

## Research



# The Job and Wage Implications of State Minimum Wage Increases in 2017 and Beyond

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## EXECUTIVE SUMMARY

We examine the job and wage effects of the state minimum wage increases that are currently phasing-in. Focusing on the tradeoff between reduced job creation and increased wage earnings, we estimate how much total wage earnings rise with each job loss caused by the current minimum wage increases. Overall, we find that the minimum wages scheduled to rise over the next several years in 14 states and the District of Columbia will cost millions of jobs across the country and each lost job only leads to total wage earnings rising by a few thousand dollars. In particular, we find that:

- In isolation, the minimum wage increases in 2017 will cost 383,000 jobs;
- The entire minimum wage increases currently phasing-in will cost over 2.6 million jobs; and
- Each job lost only leads to an extra \$6,900 in total wage earnings across all workers.

## INTRODUCTION

On January 1st, 19 states implemented increases in the minimum wage and three additional states and the District of Columbia will raise their minimum wages in July. For many of these states, this is only the first of many incremental steps to implement much larger minimum wage hikes over the next several years. The goal of increasing the minimum wage is crystal clear: to increase earnings for low-income families. The minimum wage, however, is a tool that has significant tradeoffs and often overlooked is the potentially negative effects that it has on the labor market. In effect, raising the minimum wage transfers earnings from those who are unable to obtain a job to those who are employed. So, for each job opportunity killed, how much do wage earnings actually rise?

In this paper, we examine the labor market consequences of the minimum wage increases currently phasing-in, and how much these minimum wage increases will cause total wage earnings (the sum of annual earnings by all impacted workers) to rise for each job not created. We find that overall, the benefits to the state workforces are very small relative to the jobs lost. In isolation, the minimum wage increases occurring this year will cost 383,000 jobs and the full minimum wage increases over the next several years will cost 1.8 million jobs. When combined with recent previous minimum wage increases in some of the same states, the total loss comes out to 2.6 million jobs. In the end, the additional earnings transferred from the job losers to the job keepers are minimal. We find that under these state minimum wage increases, for each job loss, total wage earnings only rise by \$6,900.

# OVERVIEW OF MINIMUM WAGE INCREASES IN 2017

In total, 22 states and the District of Columbia (DC) are increasing their minimum wages this year. 19 minimum wages increased on January 1st and the remaining four will go up on July 1st.

8 of the minimum wage increases are simply inflation adjustments. In those states, existing laws require that the minimum wage to increase at the same rate as inflation so that its purchasing power remains constant over time as prices rise. Table 1 contains the 2017 minimum wage hikes in those states.

| Table 1: 2017 Minimum Wage Increases due to Inflation Adjustments |                 |        |
|---|-----------------|--------|
| State   | 2016            | 2017   |
| Alaska  | \$9.75          | \$9.80 |
| Florida   | \$8.05          | \$8.10 |
| Missouri  | \$7.65          | \$7.70 |
| Montana   | \$8.05          | \$8.15 |
| Nevada*   | \$8.25/\$7.25** | TBD    |
| New Jersey  | \$8.38          | \$8.44 |
| Ohio  | \$8.10          | \$8.15 |
| South Dakota  | \$8.55          | \$8.65 |

\*The 2017 minimum wage increase in Nevada will be announced in April and take effect on July 1st.  
 \*\*Employers have the option of paying less if they cover the employee's health insurance.

In the remaining 14 states and DC, the minimum wages are rising this year because of new laws that mandate substantial minimum wage increases. Table 2 contains the 2017 minimum wage increases and the entire increase under the new laws.

| Table 2: Minimum Wage Increases due to New Laws |      |      |         |                 |
|---|------|------|---------|-----------------|
| State   | 2016 | 2017 | New Law | Inflation Index |

|                       |         |         |                                   |     |
|-----------------------|---------|---------|-----------------------------------|-----|
| Arizona               | \$8.05  | \$10.00 | \$8.05 in 2016 to \$12 in 2020    | Yes |
| Arkansas              | \$8.00  | \$8.50  | \$7.25 in 2014 to \$8.50 in 2017  | No  |
| California            | \$10.00 | \$10.50 | \$10 in 2016 to \$15 in 2022      | Yes |
| Colorado              | \$8.31  | \$9.30  | \$8.31 in 2016 to \$12 in 2020    | Yes |
| Connecticut           | \$9.60  | \$10.10 | \$8.25 in 2013 to \$10.10 in 2017 | No  |
| District of Columbia* | \$11.50 | \$12.50 | \$11.50 in 2016 to \$15 in 2020   | Yes |
| Hawaii                | \$8.50  | \$9.25  | \$7.25 in 2014 to \$10.10 in 2018 | No  |
| Maine                 | \$7.50  | \$9.00  | \$7.50 in 2016 to \$12 in 2020    | No  |
| Maryland*             | \$8.75  | \$9.25  | \$7.25 in 2014 to \$10.10 in 2018 | No  |
| Massachusetts         | \$10.00 | \$11.00 | \$8 in 2014 to \$11 in 2017       | No  |
| Michigan              | \$8.50  | \$8.90  | \$7.40 in 2013 to \$9.25 in 2018  | Yes |
| New York              |         |         |                                   |     |
| NYC                   | \$9.00  | \$11.00 | \$9 in 2016 to \$15 in 2019       | Yes |
| NC, SC, & WC          | \$9.00  | \$10.00 | \$9 in 2016 to \$15 in 2022       | Yes |
| Rest of State         | \$9.00  | \$9.70  | \$9 in 2016 to \$12.50 in 2021    | Yes |
| Oregon**              |         |         |                                   |     |
| Portland Metro*       | \$9.75  | \$11.25 | \$9.25 in 2016 to \$14.75 in 2022 | Yes |
| Nonurban Areas*       | \$9.50  | \$10.00 | \$9.25 in 2016 to \$12.50 in 2022 | Yes |

|   |         |         |                                   |     |
|---|---------|---------|-----------------------------------|-----|
| Standard*   | \$9.75  | \$10.25 | \$9.25 in 2016 to \$13.50 in 2022 | Yes |
| Vermont   | \$9.60  | \$10.00 | \$8.73 in 2014 to \$10.50 in 2018 | Yes |
| Washington  | \$11.00 | \$11.50 | \$9.47 in 2016 to \$13.50 in 2020 | Yes |
| *Minimum wage increases occur on July 1st each year.  |         |         |                                   |     |
| **In Oregon on July 1st, 2016 the minimum wage increased from \$9.25 to the first step of the phase in. |         |         |                                   |     |

In these states, the new minimum wages are at different stages of their phase-in schedules. For instance, this year Arkansas, Connecticut, and Massachusetts completed the final step to fully phasing in their new minimum wage levels of \$8.50, \$10.10, and \$11, respectively. Meanwhile, the new minimum wages in Hawaii, Maryland, Michigan, and Vermont have been phasing-in over the last few years and will be fully implemented next year.

Several states just began implementing new minimum wage laws. In November, voters in Arizona, Colorado, Maine, and Washington all approved minimum wage increases and the new minimum wage levels began phasing-in the beginning of this year.

In California, DC, and New York, previous minimum wage increases finished phasing-in last year and lawmakers opted to pass new laws that raise their minimum wages even further. In effect, they are expanding the previous hikes, and the minimum wages are continuing to rise this year. In California, after a 2013 law mandating a \$10 minimum wage finished phasing in last year, lawmakers passed a new bill requiring the minimum wage to increase to \$15 by 2022. In DC, a 2014 bill requiring an \$11.50 minimum wage completed its phase-in last year and lawmakers expanded the increase to \$15 by 2020. Finally, a 2013 law in New York to raise the state's minimum wage to \$9 per hour was fully implemented last year and lawmakers expanded the minimum wage increase to \$15 in much of the state.

Interestingly, New York and Oregon are taking a new approach to the minimum wage and mandating that the minimum wage vary by region in those states. In general, the minimum wage will be different for high, medium, and low-cost areas of the states.

Finally, once these minimum wage increases are fully implemented, 8 states and DC will require the minimum wages to rise with inflation each year. The remaining 6 states will not make inflation adjustments to their minimum wages going forward.

## JOB IMPLICATIONS

While proposals to raise the minimum wage are well intended, it is important to consider the negative labor market consequences. Meer & West (2015) find that raising the minimum wage reduces job creation.<sup>[1]</sup> Specifically, they find that a 10 percent increase in the real minimum wage is associated with a 0.3 to 0.5 percentage-point decline in the net job growth rate. As a result, three years later employment becomes 0.7 percent lower than it would have been absent the minimum wage increase.

In the following, we look at what this research means for these new minimum wage laws, both for the minimum wage increases just in 2017 and for the entire minimum wage increases over time. In both cases, we only look at states where the minimum wage is rising due to a new law, not states where the minimum wage already rises each year with inflation. Meer & West (2015) find negative effects of increasing the real value of the minimum wage on job growth. The real value of inflation adjusted minimum wage is constant over time. As a result, those states do not have the real increases in the minimum wage to measure the reduction in job growth that Meer & West (2015) suggest.

## Implications of Minimum Wage Increases in 2017

While the Meer & West (2015) findings may not seem very problematic, when taking into account the magnitude of the minimum wage increases and the number of states implementing new laws, the negative labor market consequences add up. Let's first examine the minimum wage hikes of 2017 in isolation, without considering previous or future minimum wage increases under the new state laws.

As illustrated in table 3, combined, the minimum wage increases in 2017 in the states implementing new laws could cause substantial drags on employment growth.

| State                | Percent Reduction in Employment by 2020 | Jobs Lost <sup>[2]</sup> |
|----------------------|---|--------------------------|
| Total                | 0.7%                                    | 383,000                  |
| Arizona              | 1.7%                                    | 52,000                   |
| Arkansas             | 0.4%                                    | 6,000                    |
| California           | 0.4%                                    | 65,000                   |
| Colorado             | 0.8%                                    | 25,000                   |
| Connecticut          | 0.4%                                    | 7,000                    |
| District of Columbia | 0.6%                                    | 5,000                    |
| Hawaii               | 0.6%                                    | 4,000                    |
| Maine                | 1.4%                                    | 9,000                    |

|                       |      |         |
|-----------------------|------|---------|
| Maryland              | 0.4% | 12,000  |
| Massachusetts         | 0.7% | 26,000  |
| Michigan              | 0.3% | 15,000  |
| New York (total)      | 1.1% | 109,000 |
| NYC                   | 1.6% | 72,000  |
| NC, SC, & WC          | 0.8% | 20,000  |
| Rest of State         | 0.5% | 17,000  |
| Oregon <sup>[3]</sup> | 0.4% | 7,000   |
| Vermont               | 0.3% | 1,000   |
| Washington            | 1.1% | 39,000  |

Applying the Meer & West (2015) estimate, the state minimum wage increases in 2017 lead employment in 2020 to be 0.3 percent to 1.7 percent lower than if the minimum wages remained at 2016 levels. Using official employment projections from each state’s labor department as a baseline, this comes out to job losses ranging from 1,000 in Vermont to 109,000 in New York.<sup>[4]</sup> In 2020, employment in these 14 states and DC combined will be 0.7 percent lower than if the minimum wages did not change, translating to a total loss of 383,000 jobs.

## Implications of Entire Minimum Wage Increases

Beyond the minimum wage hikes in 2017, when considering the entire minimum wage increases under the new laws, they become very problematic for the labor market in these states. The new minimum wage levels, when fully implemented, are drastic increases over previous law.

Table 4 contains for each state and DC the difference between the minimum wages under previous law and the minimum wage under new law in the year that the new minimum wage is fully implemented.

| State | Year | Previous Law Minimum Wage | New Law Minimum Wage | Percent Change |
|-------|------|---------------------------|----------------------|----------------|
|       |      |                           |                      |                |

|                      |      |          |         |       |
|----------------------|------|----------|---------|-------|
| Arizona              | 2020 | \$8.60*  | \$12.00 | 39.5% |
| Arkansas             | 2017 | \$7.25   | \$8.50  | 17.2% |
| California           | 2022 | \$10.00  | \$15.00 | 50.0% |
| Colorado             | 2020 | \$9.08*  | \$12.00 | 32.2% |
| Connecticut          | 2017 | \$8.25   | \$10.10 | 22.4% |
| District of Columbia | 2020 | \$12.47* | \$15.00 | 20.3% |
| Hawaii               | 2018 | \$7.25   | \$10.10 | 39.3% |
| Maine                | 2020 | \$7.50   | \$12.00 | 60.0% |
| Maryland             | 2018 | \$7.25   | \$10.10 | 39.3% |
| Massachusetts        | 2017 | \$8.00   | \$11.00 | 37.5% |
| Michigan             | 2018 | \$7.40   | \$9.25  | 25.0% |
| New York             |      |          |         |       |
| NYC                  | 2019 | \$9.00   | \$15.00 | 66.7% |
| NC, SC, & WC         | 2022 | \$9.00   | \$15.00 | 66.7% |
| Rest of State        | 2021 | \$9.00   | \$12.50 | 38.9% |
| Oregon               |      |          |         |       |
| Portland Metro       | 2022 | \$10.38* | \$14.75 | 42.1% |
| Nonurban Areas       | 2022 | \$10.38* | \$12.50 | 20.4% |
| Standard             | 2022 | \$10.38* | \$13.50 | 30.1% |

|   |      |          |         |       |
|---|------|----------|---------|-------|
| Vermont   | 2018 | \$9.33*  | \$10.50 | 12.5% |
| Washington  | 2020 | \$10.10* | \$13.50 | 33.7% |
| *Previous law minimum wages for Arizona, Colorado, the District of Columbia, Oregon, Vermont, and Washington would have been higher than the minimum wage levels in 2016 because under the previous laws the minimum wages in those states would have risen with inflation. |      |          |         |       |

The full minimum wage increases in those states range from 12.5 percent in Vermont to 66.7 percent in much of New York.<sup>[5]</sup> In addition, the minimum wages in Maine and California will rise a massive 60 percent and 50 percent, respectively.

Table 5 contains the change in employment three years after the new law minimum wages are fully implemented.

| State                | Year | Percent Reduction in Employment | Jobs Lost <sup>[6]</sup> |
|----------------------|------|---------------------------------|--------------------------|
| Total                | n/a  | n/a                             | 1,798,000                |
| Arizona              | 2023 | 2.8%                            | 90,000                   |
| Arkansas             | 2020 | 1.2%                            | 17,000                   |
| California           | 2025 | 3.5%                            | 700,000                  |
| Colorado             | 2023 | 2.2%                            | 73,000                   |
| Connecticut          | 2020 | 1.6%                            | 30,000                   |
| District of Columbia | 2023 | 1.4%                            | 11,000                   |
| Hawaii               | 2021 | 2.8%                            | 20,000                   |
| Maine                | 2023 | 4.2%                            | 28,000                   |
| Maryland             | 2021 | 2.8%                            | 86,000                   |
| Massachusetts        | 2020 | 2.6%                            | 97,000                   |

|                       |      |      |         |
|-----------------------|------|------|---------|
| Michigan              | 2021 | 1.8% | 82,000  |
| New York (total)      | n/a  | n/a  | 433,000 |
| NYC                   | 2022 | 4.7% | 221,000 |
| NC, SC, & WC          | 2025 | 4.7% | 125,000 |
| Rest of State         | 2024 | 2.7% | 88,000  |
| Oregon <sup>[7]</sup> | 2025 | 2.1% | 45,000  |
| Vermont               | 2021 | 0.9% | 3,000   |
| Washington            | 2023 | 2.4% | 84,000  |

Applying Meer & West (2015), three years after the new minimum wages are completely implemented, employment in these states will be 0.9 percent to 4.7 percent lower than under the previous laws. Once again, using the official employment projections from each state’s labor department as a baseline, this comes out to job losses ranging from 3,000 in Vermont to 700,000 in California over the next few years. New York, meanwhile, could lose 433,000 jobs. Between 2020 and 2025, all 14 states and DC could combine for a loss of roughly 1.8 million jobs.

Moreover, these estimates still understate the labor market consequences of recent state and local minimum wage increases. Specifically, California, DC, and New York each began phasing-in these new minimum wage hikes immediately after they finished phasing-in a separate minimum wage increase. In effect, these states and DC extended previous minimum wage laws to increase the minimum wage even further.

Table 6 illustrates the total minimum wage increases in California, DC, and New York relative to 2013, which was before policymakers in those areas began making any changes to the minimum wage.

| State                | Minimum Wage in 2013 | New Minimum Wage Law | Percent Change | Year Effective |
|----------------------|----------------------|----------------------|----------------|----------------|
| California           | \$8.00               | \$15.00              | 87.5%          | 2022           |
| District of Columbia | \$8.25               | \$15.00              | 81.8%          | 2020           |
| New York             |                      |                      |                |                |
| NYC                  | \$7.25               | \$15.00              | 106.9%         | 2019           |
| NC, SC, & WC         | \$7.25               | \$15.00              | 106.9%         | 2022           |

|               |        |         |       |      |
|---------------|--------|---------|-------|------|
| Rest of State | \$7.25 | \$12.50 | 72.4% | 2021 |
|---------------|--------|---------|-------|------|

Relative to the minimum wage levels in 2013, the planned increases in these states are extreme. California’s and DC’s new minimum wage laws constitute an 87.5 percent and an 81.8 percent increase, respectively, over the 2013 levels. New York’s recent minimum wage laws translate to a 106.9 percent hike in New York City and Nassau, Suffolk, and Westchester Counties and a 72.4 percent increase in the rest of the state.

Taking into account the total minimum wage hikes since 2013 leads to even larger negative job implications for these states and for DC. This is illustrated in Table 7.

| State                | Year | Percent Reduction in Employment | Jobs Lost <sup>[8]</sup> |
|----------------------|------|---------------------------------|--------------------------|
| Total                | n/a  | n/a                             | 1,989,000                |
| California           | 2025 | 6.1%                            | 1,225,000                |
| District of Columbia | 2023 | 5.7%                            | 46,000                   |
| New York (total)     | n/a  | n/a                             | 718,000                  |
| NYC                  | 2022 | 7.5%                            | 354,000                  |
| NC, SC, & WC         | 2025 | 7.5%                            | 200,000                  |
| Rest of State        | 2024 | 5.1%                            | 164,000                  |

Again, applying Meer & West (2015), the total increase in the minimum wage since 2013 means that in California employment in 2025 will be 6.1 percent lower than without a minimum wage increase, in DC it will be 5.7 percent lower in 2023, and in New York’s regions it will be 5.1 percent to 7.5 percent lower between 2022 and 2025. These reductions translate to losses of 1.2 million jobs in California, 46,000 in DC, and 718,000 in New York. Combined, these two states and DC could lose almost 2 million jobs. When adding these to the rest of the state minimum wage increases over the next several years, it comes out to a total loss of 2.6 million jobs.

## ADDITIONAL TOTAL WAGE EARNINGS VS JOBS NOT CREATED

So, for each job opportunity that is killed, how much will total wage earnings actually rise? Using data from the American Community Survey (ACS) we estimated the number of workers directly impacted by each state’s minimum wage increase (the number of workers earning between the old and new minimum wage) and increase in their total wage earnings.

Table 8 contains the estimated number of workers directly impacted, the increase in total wage earnings, total number of jobs not created, and the additional total wage earnings per job not created. Our methodology for estimating the size of the impacted workforce and additional total wage earnings is in the appendix.

| State | Workers Impacted | Total Wage Earnings | Jobs Not Created | Total Wage Earnings per Job Not Created |
|-------|------------------|---------------------|------------------|---|
|-------|------------------|---------------------|------------------|---|

|                      |           |                  |           |          |
|----------------------|-----------|------------------|-----------|----------|
| Total                | 5,916,000 | \$18,250,000,000 | 2,642,000 | \$6,900  |
| Arizona              | 484,000   | \$949,000,000    | 90,000    | \$10,600 |
| Arkansas             | 57,000    | \$20,000,000     | 17,000    | \$1,200  |
| California           | 2,492,000 | \$9,848,000,000  | 1,225,000 | \$8,000  |
| Colorado             | 351,000   | \$575,000,000    | 73,000    | \$7,900  |
| Connecticut          | 36,000    | \$23,000,000     | 30,000    | \$800    |
| District of Columbia | 48,000    | \$179,000,000    | 46,000    | \$3,900  |
| Hawaii               | 58,000    | \$102,000,000    | 20,000    | \$5,100  |
| Maine                | 117,000   | \$271,000,000    | 28,000    | \$9,700  |
| Maryland             | 226,000   | \$357,000,000    | 86,000    | \$4,200  |
| Massachusetts        | 358,000   | \$537,000,000    | 97,000    | \$5,500  |
| Michigan             | 99,000    | \$54,000,000     | 82,000    | \$700    |
| New York (total)     | 1,204,000 | \$4,489,000,000  | 718,000   | \$6,300  |
| NYC                  | 287,000   | \$1,651,000,000  | 354,000   | \$4,700  |
| NC, SC, & WC         | 220,000   | \$938,000,000    | 200,000   | \$4,700  |
| Rest of State        | 697,000   | \$1,900,000,000  | 164,000   | \$11,600 |
| Oregon (total)       | 153,000   | \$347,000,000    | 45,000    | \$7,600  |
| Standard             | 49,000    | \$84,000,000     | N/A       | N/A      |
| Portland Metro       | 95,000    | \$257,000,000    | N/A       | N/A      |
| Nonurban Areas       | 9,000     | \$7,000,000      | N/A       | N/A      |
| Vermont              | 5,000     | \$3,000,000      | 3,000     | \$900    |
| Washington           | 227,000   | \$495,000,000    | 84,000    | \$5,900  |

Overall, we estimate 5.9 million workers will be directly impacted by all the minimum wage increases because they earn between the old and new minimum wage levels. Looking across the states, the number of workers the new minimum wages will impact ranges from 5,000 in Vermont to 2.5 million in California. New York's minimum wage increase will impact 1.2 million workers. Assuming that the minimum wage increases do not change the size of this group of workers and that hours remain constant, total wage earnings across all 14 states and DC will increase by \$18.2 billion.

While this may seem like major boost for low-wage workers, the 2.6 million fewer jobs created substantially limits the positive effects of the new state laws. On average, for each job lost from the minimum wage increases, total wage earnings across all workers in the 14 states and DC will only increase by \$6,900. In these states and DC, the total wage earnings gained per job lost ranges from only \$700 in Michigan to \$11,600 in parts of New York. Considering that average annual earnings of the jobs that will not get created would have been at least \$13,000, the effectiveness of these new minimum wage laws is highly questionable, as in exchange for a minimal total wage gain, someone else loses an opportunity.

## CONCLUSION

There are several ways employers pay for state mandated minimum wage hikes. In addition to slowing down hiring, they raise prices,[10] cut their workforce,[11] and replace the least skilled with more productive workers.[12] And when firms are still unable to make a profit, they go out of business.[13] Unfortunately, it is the lowest-wage, least-skilled workers who pay the largest prices for these consequences. While they need those experiences most to develop skills and find better paying jobs, they are the least likely to be able to keep their jobs or find a new one when the minimum wage rises. Moreover, in exchange for such steep job losses for low-skilled workers, the benefits to the employed population remain minimal. It is vital that policymakers keep these labor market consequences in mind when considering such drastic minimum wage increases.

## APPENDIX: METHODOLOGY FOR ESTIMATING WORKERS IMPACTED AND INCREASE IN TOTAL WAGE EARNINGS

We use data from either the 2014 American Community Survey (ACS) or the 2015 ACS depending on when the minimum wage began to increase.[14] For California, Connecticut, District of Columbia, Michigan, and New York we use the 2014 ACS, while we use the 2015 ACS for the other states.

We derive the hourly wage rate using the following figures from the ACS: average hours worked per week, weeks worked in the previous year, and annual wage and salary earnings. The ACS only records weeks worked as a categorical variable with six brackets that represent ranges for weeks worked in the year (one being 50-52 weeks). Consequently we estimate the weeks worked per year using the national averages in each bracket from the Current Population Survey.[15] For example, the average weeks worked for those who work 50 to 52 weeks is 51.9. With the annual wage, hours per week, and weeks per year, we computed the hourly wage as  $\text{Annual Wage} / [(\text{Hours/Week}) * (\text{Weeks/Year})]$ .

To estimate to the number of workers impacted, we calculate the number of individuals with wages—after factoring in wage growth—between the original minimum wage and the new minimum wage. We exclude individuals that are self-employed or individuals earning less than the original minimum wage from the analysis. We assume an annual wage growth rate of 2.9 percent, the same rate assumed by the CBO as the growth rate for persons in the lower wage bracket.[16] The growth adjusted hourly wage is then estimated by multiplying this growth rate for every year between the survey year and the year the minimum wage law is fully implemented. Table 8 lists the number of workers earning growth adjusted hourly wages that fall between the original minimum wage and the new minimum wage. We derive the total wage earnings in table 8 by estimating the average hourly wage increase from the minimum wage hike and, assuming constant hours and weeks worked, derive an average annual increase in earnings. We then multiplied those averages by the number of workers impacted in each state to estimate the increase in total wage earnings.

[1] Jonathan Meer & Jeremy West, “Effects of the Minimum Wage on Employment Dynamics,” Journal of Human Resources, August 2015, [http://people.tamu.edu/~jmeer/Meer\\_West\\_MinimumWage\\_JHR-final.pdf](http://people.tamu.edu/~jmeer/Meer_West_MinimumWage_JHR-final.pdf)

[2] State estimates may not add to total due to rounding.

[3] Unlike New York, Oregon does not provide employment projections for each region of the state. Consequently, we are unable to estimate the job implications of the minimum wage increases in each of the three regions of the state. Instead, to gauge the magnitude of the impact on jobs, we apply the Meer & West (2015) estimate just to the new “standard” minimum wage, and assume that it applies to the entire state.

[4] Arizona’s [Labor Statistics](#), Arkansas’ [Department of Workforce Services](#), California’s [Employment Development Department](#), Connecticut’s [Department of Labor](#), the District of Columbia’s [Department of Employment Services](#), Hawaii’s [Department of Labor and Industrial Relations](#), Maine’s [Center for Workforce Research and Information](#), Maryland’s [Department of Labor, Licensing & Regulation](#), Massachusetts’ [Executive Office of Labor and Workforce Development](#), Michigan’s [Department of Technology, Management & Budget](#), Oregon’s [Employment Department](#), and Vermont’s [Department of Labor](#) all project state employment growth between 2014 and 2024. Washington State’s [Employment Security Department](#) projects growth from 2014 to 2019 and from 2019 to 2024, Colorado’s [Department of Labor and Employment](#) projects growth between 2015 and 2025, and New York State’s [Department of Labor](#) projects growth for each region of the state from 2012 to 2022. While each report employment levels in the first and last year of the projection (and middle year in Washington’s case), no state reports employment for every year in the projection. To estimate each state’s projected employment level three years after a minimum wage is implemented, we calculated the compounded annual total employment growth rate implied by each projection. We then apply that growth rate to project employment levels specifically to three years after a state’s minimum wage changes. For the minimum wage increases in 2017, this means we projected employment levels to 2020. For the entire minimum wage hikes, this means three years after a state’s new minimum wage is fully implemented. In some instances, three years after a minimum wage hike is a few years beyond the projections reported by these state agencies. In those cases, we project employment to the relevant year by assuming employment continues to grow at the same annual rate implied by the state agency projections.

[5] Note that in Table 4 the minimum wages under the previous laws in Arizona, Colorado, the District of Columbia, Oregon, Vermont, and Washington do not match the minimum wages those states mandated just prior to implementing the new laws. Each of the state’s previous laws mandated that the minimum wage increases each year with a measure inflation. For inflation adjustments, [Arizona](#) used the federal CPI-U, [Colorado](#) used the CPI-U for the Denver-Boulder-Greeley metropolitan area, [the District of Columbia](#) used the CPI-U for the Washington Metropolitan Statistical Area, [Oregon](#) used the federal CPI-U, [Vermont](#) used the not seasonally adjusted federal CPI-U, and [Washington](#) used the CPI-W, all of which are reported by the Bureau of Labor Statistics. This means that in the years that the new minimum wages are fully implemented, the minimum wages under the previous laws would have likely been higher than their previous levels. To project what minimum wages under the previous laws would have been to when the new minimum wages are completely phased-in, we calculate the compounded annual growth rate in each inflation measure from 2006 to 2016 and assume the same growth rate will continue going forward. This yields table 4’s projected minimum wages in future years under previous law. In the remaining 9 states, the previous laws did not mandate that the minimum wages rise with inflation. As a result, the minimum wages in those states would have remained constant without the new laws.

[6] State estimates may not add to total due to rounding.

[7] Unlike New York, Oregon does not provide employment projections for each region of the state. Consequently, we are unable to estimate the job implications of the minimum wage increases in each of the three regions of the state. Instead, to gauge the magnitude of the impact on jobs, apply Meer & West's estimate just to the new "standard" minimum wage, and assume that it applies to the entire state.

[8] State estimates may not add to total due to rounding.

[9] State estimates may not add to totals due to rounding.

[10] Thomas MaCurdy, "How Effective Is the Minimum at Supporting the Poor?" *Journal of Political Economy*, Vol. 123, No. 2, April 2015, pp. 497-545,  
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<http://www.nber.org/papers/w18681>

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<https://www.chicagofed.org/publications/working-papers/2013/wp-26>

[14] American Community Survey (ACS), <https://www.census.gov/programs-surveys/acs/>

[15] Current Population Survey, <http://www.census.gov/programs-surveys/cps.html>

[16] "The Effects of a Minimum-Wage Increase on Employment and Family Income," Congressional Budget Office, February 2014, <https://www.cbo.gov/publication/44995>