ISSUE BRIEF

No. 4601 | AUGUST 17, 2016

How $15-per-Hour Minimum Starting Wages Would Affect Each State

James Sherk

Researchers have paid little attention to the state-by-state impact of a $15-per-hour minimum wage. Such a measure was so far from the policy mainstream that few economists bothered considering it. Now, several cities and states have required $15-per-hour starting wages, prompting the need to consider the policy's effects on jobs and the economy at large.

This *Issue Brief* fills the gap by estimating state-by-state job losses in each state under a $15-per-hour minimum wage. The policy would result in many states losing hundreds of thousands of jobs and would considerably curtail employment opportunities, especially for less-skilled workers. These findings show that the federal government should not impose a $15 minimum wage on states, and states should expect that adopting this policy would hurt many workers.

Growing Traction for Fringe Idea

Mandatory $15-per-hour starting wages was once a fringe idea. Politicians of every ideological stripe agreed that it would eliminate too many job opportunities. Nonetheless, recent, union-backed campaigns have pushed the idea into the mainstream. The California and New York legislatures recently passed bills

raising minimum starting wages in their states to this level.[1] Several cities, including Washington, DC, have also passed $15-per-hour minimum wages.

In Congress, Senator Bernie Sanders (I–VT) has introduced the Pay Workers a Living Wage Act, which would raise the federal minimum wage from $7.25 per hour to $15.00 per hour over four years.[2] Prominent Senators, including Assistant Minority Leader Dick Durbin (D–IL), have co-sponsored this bill. The Democratic Party has formally included a $15-per-hour minimum starting wage in its 2016 campaign platform.[3] If the policy became law in 2017, the federal minimum wage would rise to $15 by 2021.

Since the $15-per-hour minimum wage was a fringe proposal, it received relatively little empirical examination. Economists widely agreed $15 was too high and instead examined smaller increases that actually had political support. This *Issue Brief* fills that gap, examining how a $15-per-hour minimum wage by 2021 would affect each state.

Consequences of $15-per-Hour Starting Wages

Companies hire workers when the additional earnings their labor creates exceeds the cost of employing them. Starting wages of $15.00 per hour mean full-time employees must create at least $38,700 a year in value for their employers (including wages, employer payroll taxes, and Obamacare-mandate penalties).[4] Such a high hurdle would make it much harder for less-experienced and less-skilled workers to find full-time jobs. Many of these workers are not yet productive enough to create that much value for their employers and businesses will not hire them at a loss.

Consequently, many businesses might respond to a $15 mandate by eliminating positions, cutting hours, and looking for new ways to implement labor-saving technology. Some companies might have to face shutting down or leaving America entirely to cope with the additional expenses.

This process has already begun in California. Shortly after Los Angeles raised its city minimum wage to $15 per hour, American Apparel eliminated 500 clothing manufacturing jobs in the city. *The Los Angeles Times* reports the company planned to relocate those jobs within California. After California raised minimum starting wages statewide, however, American Apparel began examining options to move production outside California.[5]

Quantifying Job Losses

Fifteen-dollar-per-hour mandatory starting wages would cover roughly one-third of U.S. wage and salary workers—considerably more than the minimum wage has ever covered.[6] Existing minimum-wage studies shed little light on the number of jobs a $15 mandate would cost, as they examined much smaller minimum-wage increases that affected relatively few workers. In fact, most of the studies look only at sectors significantly impacted by past increases, like teenage employment or the restaurant sector. These studies provide little guidance on the effects of a minimum wage covering one-third of the workforce.

However, economists have extensively studied how businesses respond to higher wages overall, not just minimum-wage increases.[7] On average these studies find a 10 percent increase in labor costs causes firms to reduce employment of less-skilled workers by 6.8 percent in the long run.[8] This is not a precise estimate—some studies find greater job losses, others find lower. This figure does indicate, however, the approximate magnitude of job losses that occur when labor costs rise.

Table 1 uses this employment response to estimate the impact of a $15-per-hour state minimum wage in each state.[9] The table shows the total proportion of employees directly affected by minimum starting wages of $15 per hour in 2021 in each state.[10] It also shows the total number of full-time-equivalent (FTE) jobs such a mandate would cost each state, relative to the employment that would have occurred if each state left its minimum wage at 2015 levels.[11]

Nationwide, such state minimum-wage hikes would result in the loss of approximately 9 million

1. These state increases phase in over several years. The California increase will take full effect in 2023. The New York increase will take full effect in 2021, although depending on economic conditions the minimum wage in upstate New York may only rise to $12.50. For the purposes of this report it is assumed that the full minimum-wage increase to $15 occurs across all of New York State.

2. Pay Workers a Living Wage Act, S. 1832, 114th Congress, 2nd Sess., https://www.congress.gov/bill/114th-congress/senate-bill/1832 (accessed August 2, 2016).

3. News release, "$15 Federal Minimum Wage Included in Democratic Platform," Bernie Sanders for President Campaign, July 9, 2016, https://berniesanders.com/15-federal-minimum-wage-included-democratic-platform/ (accessed August 2, 2016).

4. James Sherk, "Raising Minimum Starting Wages to $15 per Hour Would Eliminate Seven Million Jobs," Heritage Foundation *Issue Brief* No. 4596, July 26, 2016, http://www.heritage.org/research/reports/2016/07/raising-minimum-starting-wages-to-15-per-hour-would-eliminate-seven-million-jobs. This figure assumes a full-time job is 40 hours per week.

5. Shan Li and Natalie Kitroeff, "California Minimum Wage Hike Hits L.A. Apparel Industry: 'The Exodus Has Begun,'" *The Los Angeles Times*, April 15, 2016, http://www.latimes.com/business/la-fi-garment-manufacturing-la-20160416-story.html (accessed August 2, 2016).

6. In 2016 the federal or state minimum wage covered 5.5 percent of U.S. wage and salary workers. See Sherk, "Raising Minimum Starting Wages to $15 per Hour Would Eliminate Seven Million Jobs."

7. Lichter et al. report a meta-analysis of economic research on the price elasticity of labor demand surveying estimates from over 150 studies. See Andreas Lichter, Andreas Peichl, and Sebastian Siegloch, "The Own-wage Elasticity of Labor Demand: A Meta-regression Analysis," *European Economic Review*, Elsevier, Vol. 80(C) (2015), pp. 94–119.

8. Lichter et al. in Appendix Table B-3 report meta-regression estimates that account for publication bias. The coefficients on these estimates imply an elasticity of –0.677 for long-run labor demand for unskilled workers. See Appendix for details.

9. Author's calculations using data from the 2015 Current Population Survey Outgoing Rotation Group. See Appendix for details. These calculations do not attempt to estimate "spillover effects" for workers currently making slightly above $15 an hour.

10. Note that this proportion excludes self-employed workers and only looks at wage and salary workers. Individuals who work for themselves do not have to pay themselves the minimum wage.

11. Full-time is assumed here to represent 40 hours of work per week. See Appendix for details.

TABLE 1

The Effect of a $15/Hour State Minimum Wage, by State

State	Proportion of Wage and Salary Workers Directly Affected	Change in Full-Time Equivalent Jobs in 2021	State	Proportion of Wage and Salary Workers Directly Affected	Change in Full-Time Equivalent Jobs in 2021
Alabama	46.7%	−190,000	Montana	39.4%	−33,000
Alaska	22.4%	−12,000	Nebraska	36.8%	−55,000
Arizona	40.3%	−217,000	Nevada	37.9%	−96,000
Arkansas	48.6%	−112,000	New Hampshire	29.7%	−31,000
California	34.1%	−981,000	New Jersey	25.9%	−170,000
Colorado	29.7%	−111,000	New Mexico	43.2%	−67,000
Connecticut	23.3%	−46,000	New York	0.0%	−434,000
Delaware	32.9%	−25,000	North Carolina	40.5%	−367,000
District of Columbia	15.6%	−11,000	North Dakota	25.5%	−15,000
Florida	40.7%	−727,000	Ohio	38.9%	−335,000
Georgia	39.5%	−329,000	Oklahoma	45.1%	−140,000
Hawaii	32.5%	−34,000	Oregon	30.8%	−70,000
Idaho	40.3%	−56,000	Pennsylvania	33.8%	−349,000
Illinois	35.0%	−324,000	Rhode Island	34.9%	−22,000
Indiana	39.1%	−218,000	South Carolina	40.2%	−179,000
Iowa	37.5%	−78,000	South Dakota	37.5%	−22,000
Kansas	38.2%	−90,000	Tennessee	43.3%	−227,000
Kentucky	36.6%	−112,000	Texas	38.8%	−986,000
Louisiana	45.3%	−214,000	Utah	37.1%	−86,000
Maine	36.8%	−33,000	Vermont	27.3%	−11,000
Maryland	24.3%	−115,000	Virginia	29.4%	−221,000
Massachusetts	23.0%	−101,000	Washington	22.2%	−104,000
Michigan	37.4%	−281,000	West Virginia	39.4%	−52,000
Minnesota	29.2%	−107,000	Wisconsin	34.0%	−152,000
Mississippi	51.8%	−130,000	Wyoming	33.4%	−16,000
Missouri	40.9%	−218,000			

NOTES: Figures have been rounded to the nearest thousand. Figures show the employment effect of a $15/hour state minimum wage in 2021, relative to the employment that would have occurred had each state's minimum wage remained at 2015 levels.
SOURCE: Heritage Foundation calculations using data from the National Bureau of Economic Research, 2015 Current Population Survey–Outgoing Rotation Group. See Appendix for details.

IB 4601 ☎ heritage.org

TABLE 2

The Effect of a $15/Hour Federal Minimum Wage, by State

State	Proportion of Wage and Salary Workers Directly Affected	Change in Full-Time Equivalent Jobs in 2021	State	Proportion of Wage and Salary Workers Directly Affected	Change in Full-Time Equivalent Jobs in 2021
Alabama	45.3%	−180,000	Montana	39.4%	−26,000
Alaska	21.6%	−7,000	Nebraska	36.8%	−49,000
Arizona	39.4%	−187,000	Nevada	37.9%	−93,000
Arkansas	46.5%	−101,000	New Hampshire	29.7%	−29,000
California	31.8%	−193,000	New Jersey	25.9%	−145,000
Colorado	28.9%	−97,000	New Mexico	43.2%	−60,000
Connecticut	23.0%	−40,000	New York	0.0%	0
Delaware	32.3%	−24,000	North Carolina	40.5%	−334,000
District of Columbia	0.0%	0	North Dakota	25.5%	−13,000
Florida	39.8%	−594,000	Ohio	38.9%	−296,000
Georgia	38.3%	−310,000	Oklahoma	45.1%	−132,000
Hawaii	31.6%	−27,000	Oregon	30.8%	−38,000
Idaho	36.3%	−47,000	Pennsylvania	33.8%	−327,000
Illinois	34.6%	−306,000	Rhode Island	34.9%	−21,000
Indiana	37.8%	−202,000	South Carolina	40.2%	−165,000
Iowa	36.0%	−74,000	South Dakota	37.5%	−19,000
Kansas	37.2%	−85,000	Tennessee	43.3%	−216,000
Kentucky	35.1%	−102,000	Texas	38.8%	−941,000
Louisiana	44.5%	−204,000	Utah	37.1%	−82,000
Maine	35.8%	−31,000	Vermont	27.3%	−7,000
Maryland	24.1%	−93,000	Virginia	29.4%	−208,000
Massachusetts	22.9%	−77,000	Washington	22.2%	−72,000
Michigan	36.6%	−223,000	West Virginia	39.4%	−47,000
Minnesota	28.3%	−83,000	Wisconsin	34.0%	−138,000
Mississippi	50.4%	−124,000	Wyoming	33.4%	−14,000
Missouri	40.4%	−190,000			

NOTES: Figures have been rounded to the nearest thousand. Figures show the employment effect of a $15/hour federal minimum wage in 2021, net of legislated state minimum wage increases. Calculations treat all workers in the agriculture sector as unaffected by the federal minimum wage.
SOURCE: Heritage Foundation calculations using data from the National Bureau of Economic Research, 2015 Current Population Survey–Outgoing Rotation Group. See Appendix for details.

IB 4601 ☎ heritage.org

jobs. The table shows that New York's $15-per-hour starting wage requirement, if it takes full effect, will cost the Empire State over 400,000 FTE jobs. In Illinois, $15-per-hour starting wages would eliminate more than 300,000 jobs. Arizona and Indiana would both lose approximately 200,000 jobs.

States with lower living costs would experience relatively greater job losses.[12] For example, New Jersey and Georgia have similar total employment.[13] However, Georgia would lose almost twice as many jobs to a $15 mandate (329,000) as New Jersey (170,000). This happens because a $15 mandate affects substantially more employees in Georgia (39.5 percent) than in New Jersey (26.1 percent).

1. Table 2 shows how a federal mandate of $15-per-hour starting wages would affect each state. These estimates are smaller than in Table 1 for two reasons:

2. Table 2 shows the effect of a $15 federal minimum wage above and beyond currently legislated state minimum-wage increase. For example, it accounts for the fact that California will have a $14-per-hour minimum wage in 2021 and New York State will have a statewide $15-per-hour rate and thus be unaffected by a federal mandate.

The federal minimum wage exempts many workers in the agricultural sector; state laws generally do not.

Table 2 shows Texas the biggest loser—by far—from federally mandated $15-per-hour starting wages. At that rate, the federal minimum wage would cover almost two-fifths of wage and salary employees in the Lone Star State. This would cost over 900,000 FTE Texan jobs.

The next biggest loser is Florida. A $15-per-hour federal mandate would also cover 40 percent of Floridian employees, costing Florida roughly 600,000 FTE jobs.

North Carolina, Ohio, and Pennsylvania would all lose approximately 300,000 FTE jobs. Louisiana, Michigan, Missouri, Tennessee, and Virginia would each lose about 200,000 FTE jobs.

All told, $15 federal starting wages would cost 7 million jobs nationwide, above and beyond those jobs that state minimum-wage increases (such as New York's) will eliminate.

Conclusion

Economists have extensively studied how changes in wages affect employers' demand for labor. This research provides the best guidance on the effect of large minimum-wage increases. These estimates imply that currently legislated minimum-wage increases in states like California, New York, and Oregon will cost approximately 2 million jobs by 2021. A federally mandated $15-per-hour starting wage would cost an additional 7 million jobs.

These estimates provide important information about the impact of large minimum-wage increases on job opportunities and poverty. Efforts to create jobs and reduce poverty should not center on forcing employers to pay higher starting wages.

—*James Sherk is Research Fellow in Labor Economics in the Center for Data Analysis, of the Institute for Economic Freedom and Opportunity, at The Heritage Foundation.*

---

12. Note that Table 1 shows a $15 mandate will cost California approximately 1 million jobs, while a previous estimate from the author estimated it would cost 900,000. The difference comes from that report analyzing California's state legislation going to $15 by 2023, while Table 1 shows the consequences of going to $15 by 2021—a larger real increase in the minimum wage. See James Sherk, "California's Unprecedented Minimum Wage Increase Will Hurt Vulnerable Workers," Heritage Foundation *Issue Brief* No. 4563, May 19, 2016, http://www.heritage.org/research/reports/2016/05/californias-unprecedented-minimum-wage-increase-will-hurt-vulnerable-workers.

13. Georgia had 4.8 million workers in 2015, while New Jersey had 4.5 million workers.

Appendix

Tables 1 and 2

The figures in Tables 1 and 2 were calculated using Current Population Survey–Outgoing Rotation Group (CPS–ORG) data from the National Bureau of Economic Research.[14] Hourly earnings for workers in the CPS–ORG data were calculated using the reported hourly wage of hourly workers, and dividing usual weekly earnings by usual hours worked for salaried workers. Hourly earnings of waiters in bars and restaurants were calculated using the same method as for salaried workers.[15] The author excluded imputed observations, as well as respondents with calculated hourly earnings below $1 per hour or above $200 per hour.[16]

CPS–ORG data show that between 2007 and 2015, median nominal wages for adult (25–59 years old) workers in the U.S. grew by 1.68 percent a year. The author used this inflation factor to convert $15 per hour in 2021 into 2015 dollars ($13.57 per hour).[17]

Table 1 displays the proportion of wage and salary workers in each state whose adjusted earnings are less than $13.57 per hour ($15 in 2021 dollars) in the 2015 CPS–ORG and would thus be affected by a $15 state minimum wage in 2021. This proportion includes agricultural workers since state minimum wages generally cover them and excludes self-employed workers because state and federal minimum wages do not apply to them.

Table 2 displays the proportion of wage and salary workers in each state affected by a federal minimum wage of $15 in 2021 ($13.57 in 2015 dollars), net of state minimum-wage increases. It consequently shows that a $15 federal mandate will have no effect on workers in New York State or Washington, DC,

as they will already have $15 mandates that year.[18] Table 2 also excludes workers in the agricultural sector since the federal minimum wage exempts many (though not all) agricultural workers.[19]

The calculation of total employment losses reported in Tables 1 and 2 followed eight steps:

1. The author calculated the average percent increase in wages (for affected workers) in each state in the 2015 CPS–ORG necessary to bring every employee to $15 in 2021 dollars ($13.57 in 2015 dollars). For Table 1, that percentage was the average percent difference between their hourly earnings and $13.57. Some states have passed minimum wage increases that will take effect over several years, or indexed their minimum wages to inflation. In Table 2 the figure shows the average percent difference between $13.57 and the greater of affected workers' actual earnings, or the legislated 2021 minimum wage in their state.[20] All these averages were weighted by total hours worked and thus reflect average pay increases needed per hour worked.

2. The author estimated total employment in each state for 2021, by taking 2015 total state employment, as reported by the Current Population Survey, and projecting it forward six years using the average annual rate of employment growth in the CPS between 2010 and 2015 in each state.

3. The author estimated the proportion of all employees directly affected by a $15-per-hour minimum wage in 2021. This calculation followed the methods used to calculate the proportion of directly affected wage and salary employ-

---

14. Available online from the National Bureau of Economic Research at http://www.nber.org/data/morg.html (accessed August 2, 2016).

15. The reported hourly wage measure excludes tips, while tips are included in usual weekly earnings. Using reported hourly wages for hourly employees in heavily tipped occupations would systematically undercount their pay.

16. In many cases these outliers are the result of data errors, such as the interviewer reporting an individual works 4 hours a week instead of 40 hours per week. This would make a salaried employee who makes $1,000 per week appear to make $250 per hour instead of their actual hourly earnings of $25 per hour.

17. Using nominal wage growth accounts for the fact that wages can be expected to grow above and beyond simple price inflation.

18. The New York legislation calls for the entire state to rise to $15 in 2021, but also contains provisions that could cause upstate New York to rise to only $12.50 under certain circumstances. This analysis assumes New York State rises to $15 per hour statewide.

19. The CPS does not provide enough data to calculate which agriculture workers are exempt from the federal minimum wage and which are not, so to be conservative these calculations exempt all of them. To the extent this assumption misses workers actually covered by the federal minimum wage Table 2 will understate job losses. Note, however, that these job losses will be included in Table 1.

20. In cases where state minimum wages are indexed to inflation, the author assumed a 1.68 percent average rate of inflation for each state and year.

ees in Tables 1 and 2, described above, except that it includes self-employed workers in the denominator.

4. The author estimated the number of workers directly affected by the proposed starting-wage increase in each state by multiplying each state's estimated total employment in 2021 (from step 2) by the estimated proportion of workers directly affected (from step 3).

5. The author calculated the ratio of full-time equivalent (FTE) employees to total employment in each state, for workers directly affected by the proposed increase. This calculation treats an FTE job as 40 hours-per-week. So, for example, two employees working 20 hours-per-week represent one FTE employee.

6. The author estimated the number of directly affected FTE employees in each state by multiplying the FTE-to-employee ratio (from step 5) by total affected employment (from step 4) in each state.

7. The author calculated the average percent employment reduction among affected workers in each state by multiplying the average wage increase among affected workers (from step 1) by the estimated long-run elasticity of labor demand (–0.677). (This elasticity is discussed in greater detail below.)

8. The author calculated total employment losses in each state by multiplying the estimated proportionate employment reduction (from step 7) by the estimated FTE affected employment (from step 6).

Note that these calculations only examine directly affected workers (those making less than $1 per hour in 2021 dollars). Additional raises are likely for workers currently making near $15 per hour. Employers generally want to reward more productive workers with pay that is above entry-level rates. For example, roughly a quarter of first-line supervisors of retail sales workers in Tennessee make less than $15 per hour in 2021 dollars.[21] Paying these managers the same starting wages as newly hired employees would eliminate the incentive to work harder to earn a promotion.

However, quantifying the magnitude of "spillover effects" from a $15 mandate is highly subjective. Little empirical data exists to guide estimates of spillover effects so high up the income distribution.[22] Wages will almost certainly increase more than the minimum necessary to comply with the law, but predicting how much more is difficult. To be conservative, this report ignored the consequences of spillover effects. To the extent that wages rise above $15 per hour the numbers in this report understate total job losses.

The sum of the state employment losses from a $15-per-hour federal minimum wage reported in Table 2 is slightly higher than the total national losses reported in a recent *Issue Brief* by this author (7.1 million vs. 6.9 million).[23] This difference occurs because that report assumed uniform national employment growth of slightly less than 1.4 percent between the present and 2021. This report uses state-by-state growth rates, based on each state's growth between 2010 and 2015. Many states with lower living costs more heavily affected by a $15-per-hour mandate grew faster than the national average rate. For example, employment in both Florida and Texas grew at more than a 2 percent annual rate over that period. Consequently, the state-by-state employment projections assume greater employment in more heavily affected states, and thus more affected workers and greater job losses, than a uniform national projection does.

Note that these job losses are based on an average estimated elasticity of labor demand. They show approximate magnitudes but are not precise.

Elasticity of Labor Demand

Lichter et al. (2009) report meta-regression estimates of the own-wage elasticity of labor demand

---

21. Heritage analysis of May 2015 Occupational Employment Statistics data published by the Bureau of Labor Statistics. Note that $15.00 in 2021 dollars is $13.57 in 2015 dollars.

22. Some insight comes from Puerto Rico, which was covered by the federal minimum wage in the late 1970s—despite having much lower average wages. Puerto Rico's experience suggests affected workers' wages will tightly bunch around the new minimum.

23. Sherk, "Raising Minimum Starting Wages to $15 per Hour Would Eliminate Seven Million Jobs."

that account for publication bias.[24] The coefficients on these estimates imply an elasticity of –0.677 for a study published in 2012 (the most recent year in their data) of long-run unconditional labor demand for low-skilled labor in the U.S., estimated using industry-level administrative panel data and a structural form model.[25]

The author used a long-run labor demand elasticity estimate that accounts for publication bias. Estimates that do not account for publication bias tend to slow a long-run elasticity closer to –1.0.[26] Had this analysis used the larger elasticity it would show even greater job losses.

24. Lichter et al., "The Own-wage Elasticity of Labor Demand: A Meta-regression Analysis."

25. These coefficient estimates come from their Appendix Table B-3. The author chose to focus on long-run labor demand of unskilled workers in the U.S. in the most recent period available because this is most directly relevant to examining a current minimum-wage hike. In correspondence, Sebastian Siegloch, in the Licher et al. study, explained that they found structural form models less susceptible to publication bias than reduced form models. Industry-level data was used in preference to firm-level data because employment may respond less strongly to an industry-wide wage hike that affects all competitors than an increase in labor costs at a single firm. Administrative data was used in preference to survey data because of its greater reliability. Panel data was chosen because it allows for more robust analysis.

26. See, for example, George Borjas, *Labor Economics*, 6th ed. (Columbus, OH: McGraw-Hill, 2013), Chapter 4: "The evidence also suggests that the estimates of the long-run labor demand elasticity cluster around –1, so the long-run labor demand curve is indeed more elastic than the short-run curve."