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JOB-DESTROYING EFFECTS OF \$15 MINIMUM WAGE BY METRO, INDUSTRY AND OCCUPATION

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EXECUTIVE SUMMARY

- A \$15 hourly minimum wage is already legislated to become law in select, high-cost metropolitan areas and across the entire state of California. The Democratic Party officially made a \$15 hourly federal minimum wage part of its platform in 2016. We examine the impact of regulating a \$15 hourly federal minimum wage across distinct metropolitan areas and industries in the United States. Our analysis uses data on the wage distribution by metropolitan area and industry down to the occupation level.
- The U.S. labor market is made up of a set of highly heterogeneous and spatially diffuse metropolitan areas. Each of these areas has a unique mix of industries, workers, wage levels and local policies. A \$15 hourly minimum wage would interact differently with each labor market to produce drastically different effects across areas and industries. The proposed policy would be binding for fully 62 percent of the employed population in Brownsville-Harlingen, Texas, but only for 22 percent of the employed population in San Francisco.

CONTENTS

Executive summary	1
Introduction	2
Policy background	4
Covered employees and regulated wage changes	5
Employment loss simulation	12
Conclusion	17
About the authors	18

FIGURE 1: U.S. federal minimum wage, legislated and real value	3
FIGURE 2: State minimum wages higher than federal minimum wage (2016)	3
FIGURE 3: Municipal minimum wages higher than state minimums (2016)	4
FIGURE 4: Wage distribution imputation example, Boston and Atlanta	5
FIGURE 5: Percent of covered employees under a \$15 minimum	8
FIGURE 6: Percentage wage change imposed by \$15 minimum	12
FIGURE 7: Percent employment loss for covered workers under \$15 minimum	14

TABLE 1: Employees subject to \$15 minimum by metro area	7
TABLE 2: Employees subject to \$15 minimum by industry	9
TABLE 3: Employees subject to \$15 minimum by occupation	10
TABLE 4: Employees subject to \$15 minimum by subindustry and metro area (%)	10
TABLE 5: Occupations by metro area where \$15 minimum is nonbinding (sample)	11
TABLE 6: Percentage wage change imposed by \$15 minimum (%)	13
TABLE 7: Employment loss estimates for \$15 minimum by metro area	15
TABLE 8: Employment loss estimates for a \$15 minimum by major industry	16
TABLE 9: Employment loss from a \$15 minimum by occupation (%)	17
TABLE 10: Employment loss from \$15 minimum by subindustry and metro area	18

- A \$15 hourly minimum wage would represent a dramatic increase in labor costs for many employers and the cost increase would be spread unevenly across industries, metropolitan areas and the wage distribution. In Dallas, employers of workers in the bottom percentile of the wage distribution would see a nearly 80 percent labor-cost increase imposed, while employers of workers in the 25th percentile would have a 40 percent labor-cost increase imposed. In Seattle, a \$15 hourly minimum wage would represent a 40 percent labor-cost increase on nearly the entire bottom decile of the distribution.
- Employment loss would result from the labor-cost increase under a \$15 hourly minimum wage. We estimate the New York metropolitan area alone would lose approximately 170,000 jobs, while Los Angeles, Chicago and Houston would each lose more than 100,000 jobs. Nationally, 1.7 million workers in the food preparation and serving industry—representing nearly 18 percent of all covered workers—would lose their jobs under a \$15 hourly minimum wage. More than 900,000 workers in office and administrative support occupations would lose their jobs, totaling nearly 12 percent of all covered workers.
- Job loss under a \$15 hourly minimum wage would be concentrated among the very poorest workers in metropolitan areas. In Chicago, 28 percent of job losses would be concentrated among workers in the bottom decile of the wage distribution, while 38 percent of job losses in Boston would be concentrated among the poorest 10 percent of wage earners.

INTRODUCTION

With a host of states and municipalities implementing large minimum wage increases, the federal minimum wage has made its way back into the national conversation. Advocates of a higher minimum wage make the argument that wages have stagnated for many Americans, not keeping pace with cost-of-living increases. Thus, advocates contend, the government should step in on behalf of workers and set a higher minimum level of compensation.

Opponents of minimum wage legislation typically point out that these policies cause employment loss, while alternative policies—such as increasing the Earned Income Tax Credit—would work better to alleviate poverty and improve job opportunities. Other critics of a higher minimum wage argue that policies to promote economic growth are the only sustainable solutions to rising living costs.

An overlooked aspect of any change to the federal minimum wage is that it would have differential effects across American cities and industries that have different existing policies

and labor-force characteristics. Studies of minimum wage policy proposals typically produce estimates of national job loss, but ignore that job loss from a minimum wage would be vastly different across the many varied labor markets and metropolitan areas.

We examine how a federal minimum wage increase would affect different proportions of workers across metropolitan areas and across industries, resulting in differing labor-cost increases for employers. Using labor-elasticity estimates from the vast empirical literature on prior minimum wage changes, we estimate how a \$15 minimum wage would translate into employment losses across the distribution of cities and industries in America.

Our estimates are based on industry-specific wage distributions from 414 metropolitan areas across 22 broad industry categories and 750 detailed industries, originating from the U.S. Bureau of Labor Statistics. We show where a \$15 minimum wage disrupts the unique wage distribution of each metropolitan area and industry and use this calculation to show both national job loss and the heterogeneity in job losses that would result.

Select states and municipalities have already legislated hourly minimum wages of \$15, and a \$15/hour minimum wage was officially included as part of the Democratic Party platform in 2016.¹ Seattle will be the first major city to implement a \$15 minimum wage, with the regulation taking effect for employers with 500 or more employees in January 2017.² New York City is scheduled to implement a \$15 minimum wage by December 2018; San Francisco in July 2018; Washington, D.C and Los Angeles in July 2020;³ and all of California by January 2022.⁴

States and localities legislating \$15 minimum wages have one thing in common: they all are in the upper echelon of the cost-of-living and earnings distributions. This means a \$15 minimum wage in these areas will not have nearly the impact on local labor markets that it would in lower-wage areas in the Midwest and the South. The federal minimum wage doesn't have this flexibility; it applies uniformly to all municipalities, regardless of local income distributions. This means raising the federal standard would end up destroying a larger percentage of jobs in low-cost areas than it would in the sorts of high-cost areas that already are adopting high minimum wages.

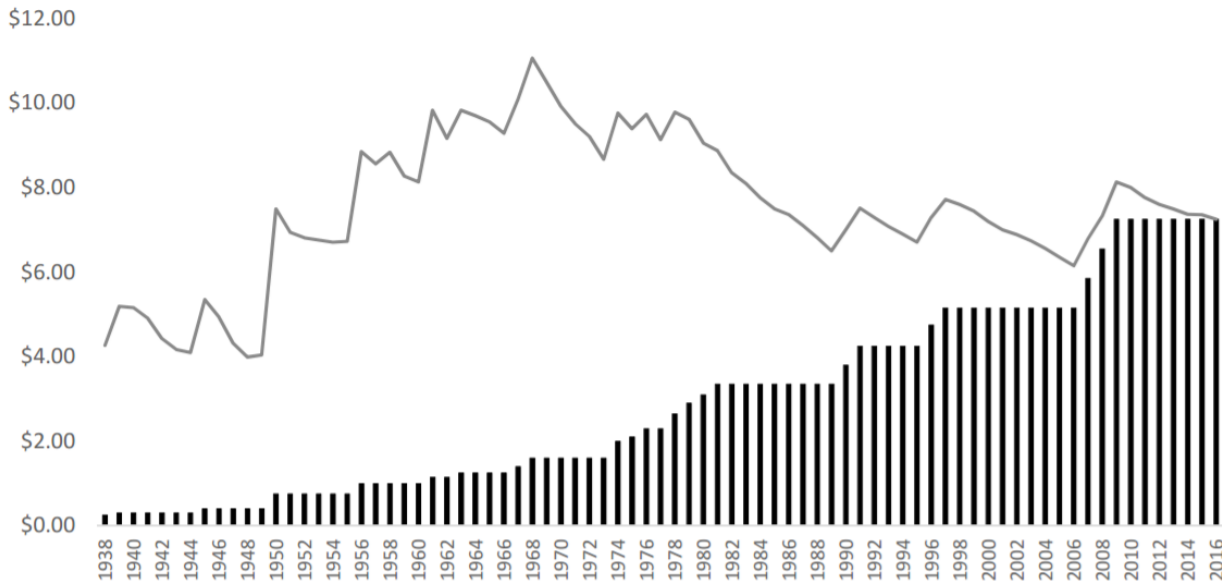
1. Information about future implementation of minimum wages and effective dates comes from the minimum wage tracker at the Economic Policy Institute.

2. Employers of fewer than 500 employees are subject to a \$13 hourly minimum wage that increases in stages to \$15/hour by January 2019.

3. The Los Angeles city law applies only to employers with more than 26 employees.

4. Portland, Oregon, has legislated a \$14.75 minimum wage by July 2022. The Portland minimum wage applies to all municipalities within the Portland urban growth boundary.

FIGURE 1: U.S. FEDERAL MINIMUM WAGE, LEGISLATED AND REAL VALUE



NOTES: Legislated minimum wage data, represented by the bars, are from the Department of Labor. The real value of minimum wages, represented by the line, are in 2016 dollars using the CPI-U inflation calculator. Legislated minimum wage data before 1978 reflect the minimum wage that applied to employees covered by the original 1938 Fair Labor Standards Act. Slightly different rates apply for different sets of covered employees between 1961 and 1978.

Today's \$7.25 federal minimum wage is only one of a patchwork of minimum wage policies across U.S. states and municipalities. According to the Economic Policy Institute's minimum wage tracker, as of this writing, 29 states (and the District of Columbia) have a minimum wage above the federal minimum. Figure 2 displays the states that legislate a higher minimum wage than the federal level, and the current (2016) hourly wage that applies. The highest current minimum wage is imposed on employers in the District of Columbia, at \$11.50/hour. That's a full \$1.50 higher than the rates in California and Massachusetts, the next highest areas, which both impose a \$10/hour minimum wage.*

* The minimum wage in D.C. is scheduled to increase to \$12.50/hour in July 2017 and to \$15/hour by July 2020. California's state minimum wage is scheduled to increase to \$10.50 in January 2017 and to \$15/hour by January, 2022. Massachusetts' minimum wage is scheduled to increase to \$11/hour in January 2017.

FIGURE 2: STATE MINIMUM WAGES HIGHER THAN FEDERAL MINIMUM WAGE (2016)

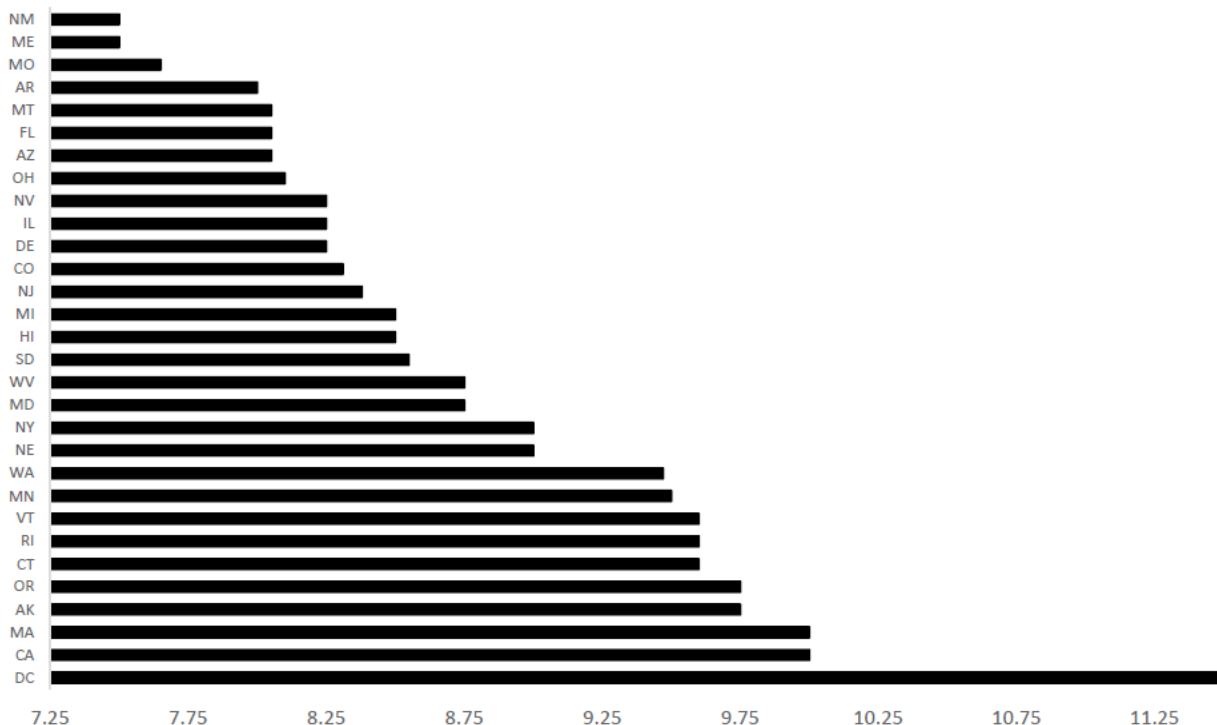
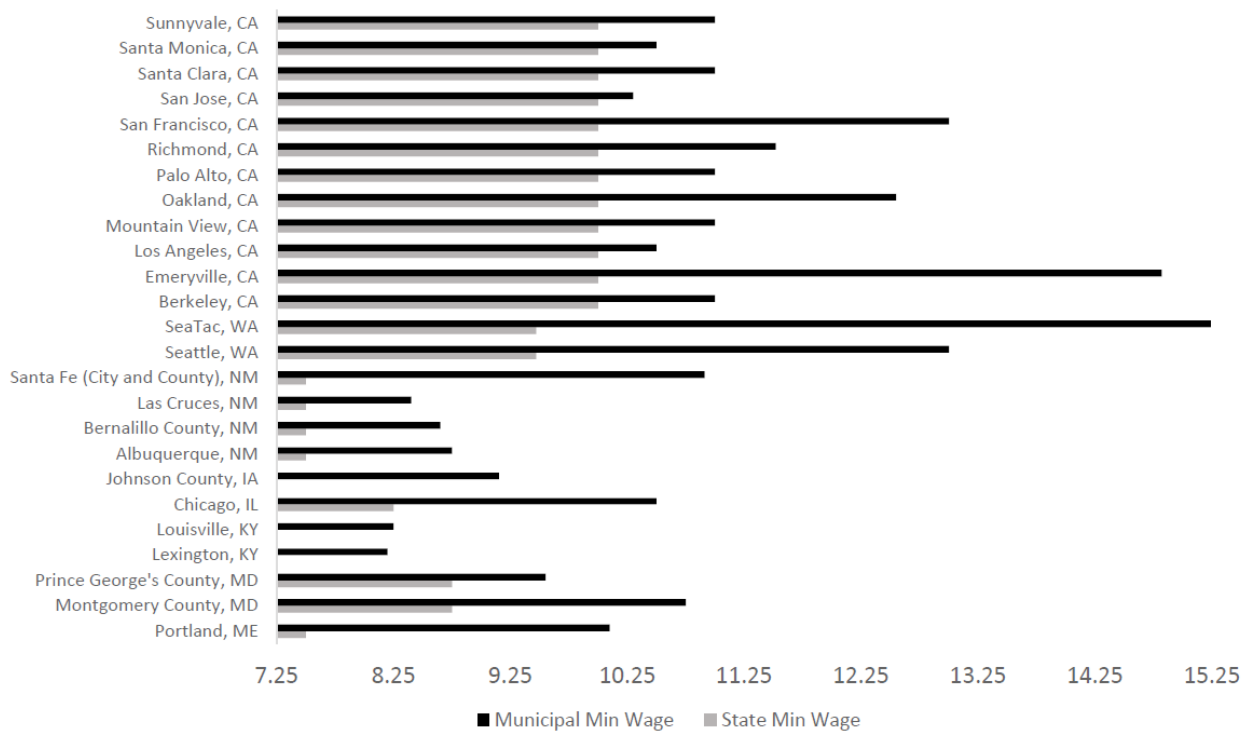


FIGURE 3: MUNICIPAL MINIMUM WAGES HIGHER THAN STATE MINIMUMS (2016)



NOTES: SeaTac's law applies only to hospitality and transportation workers. A \$12/hour minimum applies to employers of 500 or fewer employees in Seattle. A \$13/hour minimum applies to employers with 55 or fewer employees in Emeryville, California. Los Angeles also has a lower minimum for employees of 26 or fewer employees, but it is set to rise.

The rise in the cost of labor under a \$15 hourly minimum wage would result in substantial job loss, with significant variation across industries and cities. The New York metropolitan alone would lose approximately 170,000 jobs, while Los Angeles, Chicago and Houston each would lose more than 100,000 jobs. Nationally, 1.7 million workers in the food preparation and serving industry would lose their jobs, while more than 900,000 workers in office and administrative support occupations would lose their jobs. Perhaps the worst consequence of a \$15 hourly minimum wage would be that job losses would be concentrated among the very poorest workers. In Miami, 27 percent of job losses would be concentrated among workers in the bottom decile of the wage distribution, while 34 percent of job losses in New York would be concentrated among the poorest 10 percent of earners.

POLICY BACKGROUND

The first federal minimum wage of \$0.25 per hour was signed into law by President Franklin Roosevelt under 1938's Fair Labor Standards Act.⁵ The law covered workers engaged directly in interstate commerce or in the production of goods to be used in interstate commerce, representing about one-

fifth of the nation's workforce at the time.⁶ Following a series of legislative changes, the current federal minimum wage stands at \$7.25, at which level it has remained unchanged since 2009.

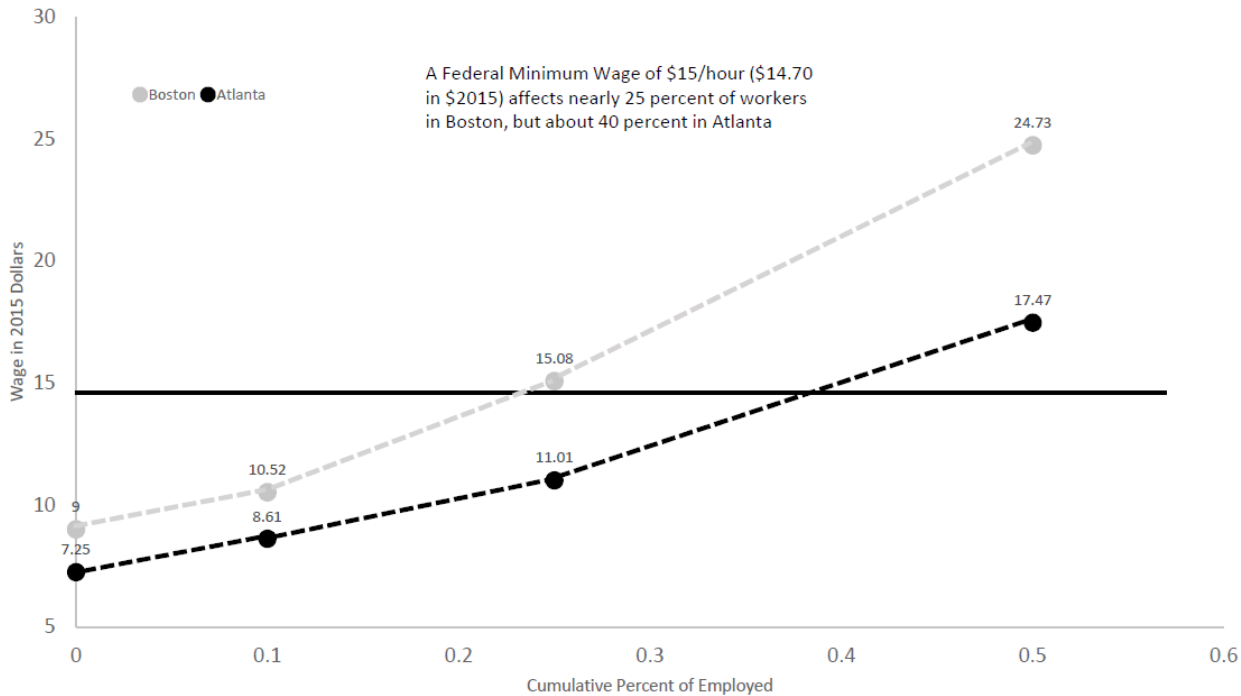
Figure 1 shows legislated changes in the federal minimum wage since it was enacted in 1938 (bars), along with the real value of the minimum wage in 2016 dollars (line). The legislated value of the minimum wage has steadily increased, with major increases in 1950, throughout the 1970s, in the early and late 1990s and in the late 2000s. The real value of the minimum wage peaked in 1968, representing \$11.06 in today's dollars. Before that time, there were several legislated increases that appear small by today's standard, but were in fact large in real terms. Since 1968, the real value of the minimum wage has been eroded by inflation, despite several legislated increases.

In addition to state minimum wages, municipalities in 12 states set minimum wages higher than the state rate. Figure 3 summarizes the municipalities with a minimum wage

5. The original \$0.25 minimum wage is equivalent to \$4.27 in today's dollars.

6. Jonathan Grossman, "Fair Labor Standards Act of 1938: Maximum Struggle for a Minimum Wage" Monthly Labor Review. 1978. Accessed through U.S. Department of Labor in updated electronic form at: <https://www.dol.gov/general/aboutdol/history/flsa1938>

FIGURE 4: WAGE DISTRIBUTION IMPUTATION EXAMPLE, BOSTON AND ATLANTA



SOURCES: Wage distribution data are from the Bureau of Labor Statistics, state occupational employment and wage estimates for 2015. Minimum wage of \$15 nationally in 2017, deflated to 2015 dollars using CPI.

higher than their respective state as of this writing.⁷ Nearly all current municipal minimum wages are in high-cost West Coast cities, especially in California, although there are a sprinkling of municipal minimum wage laws in the Midwest and Northeast. SeaTac, Washington has the highest current minimum wage at \$15.24, but that law only applies to a small segment of workers in the city. Minimum wages in Seattle and San Francisco are broader in coverage than the SeaTac regulation, and run up to \$13/hour for regulated employers. Outside the West Coast, there are few municipal minimum wage laws, although notably Chicago imposes a sizable minimum wage, at \$10.50/hour.

Supporters of minimum wage regulations point to widening gaps between high-income and low-income earners, and bolster their stance with appeals to moral and social justice. The reality is that imposing a minimum wage has costs as well as benefits. Any serious policy discussion of the issue must recognize both, and consider the potential for alternative policies that deliver a favorable cost-benefit comparison.

The most obvious tradeoff of imposing a minimum wage is that it will destroy jobs and reduce hours for some workers,

while raising hourly wages for others. There are a host of other costs associated with minimum wage increases outside of immediate employment loss, including: the loss of entry-level job experience for young workers; reduced employment opportunities for current job-seekers; increased use of the social safety net by the newly unemployed; an increased investment in labor-saving technology that could exacerbate future employment losses; and the pass-through of cost increases in the form of higher prices for consumers.

COVERED EMPLOYEES AND REGULATED WAGE CHANGES

Our model to estimate the effects of a \$15 minimum wage builds on similar models used by the Congressional Budget Office (2014)⁸ and Hanson and Hawley (2014).⁹ We extend these models by examining the effects of a larger minimum wage, expanding the set of areas we examine for heterogeneous impact and examining occupation-level data. Our model examines all metropolitan areas in the United States and a range of industries nationally and at the metropolitan

7. Several municipalities have already passed legislation that will move minimum wages higher starting in early 2017, including New York City.

8. Congressional Budget Office, "The effects of a minimum-wage increase on employment and family income," 2014. Accessed at: <http://www.cbo.gov/sites/default/files/cbofiles/attachments/44995-MinimumWage.pdf>

9. Andrew Hanson and Zackary Hawley, "The \$10.10 Minimum Wage Proposal: An Evaluation across States," *Journal of Labor Research*, 35(3): 323–345, 2014.

area level. We start by using data on the wage distribution across metropolitan areas and industries to estimate the number of employees who would be subject to a new \$15/hour federal minimum wage. After finding the occupations and areas where workers would be subject to the new regulation, we estimate the extent to which the minimum wage would impose a cost increase to employers. Using estimates of imposed labor-cost increases, we take employment elasticities from the literature and use them to estimate job loss across areas and industries.

Covered employees in the wage distribution

In order to estimate how many employees would be covered by a \$15 minimum wage, we need to set a time for implementation and match that to a year for which we have data on the wage distribution. Since any policy would necessarily be implemented with some lag, and general wage inflation is continuous, it is necessary to deflate the proposed minimum wage to match the year of wage distribution data.

The most recent year for which detailed metropolitan-area-level data are available on the wage distribution is 2015. We assume that any legislation would be implemented with a two-year lag, so our estimates reflect a \$15/hour federal minimum wage implemented in 2017. We use the Consumer Price Index (CPI) for all urban consumers to deflate \$15/hour back two years, giving us a minimum wage value of \$14.70 to apply to the wage-distribution data.¹⁰ We use \$14.70 as the actual point in the wage distribution where a \$15/hour minimum wage becomes binding, and examine the wage distribution around that point.

The Bureau of Labor Statistics data give information on a series of points in the wage distribution, but not the entire distribution. We thus need to make an imputation of the full distribution to estimate the number of covered employees. The BLS reports the 10th, 25th, median, 75th and 90th percentiles. We use a linear imputation to estimate the remainder of the distribution in each metropolitan area and for each industry. Our primary assumption is that wages grow by the same dollar amount for every percentile of the distribution between the known points and that no workers can be paid below the current or proposed minimum wages.¹¹

Figure 4 offers an example of the imputation in two representative cities: Atlanta and Boston. The labeled points on

the figure come from BLS data, and the dotted lines show the imputation between known points. The figure features the actual state minimum wage in Massachusetts for 2015 (\$9/hour) as the starting point of the Boston distribution and the current federal minimum wage as the starting point in Atlanta (the Georgia state minimum wage is set below the federal level). The imputed values allow us to see the relevant parts of the wage distribution. They also allow us to calculate that a \$15 minimum wage would cover about 25 percent of the employed population in Boston, but nearly 40 percent of the employed population in Atlanta.

We estimate the number of employees covered by a \$15/hour minimum wage using the procedure outlined above in all metropolitan areas and for all industries in the United States. Table 1 shows our estimate for the number and percentage of covered employees in 30 major metropolitan areas.¹² There are two main takeaways from Table 1:

1. A substantial portion of the workforce (at least one in five in every major city) would be subject to the \$15 minimum wage; and
2. The variation in coverage across cities is substantial, covering between 22 and 51 percent of the workforce.

Even at the low end of the distribution, a \$15 minimum wage would cover 22 percent of workers in San Francisco and 23 percent of workers in San Jose, or nearly one in every four employed persons. At the high end, a \$15 minimum wage would cover nearly half the workforce in some southern cities: 51 percent of the employed population in Orlando, Florida; 47 percent in Miami; and 45 percent in New Orleans.

Figure 5 maps the percentage of covered employees from a \$15 minimum wage across all 414 metropolitan areas in our sample. The map shows that imposing a \$15 minimum would result in extremely uneven coverage of employed workers across metropolitan areas. Places with the smallest percentages of workers covered are primarily located within the Boston–D.C. corridor, the San Francisco Bay Area and Seattle. Even these areas would see between 22 and 30 percent of their workforces exposed to a \$15 minimum wage. Nearly all of the Southeast United States would have at least 40 percent of the workforce covered by a \$15 minimum wage, while at least 35 percent of employees in most Midwest cities would be subject to the new regulation. A sprinkling of cities in the South and Southwest would have more than half of their workforce subject to a drastic change in the minimum wage.

Brownsville-Harlingen, Texas would have the largest percentage of the employed population exposed to a \$15/hour

10. We use a three-year average for the CPI from 2013–2015 to determine the deflator. If future inflation is greater than the last three years' average, our results will produce an overestimate of job loss; if future inflation is smaller than the last three years' average, our results will produce an underestimate of job loss.

11. We use the following equation to impute the value for each percentile of the distribution: $g = \frac{P-L}{N}$. Where N counts the number of percentiles between the known points of the distribution endpoints P and L. After solving for g, we use that value to add to the initial known value of wages L, until we reach the next known point P.

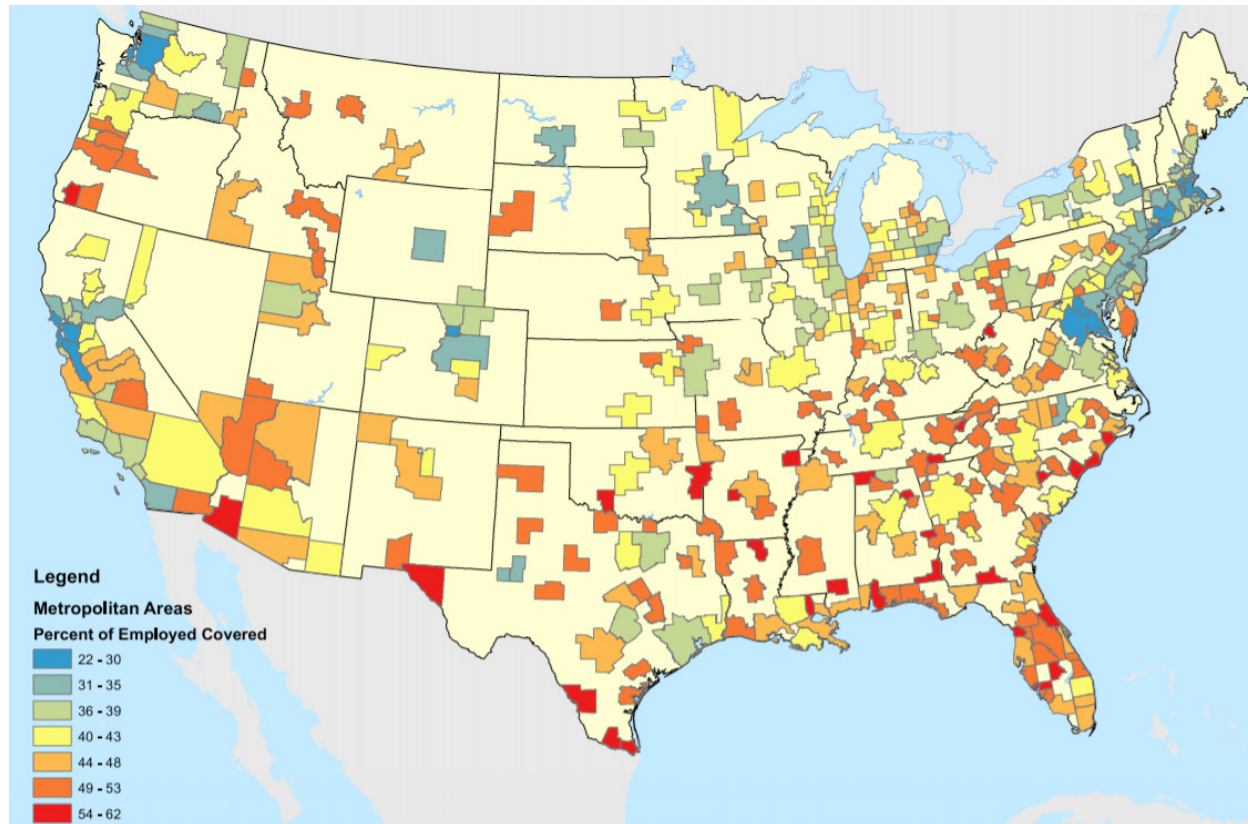
12. The full list of 414 metropolitan areas and estimates of covered employees is available from the authors upon request.

TABLE I: EMPLOYEES SUBJECT TO \$15 MINIMUM BY METRO AREA

Metropolitan Area/Metropolitan Division	Employed Population (000)	Covered Employees (000)	Percent Covered (%)
New York-Jersey City-White Plains, NY-NJ*	6,479.1	2,008.5	31
Los Angeles-Long Beach-Glendale, CA*	4,103.6	1,518.3	37
Chicago-Naperville-Arlington Heights, IL*	3,571.4	1,321.4	37
Houston-The Woodlands-Sugar Land, TX	2,930.0	1,113.4	38
Atlanta-Sandy Springs-Roswell, GA	2,480.3	992.1	40
Washington-Arlington-Alexandria, DC-VA-MD-WV*	2,417.4	652.7	27
Dallas-Plano-Irving, TX*	2,329.8	885.3	38
Minneapolis-St. Paul-Bloomington, MN-WI	1,880.4	601.7	32
Phoenix-Mesa-Scottsdale, AZ	1,875.9	750.3	40
Boston-Cambridge-Newton, MA*	1,761.5	440.4	25
Seattle-Bellevue-Everett, WA*	1,536.6	384.1	25
Denver-Aurora-Lakewood, CO	1,374.3	453.5	33
San Diego-Carlsbad, CA	1,353.2	473.6	35
St. Louis, MO-IL	1,322.6	529.1	40
Baltimore-Columbia-Towson, MD	1,314.6	433.8	33
Tampa-St. Petersburg-Clearwater, FL	1,216.3	535.2	44
Pittsburgh, PA	1,132.6	441.7	39
Orlando-Kissimmee-Sanford, FL	1,119.2	570.8	51
Charlotte-Concord-Gastonia, NC-SC	1,114.7	445.9	40
Miami-Miami Beach-Kendall, FL*	1,092.3	513.4	47
Portland-Vancouver-Hillsboro, OR-WA	1,088.7	435.5	40
Oakland-Hayward-Berkeley, CA*	1,054.0	295.1	28
Cincinnati, OH-KY-IN	1,027.3	400.6	39
Kansas City, MO-KS	1,022.3	388.5	38
Cleveland-Elyria, OH	1,020.2	387.7	38
San Francisco-Redwood City-South San Francisco, CA*	1,020.0	224.4	22
San Jose-Sunnyvale-Santa Clara, CA	1,011.8	232.7	23
Philadelphia, PA*	879.8	307.9	35
Detroit-Dearborn-Livonia, MI*	726.3	254.2	35
New Orleans-Metairie, LA	557.7	251.0	45

*Indicates metropolitan division, part of a larger metropolitan area.

FIGURE 5: PERCENT OF COVERED EMPLOYEES UNDER A \$15 MINIMUM



minimum wage, with fully 62 percent of its workforce covered. Several other smaller metros would also have more than 60 percent of employees exposed, including: Grants Pass, Oregon; Hot Springs, Arkansas; Myrtle Beach, South Carolina; and McAllen, Texas. Compared to the metro areas with the smallest exposure—San Francisco, with 22 percent, and San Jose, with 23 percent—the most exposed areas have nearly triple the workforce subject to a \$15 federal minimum wage. Of the 414 metropolitan areas we examined, 88 would see at least half their workforces covered by a \$15 minimum wage; 282 metro areas, or 68 percent of the total, would have at least 40 percent of all employed persons covered; and 90 percent of metro areas would have at least one-third of the workforce exposed to this massive new regulation.

Covered employees by industry

Differences across metropolitan areas in the coverage of a \$15 minimum wage are stark. However, those differences pale in comparison to differences across industries. Not surprisingly, workers in food preparation and serving occupations are among the most vulnerable. What's surprising is that fully 87 percent of them would be covered by a new \$15 minimum wage. Farming, fishing and forestry occupations are nearly as exposed, with 84 percent of workers covered

by the policy. More than seven in 10 workers in the personal care and service occupations (78 percent) and building and grounds cleaning and maintenance occupations (71 percent) also would be covered.

Table 2 shows estimates for all industries, classified by their Standard Occupational Classification (SOC) from the BLS.¹³ There are several industries where the \$15 minimum wage would have relatively little impact, as it exposes few workers to new regulation. The least affected industries are computer and mathematics, architecture and engineering and management occupations – all with less than 5 percent of employees covered.

A more detailed look at occupations within broader industry categories reveals that specific occupations would be disproportionately affected by a \$15 minimum wage.¹⁴ Of the 752 occupations in the BLS data where the minimum wage would be binding, 157 would see at least 50 percent of the workforce subject to the new regulation, while 61 occupations would

13. We use the term industry to refer to the Standard Occupational Classification of "major" industry, which is an aggregation of lower level occupation classifications.

14. The sub-classification "occupation" here are equivalent to the Standard Occupational Classification for "detailed" occupations.

TABLE 2: EMPLOYEES SUBJECT TO \$15 MINIMUM BY INDUSTRY

Major Industry Category	Employed Population (000)	Covered Employees (000)	Percent Covered (%)
Office and administrative support occupations	19,300.0	7,952.2	41
Sales and related occupations	12,800.0	7,219.2	57
Food preparation and serving related occupations	11,100.0	9,600.6	87
Transportation and material moving occupations	8,019.9	4,125.8	51
Education, training and library occupations	7,348.2	1,762.1	24
Production occupations	7,226.5	3,212.7	44
Healthcare practitioners and technical occupations	7,081.1	615.3	9
Business and financial operations occupations	6,510.0	429.8	7
Management occupations	5,204.8	250.6	5
Construction and extraction occupations	4,596.8	1,039.1	23
Installation, maintenance and repair occupations	4,524.8	1,053.7	23
Building and grounds cleaning and maintenance occupations	3,814.0	2,703.3	71
Personal care and service occupations	3,799.4	2,974.1	78
Computer and mathematical occupations	3,666.6	196.2	5
Healthcare support occupations	3,459.6	2,152.2	62
Protective service occupations	2,907.4	1,069.4	37
Architecture and engineering occupations	2,247.7	117.2	5
Community and social service occupations	1,714.3	382.3	22
Arts, design, entertainment, sports and media occupations	1,687.9	420.5	25
Life, physical and social science occupations	1,009.6	88.0	9
Legal occupations	986.1	67.1	7
Farming, fishing and forestry occupations	344.7	288.4	84

NOTES: Major industry categories are from the Standard Occupational Classification system, which aggregates detailed occupational data to these categories. Data are authors' calculations using Bureau of Labor Statistics Local Employment Data.

see at least 75 percent of the workforce covered. Table 3 lists the occupations where at least 90 percent of workers would be covered by a \$15/hour minimum wage. Some of the most affected occupations include simple service-oriented jobs or entry-level occupations, such as fast-food cooks, cashiers, dishwashers, home health aides and childcare workers.

Each metropolitan area has a unique mix of occupations and a \$15 minimum wage potentially could affect each differently. We estimated the extent to which the proposed policy would be binding on each occupation in each metropolitan area, to see what jobs in what areas would be hit hardest by the new regulation. Table 4 shows how select occupations would be subject to a \$15/hour minimum wage across four representative metropolitan areas: San Francisco; Miami; Akron, Ohio; and El Paso, Texas.

Bartenders are a good example of how the minimum wage would play out differently across different areas of the country. The data show that literally every bartender in Akron, Ohio and El Paso, Texas would be subject to the new regula-

tion, while only a bit more than half in San Francisco would be. Miami represents a middle ground, with about three in every four bartenders exposed under the new regulation. Bartenders show that, even for an occupation that is basically identical across areas, there are vast differences in how the policy would affect differing metropolitan areas. Other occupations—like short-order cooks and waiters and waitresses—follow this pattern, as well.

A counterexample is the occupation of office and administrative support, where San Francisco workers would actually be most exposed under the new policy (44 percent of workers affected). A substantial share of office and administrative support workers are also affected in El Paso, and to a lesser extent in Miami (28 percent) and Akron (27 percent). Retail salespeople are one of the most exposed occupations in San Francisco (60 percent) and there is a substantial share of this occupation that would be affected in most cities, with 86 percent of that workforce subject to the new regulation in Miami; 84 percent in El Paso; and 78 percent in Akron.

TABLE 3: EMPLOYEES SUBJECT TO \$15 MINIMUM BY OCCUPATION

Occupation Category	Employed Population	Covered Employees	Percent Covered (%)
Cashiers	2,939,480	2,793,974	95
Combined food preparation and serving workers, including fast food	2,789,830	2,756,340	99
Personal care aides	1,141,250	1,084,542	95
Food preparation workers	749,690	690,230	92
Home health aides	703,850	654,293	93
Childcare workers	504,200	453,389	90
Dishwashers	452,880	442,135	98
Cooks, fast food	413,090	409,840	99
Counter attendants, cafeteria, food concession and coffee shop	412,940	396,732	96
Dining room and cafeteria attendants and bartender helpers	373,420	347,222	93
Hosts and hostesses, restaurant, lounge and coffee shop	357,300	344,788	96
Amusement and recreation attendants	237,300	222,569	94
Farmworkers and laborers, crop, nursery and greenhouse	229,900	217,260	95
Hotel, motel and resort desk clerks	189,950	170,784	90
Laundry and dry-cleaning workers	170,920	154,480	90
Cooks, short Order	139,230	130,246	94
Parking lot attendants	121,360	112,331	93
Lifeguards, ski patrol and other recreational protective service	114,520	103,182	90
Ushers, lobby attendants and ticket takers	88,380	81,777	93
Manicurists and pedicurists	64,630	57,969	90
Pressers, textile, garment and related materials	34,760	33,068	95
Graders and sorters, agricultural products	14,850	13,788	93
Shampoosers	11,350	11,192	99
Shoe machine operators and tenders	130	120	93
Fabric menders, except garment	120	110	92

NOTES: Occupation categories are from the detailed level of the Standard Occupational Classification system.
Covered employees by industry within metropolitan areas

TABLE 4: EMPLOYEES SUBJECT TO \$15 MINIMUM BY SUBINDUSTRY AND METRO AREA (%)

Occupation Category	San Francisco	Miami	Akron	El Paso
Bartenders	55	74	100	100
Bakers	52	88	76	91
Word processors and typists	4	47	24	9
Waiters and waitresses	60	88	100	100
Shipping, receiving and traffic clerks	24	64	50	79
Retail salespersons	60	86	78	84
Preschool teachers (non-special education)	21	71	76	60
Short-order cooks	56	89	91	100
Nursing assistants	16	93	88	88
Office and administrative support workers	44	28	27	40

NOTES: Occupation categories are from detailed level of the Standard Occupational Classification system.

Given the nature of the wage distribution, a \$15 minimum wage would not be binding for some occupations. The BLS data does not contain the full distribution of wages and we only know where the bottom decile of that distribution is. Thus, we make the conservative assumption that, if an occupation in a metropolitan area has a bottom decile that earns more than twice the proposed minimum wage, it would have no workers subject to the new regulation.

Table 5 shows examples of occupations where the bottom decile wage (listed in parenthesis) is more than double the new proposed minimum (\$30/hour in this case). The mix of occupations differs by area, although with some overlap, indicating that occupations with the highest earnings across metros differs. Examples of occupations that we estimate to be untouched by the \$15/hour minimum wage are surgeons and computer and information systems managers in San Francisco; optometrists and podiatrists in Akron; lawyers

and pharmacists in El Paso; and dentists and radiation therapists in Miami.

Employer labor cost increases

To estimate job loss from a \$15 minimum wage, we need to know not only what occupations and areas are covered by the new regulation, but the extent to which they are affected. We examine the full wage distribution in each metropolitan area and for each industry, calculating for each percentile how much employers would have to raise wages to be in-line with the new regulation.¹⁵

For example, wages in the 10th percentile in Brownsville-Harlingen, Texas would have to increase by 71 percent under the new regulation, while wages in the 10th percentile in Bremerton-Silverdale, Washington, would have to rise by 44 percent. Similarly, wages in the 10th percentile in Seattle would be forced to rise by 40 percent, while wages in the 10th percentile in Houston would be subject to a legislated increase of 62 percent.

Figure 6 shows the percentage wage change imposed by a \$15 minimum across the wage distribution in both Dallas and

Seattle. The figure shows that, even among covered workers, the new regulation would have a larger impact on workers at the very bottom of the wage distribution. Their employers would be forced to raise wages by the largest amount, exposing them to the biggest risk of employment loss. In Dallas, the bottom percentile of the wage distribution would see a nearly 80 percent wage increase imposed, while the 25th percentile would see a 40 percent wage increase imposed. A legislated \$15 minimum wage would be less imposing on the Seattle market, mostly because of the already high minimum wage in that city. But even in Seattle, a 40 percent wage increase would be imposed on nearly the entire bottom decile of the distribution.

Across the wage distribution in metropolitan areas, there are vast differences in how much a \$15 minimum wage would require employers to increase wages. Table 6 shows the wage increase for employees in both the 10th and 25th percentile across a sample of 30 large metropolitan areas. Even in areas with already-high municipal or state minimum wages, the imposed cost increase of employing lower-wage workers would be substantial, including a 38 percent increase in Portland, Oregon, and San Francisco. In moderate wage metros, the cost of employing workers in the 10th percentile of the distribution would be enormous, a greater than 60 percent increase in Houston; Dallas; Atlanta; St. Louis; Pittsburgh; Miami; Cincinnati; Cleveland; Philadelphia; New Orleans; Charlotte, North Carolina; and Tampa and Orlando, Florida. Many more metropolitan areas would see at least a 50

15. We calculate percentage changes in the wage for each percentile following the midpoint formula. For each percentile of the distribution, our calculation is:

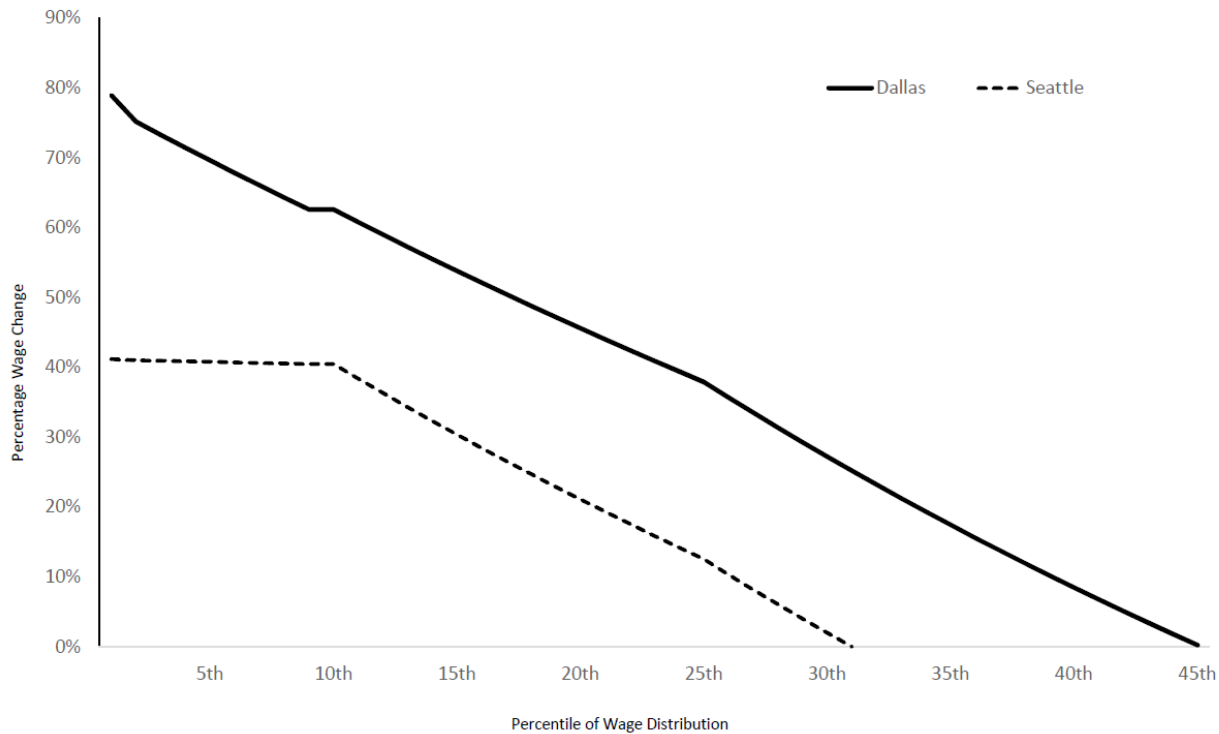
$$\text{Percent Wage } \Delta = \frac{(w_{15} - w_p)}{(w_{15} + w_p)/2}$$
 where w_p indicates the imputed average wage in each percentile p of the distribution in each metropolitan area or industry.

TABLE 5: OCCUPATIONS BY METRO AREA WHERE \$15 MINIMUM IS NONBINDING (SAMPLE)

<u>San Francisco, CA</u>	<u>Akron, OH</u>
Biochemists and Biophysicists (\$32.05)	Electrical Engineers (\$30.46)
Physician Assistants (\$39.18)	Obstetricians and Gynecologists (\$62.44)
Marketing Managers (\$48.05)	Optometrists (\$32.24)
Computer and Information Systems Managers (\$55.13)	Software Developers (\$31.68)
Surgeons (\$66.07)	Medical and Health Services Managers (\$30.48)
Software Developers (\$41.96)	Physical Therapists (\$31.95)
Engineers (\$32.75)	Podiatrists (\$41.42)
Post-Secondary Education Administrators (\$31.18)	Computer Hardware Engineers (\$30.20)
<u>Miami, FL</u>	<u>El Paso, TX</u>
Air Traffic Controllers (\$40.26)	Family and General Practitioners (\$82.20)
Pharmacists (\$49.19)	Lawyers (\$32.99)
Financial Managers (\$38.84)	Pharmacists (\$51.25)
Radiation Therapists (\$31.40)	Computer and Information Systems Managers (\$31.84)
General and Operations Managers (\$30.14)	Occupational Therapists (\$31.03)
Veterinarians (\$39.07)	Marketing Managers (\$33.02)
Dentists (\$31.94)	Dentists (\$53.16)
Human Resource Managers (\$32.37)	Nurse Practitioners (\$40.26)

NOTES: Occupation categories are from detailed level of the Standard Occupational Classification system.

FIGURE 6: PERCENTAGE WAGE CHANGE IMPOSED BY \$15 MINIMUM



percent increase in the cost of employing the lowest-wage workers, including large cities like New York, Los Angeles and Chicago.

Workers at the very bottom of the distribution would not be the only ones affected, as a \$15 minimum wage would cut substantially into the wage distribution in many areas. Many employers of workers at the 25th percentile of the distribution in their respective cities would be subject to at least a 40 percent cost increase, including those in Atlanta, St. Louis, Tampa, Orlando, Miami and New Orleans. Nearly all employers of workers at the 25th percentile would be subject to at least a 25 percent cost increase, with the noted exceptions of Boston, Seattle, Portland, Oakland, San Francisco, San Jose and Washington, D.C. – all areas with either extremely robust local economies or where state and/or municipal legislation already imposes large cost increases.

EMPLOYMENT LOSS SIMULATION

The biggest concern that comes with imposing a minimum wage is that it will destroy jobs for the very workers it is intended to help by driving up labor costs. Employers of lower-earning workers are forced to make choices between trying to maintain their business amid soaring labor costs and reducing their use of labor by cutting workers and hours. Our estimates of employment loss consider the extent to which

the minimum wage is binding for the local labor force and, when it is binding, how much of a labor cost increase it creates. Those estimates are combined with empirical estimates of the employment-to-minimum-wage elasticity found in the academic literature to produce estimates of job loss across the many distinct labor markets in the United States.

The employment response to minimum wages

The employment-response simulation relies crucially on empirical estimates of how responsive employment is to an increase in the minimum wage, or the employment-to-minimum-wage elasticity. There is a vast academic literature on this topic, summarized aptly in both Hanson and Hawley (2014)¹⁶ and in Neumark, et al. (2015).¹⁷ Both of these papers conclude that an elasticity of -0.15 is a reasonable estimate from historically enacted minimum wages. We use a base elasticity of -0.15. Following estimates from Meer and West (2015)¹⁸ that differentiate the employment response by industry, we use a more responsive elasticity of -0.5 for food

16. Hanson and Hawley, 2014.

17. David Neumark, J.M. Ian Salas and William Wascher, "Revisiting the minimum wage-employment debate: throwing out the baby with the bathwater?," *Industrial Relations & Labor Review*, 67(3):608-648, January 2013.

18. Jonathan Meer and Jeremy West, "Effects of the Minimum Wage on Employment Dynamics," *Journal of Human Resources*, 51(2): 500-522, November 2015.

TABLE 6: PERCENTAGE WAGE CHANGE IMPOSED BY \$15 MINIMUM (%)

Metropolitan Area/Metropolitan Division	10th Percentile	25th Percentile
New York-Jersey City-White Plains, NY-NJ*	56.23	28.30
Los Angeles-Long Beach-Glendale, CA*	55.74	35.38
Chicago-Naperville-Arlington Heights, IL*	57.52	36.63
Houston-The Woodlands-Sugar Land, TX	62.48	37.98
Atlanta-Sandy Springs-Roswell, GA	63.93	41.07
Washington-Arlington-Alexandria, DC-VA-MD-WV*	53.13	16.39
Dallas-Plano-Irving, TX*	62.58	37.89
Minneapolis-St. Paul-Bloomington, MN-WI	55.45	25.45
Phoenix-Mesa-Scottsdale, AZ	59.42	37.89
Boston-Cambridge-Newton, MA*	45.41	10.20
Seattle-Bellevue-Everett, WA*	40.46	12.54
Denver-Aurora-Lakewood, CO	57.22	29.24
San Diego-Carlsbad, CA	54.77	32.19
St. Louis, MO-IL	61.35	40.63
Baltimore-Columbia-Towson, MD	58.61	29.24
Tampa-St. Petersburg-Clearwater, FL	61.35	43.88
Pittsburgh, PA	62.37	37.98
Orlando-Kissimmee-Sanford, FL	61.86	47.96
Charlotte-Concord-Gastonia, NC-SC	63.10	39.77
Miami-Miami Beach-Kendall, FL*	61.86	46.49
Portland-Vancouver-Hillsboro, OR-WA	38.13	14.34
Oakland-Hayward-Berkeley, CA*	49.91	18.37
Cincinnati, OH-KY-IN	60.53	38.40
Kansas City, MO-KS	60.94	36.38
Cleveland-Elyria, OH	60.02	37.98
San Francisco-Redwood City-South San Francisco, CA*	38.32	7.07
San Jose-Sunnyvale-Santa Clara, CA	42.12	8.03
Philadelphia, PA*	60.23	32.43
Detroit-Dearborn-Livonia, MI*	58.91	33.73
New Orleans-Metairie, LA	65.29	46.49

*Indicates metropolitan division, part of a larger metropolitan area

preparation and serving, personal care and service and office and administrative support occupations.¹⁹ Negative employment responses from federal minimum wage increases are also confirmed in Clemens and Wither (2014)²⁰ and Clemens

(2015),²¹ although these papers do not directly estimate an elasticity that would be useful here.²²

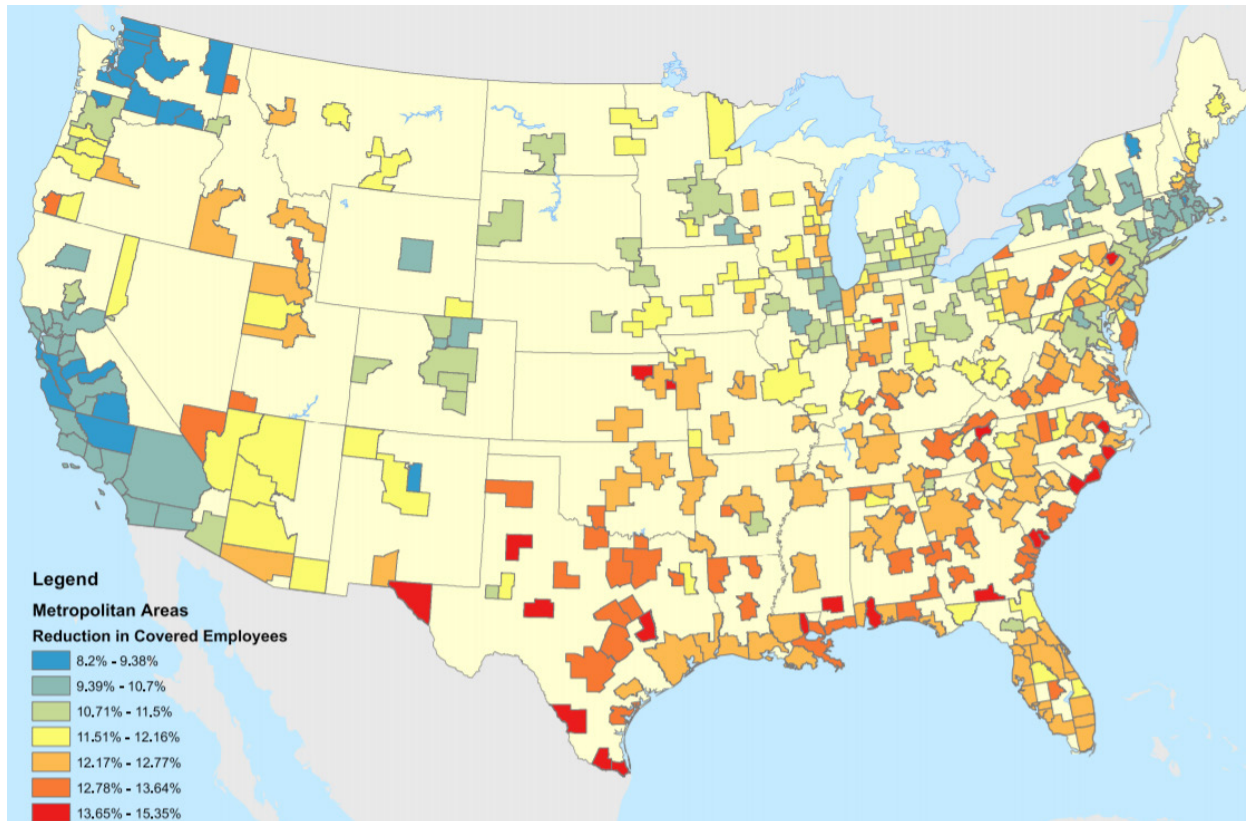
19. Meer and West find larger elasticities than their full sample of “all” industries for the “professional service”, “administrative support” and “accommodation and food” industries using the North American Industry Classification System definitions. These do not directly map to the industry codes we use here, so we match as closely as possible.

20. Jeffrey Clemens and Michael Wither, “The Minimum Wage and the Great Recession: Evidence of Effects on the Employment and Income Trajectories of Low-Skilled Workers,” National Bureau of Economic Research Working Paper 20724, December 2014. <http://www.nber.org/papers/w20724>

21. Jeffrey Clemens, “The Minimum Wage and the Great Recession: Evidence from the Current Population Survey” National Bureau of Economic Research Working Paper 21830, December 2015. <http://www.nber.org/papers/w21830>

22. To estimate employment loss, we use the following equation, combined with the percentage wage changes we calculate at each percentile of the distribution: $\Delta \ln E_i = \epsilon_i \Delta \ln W_i$, where ϵ_i represents the range of elasticities from the literature; Percent Wage Δ is calculated for each percentile of the wage distribution in each industry of each metropolitan area separately; and existing employment comes from the Bureau of Labor Statistics data. We then aggregate the estimate for each percentile of the distribution for all covered percentiles in each metropolitan area.

FIGURE 7: PERCENT EMPLOYMENT LOSS FOR COVERED WORKERS UNDER \$15 MINIMUM



Employment loss across metropolitan areas

The simulation reveals large employment losses across the spectrum of U.S. metropolitan areas, with the most severe losses in the South. The percentage of covered workers that would lose their jobs ranges well into the 10 percent range in areas that stretch from Pennsylvania to West Texas. Employment loss for covered employees stretches into the 12 percent range across many metropolitan areas in Texas and throughout the Southeast. Figure 7 maps the percentage of covered workers that would become unemployed if the federal minimum wage were increased to \$15 in each metro area. Even in high-cost areas that already impose their own minimum wages, like Seattle and San Francisco, employment loss among the covered workforce would be in the range of 6 to 7 percent.

Across major metropolitan areas, the percentage of covered workers that would lose a job ranges from a low of 6.5 percent in Seattle to a high of 10.5 percent in New Orleans. Most metro areas would experience between an 8 and 9 percent employment fall among covered workers, which amounts to between a 3 and 4 percent reduction in total employment. As shown in Table 7, the number of jobs lost corresponds roughly to populations, with the New York metro area losing approximately 170,000 jobs, while Los Angeles, Chicago and Houston each would lose more than 100,000 jobs. Atlanta

would lose very close to 100,000 jobs, and Dallas would lose about 86,000 jobs. Modest-sized metros—such as Minneapolis-St. Paul, Phoenix and Orlando—would each lose more than 50,000 jobs as a result of a \$15 minimum wage.

Perhaps more striking than the job loss numbers is how concentrated the losses are among the poorest workers in each city. The percentage of job losses concentrated in the bottom decile of the wage distribution range from 25 percent in Orlando to 38 percent in Boston. These estimates show that even in relatively well-off places like San Francisco and San Jose, a minimum wage increase would hurt the very poorest workers the most. In most cities, job loss among the poorest residents amounts to about a third of total job loss. Job loss among workers in low-skilled occupations means that the affected low-skilled workers likely would be forced to turn to increased reliance on public assistance to get by, raising costs for already strained state and federal budgets.

The range of job-loss estimates reflects several factors that differ across metropolitan areas. Because some areas already impose a high minimum wage, an increase to \$15, while still a major new regulation, would represent a smaller increase in some cities than it would in those that follow current federal policy. The industry mix also varies across metro areas. Our estimates account for the fact that some industries will find it

TABLE 7: EMPLOYMENT LOSS ESTIMATES FOR \$15 MINIMUM BY METRO AREA

Metropolitan Area/Metropolitan Division	Number of Jobs Lost (000)	Percent of Employed Population (%)	Percent of Covered Workers (%)	Concentration in Bottom Decile (%)
New York-Jersey City-White Plains, NY-NJ*	171.7	2.59	8.35	34.06
Los Angeles-Long Beach-Glendale, CA*	121.6	3.04	8.20	27.76
Chicago-Naperville-Arlington Heights, IL*	113.8	3.22	8.70	28.77
Houston-The Woodlands-Sugar Land, TX	110.3	3.78	9.95	29.84
Atlanta-Sandy Springs-Roswell, GA	97.2	3.91	9.78	29.16
Washington-Arlington-Alexandria, DC-VA-MD-WV*	58.2	2.48	9.18	34.14
Dallas-Plano-Irving, TX*	86.3	3.71	9.75	30.97
Minneapolis-St. Paul-Bloomington, MN-WI	54.2	2.92	9.13	31.72
Phoenix-Mesa-Scottsdale, AZ	68.3	3.69	9.23	29.06
Boston-Cambridge-Newton, MA*	33.0	1.96	7.85	38.41
Seattle-Bellevue-Everett, WA*	24.1	1.62	6.50	33.31
Denver-Aurora-Lakewood, CO	41.8	3.02	9.16	30.00
San Diego-Carlsbad, CA	39.7	2.99	8.53	29.81
St. Louis, MO-IL	52.4	4.00	10.00	27.55
Baltimore-Columbia-Towson, MD	39.2	3.01	9.13	31.94
Tampa-St. Petersburg-Clearwater, FL	50.5	4.13	9.38	27.21
Pittsburgh, PA	44.1	3.84	9.86	29.74
Orlando-Kissimmee-Sanford, FL	52.1	4.88	9.57	25.31
Charlotte-Concord-Gastonia, NC-SC	41.9	3.78	9.46	29.62
Miami-Miami Beach-Kendall, FL*	45.6	4.28	9.11	27.16
Portland-Vancouver-Hillsboro, OR-WA	40.7	3.75	9.37	26.97
Oakland-Hayward-Berkeley, CA*	23.4	2.27	8.11	33.91
Cincinnati, OH-KY-IN	38.2	3.71	9.52	28.12
Kansas City, MO-KS	37.7	3.65	9.61	29.74
Cleveland-Elyria, OH	35.1	3.43	9.02	28.65
San Francisco-Redwood City-South San Francisco, CA*	15.3	1.51	6.87	37.18
San Jose-Sunnyvale-Santa Clara, CA	17.0	1.75	7.60	33.39
Philadelphia, PA*	29.7	3.48	9.94	32.45
Detroit-Dearborn-Livonia, MI*	23.6	3.23	9.23	29.99
New Orleans-Metairie, LA	26.4	4.72	10.49	25.65

*Indicates metropolitan division, part of a larger metropolitan area

easier to replace labor with machines or process innovation. Lastly, the wage distribution in each city is vastly different; the more low-wage workers there are in an area, the larger the imposition from a new federal minimum wage would be, resulting in greater job loss.

Employment loss across industries

Another way to decompose job loss is to examine how jobs in different industries would be affected by a drastically higher minimum wage. Table 8 shows employment-loss estimates across the range of major industry categories in the BLS data. These estimates show that a staggering 1.7 million workers

nationwide in the food preparation and serving industry—nearly 18 percent of all covered workers—would lose their jobs under a \$15 minimum wage. More than 900,000 workers in office and administrative support occupations also would lose their jobs, representing nearly 12 percent of all covered workers. In addition, nearly 490,000 personal care and service workers would find themselves unemployed, or about 17 percent of covered workers in that industry.

Other industries also would feel significant impacts from a \$15 minimum wage, including job losses of more than 375,000 workers in the sales industry and more than 125,000 in production occupations and the building and grounds

TABLE 8: EMPLOYMENT-LOSS ESTIMATES FOR A \$15 MINIMUM BY MAJOR INDUSTRY

Major Industry Category	Number of Jobs Lost (000)	Percent of Employed Population (%)	Percent of Covered Workers (%)
Office and administrative support occupations	929.9	4.93	11.99
Sales and related occupations	377.1	3.01	5.32
Food preparation and serving related occupations	1,702.6	15.57	17.93
Transportation and material moving occupations	182.7	2.32	4.52
Education, training and library occupations	68.3	0.97	4.04
Production occupations	126.3	1.79	4.02
Healthcare practitioners and technical occupations	20.1	0.32	3.7
Business and financial operations occupations	13.9	0.25	3.8
Management occupations	8.1	0.2	4.06
Construction and extraction occupations	31.6	0.72	3.18
Installation, maintenance and repair occupations	34.8	0.8	3.45
Building and grounds cleaning and maintenance occupations	130.0	3.46	4.88
Personal care and service occupations	489.6	13.05	16.67
Computer and mathematical occupations	6.3	0.21	3.95
Healthcare support occupations	83.5	2.45	3.94
Protective service occupations	45.9	1.62	4.41
Architecture and engineering occupations	3.8	0.21	3.97
Community and social service occupations	11.9	0.72	3.25
Arts, design, entertainment, sports and media occupations	16.5	1.02	4.08
Life, physical and social science occupations	2.9	0.33	3.73
Legal occupations	2.2	0.26	3.77
Farming, fishing and forestry occupations	15.3	4.48	5.35

Notes: Major industry categories are from the Standard Occupational Classification system, which aggregates detailed occupational data to these categories

cleaning and maintenance field. Even industries that project to suffer a relatively modest amount of job loss from the \$15 minimum wage nonetheless sometimes see job destruction well into the five-figure levels.

Looking at a more detailed view of particular occupations reveals that, within industries, there are important differences for where job losses would be concentrated. Nearly 20 percent of all workers in food preparation and serving occupations (including fast food)—or fully 541,000 workers—would lose their jobs if the minimum wage were to be increased to \$15/hour. Separately, we estimate that 165,000 cashiers would lose their job, and an additional 115,000 workers employed solely as food preparation workers would lose their jobs, as would nearly 180,000 personal care aides. In many of these occupations, job loss would be between 15 and 20 percent of the entire workforce. Table 9 shows employment loss estimates for a select range of occupations nationally, the selected occupations correspond to those in Table 3 that have high coverage rates under a \$15/hour minimum wage.

A combined look reveals that, for workers within the same occupation, employment losses will be different across metropolitan areas. Table 10 shows estimates for the percentage of covered workers who would lose their job from a \$15 minimum wage across four representative metropolitan areas for a range of occupations.

The rate of job loss among covered bartenders in San Francisco would be about 11 percent, but the employment-loss rate for bartenders in El Paso would be nearly double that. Similarly, the job-loss rate for shipping, receiving and traffic clerks in San Francisco is about 6.8 percent, but is nearly double that rate in Miami and 2.5 times greater in El Paso. Interestingly, the job-loss rate among office and administrative support workers is lower in San Francisco than it is in El Paso, but about the same as Miami, while it is lowest in Akron, Ohio. These results highlight that workers in the same occupation are likely to experience different rates of job loss across metro areas, depending on local labor market conditions.

TABLE 9: EMPLOYMENT LOSS FROM A \$15 MINIMUM BY OCCUPATION

Occupation Category	Number of Jobs Lost	Percent of Employed Population (%)	Percent of Covered Workers (%)
Cashiers	164,019	5.61	5.91
Combined food preparation and serving workers, including fast food	541,282	19.48	19.68
Personal care aides	179,762	15.82	16.65
Food preparation workers	114,404	15.37	16.71
Home health aides	31,448	4.51	4.85
Childcare workers	76,184	15.23	16.93
Dishwashers	82,314	18.28	18.65
Cooks, fast food	79,699	19.27	19.46
Counter attendants, cafeteria, food concession and coffee shop	74,419	18.07	18.83
Dining room and cafeteria attendants and bartender helpers	64,015	17.25	18.55
Hosts and hostesses, restaurant, lounge and coffee shop	64,523	18.04	18.79
Amusement and recreation attendants	41,144	17.47	18.58
Farmworkers and laborers, crop, nursery and greenhouse	12,131	5.33	5.61
Hotel, motel and resort desk clerks	27,797	14.72	16.36
Laundry and dry-cleaning workers	8,128	4.78	5.31
Cooks, short order	20,842	15.14	16.11
Parking lot attendants	5,928	4.95	5.32
Lifeguards, ski patrol and other recreational protective service	6,010	5.27	5.85
Ushers, lobby attendants and ticket takers	15,345	17.53	18.85
Manicurists and pedicurists	9,404	14.72	16.35
Pressers, textile, garment and related materials	1,765	5.09	5.36
Graders and sorters, agricultural products	764	5.17	5.56
Shampooers	2,083	18.45	18.64
Shoe machine operators and tenders	5	4.26	4.58
Fabric menders, except garment	3	2.89	3.14

NOTES: Occupation categories are from the detailed level of the Standard Occupational Classification system.

CONCLUSION

Imposing a \$15 hourly federal minimum wage would have vastly different effects upon the United States' diverse labor markets, as defined across metropolitan areas, industries and occupations. Industries and occupations where job loss would be most severe are those where it is easiest for workers to be replaced by labor-saving capital or process efficiencies. Examples of these investments already abound in the form of self-scanning grocery checkout, self-ordering kiosks at restaurants, driverless vehicles and automation of tasks in food production and service. Were a \$15 minimum wage to become reality, firms would surely increase the push toward these investments, no doubt finding increasingly innovative ways to replace a costlier input to production.

A \$15 minimum wage would produce drastically different effects across areas and industries. The proposed policy would be binding for fully 62 percent of the employed population in Brownsville-Harlingen, Texas, but only for 22 per-

cent of the employed population in San Francisco. Employers would be subject to a substantial regulated cost increase on labor that would be unevenly divided by industry, metropolitan area and the wage distribution. In San Francisco, employers of workers in the bottom decile of the wage distribution would see a 38 percent labor-cost increase, while employers of workers in the 25th percentile would have only a 7 percent labor-cost increase imposed. The increase in labor costs in cities like Houston would be substantially larger: employers in the bottom decile would experience at least a 62 percent cost increase, with employers at the 25th percentile exposed to a 38 percent increase.

The rise in the cost of labor under a \$15 minimum wage would result in substantial job loss, with significant variation across industries and cities. The New York metro area alone would lose approximately 170,000 jobs, while Los Angeles, Chicago and Houston each would lose more than 100,000 jobs. Nationally, 1.7 million workers in the food preparation

TABLE 10: EMPLOYMENT LOSS FROM \$15 MINIMUM BY SUBINDUSTRY AND METRO AREA (%)

Occupation Category	San Francisco	Miami	Akron	El Paso
Bartenders	11.21	17.21	20.01	21.05
Bakers	3.2	4.42	3.73	6.48
Word processors and typists	8.71	8.05	9.18	13.39
Waiters and waitresses	11.26	18.8	23.78	21.25
Shipping, receiving and traffic clerks	6.85	13.03	10.1	16.89
Retail salespersons	3.36	5.79	5.81	6.69
Preschool teachers (non-special education)	2.02	3.83	5.18	7.35
Short-order cooks	8.73	17.47	18.15	19.73
Nursing assistants	1.77	4.26	3.73	6.13
Office and administrative support workers	11.33	11.26	8.56	16.57

NOTES: Occupation categories are from the detailed level of the Standard Occupational Classification system.

and serving industry would lose their jobs, while more than 900,000 workers in office and administrative support occupations would lose their jobs.

Perhaps the worst consequence of a \$15 minimum wage would be that job losses would be concentrated among the very poorest workers. In Denver, 30 percent of job losses would be concentrated among workers in the bottom decile of the wage distribution, while 37 percent of job losses in San Francisco would be concentrated among the poorest 10 percent of earners.

The job-loss estimates we provide here are quite conservative for several reasons. First, we use elasticities that are small relative to some estimates in the literature, and only slightly larger for industries where substitution between capital and labor is likely. Second, while we consider differential wage changes, we do not consider that elasticities for the lowest-wage workers could be larger, making it likely that we underestimate job loss at the bottom of the distribution. In addition, the elasticities we use come from historical minimum wage increases that were small relative to what a \$15 minimum wage would represent in the current economy. It's likely that the true applicable elasticity in this case should be much larger, which would mean our job-loss estimates are a lower bound.

The minimum wage is too blunt an instrument to be a useful policy to help improve the lives of the working poor. Although it may help partially realize a policy goal to increase incomes for some workers, it comes with the terrible cost of job destruction for some of America's poorest workers. Policymakers truly interested in helping the working poor to increase their standard of living may be best suited to consider policies that offer the benefit of increased wages without the high cost of unintended consequences. While the mer-

its of alternative policies, such as the Earned Income Tax Credit or worker training, should be judged relative to their own costs, they are superior to the minimum wage in that they actually promote job creation. Ultimately, policies that promote general economic growth are what will offer sustainable standard-of-living increases for the working poor.

Finally, it's worth considering a larger point about imposing federal labor regulations when our country is not a single homogenous labor market, but instead a series of distinct, unique metropolitan areas. Is it wise to regulate employers in McAllen, Texas in the same manner as employers in San Jose, California? These areas are vastly different in their workforce characteristics, industrial mix and local regulations. It hardly makes sense to consider any policy that would treat employers in these areas the same. The result will always be to impose an unfair burden on employers and, ultimately, their employees.

ABOUT THE AUTHORS

Andrew Hanson is an associate professor of economics at Marquette University and an associate fellow of the R Street Institute. Hanson's research focus is broadly on public finance and urban economics, with particular interest in the interaction between government policy and housing and labor markets. Hanson's work has been published in a wide variety of academic journals, covering urban, regional, labor and public-finance economics. Hanson holds bachelor's (2003, University of Wisconsin-Oshkosh) and doctorate (2008, Syracuse University) degrees in economics. From 2005 to 2006, he served as a staff economist at the President's Council of Economic Advisers.

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