perverse incentives and bureaucracy that plague other existing welfare programs.

The size of the wage supplement rises as employees earn more money, encouraging work. At a certain level (depending on marital status and number of children), the payout plateaus as employees earn more money. Finally, the payout falls as employees earn even more. But the payout never falls to a greater degree than earnings increase, meaning total earnings always rise (see Fig. 3.)

This structure reduces poverty while at the same time rewarding work and self-sufficiency – goals that should be at the heart of any welfare program. For many, it provides a livable income for those who work. For all, it provides the opportunity to start and build stable, long-term careers.

The “phase in” rate for a single parent with two children is 40 percent – meaning earned income is supplemented by a 40 percent credit – up to a maximum credit of \$5,716 as of 2018. This credit levels off as earnings continue to increase until a level where the “phase out” begins – at 21 percent of each additional dollar of earnings. At this rate of reduction, the credit reaches zero at \$45,802.

Married couples do not receive a larger maximum

credit, nor a higher phase in rate. However, their phase out period doesn't begin until a higher income is earned. All payouts are indexed to the inflation rate (see table below for detailed parameters).

The WAC table moves by \$50 increments, and it's always preferable to have an extra fifty-dollar increment in wages, meaning the marginal tax rate never approaches 100 percent. This incentivizes people to keep earning more and taking advantage of opportunities rather than relying on the WAC.

Because it is paid out through the tax code, the WAC can be thought of as a negative income tax – which is how its intellectual forefather, Nobel Prize-winning economist Milton Friedman, described it.

THE WAC IS ALREADY DOING A WORLD OF GOOD

WELL TARGETED

The WAC is already providing significant benefits to low-income Americans. Because it is based on the tax code, the WAC is effective at targeting the bottom 40 percent of households. (By contrast, only 35 percent of minimum wage employees live in families with incomes at or below 150 percent of the federal poverty line).

Based on an analysis of Census data, the Brookings Institution estimates 73 million Americans, including 32 million children, are WAC eligible. According to the Center on Budget and Policy Priorities (CBPP), the WAC pushed 5.8 million people from below the poverty line to above it in 2016, and made 18.7 million people less poor (see Fig. 4).

Similarly, the IRS estimated that nearly 27.5 million Americans received \$65 billion in EITC payments in 2017, with an average nationwide payout of \$2,445. This lifted about 6.5 million people out of poverty, including 3.3 million children. The IRS also noted that “[t]he cost of administering the EITC program ratio to claims paid is less than one percent.”

About a quarter of WAC recipients file as individuals, a quarter as married, and half as single parents. Most recipients work in entry-level industries like retail, food services, and health care.

Twenty-nine states and the District of Columbia have also enacted smaller state-level WACs which give an added boost of about 20 percent – depending on the state – of the federal credit. These states are: Califor-

nia, Colorado, Connecticut, Delaware, Illinois, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New Mexico, New York, Ohio, Oklahoma, Oregon, Rhode Island, Vermont, Virginia, Washington and Wisconsin (see Fig. 5). Virginia, Ohio, and Delaware's credits are not-refundable, meaning they only zero-out state taxes.

Economists at San Diego State University and the University of Georgia conclude that each one percent increase in state-level WACs is associated with a one percent drop in state poverty rates. No such relationship was found between minimum wage hikes and poverty rates.

THE WAC INCREASES EMPLOYMENT

A large body of research suggests the WAC incentivizes work. For instance, a 1996 study by Nada Eissa and Jeffrey Liebman found that the expansion of the WAC in the 1980s increased the labor force participation rate among single mothers by 2.8 percentage points. In the 1990s, when an expanded WAC was coupled with welfare reform, the effect was even bigger – about a 7.2 percent increase in labor participation. In fact, scholars conclude that during the 1990s, WAC expansions did more to raise employment among single mothers than either the strong economy or welfare reform.

The associated earnings increases from the WAC have been credited with improving infant health, raising children's test scores, boosting college enrollment, reducing teen birth rates, and increasing earnings in adulthood.

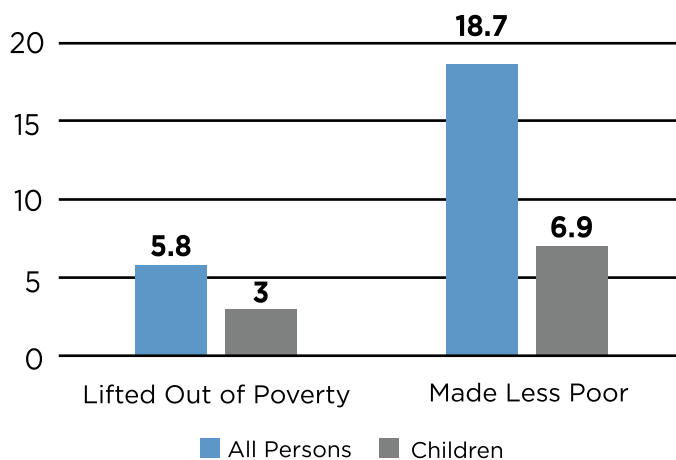
There is also a large body of research showing that increased income – especially among lower income brackets – increases happiness and life satisfaction on a wide variety of intangible metrics. Higher incomes may also lead to higher marriage rates, an institution that has a longstanding history of reducing poverty and building wealth.

Administering the WAC through the tax code also bypasses the bureaucracy that characterizes other welfare programs and diminishes their effectiveness. As noted above, administrative costs of the WAC are about one percent of benefits, at least ten times less than what other welfare programs use to operate.

THE WAC COULD BE EVEN MORE EFFECTIVE

The WAC could be expanded – both at the state and

FIG 4: NUMBER HELPED BY WAC (2016)



Source: Center on Budget and Policy Priorities

CASE STUDY – AN ENTRY-LEVEL, NEW JERSEY SINGLE MOTHER

A New Jersey single mother with two kids earns \$24,000 a year and spends \$1,000 a month sending her two kids to daycare. With these earnings, she may be better off quitting work altogether, staying home with her kids, and living off government assistance entirely.

However, at this level of earnings she receives a \$4,600 WAC payout, boosting her income to \$28,300. New Jersey offers an additional 40 percent of her federal payout under its state WAC, increasing her income by another \$1,840. This means that her total pay after tax credits is \$30,440, 27 percent more than her original earnings.

On the margin, this single mother decides it's better for her to continue to work because of the boosts from the federal and state WAC pay-outs than to quit her job, stay home with her children, and live off the state at 100 percent.

FIG 5: STATES WITH STATE-LEVEL WAC (DARK GREEN)



Source: National Conference of State Legislatures

federal level – to help even more people.

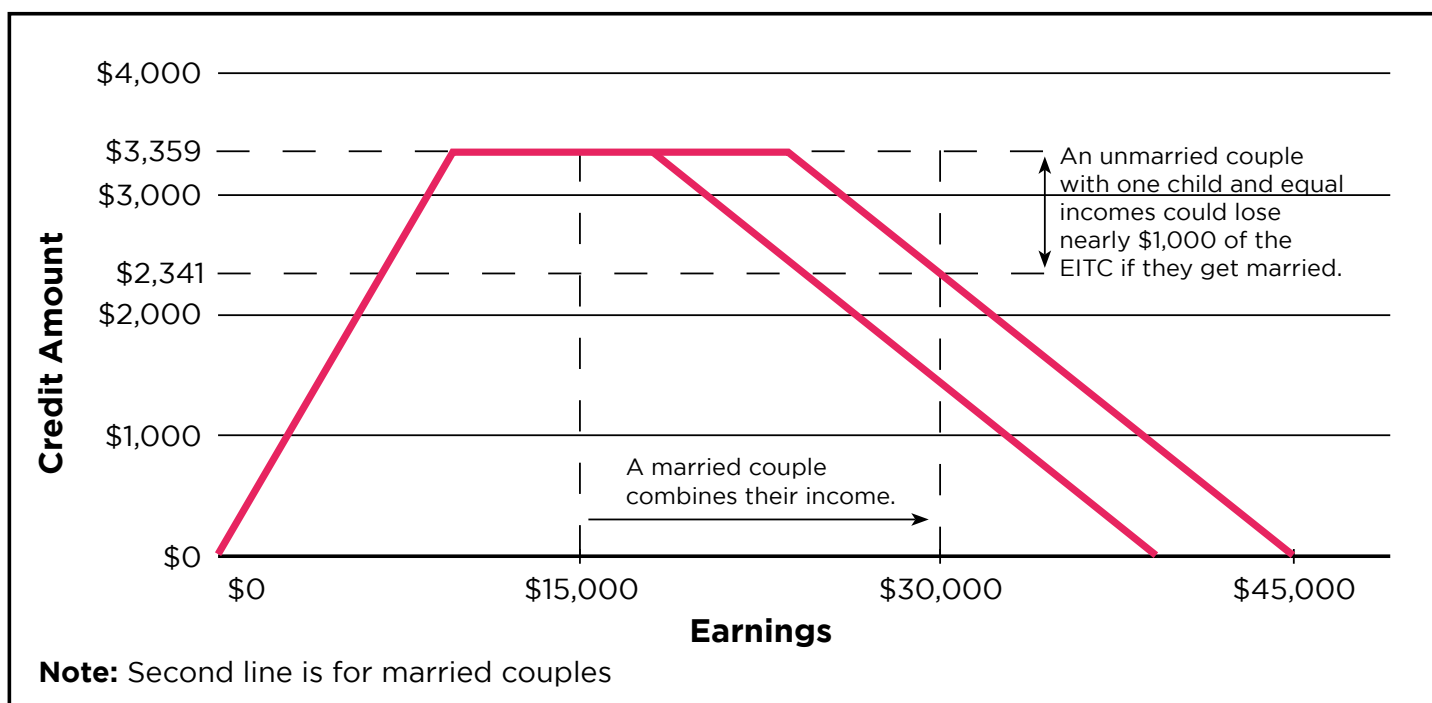
Its payout frequency should also be increased from once a year during the tax return season to bi-weekly at the same time as paychecks, where it could do more good over the entire year. If the federal government can deduct income taxes on every paycheck, it should be able to provide a WAC on each eligible one as well.

The WAC should also be expanded to those without children. Currently, individuals can get a very minor credit – just 15 percent of what a one-child family can receive: \$519 versus \$3,461 in 2018. In fact, currently entry-level childless employees are often pushed into poverty or made poorer by the tax code, even taking into account their meager WAC. According to the Center for Budget Policies and Priorities, federal taxes push 7.5 million Americans into or deeper into poverty.

Yet the principles that make the WAC effective for families – rewarding work and helping to escape poverty – also apply to individuals. Given the historically low labor force participation rate among less-skilled childless adults, now is the time to push policies that reward employment. The WAC has been shown to significantly boost employment and could have a disproportionately positive impact on disadvantaged individuals.

REMOVE THE MARRIAGE PENALTY

Though President Bush and President Obama reformed the WAC marriage penalty, where married couples receive a smaller payout than combined single heads



of households, a marriage penalty still exists (see. Fig. 6). It should be removed completely to encourage marriage – which a large body of research shows reduces poverty.

COMPARING THE WAC AND THE MINIMUM WAGE AND EXAMINING OTHER CRITICISM

WAC CRITICISMS

The WAC is not without its critics. For instance, some critics claim that it is a form of corporate welfare, subsidizing the profits of big businesses by allowing them to pay below market, unlivable wages. This argument may have some merit: It's conceivable to think that employees would have less incentive to bargain up their wages if they're being subsidized by the government. These critics often argue that the minimum wage should be increased instead to place the burden on businesses, not the taxpayer.

But this criticism overlooks the reality that many of these jobs wouldn't exist in the first place at the artificial wage floors proposed by minimum wage activists. In 2014, the nonpartisan Congressional Budget Office (CBO) estimated that 500,000 jobs would be lost nationwide if the federal minimum wage were raised to \$10.10, and 100,000 would be lost if it were raised to

\$9. These job losses would only be compounded at the \$15 level now being pushed by activists. In other words, better the partial government subsidy in the form of the WAC than a total one for someone whose job disappears because of a minimum wage hike.

In a report on trends in the joblessness and incarceration of young men, the CBO recently found that nearly one in six American men between the ages of 18 and 34 is jobless or incarcerated, up from about one in 10 in 1980. The CBO's report also suggested several causes for this significant increase in the number of jobless young men, including numerous state and local minimum wage increases that raise the costs of hiring and means-tested welfare programs that discourage young men from working.

In this respect, this CBO's report is consistent with a paper the Federal Reserve Bank of San Francisco recently released which concluded that the last round of federal minimum wage increases (which took effect from 2007 to 2009) cost the country between 100,000 and 200,000 jobs (notably, this was before the increase to \$15 an hour in California and New York). It found that "a higher minimum wage results in job loss for the least-skilled workers — with possibly larger adverse effects than earlier research suggested."

The WAC can actually boost effective hourly in-

come above the level of proposed minimum wage increases. Consider the nearby case study of a New Jersey mother earning \$24,000 before the federal and state WACs kick in.

At this annual income, the mother is earning about \$11.50 an hour full time. With the federal and state WACs included, she earns \$30,444, or \$14.60 an hour – about where activists say the minimum wage should be.

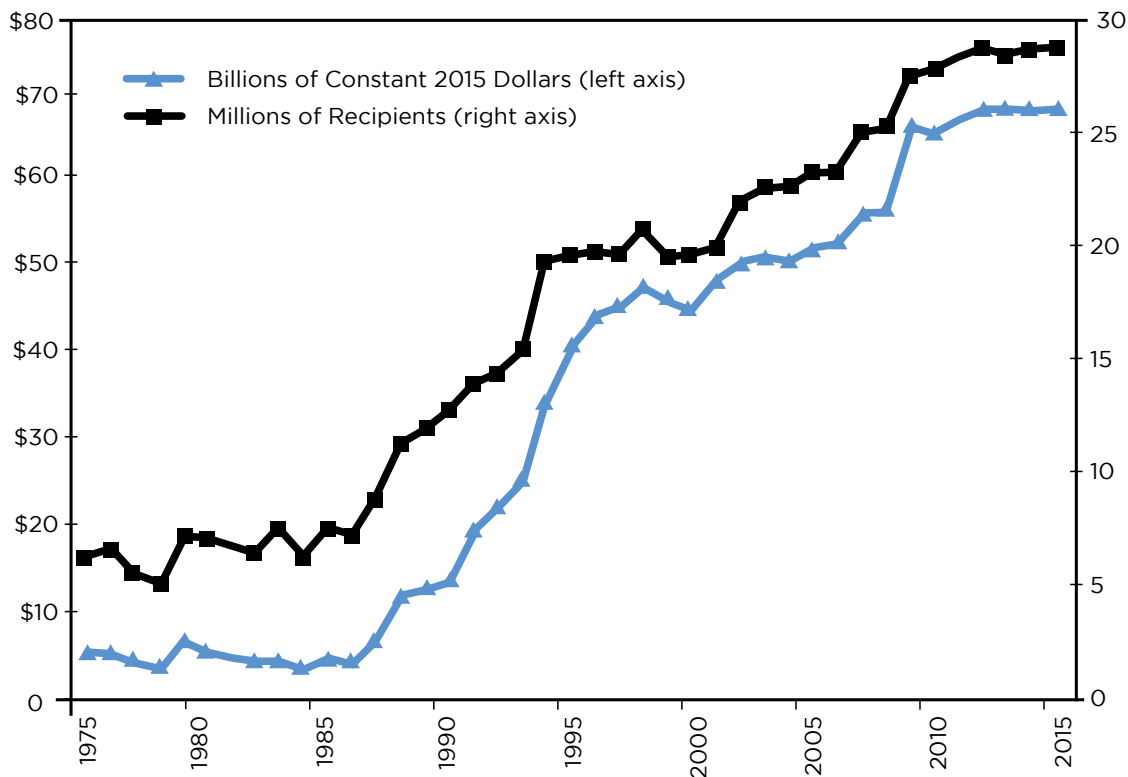
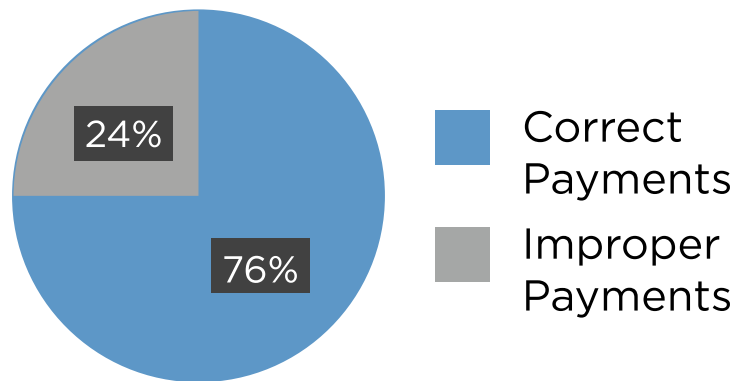
The WAC allows entry-level employees to get a significant boost in their incomes without the adverse effects of minimum wage increases or other social welfare programs.

In fact, while dramatically increasing the minimum wage discourages businesses from hiring entry level/

low wage workers, the WAC would encourage employers to hire low income workers as they could do so economically. While businesses would benefit, the result would be more low income individuals with jobs, the best welfare program.

WASTE, FRAUD, AND ABUSE

Another prominent objection to the WAC is that it is subject to widespread waste, fraud, and abuse. It's true that, as currently structured, the WAC is particularly susceptible to this problem. The IRS estimates that between 21 percent and 25 percent of its costs go to improper payouts and bogus claims (see Fig. 7). However, millions of Americans who are eligible for the WAC do



not claim it. The Government Accountability Office and IRS estimate that between 15 percent and 25 percent of households that are entitled to the WAC do not claim their credit. The WAC should be simplified so that waste can be more easily identified and entry-level employees can more easily take advantage of it.

EFFECT ON THE SIZE OF THE NATIONAL BUDGET

The WAC is also criticized for its effect on the national budget. Indeed, the cost of the WAC has risen dramatically over the last two decades to nearly \$70 billion annually (see Fig. 8). It is now the third biggest welfare program (excluding Social Security) after Medicaid and food stamps. Given the country's perpetual deficits and ballooning national debt, this is an important concern. However, there are few examples of government spending more effective than the WAC. Proponents should advocate rolling existing, unproductive welfare programs into an expanded WAC so that, when combined with the expected reduction in the welfare rolls over time, its expansion is either positive or at least revenue neutral.

THE ANTI-POVERTY INITIATIVE WHOSE TIME HAS COME

The WAC is by far the most effective anti-poverty tool in the United States. Beyond its history of success and practicality, it is one of the few domestic policy issues that enjoys bipartisan support. The poverty action plan released by Republicans in the House Ways and Means Committee in July 2014 contains a childless WAC expansion that was almost exactly the same as the one put forward in President Obama's budget proposal. In fact, there is a virtual consensus among policymakers and scholars, irrespective of their political persuasion, about the solutions to improve and expand the WAC.

Such a consensus should be heartening to all the hardworking entry-level Americans combatting stagnating wages and trying to earn their way to financial independence, as well as those who seek to make that struggle easier. The WAC is far more effective and far less distortionary than raising the minimum wage or expanding existing social welfare programs. Now is the time to expand it.

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APPENDIX A

TABLE 1. PERCENTAGE OF WORKERS AT OR BELOW MINIMUM WAGE IN 2015 AND PROJECTIONS FOR 2020 WITH A \$15 MINIMUM WAGE.

	State Minimum in 2015	Current Projection of State Minimum in 2020	Hourly Workers					Wage and Salary Workers					Sample Size
			2015 Employment (in 1000s)	% at Minimum Wage in 2015	% at \$15 Minimum in 2020	% at or Below Minimum Wage in 2015	% at or Below \$15 Minimum Wage in 2020	2015 Employment (in 1000s)	% at Minimum Wage in 2015	% at \$15 Minimum in 2020	% at or Below Minimum Wage in 2015	% at or Below \$15 Minimum Wage in 2020	
U.S.¹⁰²	7.97	8.85	78,288	3.2%	43.9%	7.8%	46.0%	133,770	1.9%	30.3%	6.3%	32.7%	165,282
State													
AK	8.75	10.38	209	0.5%	30.9%	4.7%	32.5%	305	0.3%	23.6%	5.1%	26.1%	2,032
AL	7.25	7.25	1,182	3.4%	48.3%	5.6%	50.0%	1,863	2.2%	36.6%	4.9%	38.5%	2,780
AR	7.5	8.5	713	2.4%	49.6%	5.7%	50.6%	1,157	1.7%	37.5%	5.6%	39.5%	2,559
AZ	8.05	8.75	1,629	1.2%	47.5%	9.5%	49.5%	2,661	0.7%	33.6%	7.8%	36.0%	2,442
CA	9	13	9,678	10.0%	43.3%	15.2%	44.8%	15,663	6.2%	30.1%	11.5%	32.6%	13,721
CO	8.23	9.03	1,247	0.2%	38.9%	4.8%	40.5%	2,314	0.1%	25.2%	3.8%	26.7%	2,432
CT	9.15	10.1	904	1.5%	34.9%	12.6%	38.8%	1,586	0.9%	22.7%	9.1%	26.1%	2,284
DC	10.5	14	112	3.7%	30.3%	22.0%	38.8%	334	1.3%	13.8%	10.1%	18.6%	3,101
DE	8.25	8.25	235	0.9%	42.7%	7.2%	44.4%	411	0.5%	28.9%	5.3%	30.5%	2,136
FL	8.05	8.75	4,242	1.0%	46.8%	9.9%	49.9%	7,998	0.5%	31.2%	7.7%	34.6%	6,661
GA	7.25	7.25	2,175	2.1%	48.2%	4.3%	49.7%	4,019	1.1%	32.7%	3.9%	34.4%	3,501
HI	7.75	10.1	356	1.0%	42.8%	5.0%	43.6%	583	0.6%	30.2%	5.0%	32.0%	2,540
IA	7.25	7.25	932	1.9%	41.9%	3.8%	43.6%	1,435	1.3%	31.7%	3.9%	33.4%	2,259
ID	7.25	7.25	458	3.3%	44.3%	4.7%	45.4%	679	2.2%	35.0%	4.2%	36.2%	2,335
IL	8.25	8.25	3,155	3.2%	45.4%	8.8%	48.1%	5,566	1.8%	29.9%	6.4%	32.3%	5,034
IN	7.25	7.25	1,780	1.8%	45.1%	3.9%	46.9%	2,827	1.1%	32.4%	4.4%	35.0%	2,724
KS	7.25	7.25	797	2.0%	43.6%	4.2%	45.3%	1,257	1.3%	31.6%	4.2%	33.7%	2,150
KY	7.25	7.25	1,090	1.5%	43.0%	3.6%	44.8%	1,704	0.9%	32.2%	3.7%	34.2%	2,007
LA	7.25	7.25	1,093	3.5%	48.1%	6.4%	50.4%	1,844	2.1%	36.4%	6.1%	39.3%	3,334
MA	9	11	1,653	4.5%	35.0%	12.6%	38.9%	3,104	2.5%	21.7%	8.3%	25.0%	3,268
MD	8.25	10.1	1,413	2.1%	40.1%	6.8%	41.5%	2,752	1.1%	24.8%	5.2%	26.5%	2,726
ME	7.5	7.5	360	1.8%	41.1%	4.6%	43.0%	549	1.4%	30.1%	4.4%	32.4%	1,597
MI	8.15	8.32	2,709	2.0%	40.2%	9.4%	43.1%	4,086	1.4%	29.7%	7.5%	32.5%	3,561
MN	9	10.11	1,603	4.8%	38.9%	8.3%	40.2%	2,562	3.0%	26.7%	6.5%	28.6%	2,822
MO	7.65	8.31	1,586	0.9%	45.1%	5.8%	47.5%	2,617	0.6%	31.8%	5.1%	34.3%	2,449
MS	7.25	7.25	727	3.8%	52.2%	6.3%	54.1%	1,104	2.6%	40.9%	5.9%	43.1%	2,591
MT	8.05	8.75	294	1.6%	43.9%	6.7%	45.0%	427	1.1%	34.1%	6.6%	36.2%	2,895
NC	7.25	7.25	2,378	2.3%	49.0%	5.1%	51.1%	4,094	1.4%	34.1%	4.6%	36.5%	3,606

¹⁰²The estimates of the state minimum for the U.S. in 2015 and 2020 are employment-weighted averages of the minimum wages across the 50 states and the District of Columbia.

TABLE 1. PERCENTAGE OF WORKERS AT OR BELOW MINIMUM WAGE IN 2015 AND PROJECTIONS FOR 2020 WITH A \$15 MINIMUM WAGE. (CONTINUED)

	State Minimum in 2015	Current Projection of State Minimum in 2020	Hourly Workers					Wage and Salary Workers					Sample Size
			2015 Employment (in 1000s)	% at Minimum Wage in 2015	% at \$15 Minimum in 2020	% at or Below Minimum Wage in 2015	% at or Below \$15 Minimum Wage in 2020	2015 Employment (in 1000s)	% at Minimum Wage in 2015	% at \$15 Minimum in 2020	% at or Below Minimum Wage in 2015	% at or Below \$15 Minimum Wage in 2020	
ND	7.25	7.25	222	0.7%	35.0%	2.2%	36.0%	351	0.5%	26.3%	2.5%	27.6%	2,725
NE	8	9	558	4.7%	42.8%	8.2%	44.3%	882	3.0%	31.3%	6.7%	33.2%	2,376
NH	7.25	7.25	389	1.2%	37.6%	4.1%	40.2%	641	0.7%	26.9%	3.5%	29.1%	2,751
NJ	8.38	9.11	1,803	0.6%	42.8%	9.3%	45.1%	3,877	0.3%	24.6%	6.3%	26.8%	3,560
NM	7.5	7.5	511	3.0%	45.9%	6.2%	48.1%	781	2.1%	35.9%	6.0%	38.6%	2,477
NV	8.25	8.97	794	3.3%	44.4%	9.1%	45.8%	1,231	2.1%	33.1%	7.2%	34.7%	2,115
NY	8	9	4,019	2.6%	43.7%	6.1%	45.3%	8,249	1.3%	27.2%	5.0%	29.3%	6,716
OH	8.1	8.8	3,223	2.0%	42.8%	8.7%	45.0%	4,920	1.3%	31.5%	7.0%	33.8%	4,396
OK	7.25	7.25	969	1.5%	45.9%	3.0%	47.0%	1,570	0.9%	34.2%	3.6%	36.0%	2,355
OR	9.25	11.25	1,016	4.4%	40.8%	11.9%	42.2%	1,586	2.8%	28.9%	9.2%	30.8%	2,318
PA	7.25	7.25	3,527	1.5%	42.0%	4.3%	44.1%	5,604	1.0%	30.0%	3.7%	32.0%	4,824
RI	9	9	312	6.9%	40.3%	15.2%	42.9%	483	4.5%	28.9%	11.4%	31.7%	1,932
SC	7.25	7.25	1,192	2.9%	49.0%	4.7%	50.4%	1,961	1.8%	35.0%	4.3%	36.8%	2,386
SD	8.5	9.24	262	2.3%	40.9%	7.9%	43.3%	382	1.6%	30.8%	7.3%	34.1%	1,989
TN	7.25	7.25	1,647	2.1%	49.7%	4.7%	51.7%	2,690	1.3%	36.6%	4.3%	38.7%	2,808
TX	7.25	7.25	6,069	1.8%	48.3%	4.7%	50.7%	11,174	1.0%	33.2%	4.3%	35.6%	8,925
UT	7.25	7.25	778	1.9%	45.2%	3.4%	46.3%	1,277	1.2%	32.3%	3.9%	34.3%	2,487
VA	7.25	7.25	1,919	2.7%	45.2%	6.4%	48.1%	3,735	1.4%	27.3%	4.9%	29.9%	3,413
VT	9.15	9.34	175	2.1%	34.1%	11.4%	36.7%	284	1.3%	24.3%	8.9%	27.3%	2,316
WA	9.47	10.29	1,799	1.4%	34.9%	9.4%	37.3%	2,981	0.9%	23.3%	7.1%	25.9%	2,855
WI	7.25	7.25	1,782	1.7%	39.8%	3.4%	41.1%	2,682	1.1%	28.8%	3.2%	30.4%	2,750
WV	8	8.75	433	5.7%	43.9%	10.7%	45.9%	664	3.7%	33.0%	8.3%	35.3%	2,853
WY	7.25	7.25	179	1.4%	36.5%	3.5%	38.3%	261	1.1%	28.9%	3.8%	31.2%	2,408

TABLE 2. PERCENTAGE OF WORKERS AT MINIMUM WAGE BY SUBGROUP AND WORKER TYPE

	Hourly Workers			Wage and Salary Workers			Sample Size
	2015 Employment (in 1000s)	% at Minimum Wage in 2015	% at \$15 Minimum in 2020	2015 Employment (in 1000s)	% at Minimum Wage in 2015	% at \$15 Minimum in 2020	
U.S. Total	78,288	3.2%	43.9%	133,770	1.9%	30.3%	165,282
Sex							
Male	38,763	2.7%	39.1%	69,315	1.5%	26.3%	83,898
Female	39,526	3.6%	48.6%	64,456	2.2%	34.7%	81,384
Race							
White	60,352	3.0%	42.1%	105,022	1.8%	28.7%	134,183
Black	11,181	3.0%	53.3%	16,554	2.0%	41.4%	17,032
Other race	6,755	4.5%	44.4%	12,195	2.5%	29.1%	14,067
Hispanic Status							
Non-Hispanic	63,142	2.6%	41.6%	112,445	1.5%	27.7%	144,677
Hispanic	15,146	5.6%	53.5%	21,325	4.0%	44.4%	20,605
Education							
8th grade or less	2,915	8.5%	66.5%	3,664	6.8%	63.2%	3,880
Some high school, no diploma	5,400	9.3%	72.4%	6,365	7.9%	67.8%	7,691
High school grad, no college	27,945	3.0%	47.8%	37,052	2.3%	41.4%	46,126
Some college	27,301	2.8%	43.9%	39,054	2.0%	35.4%	48,398
College graduate	11,328	0.9%	23.2%	30,719	0.4%	12.0%	37,858
Graduate Degree	3,399	0.6%	16.4%	16,917	0.1%	6.3%	21,329
Age group							
16-19	4,353	13.6%	89.2%	4,638	12.8%	86.3%	5,795
20-24	11,241	5.5%	69.6%	13,678	4.5%	62.3%	14,779
25-30	11,645	2.6%	44.7%	18,779	1.7%	33.1%	21,762
31-40	15,576	2.0%	36.6%	29,035	1.1%	24.0%	35,756
41-50	14,609	1.9%	32.3%	28,412	1.0%	21.2%	35,351
51-65	17,908	1.6%	31.4%	33,868	0.9%	20.9%	44,494
>65	2,956	2.6%	48.2%	5,361	1.5%	32.4%	7,345

TABLE 2. PERCENTAGE OF WORKERS AT MINIMUM WAGE BY SUBGROUP AND WORKER TYPE (CONTINUED)

	Hourly Workers			Wage and Salary Workers			
	2015 Employment (in 1000s)	% at Minimum Wage in 2015	% at \$15 Minimum in 2020	2015 Employment (in 1000s)	% at Minimum Wage in 2015	% at \$15 Minimum in 2020	Sample Size
Industry							
Agriculture, Forestry, Fishing and Hunting	859	10.6%	64.7%	1,319	6.9%	52.3%	1,859
Mining	475	0.4%	16.4%	867	0.2%	11.5%	1,535
Utilities	758	0.2%	13.7%	1,282	0.1%	10.1%	1,679
Construction	5,072	0.6%	24.5%	7,493	0.4%	22.5%	9,094
Manufacturing	9,128	1.4%	31.3%	14,613	0.9%	22.3%	17,512
Wholesale Trade	1,677	2.6%	38.6%	3,349	1.3%	23.9%	4,024
Retail Trade	11,436	5.3%	64.6%	15,577	3.9%	51.9%	18,952
Transportation and Warehousing	3,525	1.4%	32.3%	5,750	0.9%	26.0%	6,843
Information and Communications	1,191	2.9%	33.6%	2,694	1.3%	18.6%	3,236
Finance and Insurance	3,599	1.0%	32.5%	8,986	0.4%	16.8%	10,852
Professional, Scientific, and Technical Services	6,567	2.1%	41.9%	14,209	1.0%	23.5%	16,864
Educational Services	4,624	2.5%	40.0%	13,349	0.9%	19.9%	17,241
Health Care	10,799	1.2%	33.7%	15,994	0.8%	26.0%	20,121
Social Assistance	1,788	4.1%	58.1%	2,721	2.7%	43.7%	3,455
Arts, Entertainment, Recreation, Accomod. and Food Serv.	10,175	8.5%	69.3%	12,823	6.8%	59.9%	15,368
Other Services (Except Public Administration)	3,284	3.2%	51.6%	5,902	1.9%	38.9%	7,290
Public administration	3,330	0.7%	22.7%	6,844	0.4%	14.4%	9,357
Employer Size							
1-9	---	---	---	16,578	2.6%	41.2%	10,506
10-99	---	---	---	31,052	2.4%	35.5%	19,366
100+	---	---	---	86,139	1.6%	26.2%	53,300

TABLE 3. FAMILY INCOME OF WORKERS BY MINIMUM WAGE STATUS IN 2015 AND PROJECTIONS FOR 2020 WITH \$15 MINIMUM.

	Mean Income		Median Income	
	2015 at Actual Minimum	2020 with \$15 Minimum	2015 at Actual Minimum	2020 with \$15 Minimum
Hourly workers above minimum	\$68,306	\$76,268	\$54,052	\$66,536
Hourly workers at minimum	\$52,599	\$56,982	\$36,944	\$44,274
Wage and salary workers above minimum	\$84,773	\$95,355	\$66,536	\$85,740
Wage and salary workers at minimum	\$52,605	\$58,264	\$36,944	\$44,274

APPENDIX B

The figures for the “Corrected PERI” in Table 4 come from the author’s replication of the model presented in Robert Pollin and Jeanette Wicks-Lim, “A \$15 U.S. Minimum Wage: How the Fast Food Industry Could Adjust Without Shedding Jobs,” adjusted to use more realistic assumptions.

The model assumes total fast-food revenues of \$232 billion in the first year (before any minimum-wage increase) and a total fast-food wage bill (including payroll taxes) of \$56.3 billion. The model also assumes 2.5 percent trend growth in fast-food sales volume, a constant profit margin of 5 percent of revenues, and that a \$15 wage mandate would increase average labor costs by 59 percent (before accounting for any reduction in turnover expenses). These figures come from Pollin and Wicks-Lim’s estimates.

The model also assumes that fixed costs represent 34 percent of total revenues. That figure comes from a 2012 report from Janney Capital Markets estimating the detailed expenses of a typical McDonald’s restaurant, scaled to reflect a 5 percent profit margin. This figure is also consistent with the figures in the October 2014 IBIS Report that Pollin and Wicks-Lim use.

In the model, the \$15 mandate raises labor costs (though these cost increases are partially offset by turnover reductions). To remain profitable, the industry raises prices, which causes sales volume to fall relative to trend. The reduction in sales volume reduces variable costs (both labor and purchases) by the same proportionate amount relative to trend, but fixed costs continue to grow at the trend rate. In equilibrium, prices must rise 24 percent while sales volume drops 13 percent relative to the first year, and 21 percent relative to the projected trend growth.

The corrected model differs from the Pollin and Wicks-Lim estimates principally in that:

1. It assumes that fixed costs grow at the same rate as trend sales volume instead of remaining unchanged at the year-one level;
2. It assumes a price elasticity of fast-food demand of -0.95 instead of -0.5 ; and
3. It assumes that fast-food restaurants experience a 100 percent (not 120 percent) annual turnover rate and that filling a vacancy costs \$1,000 (not \$4,700). Under these assumptions reduced turnover offsets 2.8 percent of the higher wage bill associated with a \$15 mandate, not 20 percent.

The full model calculations are available from the author upon request.

SOURCES FOR TABLE 1

Tatiana Andreyeva, Michael W. Long, and Kelly D. Brownell, “The Impact of Food Prices on Consumption: A Systematic Review of Research on the Price Elasticity of Demand for Food,” *American Journal of Public Health*, Vol. 100, No. 2 (February 2010), Table 1.

Abigail Okrent and Aylin Kumcu, “What’s Cooking? Demand for Convenience Foods in the United States,” selected paper prepared for presentation at the Agricultural and Applied Economics Association’s 2014 AAEA Annual Meeting, Minneapolis, MN, July 27–29, 2014.

Mark D. Jekanowski, James K. Binkley, and James S. Eales, “Convenience, Accessibility, and the Demand for Fast Food,” *Journal of Agricultural and Resource Economics*, Vol. 26, No. 1 (2001).

Douglas M. Brown, “The Restaurant and Fast Food Race: Who’s Winning?” *Southern Economic Journal*, Vol. 56, No. 4 (April 1990), pp. 984–995.

Timothy Richards and Lisa Mancino, “Demand for Food-Away-from-Home: A Multiple-Discrete-Continu-

¹⁰³Mark Kalinowski, “MCD: A ‘Typical’ U.S. Franchised Restaurant’s Annual Income Statement,” Janney Capital Markets, February 8, 2012.

¹⁰⁴Fixed costs represent 34 percent of total revenues in the IBIS report if “other” and utility expenses are treated as fixed costs, not variable costs. Pollin and Wicks-Lim make the opposite assumption. However, utilities are only variable costs if a restaurant remains open for fewer days or hours. If it remains open for the same number of days or hours, but serves fewer customers, it will pay approximately the same utility bill. Thus, utilities are more properly treated as a fixed cost. Comparison with the Janney report shows that most of the expenses listed as “other” by IBIS are invariant to sales volume, for instance, insurance and interest costs.

ous Extreme Value Model,” *European Review of Agricultural Economics*, Vol. 41, No. 1 (2014), pp. 111–133.

Abigail Okrent and Julian Alston, “The Demand for Disaggregated Food-Away-from-Home and Food-at-Home Products in the United States,” United States Department of Agriculture, Economic Research Service, Economic Research Report No. ERR-139, August 2012.

APPENDIX C

TABLE 1 – Proportion of residents and land contained in “dominant city” relative to entire market

CBSA Rank	Census Place	CBSA Name	Place Pop. (2010)	CBSA Pop. (2010)	(1)/(2)	Place Area (Land sq mi)	CBSA Area (Land sq mi)	(4)/(5)
1	New York, NY	New York Newark Jersey City, NY NJ PA	8175133	19567410	42%	303	6687	5%
2	Los Angeles, CA	Los Angeles Long Beach Anaheim, CA	3792621	12828837	30%	469	4848	10%
3	Chicago, IL	Chicago Naperville Elgin, IL IN WI	2695598	9461105	28%	228	7197	3%
4	Dallas, TX	Dallas Fort Worth Arlington, TX	1197816	6426214	19%	341	8928	4%
5	Philadelphia, PA	Philadelphia Camden Wilmington, PA NJ DE MD	1526006	5965343	26%	134	4602	3%
6	Houston, TX	Houston The Woodlands Sugar Land, TX	2099451	5920416	35%	600	8827	7%
7	Washington, DC	Washington Arlington Alexandria, DC VA MD WV	601723	5636232	11%	61	5598	1%
8	Miami, FL	Miami Fort Lauderdale West Palm Beach, FL	399457	5564635	7%	36	5077	1%
9	Atlanta, GA	Atlanta Sandy Springs Roswell, GA	420003	5286728	8%	133	8339	2%
10	Boston, MA	Boston Cambridge Newton, MA NH	617594	4552402	14%	48	3487	1%
11	San Francisco, CA	San Francisco Oakland Hayward, CA	805235	4335391	19%	47	2471	2%
12	Detroit, MI	Detroit Warren Dearborn, MI	713777	4296250	17%	139	3888	4%
13	Riverside, CA	Riverside San Bernardino Ontario, CA	303871	4224851	7%	81	27263	0%
14	Phoenix, AZ	Phoenix Mesa Scottsdale, AZ	1445632	4192887	34%	517	14566	4%
15	Seattle, WA	Seattle Tacoma Bellevue, WA	608660	3439809	18%	84	5872	1%
16	Minneapolis, MN	Minneapolis St. Paul Bloomington, MN WI	382578	3348859	11%	54	6027	1%
17	San Diego, CA	San Diego Carlsbad, CA	1307402	3095313	42%	325	4207	8%
18	St. Louis, MO	St. Louis, MO IL	319294	2787701	11%	62	8623	1%
19	Tampa, FL	Tampa St. Petersburg Clearwater, FL	335709	2783243	12%	113	2513	5%
20	Baltimore, MD	Baltimore Columbia Towson, MD	620961	2710489	23%	81	2601	3%
21	Denver, CO	Denver Aurora Lakewood, CO	600158	2543482	24%	153	8346	2%
22	Pittsburgh, PA	Pittsburgh, PA	305704	2356285	13%	55	5281	1%
23	Portland, OR	Portland Vancouver Hillsboro, OR WA	583776	2226009	26%	133	6684	2%
24	Charlotte, NC	Charlotte Concord Gastonia, NC SC	731424	2217012	33%	298	3085	10%
25	Sacramento, CA	Sacramento Roseville Arden Arcade, CA	466488	2149127	22%	98	5094	2%
26	San Antonio, TX	San Antonio New Braunfels, TX	1327407	2142508	62%	461	7313	6%
27	Orlando, FL	Orlando Kissimmee Sanford, FL	238300	2134411	11%	102	3478	3%
28	Cincinnati, OH	Cincinnati, OH KY IN	296943	2114580	14%	78	4392	2%
29	Cleveland, OH	Cleveland Elyria, OH	396815	2077240	19%	78	1997	4%

30	Kansas City, MO	Kansas City, MO KS	459787	2009342	23%	315	7827	4%
31	Las Vegas, NV	Las Vegas Henderson Paradise, NV	583756	1951269	30%	136	7891	2%
32	Columbus, OH	Columbus, OH	787033	1901974	41%	217	3967	5%
33	Indianapolis, IN	Indianapolis Carmel Anderson, IN	820445	1887877	43%	361	3854	9%
34	San Jose, CA	San Jose Sunnyvale Santa Clara, CA	945942	1836911	51%	177	2679	7%
35	Austin, TX	Austin Round Rock, TX	790390	1716289	46%	298	4220	7%
36	Virginia Beach, VA	Virginia Beach Norfolk Newport News, VA NC	437994	1676822	26%	249	2630	9%
37	Nashville Davidson, TN	Nashville Davidson Murfreesboro Franklin, TN	601222	1670890	36%	475	5689	8%
38	Providence, RI	Providence Warwick, RI MA	178042	1600852	11%	18	1587	1%
39	Milwaukee, WI	Milwaukee Waukesha West Allis, WI	594833	1555908	38%	96	1455	7%
40	Jacksonville, FL	Jacksonville, FL	821784	1345596	61%	747	3201	23%
41	Memphis, TN	Memphis, TN MS AR	646889	1324829	49%	315	4578	7%
42	Oklahoma City, OK	Oklahoma City, OK	579935	1252987	46%	606	5512	11%
43	Louisville, KY	Louisville/Jefferson County, KY IN	597337	1235708	48%	325	4111	8%
44	Hartford, CT	Hartford West Hartford East Hartford, CT	124775	1212381	10%	17	1515	1%
45	Richmond, VA	Richmond, VA	204214	1208101	17%	60	5685	1%
46	New Orleans, LA	New Orleans Metairie, LA	343829	1189866	29%	169	2960	6%
47	Buffalo, NY	Buffalo Cheektowaga Niagara Falls, NY	261310	1135509	23%	40	1565	3%
48	Raleigh, NC	Raleigh, NC	402825	1130490	36%	143	2118	7%
49	Birmingham, AL	Birmingham Hoover, AL	212237	1128047	19%	146	5280	3%
50	Salt Lake City, UT	Salt Lake City, UT	186440	1087873	17%	111	9555	1%
51	Rochester, NY	Rochester, NY	210565	1079671	20%	36	2928	1%
52	Grand Rapids, MI	Grand Rapids Wyoming, MI	188040	988938	19%	44	2785	2%
53	Tucson, AZ	Tucson, AZ	520116	980263	53%	227	9187	2%
54	Honolulu, HI	Urban Honolulu, HI	337256	953207	35%	61	601	10%
55	Tulsa, OK	Tulsa, OK	391906	937478	42%	197	6269	3%
56	Fresno, CA	Fresno, CA	494665	930450	53%	112	5958	2%
57	Worcester, MA	Worcester, MA CT	181045	916980	20%	37	1511	2%
58	Bridgeport, CT	Bridgeport Stamford Norwalk, CT	144229	916829	16%	16	625	3%
59	Albuquerque, NM	Albuquerque, NM	545852	887077	62%	188	9282	2%
60	Albany, NY	Albany Schenectady Troy, NY	97856	870716	11%	21	2812	1%
61	Omaha, NE	Omaha Council Bluffs, NE IA	408958	865350	47%	127	4350	3%
62	New Haven, CT	New Haven Milford, CT	129779	862477	15%	19	605	3%
63	Bakersfield, CA	Bakersfield, CA	347483	839631	41%	142	8132	2%
64	Knoxville, TN	Knoxville, TN	178874	837571	21%	99	1857	5%
65	Greenville, SC	Greenville Anderson Mauldin, SC	58409	824112	7%	29	1995	1%

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66	Oxnard, CA	Oxnard Thousand Oaks Ventura, CA	197899	823318	24%	27	1843	1%
67	Allentown, PA	Allentown Bethlehem Easton, PA NJ	118032	821173	14%	18	1453	1%
68	El Paso, TX	El Paso, TX	649121	804123	81%	255	1013	25%
69	Baton Rouge, LA	Baton Rouge, LA	229493	802484	29%	77	4027	2%
70	Dayton, OH	Dayton, OH	141527	799232	18%	56	1706	3%
71	McAllen, TX	McAllen Edinburg Mission, TX	129877	774769	17%	48	1571	3%
72	Columbia, SC	Columbia, SC	129272	767598	17%	132	3703	4%
73	Greensboro, NC	Greensboro High Point, NC	269666	723801	37%	127	1994	6%
74	Akron, OH	Akron, OH	199110	703200	28%	62	900	7%
75	North Port, FL	North Port Sarasota Bradenton, FL	57357	702281	8%	100	1299	8%
76	Little Rock, AR	Little Rock North Little Rock Conway, AR	193524	699757	28%	119	4085	3%
77	Stockton, CA	Stockton Lodi, CA	291707	685306	43%	62	1391	4%
78	Charleston, SC	Charleston North Charleston, SC	120083	664607	18%	109	2588	4%
79	Syracuse, NY	Syracuse, NY	145170	662577	22%	25	2385	1%
80	Colorado Springs, CO	Colorado Springs, CO	416427	645613	65%	195	2684	7%
81	Winston Salem, NC	Winston Salem, NC	229617	640595	36%	132	1456	9%
82	Wichita, KS	Wichita, KS	382368	630919	61%	159	4149	4%
83	Springfield, MA	Springfield, MA	153060	621570	25%	32	1844	2%
84	Cape Coral, FL	Cape Coral Fort Myers, FL	154305	618754	25%	106	785	13%
85	Boise City, ID	Boise City, ID	205671	616561	33%	79	11766	1%
86	Toledo, OH	Toledo, OH	287208	610001	47%	81	1618	5%
87	Madison, WI	Madison, WI	233209	605435	39%	77	2725	3%
88	Lakeland, FL	Lakeland Winter Haven, FL	97422	602095	16%	65	1798	4%
89	Ogden, UT	Ogden Clearfield, UT	82825	597159	14%	27	1484	2%
90	Deltona, FL	Deltona Daytona Beach Ormond Beach, FL	85182	590289	14%	38	1101	3%
91	Des Moines, IA	Des Moines West Des Moines, IA	203433	569633	36%	81	2884	3%
92	Jackson, MS	Jackson, MS	173514	567122	31%	111	3726	3%
93	Youngstown, OH	Youngstown Warren Boardman, OH PA	66982	565773	12%	34	1702	2%
94	Augusta Richmond	Augusta Richmond County, GA SC	195844	564873	35%	302	3270	9%
96	County, GA	Scranton Wilkes Barre Hazleton, PA	76089	563631	13%	25	1747	1%
97	Palm Bay, FL	Palm Bay Melbourne Titusville, FL	103190	543376	19%	66	1016	6%
98	Chattanooga, TN	Chattanooga, TN GA	167674	528143	32%	137	2089	7%
99	Spokane, WA	Spokane Spokane Valley, WA	208916	527753	40%	59	1764	3%
100	Provo, UT	Provo Orem, UT	112488	526810	21%	42	5396	1%

TABLE 2 – Proportion of workers who reside “locally”

Place Rank	Census Place	Local Workers (reside in ACS POWPUMA)	All Workers (work in ACS POWPUMA)	Percent of workers who live in POWPUMA
1	New York, NY	2149687	4616030	47%
2	Los Angeles, CA	1650472	1839212	90%
3	Chicago, IL	1109600	1366648	81%
4	Dallas, TX	988380	1226109	81%
5	Philadelphia, PA	260550	820826	32%
6	Houston, TX	478929	737175	65%
7	Washington, DC	474597	724030	66%
8	Miami, FL	675712	704736	96%
9	Atlanta, GA	368288	695714	53%
10	Boston, MA	620990	687919	90%
11	San Francisco, CA	638037	669632	95%
12	Detroit, MI	431165	561735	77%
13	Riverside, CA	229144	553864	41%
14	Phoenix, AZ	400809	529799	76%
15	Seattle, WA	357347	517624	69%
16	Minneapolis, MN	326227	511326	64%
17	San Diego, CA	372036	487452	76%
18	St. Louis, MO	363596	466659	78%
19	Tampa, FL	270635	425159	64%
20	Baltimore, MD	316391	398245	79%
21	Denver, CO	243189	387629	63%
22	Pittsburgh, PA	170022	383954	44%
23	Portland, OR	290211	367768	79%
24	Charlotte, NC	263671	356709	74%
25	Sacramento, CA	274592	342987	80%
26	San Antonio, TX	324343	335189	97%
27	Orlando, FL	225908	317880	71%
28	Cincinnati, OH	170587	308229	55%
29	Cleveland, OH	202095	295784	68%
30	Milwaukee, WI	221308	293989	75%

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31	Minneapolis, MN	173985	291142	60%
32	Las Vegas, NV	275160	281289	98%
33	El Paso, TX	258894	277470	93%
34	Omaha, NE	190310	260061	73%
35	Albuquerque, NM	228530	257874	89%
36	St. Louis, MO	86768	250292	35%
37	Raleigh, NC	190449	243009	78%
38	Kansas City, MO	153818	242761	63%
39	Tucson, AZ	219756	226102	97%
40	New Orleans, LA	128793	221335	58%
41	Cleveland, OH	157277	217783	72%
42	Colorado Springs, CO	197124	209371	94%
43	Miami, FL	183087	208991	88%
44	Tulsa, OK	176834	207777	85%
45	Sacramento, CA	166355	206143	81%
46	Virginia Beach, VA	145892	202682	72%
47	Fresno, CA	178234	194597	92%
48	Cincinnati, OH	116145	190696	61%
49	St. Paul, MN	87168	187220	47%
50	Tampa, FL	149490	185349	81%
51	Lexington, KY	132940	185149	72%
52	Wichita, KS	172018	183851	94%
53	Arlington CDP, VA	46332	182101	25%
54	Oakland, CA	121693	181916	67%
55	Anaheim, CA	140565	177382	79%
56	Honolulu, HI	173568	175017	99%
57	Pittsburgh, PA	133178	169589	79%
58	Norfolk, VA	81492	168663	48%
59	Anchorage, AK	151013	166726	91%
60	Richmond, VA	54661	166212	33%
61	Durham, NC	82447	164307	50%
62	Orlando, FL	109433	157680	69%
63	Greensboro, NC	106032	156017	68%
64	Madison, WI	129534	154990	84%
65	Lincoln, NE	139565	154793	90%
66	Corpus Christi, TX	132087	150996	87%
67	Baton Rouge, LA	99845	139288	72%
68	Toledo, OH	118785	138773	86%
69	Bakersfield, CA	125004	133859	93%
70	Newark, NJ	69174	132962	52%
71	Buffalo, NY	116520	131931	88%
72	Fort Wayne, IN	110123	131654	84%
73	Plano, TX	84717	131013	65%
74	Winston-Salem, NC	83112	124144	67%
75	Little Rock, AR	84910	123944	69%
76	Columbus, GA	83349	120635	69%
77	Augusta-Richmond County, GA	64203	117680	55%
78	Des Moines, IA	109006	116583	94%
79	St. Petersburg, FL	96746	115201	84%
80	Lubbock, TX	107356	114027	94%
81	Newport News, VA	53275	113809	47%

82	Birmingham, AL	80715	113142	71%
83	Salt Lake City, UT	91114	112499	81%
84	Grand Rapids, MI	85676	111609	77%
85	Rochester, NY	95441	109536	87%
86	Reno, NV	101366	109367	93%
87	Jersey City, NJ	59540	108793	55%
88	Fayetteville, NC	79832	106568	75%
89	Stockton, CA	85563	104658	82%
90	Riverside, CA	88969	103390	86%
91	Tallahassee, FL	85685	103114	83%
92	Overland Park, KS	64635	102365	63%
93	Akron, OH	69042	101515	68%
94	Chattanooga, TN	73367	99884	73%
95	Spokane, WA	89781	98450	91%
96	Alexandria, VA	25325	97796	26%
97	Boise City, ID	94462	96532	98%
98	Knoxville, TN	76663	95024	81%
99	Amarillo, TX	51277	94324	54%
100	Shreveport, LA	68025	93892	72%
101	Sioux Falls, SD	85098	92628	92%
102	Montgomery, AL	84049	92295	91%
103	Chesapeake, VA	42197	91956	46%
104	Laredo, TX	87944	90745	97%
105	Huntsville, AL	78234	90732	86%
106	Worcester, MA	77009	88227	87%
107	Yonkers, NY	60144	86675	69%
108	Oxnard, CA	74230	85950	86%
109	Jackson, MS	65981	84107	78%
110	Springfield, MO	73349	83758	88%
111	Tacoma, WA	67471	83717	81%
112	Mobile, AL	71302	82735	86%
113	Providence, RI	58154	82222	71%
114	Midland, TX	59060	79905	74%
115	San Bernardino, CA	60532	79845	76%
116	Fargo, ND	61109	78840	78%
117	Lafayette, LA	53022	78367	68%
118	Kansas City, KS	28406	77555	37%
119	Santa Rosa, CA	70319	76917	91%
120	Cedar Rapids, IA	61891	76903	80%
121	Fort Lauderdale, FL	64407	76546	84%
122	Savannah, GA	57650	75960	76%
123	Bridgeport, CT	56159	73152	77%
124	Fort Collins, CO	64141	73107	88%
125	Modesto, CA	62625	72843	86%
126	Albany, NY	40443	72618	56%
127	Syracuse, NY	62973	72413	87%
128	Eugene, OR	68653	71716	96%
129	Hartford, CT	51464	71443	72%
130	Rochester, MN	54424	70772	77%
131	Killeen, TX	56371	70668	80%
132	Springfield, MA	63352	68007	93%

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133	Ann Arbor, MI	44499	67985	65%
134	Dayton, OH	47458	67024	71%
135	Metairie, LA	44444	66684	67%
136	Springfield, IL	53566	66249	81%
137	Evansville, IN	45658	66241	69%
138	Columbia, SC	60003	65837	91%
139	Hampton, VA	33270	65532	51%
140	Rockford, IL	56110	64779	87%
141	Gainesville, FL	53037	64428	82%
142	Athens-Clarke County, GA	38014	64288	59%
143	Topeka, KS	54746	64212	85%
144	Cape Coral, FL	59005	63740	93%
145	Charleston, SC	61187	63509	96%
146	Lansing, MI	39225	63494	62%
147	Brownsville, TX	58843	63483	93%
148	Peoria, IL	42014	62986	67%
149	Salinas, CA	55779	61168	91%
150	Columbia, MO	51547	60727	85%
151	Green Bay, WI	46520	59985	78%
152	Vancouver, WA	51025	59672	86%
153	Abilene, TX	52421	58637	89%
154	Aurora, IL	37315	58591	64%
155	New Haven, CT	45536	58495	78%
156	Naperville, IL	29566	58399	51%
157	Waco, TX	51940	58173	89%
158	Salem, OR	44859	57988	77%
159	Davenport, IA	40167	56764	71%
160	Beaumont, TX	41296	56752	73%
161	Wilmington, NC	47039	56505	83%
162	Elizabeth, NJ	29572	56214	53%
163	Paterson, NJ	31595	56105	56%
164	Columbia, MD	22469	55671	40%
165	Warren, MI	36836	54809	67%
166	Roseville, CA	33912	54773	62%
167	Daly City, CA	31406	54743	57%
168	Manchester, NH	47947	54308	88%
169	Billings, MT	50663	54240	93%
170	Allentown, PA	45940	53363	86%
171	Trenton, NJ	26344	52631	50%
172	Murfreesboro, TN	38324	52471	73%
173	Port St. Lucie, FL	43552	51853	84%
174	Wichita Falls, TX	45056	51455	88%
175	Odessa, TX	39999	51339	78%
176	Longview, TX	30883	51073	60%
177	West Palm Beach, FL	42660	50365	85%
178	College Station, TX	44172	50253	88%
179	Hillsboro, OR	34238	50155	68%

Notes: Author's weighted tabulation of the 2014 ACS. Worker counts are scaled to reflect those working within the city boundaries (by scaling residents in the city relative to those in the POWPUMA).

TABLE 2 – Proportion of workers who reside “locally”

Place Rank	Census Place	All Workers	Under \$15	\$15 Minimum Wage			\$12 Minimum Wage		
				$\varepsilon = -0.1$	$\varepsilon = -0.2$	$\varepsilon = -0.3$	$\varepsilon = -0.1$	$\varepsilon = -0.2$	$\varepsilon = -0.3$
1	New York, NY	4616030	1428670	77316	154869	232171	37436	74996	112340
2	Los Angeles, CA	1839212	728148	40192	80808	121364	19567	39459	59089
3	Chicago, IL	1366648	482036	23670	47460	71281	10819	21604	32508
4	Dallas, TX	1226109	481359	28961	58084	87217	14948	29982	44983
5	Philadelphia, PA	820826	144475	6814	13621	20431	3088	6156	9269
6	Houston, TX	737175	260565	15211	30463	45665	7733	15457	23190
7	Washington, DC	724030	282722	16894	33870	50921	8681	17405	26201
8	Miami, FL	704736	281848	15184	30514	45819	7319	14745	22215
9	Atlanta, GA	695714	152379	4523	9066	13605	1108	2232	3312
10	Boston, MA	687919	320069	19668	39364	59063	10168	20401	30601
11	San Francisco, CA	669632	242977	12919	25995	38998	6164	12494	18684
12	Detroit, MI	561735	140382	4920	9863	14820	1640	3112	4748
13	Riverside, CA	553864	135687	6978	13987	20984	3352	6666	10001
14	Phoenix, AZ	529799	198250	11403	22813	34249	5753	11520	17294
15	Seattle, WA	517624	194771	11163	22377	33587	5645	11294	16949
16	Minneapolis, MN	511326	194366	11274	22573	33882	5692	11428	17139
17	San Diego, CA	487452	189138	9874	19825	29737	4672	9459	14193
18	St. Louis, MO	466659	197159	10216	20447	30667	4812	9706	14524
19	Tampa, FL	425159	167429	9742	19518	29301	4920	9901	14833
20	Baltimore, MD	398245	110549	4340	8825	13240	1709	3326	5110
21	Denver, CO	387629	138471	5668	11369	17064	2216	4482	6723
22	Pittsburgh, PA	383954	124954	6924	13874	20803	3503	6987	10486
23	Portland, OR	367768	154563	9408	18916	28385	4859	9763	14641
24	Charlotte, NC	356709	144806	8460	16984	25485	4323	8652	12985
25	Sacramento, CA	342987	149810	9160	18376	27573	4702	9473	14163
26	San Antonio, TX	335189	114546	5742	11853	17866	2809	5710	8524
27	Orlando, FL	317880	137110	8175	16400	24587	4217	8442	12694
28	Cincinnati, OH	308229	102236	5882	11881	17859	2972	6037	9089
29	Cleveland, OH	295784	121043	7444	15004	22447	3871	7801	11736
30	Milwaukee, WI	293989	118480	7249	14497	21743	3746	7536	11286

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31	Minneapolis, MN	291142	84236	4614	9282	13964	2324	4691	7017
32	Las Vegas, NV	281289	120152	5525	11210	16817	2493	4979	7494
33	El Paso, TX	277470	161747	10692	21387	32106	5635	11294	16950
34	Omaha, NE	260061	100129	5586	11211	16811	2827	5696	8536
35	Albuquerque, NM	257874	116452	5664	11329	17011	2559	5074	7627
36	St. Louis, MO	250292	90372	4930	9875	14823	2457	4930	7383
37	Raleigh, NC	243009	98835	5836	11723	17607	3011	6068	9077
38	Kansas City, MO	242761	94953	5225	10389	15651	2549	5158	7745
39	Tucson, AZ	226102	105155	5703	11382	17091	2742	5510	8285
40	New Orleans, LA	221335	88067	5187	10425	15628	2676	5381	8054
41	Cleveland, OH	217783	79300	4120	8290	12491	1977	3985	6032
42	Colorado Springs, CO	209371	89395	4846	9727	14594	2337	4676	7027
43	Miami, FL	208991	99577	5265	10677	16162	2448	5219	7766
44	Tulsa, OK	207777	96740	5349	10773	16194	2684	5393	8097
45	Sacramento, CA	206143	75677	4012	8038	12094	1899	3857	5769
46	Virginia Beach, VA	202682	88883	5075	10158	15243	2600	5152	7749
47	Fresno, CA	194597	99687	5697	11431	17139	2813	5664	8480
48	Cincinnati, OH	190696	67042	3426	6911	10385	1619	3286	4935
49	St. Paul, MN	187220	57169	3271	6546	9812	1656	3300	4973
50	Tampa, FL	185349	76043	3810	7801	11716	1821	3687	5537
51	Lexington, KY	185149	82135	4995	10001	15008	2576	5156	7745
52	Wichita, KS	183851	76555	4708	9442	14181	2444	4928	7376
53	Arlington CDP, VA	182101	34513	1774	3545	5330	840	1692	2531
54	Oakland, CA	181916	55082	2738	5618	8401	1317	2694	4003
55	Anaheim, CA	177382	66431	3484	7002	10730	1384	3531	5172
56	Honolulu, HI	175017	64992	3543	7145	10735	1766	3576	5390
57	Pittsburgh, PA	169589	60492	3185	6509	9764	1547	3180	4804
58	Norfolk, VA	168663	65721	3805	7621	11420	1906	3833	5739
59	Anchorage, AK	166726	49063	2653	5301	7952	1262	2528	3779
60	Richmond, VA	166212	59300	3460	6936	10410	1741	3494	5246
61	Durham, NC	164307	50763	2717	5446	8170	1355	2702	4069
62	Orlando, FL	157680	76134	4022	8161	12249	1886	3906	5859
63	Greensboro, NC	156017	68801	3646	7281	10962	1779	3571	5393
64	Madison, WI	154990	54272	3264	6528	9830	1692	3404	5108
65	Lincoln, NE	154793	73917	4301	8591	12892	2165	4373	6536
66	Corpus Christi, TX	150996	68579	4405	8824	13255	2322	4647	6961
67	Baton Rouge, LA	139288	59685	3831	7649	11516	2020	4064	6084
68	Toledo, OH	138773	61217	3314	6627	9951	1567	3166	4771
69	Bakersfield, CA	133859	61616	3530	7073	10628	1758	3521	5273
70	Newark, NJ	132962	43491	2150	4358	6549	1004	2011	3026
71	Buffalo, NY	131931	52263	2686	5447	8147	1294	2599	3882
72	Fort Wayne, IN	131654	57578	3406	6797	10232	1734	3487	5228
73	Plano, TX	131013	46831	2782	5593	8376	1403	2853	4271
74	Winston-Salem, NC	124144	54971	2965	5914	8893	1469	2946	4399
75	Little Rock, AR	123944	51421	2849	5740	8619	1437	2883	4316
76	Columbus, GA	120635	61635	3620	7256	10882	1831	3690	5523
77	Augusta-Richmond County, GA	117680	57536	3616	7213	10835	1878	3748	5619
78	Des Moines, IA	116583	42467	2391	4850	7294	1222	2466	3696
79	St. Petersburg, FL	115201	51035	2559	5192	7842	1188	2431	3664
80	Lubbock, TX	114027	61663	4021	8043	12080	2087	4186	6276
81	Newport News, VA	113809	43886	2379	4767	7154	1177	2368	3537

82	Birmingham, AL	113142	50343	2780	5610	8441	1379	2802	4231
83	Salt Lake City, UT	112499	46711	2596	5311	7959	1318	2684	4065
84	Grand Rapids, MI	111609	49289	2801	5628	8448	1356	2799	4196
85	Rochester, NY	109536	42481	2114	4278	6433	972	1998	3006
86	Reno, NV	109367	45252	2240	4449	6697	1019	2016	3041
87	Jersey City, NJ	108793	37466	1976	3973	5968	933	1854	2807
88	Fayetteville, NC	106568	52013	3085	6197	9289	1562	3149	4739
89	Stockton, CA	104658	45190	2519	5077	7601	1235	2514	3740
90	Riverside, CA	103390	48293	2581	5334	8004	1197	2614	3909
91	Tallahassee, FL	103114	46546	2392	4820	7221	1127	2255	3391
92	Overland Park, KS	102365	36354	2157	4333	6539	1113	2240	3390
93	Akron, OH	101515	42694	2263	4532	6809	1069	2137	3229
94	Chattanooga, TN	99884	45757	2647	5330	7998	1348	2696	4057
95	Spokane, WA	98450	40738	1604	3222	4839	606	1237	1869
96	Alexandria, VA	97796	23131	1439	2880	4322	756	1505	2262
97	Boise City, ID	96532	44554	2540	5162	7736	1285	2602	3891
98	Knoxville, TN	95024	42867	2360	4775	7201	1171	2380	3572
99	Amarillo, TX	94324	45105	2689	5373	8079	1380	2771	4164
100	Shreveport, LA	93892	44539	2640	5311	7977	1359	2721	4101
101	Sioux Falls, SD	92628	41740	2143	4301	6473	1057	2137	3208
102	Montgomery, AL	92295	42792	2504	5000	7499	1281	2566	3846
103	Chesapeake, VA	91956	44081	2424	4830	7256	1206	2408	3614
104	Laredo, TX	90745	52578	3745	7490	11258	2036	4070	6109
105	Huntsville, AL	90732	38889	2289	4628	6954	1145	2343	3524
106	Worcester, MA	88227	26743	524	2392	3847	119	742	1386
107	Yonkers, NY	86675	28294	1405	2881	4357	686	1381	2060
108	Oxnard, CA	85950	34872	1906	3889	5821	944	1894	2817
109	Jackson, MS	84107	37736	2295	4639	6968	1180	2395	3590
110	Springfield, MO	83758	42610	2478	4980	7479	1271	2531	3815
111	Tacoma, WA	83717	32343	1291	2646	3974	477	999	1532
112	Mobile, AL	82735	36192	2019	4028	6053	1010	2013	3037
113	Providence, RI	82222	28521	1383	2854	4257	655	1380	2009
114	Midland, TX	79905	26612	1465	2923	4383	717	1455	2177
115	San Bernardino, CA	79845	36810	1955	3967	6032	775	1995	2911
116	Fargo, ND	78840	34951	2059	4116	6178	1029	2083	3126
117	Lafayette, LA	78367	38636	2175	4373	6548	1094	2192	3285
118	Kansas City, KS	77555	29462	1676	3355	5036	832	1671	2507
119	Santa Rosa, CA	76917	27179	1499	3020	4543	722	1482	2214
120	Cedar Rapids, IA	76903	29245	1719	3464	5188	894	1778	2670
121	Fort Lauderdale, FL	76546	33468	1615	3446	5210	646	1680	2504
122	Savannah, GA	75960	32449	1892	3808	5706	967	1957	2935
123	Bridgeport, CT	73152	20255	882	1775	2711	317	770	1156
124	Fort Collins, CO	73107	31652	1705	3441	5156	819	1639	2450
125	Modesto, CA	72843	31490	1687	3374	5059	812	1624	2449
126	Albany, NY	72618	22674	1155	2345	3525	561	1123	1693
127	Syracuse, NY	72413	27013	1358	2772	4190	652	1308	1966
128	Eugene, OR	71716	31296	1402	2838	4229	579	1171	1747
129	Hartford, CT	71443	19815	856	1724	2639	277	765	1121
130	Rochester, MN	70772	23325	1177	2391	3582	594	1175	1772
131	Killeen, TX	70668	36724	2239	4488	6749	1143	2275	3455
132	Springfield, MA	68007	25492	1243	2594	3883	589	1219	1847

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133	Ann Arbor, MI	67985	25249	1447	2919	4387	740	1461	2237
134	Dayton, OH	67024	28637	1509	3032	4559	715	1471	2201
135	Metairie CDP, LA	66684	28295	1704	3459	5213	900	1776	2728
136	Springfield, IL	66249	26690	1257	2551	3835	570	1145	1733
137	Evansville, IN	66241	31668	1826	3663	5490	936	1875	2821
138	Columbia, SC	65837	31432	1808	3720	5652	936	1908	2910
139	Hampton, VA	65532	30885	1835	3687	5514	928	1857	2794
140	Rockford, IL	64779	26949	1404	2832	4250	656	1315	1973
141	Gainesville, FL	64428	30031	1520	3079	4618	716	1469	2183
142	Athens-Clarke County, GA	64288	34583	2120	4234	6367	1070	2158	3223
143	Topeka, KS	64212	25448	1359	2716	4098	678	1367	2051
144	Cape Coral, FL	63740	30968	1641	3328	5014	783	1613	2417
145	Charleston, SC	63509	27495	1638	3369	5087	863	1755	2665
146	Lansing, MI	63494	26051	1550	3139	4692	789	1613	2424
147	Brownsville, TX	63483	34467	2351	4724	7090	1278	2554	3842
148	Peoria, IL	62986	23176	1123	2271	3409	521	1045	1577
149	Salinas, CA	61168	27580	1498	2987	4513	700	1439	2148
150	Columbia, MO	60727	28920	1629	3239	4884	794	1589	2385
151	Green Bay, WI	59985	25182	1387	2755	4154	679	1352	2037
152	Vancouver, WA	59672	23630	912	1861	2785	353	686	1042
153	Abilene, TX	58637	33436	2202	4399	6629	1157	2300	3462
154	Aurora, IL	58591	24917	1226	2489	3752	570	1152	1733
155	New Haven, CT	58495	18781	792	1610	2452	299	697	1044
156	Naperville, IL	58399	19698	878	1813	2788	287	879	1264
157	Waco, TX	58173	28249	1718	3468	5194	893	1792	2700
158	Salem, OR	57988	26292	1140	2322	3484	486	962	1453
159	Davenport, IA	56764	23864	1306	2640	3961	645	1310	1958
160	Beaumont, TX	56752	24991	1497	2989	4505	788	1570	2370
161	Wilmington, NC	56505	25954	1587	3168	4786	819	1643	2472
162	Elizabeth, NJ	56214	19132	919	1875	2821	444	869	1323
163	Paterson, NJ	56105	20886	1035	2116	3175	493	979	1468
164	Columbia CDP, MD	55671	15317	845	1702	2543	420	848	1288
165	Warren, MI	54809	23586	1384	2777	4211	674	1408	2126
166	Roseville, CA	54773	18341	1017	2048	3058	493	1006	1495
167	Daly City, CA	54743	13870	668	1381	2081	302	653	982
168	Manchester, NH	54308	18737	937	2028	3111	454	981	1561
169	Billings, MT	54240	23530	1269	2531	3827	591	1206	1833
170	Allentown, PA	53363	21391	1066	2250	3360	528	1101	1658
171	Trenton, NJ	52631	14382	711	1477	2192	343	704	1040
172	Murfreesboro, TN	52471	24788	1464	2955	4439	761	1532	2297
173	Port St. Lucie, FL	51853	23921	1218	2435	3657	571	1151	1728
174	Wichita Falls, TX	51455	27193	1863	3729	5600	997	1991	2986
175	Odessa, TX	51339	21694	1202	2391	3600	580	1159	1752
176	Longview, TX	51073	24482	1429	2886	4333	744	1494	2248
177	West Palm Beach, FL	50365	22142	966	2208	3399	344	994	1592
178	College Station, TX	50253	26162	1710	3429	5150	913	1849	2763
179	Hillsboro, OR	50155	17455	696	1437	2173	250	579	860

Notes: Author's calculations from the 2014 ACS. All estimates account for existing federal, state and city minimum wages in place as of January 2014.

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Dr. Aaron Yelowitz is a professor in the Department of Economics at the University of Kentucky and the director of the Institute for the Study of Free Enterprise. He is also an adjunct scholar with the Cato Institute.

Dr. Yelowitz received his Ph.D. from MIT in 1994 and has previously worked at UCLA as an assistant professor. He has published articles in the Journal of Political Economy, Quarterly Journal of Economics, Journal of Health Economics, Journal of Public Economics, Journal of Human Resources, Economic Inquiry, Journal of Policy Analysis and Management, Southern Economic Journal, Contemporary Economic Policy, Real Estate Economics, Cityscape, Economics Letters, Applied Economics Letters, Economic Development Quarterly, Health Services Research, Health Economics, Empirical Economics, and Pediatric Neurology. He has taught graduate classes on public economics and health economics and undergraduate classes on labor economics, public economics, housing economics, and poverty and welfare programs.

MARK PERRY, AMERICAN ENTERPRISE INSTITUTE AND THE UNIVERSITY OF MICHIGAN-FLINT

Mark J. Perry is a Professor of Economics and Finance in the School of Management at the Flint campus of The University of Michigan, where he has taught undergraduate and graduate courses in economics and finance since 1996. Starting in the fall of 2009, Perry has also held a joint appointment as a scholar at The American Enterprise Institute in Washington, D.C., where he has been a regular contributor to the AEIdeas blog. Perry holds two graduate degrees in economics (M.A. and Ph.D.) from George Mason University and in addition, and has an MBA degree in finance from The University of Minnesota.

Dr. Perry's primary academic research is in the area of applied macroeconomics and financial economics and he has published numerous scholarly articles in economics and finance journals. Perry's opinion pieces have appeared in more than twenty newspapers in the state of Michigan and most major newspapers around the country, including the Wall Street Journal, the Washington Post, USA Today and Investor's Business Daily. Professor Perry has been best known in recent years as the creator and editor of one the nation's most popular economics blog, Carpe Diem.

DAVID NEUMARK, UNIVERSITY OF CALIFORNIA-IRVINE

David Neumark (PhD in Economics, Harvard University, 1987) is Distinguished Professor of Economics at the University of California, Irvine, where he directs the Economic Self-Sufficiency Policy Research Institute (ESSPRI), and is a Visiting Scholar at the Federal Reserve Bank of San Francisco.

Prior to joining the faculty at UCI, Neumark was an Economist at the Federal Reserve Board, an Assistant Professor at the University of Pennsylvania, a Professor at Michigan State University, and a Senior Fellow at the Public Policy Institute of California. He is also a Research Associate of the National Bureau of Economic Research, a Research Fellow at IZA, and a member of the CESifo network. Neumark co-edits the Journal of Urban Economics.

DAVID MACPHERSON, TRINITY UNIVERSITY

Prior to joining Trinity University, he held the Rod and Hope Brim Eminent Scholar Chair in Economics, and was Director of the Pepper Institute on Aging and Public Policy at Florida State University. Earlier, he served as an assistant and associate professor of economics at Miami University.

Economists since Adam Smith have argued that competitive forces should tend to equalize wages across similar workers in similar jobs. Macpherson's research has been concentrated on examining factors that cause deviations from wage equalization. In particular, he has focused on the role of trade unions, pensions, wage discrimination, industry deregulation, and the minimum wage.

Macpherson has written over 60 journal articles and book chapters. He is a co-author of the undergraduate textbooks *Economics: Private and Public Choice* and *Contemporary Labor Economics*. He also co-authored the book *Pensions and Productivity*. With Barry Hirsch, he provides union data to researchers and the public through the web site www.unionstats.com.

JAMES SHERK, FORMER RESEARCH FELLOW, HERITAGE FOUNDATION

James Sherk joined Heritage in 2006, and frequently testifies before committees of Congress on labor policy issues. Sherk has been a national leader in the movement to experiment with local right-to-work laws. His research on the topic helped spur many Kentucky counties to pass right-to-work using the home rule powers the state legislature delegated them.

Sherk's commentary and analysis have appeared in publications such as the *Wall Street Journal*, the *Washington Post*, *USA Today*, *Washington Times*, *Business Week* and *Roll Call*. CNN, Fox News Channel, CNBC and PBS are among TV news outlets to feature his analysis of pressing labor issues.

Sherk completed graduate studies at the University of Rochester, where he received a master of arts in economics with a concentration in econometrics and labor economics. He also holds a bachelor's degree in economics and mathematics from Hillsdale College in Hillsdale, Mich. Sherk resides with his beloved wife in northern Virginia.

WILLIAM EVEN, MIAMI UNIVERSITY

William Even is the Raymond E. Glos Professor of Business and a Professor of Economics in the Farmer School of Business at Miami University. He received his Ph.D. in economics from the University of Iowa in 1984. He is a research fellow with the Scripps Gerontology Center, the Employee Benefits Research Institute and the Institute for the Study of Labor. His recent research examines the effects of minimum wage laws, the Affordable Care Act, the effect of Greek affiliation on academic performance, and the relationship between skills and earnings among older workers. His research has been funded by several organizations including the U.S. Administration on Aging, the U.S. Department of Labor, and the Employment Policies Institute.

Even has published journal articles in a variety of outlets including the *Journal of Labor Economics*, the *Review of Economics and Statistics*, the *Journal of Human Resources*, *Economic Inquiry*, *Industrial and Labor Relations Review*, and *Industrial Relations*. His recent teaching experience includes courses in introductory microeconomics, labor economics, and undergraduate and graduate courses in econometrics.

ANDY PUZDER, FORMER CEO, CKE

Andrew F. Puzder is the former CEO of CKE Restaurants Holdings, Inc. ("CKE"), owner of the Hardee's and Carl's Jr.

AUTHOR BIOS

restaurant brands. He earned a Juris Doctorate in 1978 from Washington University School of Law in St. Louis, Mo., where he served as Senior Editor on the Law Review. While practicing law in St. Louis, Puzder authored legislation which The United States Supreme Court upheld in *Webster v. Reproductive Health Services* in 1989.

Faced with serious financial and operational issues, CKE's Board of Directors named Puzder as president and CEO in September of 2000. Puzder is credited with turning CKE around, allowing the company to survive, become financially secure and return to growth. He retired after 16 years as CEO in April 2017. Puzder's opinion pieces appear regularly in publications such as the *Wall Street Journal*, the *Washington Post*, and *Fox Opinion*. He is a frequent lecturer and TV commentator. He co-authored the book *Job Creation: How it Really Works and Why Government Doesn't Understand It* and authored *The Capitalist Comeback: The Trump Boom and the Left's Plot to Stop It*.

RICHARD BERMAN, CENTER FOR UNION FACTS

Richard "Rick" Berman is the Executive Director of the Center for Union Facts, a non-profit union watchdog, and President of Berman and Company, a Washington, DC-based public affairs firm specializing in research, communications, and creative advertising. Berman has founded several leading nonprofit organizations known for their fact-based research and their aggressive communications campaigns. Berman was previously employed as Executive Vice President of Public Affairs at the Pillsbury Restaurant Group, where he was responsible for the government relations programs of all restaurant operations. He was also a labor lawyer at the United States Chamber of Commerce, the Dana Corporation, and the Bethlehem Steel Corporation.

Rick has testified on numerous occasions before committees of the various state legislatures, the U.S. Senate and the U.S. House of Representatives. *The Hill*, a popular Washington, DC newspaper has named him a "Star Rainmaker" on Capitol Hill. Rick has appeared on all the major broadcast and cable television networks, and has organized national coalitions to address a wide variety of issues.

LLOYD CORDER, CORCOM, INC., CARNEGIE MELLON UNIVERSITY AND UNIVERSITY OF PITTSBURGH

Dr. Lloyd Corder holds adjunct professor positions and teaches a variety of marketing-related courses at the Tepper School of Business in Carnegie Mellon University and at the University of Pittsburgh.

He has completed over 2,000 full-scale marketing research projects with clients such as Alcoa, Bayer, Heinz, Highmark Blue Cross Blue Shield, LG, MSA, National Aviary, and UPMC among many others. His experience and knowledge provide him with comprehensive understanding of marketing research and allow him to develop strategies accordingly to improve businesses. Dr. Corder is an experienced researcher with a strong track record in designing and conducting image assessment, community perception, customer satisfaction, marketing, prospect, readership, new media communications and internal communications assessments.

JOSEPH SABIA, SAN DIEGO STATE UNIVERSITY AND UNIVERSITY OF NEW HAMPSHIRE

Joseph J. Sabia is Professor of Economics and Director of the Center for Health Economics & Policy Studies (CHEPS) at San Diego State University. He also is an Affiliate Faculty member at the University of New Hampshire and serves on the editorial board of *Contemporary Economic Policy*. Dr. Sabia is a labor and health economist whose research examines the economics of risky health behaviors, minimum wage policy, labor market discrimination against sexual minorities, and the effects of war on military families. His work has appeared in such journals as the *Review of Economics and Statistics*, the *Journal of Health Economics*, *Health Economics*, the *American Journal of Health Economics*, *Industrial and Labor Relations Review*, the *American Economic Review (Proceedings)*, and the *National Tax Journal*. Dr. Sabia's scholarship has been cited in the *Wall Street Journal*, *New York Times*, *Washington Post*, and *USA Today*.

His research has received funding support from variety of sources, including the National Institutes of Health, the Economic Self-Sufficiency Policy Research Institute (ESSPRI) at UC-Irvine, the Employment Policies Institute, and the Charles Koch Foundation. He received his PhD in Economics from Cornell University and is a faculty affiliate at the Cornell Institute on Health Economics, Health Behaviors and Disparities.

MICHAEL SALTSMAN, EMPLOYMENT POLICIES INSTITUTE

Michael Saltsman serves as Managing Director for the Employment Policies Institute. Michael is a regular contributor to Forbes and has been published in The Wall Street Journal, USA Today, The New York Post, and The Washington Post. He is a frequent guest on national television programs. Michael was recognized by the American Association of Political Consultants as a member of the class of 2018's "Top 40 under 40."

Prior to the Employment Policies Institute, Michael was employed by the Bureau of Labor Statistics. He lives in Washington, DC with his family and has degrees in Economics and Political Science from the University of Michigan.

LIAM SIGAUD, MAINE HERITAGE POLICY CENTER

Liam Sigaud is an adjunct economic analyst for the American Consumer Institute. Previously, he led policy research at the Maine Heritage Policy Center and worked on economic policy in Maine state government. Liam earned his bachelor's degree from the University of Maine at Augusta and holds a graduate certificate in Policy Analysis from the University of Southern Maine.

