CWED

Center on Wage and Employment Dynamics

What are the Likely Effects of a $15 Federal Minimum Wage by 2024?

By Michael Reich, Ph.D.*

Contents

1. INTRODUCTION AND PREVIEW OF FINDINGS

Thank you, Committee Chair Scott, Ranking Member Foxx and other Members of the Committee, for the opportunity to testify today about HR582, The Raise the Wage Act of 2019. I have conducted research on low-wage labor markets since I was a Harvard Ph.D. in the late 1960s. During the past decade I have published numerous studies of living and minimum wages.

HR 582 proposes to increase the federal minimum wage in six steps, from its current $7.25 level to $15 by 2024. It would gradually eliminate, by 2027, the subminimum wage for tipped workers, which has stood at $2.13 since 1991, and it would eliminate as well as the subminimum wages for youth and for workers with disabilities. The Act also calls for the federal minimum wage to be indexed annually after 2024 by the percentage increase of each year's BLS-calculated median hourly wage.

My testimony today primarily concerns the likely effects of HR582 on the number of jobs, especially in low-wage states. I also briefly touch on whether the federal floor should vary with regional living costs and subminimum wages for tipped workers and youth. Finally, I review the important downstream positive effects of minimum wages on children and on adult physical and mental health, and how these benefits would in turn increase employment and economic growth.

My testimony does not consider the likely effects of minimum wages that would be well above the $15 level set out in HR 582. These may differ, of course.

Other witnesses have discussed the percent of workers who will get increases and the effects of these increases on higher living standards for workers and their families. I will note only that these increases will be larger among women and various racial-ethnic groups. I also note that a $15 per hour minimum wage would reduce poverty rates significantly (Dube 2018), especially in low-wage, high-poverty states. Nonetheless, our poverty measures do not adequately account for the growing costs of childcare. A $15 wage does not suffice to permit households with young children to afford organized child care for children under six—in any county in the U.S.

Much minimum wage discussion, including my own today, focuses on the effects on the number of *jobs.* I will argue that a $15 minimum wage will have at worst a minimal negative effect on the number of jobs. However, it is important to clarify at the outset that more pessimistic scenarios, such as a loss of say, X jobs or Y hours of work per job, do *not* imply that X or Y *workers* will never again hold jobs. Failure to make this distinction has led to considerable confusion.

Low-wage labor markets are characterized by high rates of worker turnover, with relatively short unemployment spells between jobs. A hypothetical reduction in the number of jobs will most likely slightly increase the duration of unemployment spells between jobs. As a result, some workers will end up working fewer hours per year. But even pessimistic minimum wage studies all suggest that the positive effects on hourly pay greatly exceed any earnings losses that would occur because of a reduced number of jobs or reduced number of hours per job. Putting these points together, pessimistic scenarios may imply fewer hours of week per year for some workers, but higher *annual* earnings among these workers.

Preview of my remarks In contrast to much commentary, I will argue today that a phased minimum wage to $15 by 2024 does lie within the range of our previous experience. Economists have conducted literally hundreds of studies based on over 160 minimum wage changes in the past thirty-five years. The best of these studies do provide a credible guide to the likely employment effects of a $15 floor. They indicate that the Act will have minimal to no adverse effects on employment and that they will have substantial positive dynamic effects on the lowest-wage areas of the U.S.[1]

Why would minimum wage increases up to $15 have minimal negative effects? The answer requires examining empirically which industries will experience the greatest cost increases, how much they will raise their prices to absorb the increase, and the responses of consumers to those price increases. The answer also involves the extent to which workers receiving pay increases will want to increase their working hours and increase their spending on consumer goods. Automation is much less of a factor, because so much automation is happening anyway, as the costs of technology have fallen so much in recent decades.

Minimum wage effects are concentrated in a small number of industries, most notably restaurants and retail, but also farming, janitorial services, security guards, home health care and residential and nursing care homes for the elderly and childcare. Minimum wage costs are mainly absorbed through slightly higher prices in these industries, by increased spending by low-income households and-- for eldercare and child care-- by increased public funding, most of it federal.

A $15 minimum wages will increase costs for the lowest-paying manufacturing industries, such as apparel and wood furniture. Since the latitude to increase prices is more limited in these industries, some jobs may move elsewhere. The amount of relocation will be limited by the transportation costs of moving durable finished goods from more distant locations. My analysis of recent manufacturing job trends indicates that these effects will be modest, even in such a low-wage state as Mississippi, in large part because the number of remaining low-wage manufacturing jobs in these states is quite small.

On the plus side, a $15 minimum wage will generate a substantial economic stimulus because of the increased purchasing power for consumption. These effects, which will be greatest in the lowest-wage states, will offset employment loss among low-wage manufacturing industries. The lowest-wage states will also experience lower outmigration and hence become more attractive locations for investment. Workers in these states will also be healthier, more able to enter the workforce and to be more productive workers.

The greater positive effects for the lowest-wage states suggest the advantages of retaining a single national floor. Regional minimum wage differentials would have the disadvantage of locking in current inequality between higher and lower-wage areas. Subminimum wages do not accomplish their goals of increasing employment.

Minimum wage increases have substantial beneficial downstream effects on children and adults. They reduce child neglect and poverty and improve child educational outcomes. They also reduce adult smoking rates, absenteeism from work for health reasons and obesity. For example, a ten percent

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[1] For recent reviews of this literature, see Arindrajit Dube's 2013 testimony to this Committee and the recent volume by Belman and Wolfson (2014).

increase in the minimum wage would lead to 770 fewer suicides per year. These important downstream effects suggest that minimum wage policy should be evaluated, as are most other programs, on criteria that are broader than their effects on employment and government budgets. Moreover, a healthier population is also a more economically active and productive population. Health benefits can therefore translate over time in further positive effects of minimum wages.

2. $15 BY 2024 LIES WITHIN THE RANGE OF PREVIOUS INCREASES

Assuming that current inflation rates continue, $15 per hour federal minimum wage in 2024 is the equivalent of about $13.33 in 2019 dollars. HR 582 would thus raise the federal minimum wage beyond its previous peak, reached in the late 1960s, of about $11.50, when expressed in 2019 dollars (Figure 1).

The early adopters of a $15 minimum wage policy—Seattle in 2014 and Los Angeles in 2015—were told they were engaging in a bold experiment, that they were moving into uncharted territory. Some observers made the same characterization of HR 582's 2016 predecessor. In 2019, however, we have the early results from many recent minimum wage experiments. The examples now include states that have reached $12 per hour and cities that have already reached $15 per hour. The examples also include percentage increases that are comparable to or exceed those in HR 582.

A $15 standard by 2024 would not place us in uncharted territory. The actual increases in *real* wages that would result from this bill are much smaller and lie within our historical experience. We do therefore have a road map, laid out by the findings of the best minimum wage research by economists, of the likely effects of $15 on employment levels. Moreover, improvements in our research methods and data provide a more reliable road map than economists could provide in 2016.

The size of the increases $15 in 2024 from now does not equal $15 in today's dollars. The Congressional Budget Office's January 2019 ten-year forecast estimates that the Consumer Price Index will increase at about 2.5 percent per year over the period from 2019 to 2024.[2] $15 in 2024 is thus equivalent to about $13.33 in 2019 dollars. In real terms, the bill would thus increase the federal minimum wage by $6.08 over its current level of $7.25. This inflation-adjusted increase in levels amounts to an 83.9 percent real increase over six years, which translates into annual increases of about 13.9 percent per year, compounded over the six years.

These are substantial, but not unprecedented, increases. In 1950 the federal minimum wage increased by 87.5 percent in a single year, from the equivalent of about $4.10 in 2019 dollars to just above $7.50. The 1966 amendments to the Fair Labor Standards Act raised wages by 35 percent (over the extant average wage) in the newly-covered industries (Derenencourt and Montialoux 2018), with an additional increase as the federal minimum wage rose 28 percent by 1968. The minimum wage in San Jose, CA increased 25 percent in 2013 and stands at $15 today. Most important, the federal increases that were last enacted in 2007 raised the minimum wage by 41 percent over three years; the average

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[2] https://www.cbo.gov/about/products/budget-economic-data#4

annual increase was just under 14 percent, similar to the 13.9 percent increase we are discussing today.

Moreover, HR 582 will have a smaller effect in the states that have already raised their minimum wages. Figure 2 provides a map of 2019 minimum wages in all fifty states. The Act will not generate any pay increases in California, the District of Columbia, Massachusetts, New Jersey and New York (downstate), all of which have already enacted laws to increase their minimum wages to $15. Small increases would occur in the fifteen states that are already scheduled to increase their minimum wages to between $10 and $15. Somewhat larger increases will occur in the states that are currently scheduled to have minimum wage increases above $7.25 but below $10 by 2024.[3]

The increases in low-wage states The greatest increases will occur among the slightly under 40 percent of the U.S. population who resided in 2018 in the twenty-one states with a $7.25 floor (Congressional Research Service 2019). However, even in these states the mandated increases will not be as large as the actual increases. The $7.25 floor is not as binding in these states as it was in 2009. Actual entry-level wages for unskilled jobs in these states have been increasing in recent years; they are now about $9 or more, depending on the state.

Consider the case of Mississippi, which has one of the lowest wage levels of any state. Table 1 shows the most recent Bureau of Labor Statistics hourly wage data for the nine largest (measured by employment) lowest-wage occupations in Mississippi. Median hourly pay in these occupations in the three years up to May 2017 averaged $9.19. Entry-level (25th percentile) pay in the same occupations averaged $8.34. Since nominal wages have been rising at about 2.5 percent per year, 2019 entry-level wages in these occupations are already about around $9.

If $9 is the current entry-level wage in Mississippi, an increase to $13.33 (which is $15 in 2019 dollars) amounts to a 48.1 percent increase over five years, or about 9.6 percent per year. By comparison, most state minimum wage increases in the past thirty-five years have ranged between 6 and 10 percent.

Some wage increases would occur even without the policy Equally important, we need to recognize that nominal wage increases have begun to accelerate and would continue even if the minimum wage itself is not increased. *The Economist* recently forecast that nominal wages will grow by 3 percent in 2019; the Economic Policy Institute finds that nominal wages grew by 2.85 percent in 2018 and above 3 percent in the past quarter.[4] Moreover, recent wage increases in the bottom quartile of the wage distribution have exceeded wage growth at higher percentiles. Indeed, nominal wages increased 3.4 last year percent among non-managerial workers.

Absent the policy, and assuming that nominal wage growth continues at 3.4 percent, entry-level wages could therefore grow by 20 percent over current levels by 2024. This increase translates to an entry-

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[3] Additional states are likely to enact higher minimum wages by 2024. I do not take these into account here.

[4] https://www.epi.org/blog/the-fed-shouldnt-give-up-on-restoring-labors-share-of-income-and-measure-it-correctly/
http://country.eiu.com/article.aspx?articleid=1347272918&Country=United%20States&topic=Economy

level wage in Mississippi of $10.80 in 2024 dollars.[5] Comparing this projected $10.80 entry-level wage in 2024 to the $15 policy level, we obtain a policy-related increase of 38.9 percent, or 6.5 percent per year.

The above calculation is for the lowest-wage state. Entry-level wages are higher in many of the other states that have $7.25 minimum wages. In Georgia and Pennsylvania, according to the Occupational Employment Survey, entry-level wages are $1 to $2 higher than in Mississippi. The average percent increase from current entry-level wages among all the $7.25 states would therefore be somewhat lower.[6]

Let me summarize. The likely real wage increases attributable to HR 582 lie within the range of current local and state levels and previous state and federal increases. We therefore can draw from those experiences to examine the effects on employment.

3. EMPLOYMENT EFFECTS: WHAT DO THE STUDIES TELL US?

With over 160 federal, state and local minimum wage increases in the U.S. in the past thirty-five years, economists have a considerable number of events to study the impact of this policy. This section first provides a brief review of how economists conceptualize the mechanisms through which minimum wages may affect employment. I then review the recent empirical literature on the subject—on teens, on restaurant workers, and most importantly, on all minimum wage workers.

Economic theory is ambiguous Modern economic theory recognizes that employers and worker adjust to economy-wide minimum wage increases in ways that can both reduce and increase the demand for less-skilled workers. The potential negative employment effects come from automation, reductions in operating hours, reductions in sales if companies raise prices, reductions in benefits (such as health insurance), substitution of skilled workers for unskilled workers and relocation of economic activity to other areas. The potential positive effects include increases in the labor supplied by workers, savings

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[5] Table 2 shows how industry-level weekly wages have changed in Mississippi between 2014 and 2017.

[6] Economists often use other metrics besides the percentage increase in the minimum wage to contextualize the effects of a given minimum wage level on business costs. These measures include the proportion of workers who would receive a pay increase and the ratio of the minimum wage to the full-time median wage. However, these metrics are just mechanical rules-of thumb, historical indicators. They do not directly inform how the economy today would adjust to minimum wage increases. First, a greater proportion of our economy today consists of goods and services that have to be produced in the same area that they are consumed—economists call these nontradeables. The room for minimum wage adjustments in nontradeables depends upon how much prices would increases and how consumers respond to higher prices. As a result of growing inequality, a larger number of more affluent consumers are more able and willing to pay higher prices for nontradeables than was the case in the past. Second, many of the low-wage tradeable industries have already left the U.S. for lower-cost areas. As I argue below, the remaining low-wage producers of tradeables constitute a small proportion of jobs, even in low-wage states. The pressure on their average costs, and therefore on their likelihood of departure, depends on the current level and distribution of wages in their industry, not on the number of their employees or on local median wage levels.

for employers in labor recruitment and retention costs because of reduced employee turnover, productivity gains that make hiring workers more desirable, and increased demand for goods and services from low-wage workers, who have higher income increases and higher propensities to consume than do more affluent individuals. (See Reich et al. 2017 for a more detailed discussion.)

Some, but not all, of these individual mechanisms have been examined in empirical studies. For example, Aaronson and Phelan (2015) study the effects on the use of technology; they find that minimum wages accelerated a decline in highy routinizable low-paid jobs (such as cashiers) and a similar increase in the number of less routinizable low-paid jobs (such food prep workers). Allegretto and Reich (2018) find a small increase in restaurant prices after a 25 percent minimum wage increase in San Jose. Cooper et al. (2017) find that state-level minimum wage increases have modest positive effects on restaurant prices and sales, as well as on local consumer spending growth. Cengiz (2018) finds that minimum wage increases do not lead to reductions in health insurance benefits. These studies illuminate the magnitudes of individual adjustment mechanisms, but they do not themselves provide estimates of how the mechanisms interact to generate overall effects. I return to this point below.

As this brief discussion highlights, minimum wages can have positive or negative net effects on employment. Economic theorizing is insufficient by itself to identify the likely net employment effects. For this very reason, economists have spent considerable effort on empirical studies on this question. We turn next to these studies.

Empirical research on teens and restaurant workers The effect of minimum wages on employment constitutes one of the most studied questions in all of empirical economics. Great strides have been made, partly through improved statistical methods and partly from greater access to administrative microdata. As a result, the effects of minimum wages are clearer than they were in previous decades.[7]

Earlier empirical studies focused on two groups of workers with very low wage levels: teens and restaurant workers. This strategy made sense-- employment effects are likely to be smaller to nonexistent for groups that experience smaller or no increases in their pay as a result of minimum wage increases. The early teen studies often found that a 10 percent increase in the minimum wage reduced teen employment by one to three percent (Neumark and Wascher 2008).

However, teen employment has been falling for at least three decades, and unevenly so in different states. The challenge for minimum wage studies involves isolating the effects of the policy from the confounding effects of declines in teen employment that are attributable to other causes. For example, states that raised their minimum wages were more likely to emphasize educational policies that result in teens continuing their schooling longer, which reduced the number of available teen workers.

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[7] Nonetheless, the literature is not unanimous. Consider, for example, the exchange between Neumark, Salas and Wascher 2014 and Allegretto, Dube, Reich and Zipperer 2017.

Careful studies that credibly take such confounding forces into account find that a ten percent minimum wage increase reduces teen employment by a much smaller amount, between 0.5 percent and zero (Allegretto, Dube and Reich 2011; Allegretto, Dube, Reich and Zipperer 2017).

Economists have also attempted to estimate the effects of minimum wages on low-paid adult workers. One such group of studies looks at restaurant workers, many of whom are also exposed to minimum wage increases. Remarkably, given previous controversies among minimum wage scholars, studies of restaurant workers have arrived at a consensus: A ten percent increase in the minimum wage affects restaurant employment somewhere between - 0.5 percent and zero (Dube, Lester and Reich 2010; Allegretto et al. 2017; Cengiz, Dube, Lindner and Zipperer 2019).

Although recent studies have not been unanimous (a rare event in economics), the most credible teen and restaurant worker studies have visibly shifted the views of the economics profession. In 2013, a panel of 41 prominent economists organized by the University of Chicago's Booth School of Business was asked about the desirability of raising the minimum wage to $9 an hour, as proposed by President Obama.[8] Only one-third of the panel agreed that the minimum wage hike "would make it noticeably harder for low-skilled workers to find employment." The panel supported the Obama proposal by a 3 to 1 margin. In 2015, the panel was asked the same question, but for a $15 an hour federal minimum wage. Only 26 percent of the panel agreed with the proposition about job loss.

Empirical studies of all low-wage jobs and workers The teen and restaurant worker studies together account for about 90 percent of all minimum wage studies. However, these studies leave an incomplete picture, as these two groups of workers together account for only about half of all the workers exposed to minimum wages. In the past few years, two advances have allowed empirical economists to overcome this limitation.

The first advance is methodological—the development of a "bunching" estimator that allows examination of the net change in the number of *all* jobs that are just below and just above the minimum wage (Cengiz, Dube, Lindner and Zipperer 2019). Using this method, Cengiz et al. find that federal and state minimum wage changes over the period 1992 to 2016 did not reduce employment, either overall or among specific groups of less-educated workers.

Cengiz et al. are also able to assess methodological issues in two oft-cited studies of all workers that do obtain negative employment effects: Clemens and Wither 2014, and Meer and West 2016. These issues include whether the highest minimum wage policies have more negative employment effects than more modest increases, whether previous studies adequately control for changes in business cycle conditions, and whether previous studies spuriously find negative employment effects where they should not, such as among professional and other highly-paid workers. Cengiz et al. find that both the Clemens and Wither and the Meer and West studies do not pass these basic methodological checks.

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[8] http://www.igmchicago.org/surveys/minimum-wage

Cengiz et al. do find negative employment effects among one group of low-wage jobs—those that are located in tradeable industries. As I mentioned above, tradeables are goods and services that can be produced in a different locations from where they are consumed. Tradeables account for 13.4 percent of the jobs in their sample. The employment effect is small—a ten percent increase in the minimum wage generates a 0.5 percent loss in such jobs—and it is balanced by an increase of the same magnitude in all other jobs.

The Cengiz et al. paper has already proven very influential. David Autor of MIT and Co-Director of Labor Studies at the National Bureau of Economic Research, has called this study the most important minimum wage paper since Card and Krueger's in the 1990s.[9]

The second and also very recent important advance in the minimum wage literature involves the new availability, at least for Census Bureau researchers, of data obtained from income tax filings that are then linked to Current Population Surveys. These data permit much greater statistical precision because the number of tax filings is so much larger than the sample size of the CPS. Studies by Census Bureau economists using this newly-available data do not find negative employment effects, even five and ten years after a minimum wage increase (Rinz and Voorheis 2018; Toddy and Zipperer 2018).

Studies of citywide minimum wage studies The highest minimum wage levels in the U.S. today are found at the city level. San Francisco was the first city to implement a citywide minimum wages—at $8.50 in 2004 and currently at $15. Dube, Naidu and Reich (2007) studied the San Francisco policy effects through a survey of affected and non-affected restaurants in San Francisco and the East Bay. They found no employment decreases. Dube, Naidu and Reich (2014) updated the San Francisco study, also with similar results.

A new wave of citywide minimum wage policies began to be enacted in 2014, with Los Angeles, San Francisco and Seattle leading the way among large cities, and Oakland, San Jose and many other cities following shortly thereafter. By the end of 2016, minimum wage levels in Oakland, San Francisco, Seattle and San Jose had reached $13. These levels are higher in 2019 dollars than the minimum wage levels in HR 582.

Two studies of the Seattle minimum wage appeared in June of 2017. In a food services industry study, Reich, Allegretto and Godoey (2017) found that minimum wages raised pay and did not adversely affect employment. To isolate the causal effect of the policy, Reich et al. compared Seattle's experience to a "synthetic" control group drawn from urban metro areas across the U.S. In contrast, Jardim et al. (2017) found that reduced hours and employment left Seattle workers worse off after the minimum wage increased from $12 to $13. Jardim et al. also drew upon a synthetic control, but theirs was drawn exclusively from other urban areas in Washington State. However, Seattle experienced an economic boom—related to the expansion of Amazon—at the same time that the minimum wage was

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[9] Another important study --Cengiz (2018) -- uses Machine Learning methods to identify about 75 percent of all minimum wage workers. This innovative approach also finds no effect of minimum wages on employment.

implemented. Other areas of Washington did not experience a boom in those years, undermining the validity of using those areas as a control group.

Jardim et al. were thus criticized for not having an adequate control for business cycle conditions (Schmitt and Zipperer 2017). The boom-related wage growth in Seattle was well above wage growth in the rest of Washington. Thus Jardim et al.'s data contained fewer low-wage jobs, but because of the boom, not because of the minimum wage policy. Jardim et al. revised their study in 2018, with estimates that were about half the size of their previous numbers, but they did not expand their control group, continuing to leave open the credibility of their finding. A second study by Jardim et al. (2018), using longitudinal data and the same control groups, found positive effects overall, but again did not address the issue of how to control for the economic boom in Seattle that did not occur in the rest of the state.[10]

Finally, Allegretto et al. 2018 and Nadler et al. (2019) expanded their previous work to examine high minimum wages in the six large cities that were early adopters: Chicago, District of Columbia, Oakland, San Francisco, San Jose and Seattle. Using a variety of state-of-the-art statistical methods and checks, and again with control groups from around the entire U.S., they found that pay increased in food services, that employment did not change, and that there was no evidence that employers switched their hiring to more-educated workers.[11]

Summary To summarize, our most credible evidence comes from studies that carefully check that their treatment and control groups exhibited similar trends prior to the minimum wage policy treatment, that their effects on pay line up with the size of the mandated increases, and that the methods do not find results where they should not—such as among the college-educated or in high-paying industries. The studies that meet these criteria do unanimously find no negative employment effects.[12]

The Cengiz et al. paper constitutes our most definitive study of past minimum wage increases. As I discussed above, the increases they study are not so different from those that would occur with a federal $15 minimum wage by 2024. Allegretto et al. (2018) and Nadler et al. (2019), study minimum wages that are already as high in real dollars or exceed $15 in 2024. They also find that they do not cause adverse employment effects. The weight of the evidence in careful empirical minimum wage studies increasingly has tilted toward finding small to zero negative employment effects of citywide, state and federal minimum wages. This conclusion has been reinforced by the results in the newer studies that used improved methods and data. These newer studies supersede the older ones.

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[10] The Jardim et al. data also did not include most of the multi-location employers in the state, also limiting the validity of their study.

[11] Nadler et al. (2019) further examined a claim made by Jardim et al. 2018--that using industry-based averages from Quarterly Census of Employment and Wages data attenuated employment effects that would be detected in individual-based data. Their evidence refutes the attenuation argument.

[12] Appendix A discusses these issues in more detail

4. WHY DO MINIMUM WAGE INCREASES HAVE SUCH SMALL EFFECTS ON EMPLOYMENT?

Why have past minimum wages had such small effects? The answer lies in the multiple channels through workers and employers adjust to minimum wages increases. Here is a list that includes only mechanisms that have been demonstrated by empirical research. It is nonetheless quite long. They include reductions in employer rents (i.e. above competitive levels of profits), automation and staff reductions, price adjustments in nontradeable sectors and stimulus effects from increased purchasing power of low-wage workers. These adjustment mechanisms interact with one another. In research conducted in 2017, Reich, Allegretto and Montialoux (2019) examined these mechanisms and their interactions for an earlier but similar version of HR 582. They quantify the individual and overall effects using the best research available and integrate them into a simulation model. Their bottom-line results for employment effects in the U.S. and in Mississippi are consistent with the findings of the econometric studies in the previous section.

Employer wage-setting power Low-wage workers are concentrated in a small number of industries: food service and retail lead this list. Inter-industry wage studies show that wages are lower in these industries than would be predicted for workers with comparable levels of schooling and experience (Nadler et al. 2018). This result suggests that employers or consumers are collecting above-competitive market economic rents. A higher minimum wage can help compete away such rents without adverse effects on employment.

Modern search and matching models of the labor market recognize that employers can choose between two equally profitable strategies: a low-wage/high-turnover human resource management model or a high-wage/low-turnover model. In the low-wage industries, many employers, but not all, opt for the first model. Higher minimum wages can then move these employers closer to the high-wage model. Employers then save on vacancy, recruitment and retention costs and have greater incentives to provide training to their workers. These adjustment mechanisms reduce negative effects on their demand for workers (Manning 2003). Dube, Lester and Reich (2016) find that minimum wage increases do indeed reduce turnover.

A recent study by John Abowd et al. (2012) demonstrates the substantial room for wage growth in low-wage industries in the U.S. Using longitudinal linked employer-employee data available only to some researchers, Abowd et al. can disentangle wage differentials among industries that are attributable to individual heterogeneity (such as the demographic, educational, and work experience characteristics of workers in the industry), which they label person effects, from the characteristics of the product market and bargaining power of firms in the industry, which they label industry effects.

Abowd et al. can observe wage changes when individual workers move from one employer to another. They find very strong industry average firm effects, particularly for industries that have high average

pay and low average pay. Among restaurants, for example, they find that 70 percent of the relatively low wages in the industry are attributable to firm effects, and only 30 percent to person effects. Their findings suggest that a change in an industry's environment can have large effects on worker pay.

Employers also possess wage-setting power by deploying non-compete agreements that suppress wages. Recent research shows that such agreements are widespread in low-wage sectors (Ashenfelter and Krueger 2018).

Automation and staff and hours reductions Automation has already occurred rapidly where technological possibilities permit. Additional automation may occur in manufacturing, but the minimum wage effects will be small because labor costs increases are far outweighed by reductions in technology costs. Employer survey and behavior shows that firms would prefer to raise prices over reducing capacity-- by reducing staff and operating hours.

Price adjustments Price adjustments provide the principal adjustment mechanism for minimum wage increases: higher labor costs are passed through to consumers, mainly for food consumed away from home. Such an increase does not deter restaurant customers. Price increases are also detectable for grocery stores (Leung 2018; Renkin, Montialoux and Siegenthaler 2019), but not more generally. The effect on inflation is therefore extremely small.

Daniel Cooper and Maria Luengo-Prada, research economists at the Federal Reserve Bank of Boston, and Jonathan Parker of MIT provides the most careful study of the price effects of minimum wages. Using detailed data for 27 metro areas, (Cooper et al. 2017) credibly show that restaurants absorb the costs of higher minimum wages entirely by slightly higher restaurant prices. A ten percent increase in the minimum wage increase costs and restaurant prices about 0.5 percent. This result is consistent with the Allegretto and Reich (2018) case study of an overnight minimum wage increase of 25 percent San Jose in March 2013. The price effects alone can explain why there are no negative employment effects in non-tradeables.[13]

Stimulus and dynamic effects Cooper, Luengo-Prada and Parker (2017) also find a modest positive stimulus effect. Low-wage workers purchase more food away from home and more cars. In other words, low-wage workers spend their increased incomes locally, stimulating the local economy modestly.

Since wage increases are greater in low-wage states, the stimulus is also greater. Reich et al. 2019 quantify how much the stimulus effect increases with higher minimum wage increases, taking into account how consumption propensities vary by household income. They find that stimulus effects will be stronger in the low-wage states.

Labor supply effects An emerging literature finds that minimum wages *increase* labor supply and employment among vulnerable groups—single low-educated parents (Godoey, Reich and Allegretto

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[13] We discuss the effects on tradeables in Section 5.

2018), older workers (Borgschulte and Cho forthcoming), and among the formerly incarcerated (Agan and Makowsky (2018)..

Godoey, Reich and Allegretto estimate positive employment effects for low-educated parents of young children. They find significant positive effects for single mothers, similar to positive labor supply effects found for the Earned Income Tax Credit. They also find positive effects for fathers. In a recent paper studying elderly workers, Borschulte and Cho (forthcoming) find positive effects on earnings, suggesting small positive labor supply response for individuals who are near retirement age. Agan and Makowsky show that higher minimum wages lead released prisoners to obtain employment rather than to engage in criminal activity.

These positive supply-side effects provide a relatively new explanation of why minimum wages can have such small employment effects: Negative demand and positive supply effects cancel out each other.

Outmigration from low-wage states Migration from the low-wage states is a long-standing problem in low-wage states such as Mississippi (ALME 2018). Out-migrants are disproportionately younger and better-educated than those who remain. Higher minimum wages will reduce outmigration, which means better quality workers for Mississippi's employers and consumers. A higher quality workforce also means more incentives for investors to locate new plants in states that have been locked into a low-wage/low education labor market equilibrium.

5. WILL A $15 MINIMUM WAGE MAKE LOW-WAGE STATES UNCOMPETITIVE?

A key issue often raised about minimum wages concerns whether they could make businesses uncompetitive. Some states may have not raised their minimum wages because of fears that they are vulnerable to becoming uncompetitive. I discuss this issue here in the context of Mississippi.

Tradeables Industries with jobs that are likely to leave when wages rise are often characterized by economists as tradeables. The underlying idea is that prices in the tradeables are determined at the level of international markets, while nontradeables are produced for local consumption, and at prices that can vary by location. As we have seen above, minimum wage increases to $15 for nontradeables are mainly absorbed by the local population through price increases. But cost increases in tradeables may force companies with less room to increase their prices to exit the industry or relocate in a lower-cost area. I take up this question here by examining the exposure of Mississippi's low wage jobs to relocation.

Table 2 shows that manufacturing accounted for about 140,000 jobs, or nearly 14 percent of private sector employment in 2017. This proportion is very similar to the size of the tradeables sector in the U.S. as a whole over the period 1992-2016 (Cengiz et al. 2019). Recall that Cengiz et al. did find a small negative employment effect among tradeables.

Manufacturing employment in the U.S., and in Mississippi, continued their long decline in the years prior to and during the Great Recession. Most of this decline occurred in low-wage manufacturing industries. Manufacturing employment has remained relatively stable during the long recovery from the Great Recession, while manufacturing wages have been increasing. These trends suggest that the remaining manufacturing jobs are concentrated in higher-paying industries. In the Southern states as a whole, textiles and apparel no longer ranks as the largest manufacturing industries; they have been replaced by advanced manufacturing plants.[14]

The question mark for Mississippi employment is greatest for its remaining low-wage tradeables. Figure 3 shows that manufacturing jobs have been declining in Mississippi, while tourism-related industries, such as restaurants have been growing (see also Miller 2018). As Table 2 also shows, the weekly wage in manufacturing averaged $927 in 2017, well above the reach of a $15 minimum wage. A substantial portion of manufacturing in Mississippi consists of (transportation equipment. Seven Southern states, including Mississippi, now are home to fourteen motor vehicle assembly plants. Aircraft assembly plants for Airbus and Boeing are also located in these states. These jobs already pay well above $15 per hour and are highly automated.

About 40,000 Mississippi manufacturing jobs are located in two lower-wage industries: wood furniture and food processing. However, pay in both of these industries ($610 in food manufacturing and $661 in wood furniture) averages substantially above that in non-tradeable services. Pay in these two industries has grown steadily in recent decades. These considerations further suggest only a minor effect of minimum wages on employment in these industries.

6. SHOULD THE FEDERAL MINIMUM WAGE FLOOR VARY WITH REGIONAL LIVING COSTS?

Some observers suggest that minimum wage policy should not maintain a single federal standard.[15] Such recommendations usually reflect concerns from employers and policy makers in lower-wage areas. They can also reflect a concern about fairness among workers: Why should workers in low living cost areas have a higher real minimum wage than workers in high living cost areas? We take up this issue briefly here.

There is surprisingly little recent research on the advantages and disadvantages of regional wage standards. Congress discussed including a Southern differential in the debates leading up to the Fair Labor Standards Act of 1938. In 1938, wage and living cost differentials between the South and the

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[14]Quarterly Census of Employment and Wages; Rafter 2012.

[15] A single federal standard is the norm for tax and transfer payments. Income and payroll tax rates, including the Earned Income Tax Credit do not vary with local living costs. States can and do add their state taxes. Public benefits form a more mixed picture. Social Security, Medicaid and food stamp benefits are uniform across the U.S., while child care, TANF and housing subsidy levels are set by the states.

non-South were much greater than they are today. But in the end, Congress decided to establish a single national minimum wage floor.[16]

By establishing a single national floor at a time of other major economic transformations, Congress set in motion a series of substantial positive economic changes in the South (Wright 1997). In particular, the isolated economies of the rural South became more linked to the national economy. The South prospered in succeeding decades, and the southern regional wage differential became much smaller. A similar development occurred as a result of the civil rights revolution and the associated extension of Fair Labor Standard Act coverage to more of the South's industries (Wright 2005, 2015; Derenencourt and Montialoux 2018).

Congress did authorize states to set higher floors. States began to do so in the 1980s and with increasing frequency, especially as Congressional inaction has allowed the real value of the minimum wage to decline over time. The patchwork of state minimum wages today allows states to adjust their minimum wages to reflect living cost differences among the states.[17]

The key disadvantage of regionalizing the federal floor concerns the potential dynamic effects that high minimum wages can exert on low-wage areas. Minimum wage policy cannot by itself transform a stagnating economic region into a dynamic one. But it can contribute to such a transformation.

7. SHOULD WE KEEP SUBMINIMUM WAGES FOR TIPPED WORKERS AND YOUTH?

Tipped workers The minimum wage for tipped workers has remained at $2.13 since 1991. Numerous states set a higher subminimum; seven states set the tipped worker minimum as the same as for other workers. Tips are approximately the same percentage in non-tip credit states as in the $2.13 states, suggesting that most consumers leave tips as a gratuity for customer service. They are not aware that their tips help pay the employee's minimum wage, in many cases benefiting owners more than the workers. Tipping is substantially a U.S. practice, not common in other industrialized countries.

Allegretto and Nadler (2015) used the variation among the states in the size of the "tip credit" to analyze the effects of the policy. They found that lower subminimum wages left more restaurant servers, many of them female and of color, in poverty. They did not find any positive effects on restaurant employment. These results suggest that the restaurant industry could adjust to the elimination of the subminimum wage for tipped workers.

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[16] Congress also exempted major economic sectors from minimum wage protection, diminishing its effects, especially in the Southern states. Most of these exclusions were reversed in subsequent amendments to the FLSA.

[17] State minimum wage variation also reflects other economic and political factors that are beyond our scope here.

Youth subminimum wages The subminimum wage for youth is generally understood to be a training wage—reflecting the lack of experience of teen workers--and also an incentive to provide additional jobs for teens. The subminimum creates perverse incentives to substitute teens from non-poor families for incumbent adult workers who might be supporting a household. Moreover, the labor supply of teens might be greater without a subminimum wage, contrary to the intention to encourage teen employment (Giuliano 2013). In any case, employer take-up of the youth minimum wage is extremely low (Card and Krueger (1995), perhaps because of administrative complexities of compliance.

These considerations suggest that the federal youth subminimum wage is not accomplishing its intended purpose.

8. IMPORTANT DOWNSTREAM EFFECTS ON HEALTH, EDUCATION AND PARENTING

The effects of minimum wages on "downstream" outcomes represent a relatively new area of research. In recent years, over three dozen papers have examined the effects of minimum wages on twenty different health outcomes.[18] On the whole, these studies find beneficial effects and no consistent evidence of harmful effects. However, not all of this literature meets the standards of the credibility revolution in economics. The studies that do pass the tests of the credibility revolution find beneficial effects on smoking rates, obesity, suicides, health-related absenteeism from work, and as well as on child maltreatment (Raisian and Bullinger 2017).

For example, Godoey et al. 2019 find that minimum wages reduce deaths of despair. A ten percent increase in the minimum wage would likely prevent 770 suicides each year. The average cost of a single suicide averages $1.3 million per year in lost productivity. The overall gain in output would therefore amount to $1 billion per year.

The results in these studies are important in themselves. They also have implications for economic growth. For example, obesity is linked to pre-diabetic issues. Both have been linked to high poverty rates, on the one hand and low levels of labor force participation and productivity, on the other (Figure 4). Mississippi has both the highest diabetes incidence of all states and the one of the lowest rates of labor force participation.

These results are consistent with the now-accepted finding that minimum wages reduce poverty (Dube 2018) and with a large related literature that finds that anti-poverty programs have substantial beneficial effects on the health, educational outcomes and well-being of adults and children (Hoynes and Schanzenbach 2018).

Anti-poverty programs such as SNAP and the EITC are typically assessed on grounds other than their effects on employment. Minimum wages should similarly be assessed on criteria that are broader than just their effects on employment.

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[18] For recent surveys, see Leigh and Du 2018; Leigh, Leigh and Du 2019.

9. SUMMARY AND CONCLUSIONS

HR 582 proposes to increase the federal minimum wage to $15 by 2024 and to gradually eliminate subminimum wages for tipped workers, youth and the disabled. This policy will have its greatest effects in the twenty-one states that today remain at the 2009 federal level of $7.25. The increases even in these states lie within the range of our previous minimum wage policy experience. Studies of past minimum wage increases thus provides a guide to the effects of HR 582 on employment.

The best research studies of minimum wage-employment effects have found very small to negligible effects on teens and on restaurant workers. Newer studies use improved methods of identifying minimum wage jobs and/ or data linked to administrative tax records. These state-of-the-art studies find even less evidence that minimum wage policies have had negative effects on employment. Other studies, focused on the high minimum wages already in place in a number of U.S. cities, obtain similar findings.

These results make sense when one considers that minimum wages can offset employer power that suppresses wages, that small price adjustments in a few industries largely shift the costs of minimum wages from employers to affluent consumers who can pay higher prices, and the stimulus effects of increasing purchasing power among groups that spend most or all of their income on consumption goods. High minimum wages might seem to be more of a threat in industries that can relocate to other countries. However, the proportion of low-wage employment in these industries has become quite small.

A single national floor for all workers is likely to be much more beneficial than carve-outs for some groups or regional differentials. The advantages of a single national floor are likely to be especially higher in the lowest-wage states and could generate dynamic advantages to the economies of those states. Finally, new research is demonstrating that minimum wages have beneficial effects on the health and well-being of children and adults. These benefits should be included in any assessment of minimum wage policy. They are likely also to have longer-term economics benefits as well.

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FIGURES AND TABLES

Figure 1. The Federal Minimum Wage 1938 to 2018
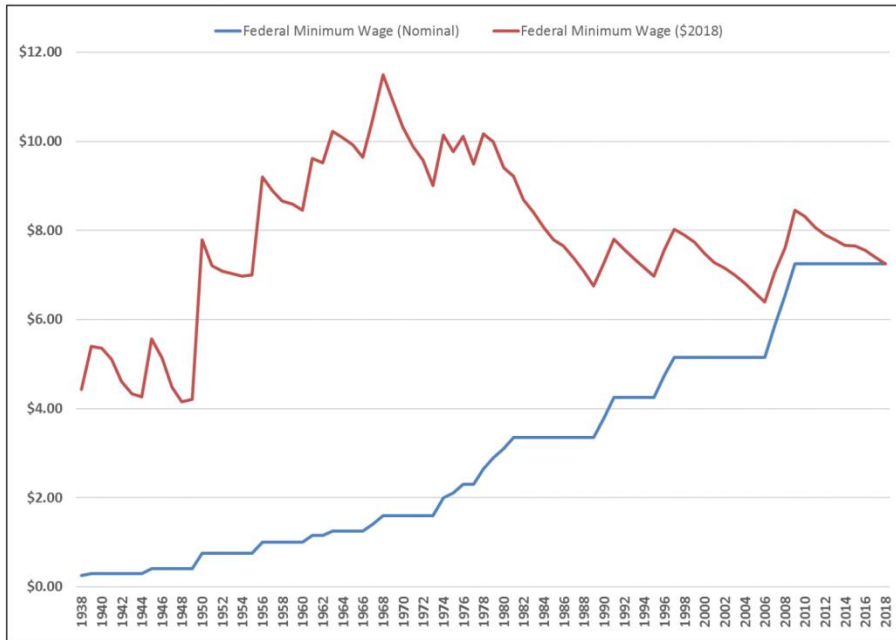
Source: Figure created by CRS using data from the DOL Wage and Hour Division, https://www.dol.gov/whd/minwage/chart.htm.

Notes: The inflation-adjusted minimum wage is expressed in 2018 dollars based on the Consumer Price Index for All Urban Consumers (CPI-U), U.S. City Average. The CPI-U value for 2018 is the semi-annual average for the first half of 2018.

Figure 2. State Minimum Wage Rates in 2019

DC

Below $7.25 $8.75 - $9.45
At $7.25 $9.65 - $10.78
$7.50 - $8.60   At or above $11.00
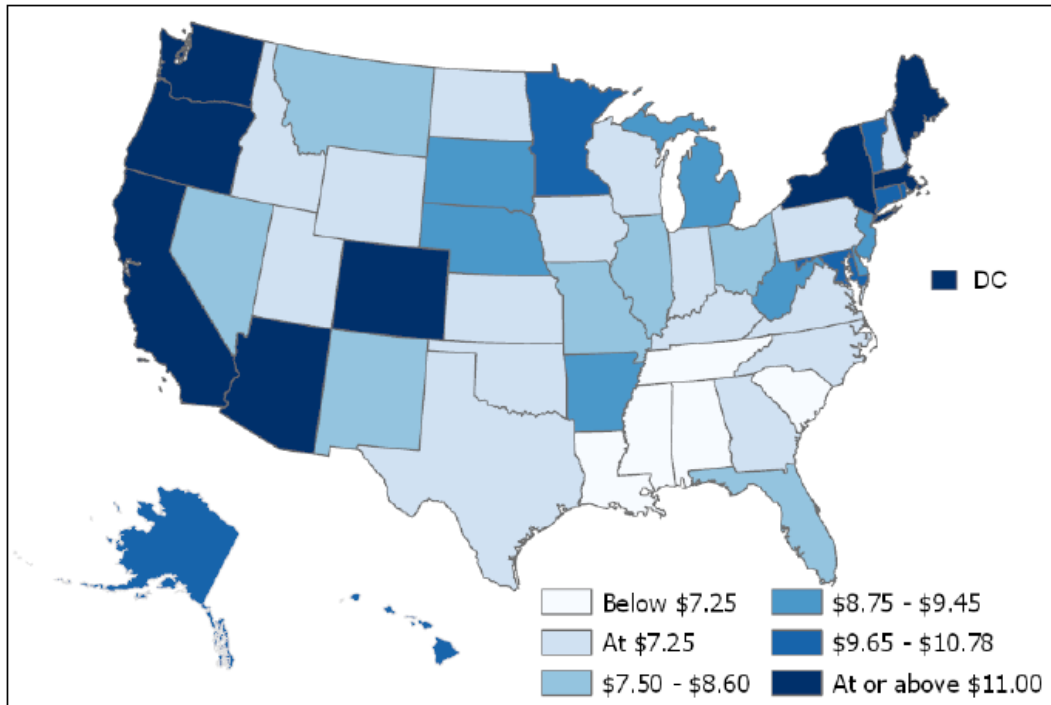
Source: CRS analysis of U.S. Department of Labor data.
Notes: Rates in **Figure 2** are either currently in effect or are scheduled to be in effect at some point in 2019.

Figure 3

Change in Mississippi employment by sector, 2007-2017

Sector	Change
Education & Health Services	18,042
Professional & Business Services	15,083
Accommodation and Food Services	11,317
Trade, Transportation, & Utilities	4,583
Other Services	-508
Government	-1,392
Information	-1,817
Financial Activities	-2,183
Mining and Logging	-2,583
Construction	-15,383
Manufacturing	-25,492
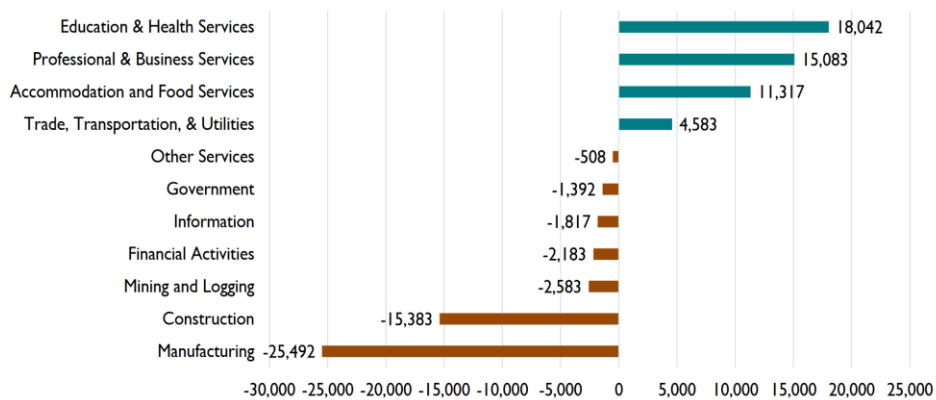
Source: ALME 2018

Figure 4
25

Labor Force Participation Rate vs. % of Population with Diabetes
(by state, labor force participation: 2016 annual average, % of pop. with diabetes: 2015)

$y = -1.8291x + 0.804$
$R^2 = 0.5638$

Mississippi

% of State Population with Diabetes (2015)

Labor Force Participation Rate (2016 annual average)

Source: CDC, BLS
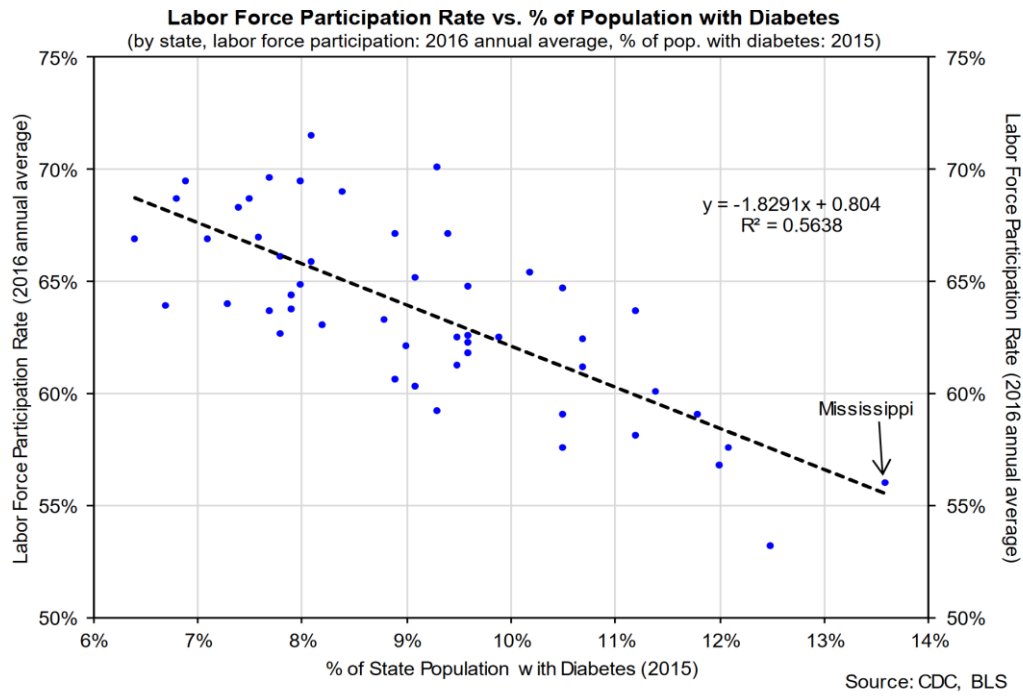
Source: ALME 2018

Table 1. Entry-level (25th percentile) and median hourly pay, nine largest unskilled occupations, Mississippi 2016

Occupation Title	Entry-level	Median
Cooks, Fast Food	$8.1	$8.69
Cooks, Restaurant	8.7	9.77
Cooks, Short Order	8.41	9.25
Food Preparation Workers	8.22	8.92
Janitors and Cleaners	8.53	9.56
Maids and Housekeeping Cleaners	8.29	9.01
Childcare Workers	8.18	8.84
Personal Care Aides	8.53	9.63
Cashiers	8.1	8.79
Average(unweighted)	8.34	9.16

Source: U.S. Bureau of Labor Statistics, Occupational Employment Survey May 2017

Note: OES data are based on three-year rolling surveys of establishments. Pay rates above are therefore more representative of 2016 rates than 2017 rates.

Table 2. Employment and Pay, Selected industries, Mississippi, 2014 and 2017

Industry	NAICS	2014 employment (000s)	2017 employment (000s)	2014 Average weekly wage	2017 Average weekly wage
Manufacturing	31-33	139.6	144.11	877	927
Food manufacturing	311	22.3	23.7	563	610
Apparel	315	1.4	1.6	580	601
Wood furniture	337	18.4	18.9	596	661
Transportation equipment	336	26.8	27.6	1152	1,176
Food services	722	87.2	95.4	256	273
Accommodations	721	29.3	31.5	488	493
Nursing and residential care facilities	623	31	31.6	489	513
Social assistance	624	27.3	30.8	368	386
All private employment		1,077.3	1,103.2	701	733

Source: Mississippi Department of Employment Security, *Covered Employment and Wages, Annual Reports*

APPENDIX: SCIENTIFIC CRITERIA FOR CREDIBLE MINIMUM WAGE-EMPLOYMENT STUDIES

A new generation of minimum wage studies has been much influenced by the "credibility revolution" that has swept all areas of empirical economics. This revolution uses quasi-experimental methods and careful research designs to identify causal relationships and rule out spurious correlations.

Much work in applied econometrics thus now routinely uses the language of treatment and control groups. Credible studies conduct tests to check that: the treatment and control groups are indeed similar before the treatment is administered, that we can observe a treatment effect in the treated group but not in the control group, that the effect of the treatment should be greater when the treatment is more intense, and that the treatment effect should be robust to small changes in specifications, such as in sample years or the presence of linear or nonlinear controls.

These basic scientific principles provide the basis for assessing the validity of conflicting minimum wage studies. It is no longer sufficient to report whether a minimum wage coefficient is statistically significant or insignificant.

The parallel pre-trends test, and the falsification and robustness tests comprise the core of the credibility revolution in econometric methods that has swept through all of empirical economics, not just the study of minimum wages. (For examples, see Angrist and Pischke 2010, 2014; Athey and Imbens 2017.) The leaders of this revolution span both conservative and liberal economists.

As it turns out, the minimum wage literature provides many examples of studies that either decline to conduct these tests or that do not pass them. We thus have new tools to assess conflicting results in the minimum wage literature. Here are some examples:

Common pre-trends between the treatment and control groups Much of the recent debate concerns whether minimum wage states are a random sample of all states, or whether they are clustered geographically or along other dimensions in a manner that is correlated with low-wage employment trends. Such correlation could involve confounding factors that are not caused by minimum wages themselves. These confounding factors could be detected by examining whether treatment and control states exhibited common (parallel) employment trends before the minimum wage policies were introduced.

Dube, Lester and Reich (2010) and Allegretto, Dube and Reich (2011) showed that previous work by Neumark and Wascher (2008) did not pass the parallel pre-trends test. Low-wage employment was trending downward in treatment states relative to control states well before minimum wages were introduced. Adding controls—such as examining contiguous border county pairs where minimum wages differed at the state border—eliminated the pre-trends, did not change the estimated effects on pay, and resulted in a small or zero estimated employment effect.

Neumark, Salas and Wascher (2014) contested these findings. Dube, Lester and Reich (2016) and Allegretto, Dube, Reich and Zipperer (2017) reported additional results confirming the pre-trends problem and showed the fragility of the Neumark, Salas and Wascher findings.

Allegretto et al. (2017) also showed that studies without controls for spatial heterogeneity failed a placebo test—that is, they found effects of minimum wages on employment among high-wage groups, such as professionals with a BA degree, who would not be affected by a minimum wage increase. Studies with controls passed such tests. (Placebo tests are also referred to as falsification tests.)

Allegretto et al. 2017 further conducted robustness tests. These tests examined groups that were affected by minimum wages and asked whether employment effects were greater among groups that were more affected. Here again, studies without the controls failed such tests; studies with the controls passed them.

Effects of economic expansions and recessions Minimum wage enactment and implementation occur more frequently during economic expansions than during recessions. Since wages increase during expansions, the number of low-wage jobs may decrease just because of the expansion. A key issue therefore concerns distinguishing the effects of the minimum wages from the effects of economic expansions. A number of often-cited studies that find negative employment effects fail to account appropriately for these effects of the business cycle. These include Jardim et al. 2018a, 2018b, Meer and West (2016). For details, see Cengiz et al. 2018.

In a similar vein, as Zipperer (2016) has shown, Clemens and Wither (2015) fail to control adequately for the steep economic recession that began in 2007.

CENTER ON WAGE AND EMPLOYMENT DYNAMICS

Institute for Research on Labor and Employment
University of California, Berkeley
2521 Channing Way #5555
Berkeley, CA 94720-5555
(510) 643-8140
http://www.irle.berkeley.edu/cwed