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The $10.10 Minimum Wage Proposal: An Evaluation across States

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The $10.10 Minimum Wage Proposal: An Evaluation across States

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Abstract

This paper offers state-level estimates of job loss from increasing the federal minimum wage to $10.10 per hour in 2016. Given the vast differences in nominal wages across geography, a federal increase in minimum wage that is not indexed to local wage levels will have a differential impacts across states. The proposed minimum wage would be binding for between 17 and 18 % of workers nationally. We estimate coverage rates ranging from just 4 % in Washington D.C. to as high as 51 % in Puerto Rico, with 13 states having at least 20 % of the employed population covered by the proposal. Using labor demand elasticities from previous empirical work, these coverage rates imply national employment losses between 550,000 and 1.5 million workers. The range of state estimates shows that states are differentially impacted, with high-end loss estimates ranging between 2.8 % of covered employees in Arkansas to over 41 % in Puerto Rico. Sensitivity analysis highlights that using even a simple methodology with relatively few assumptions for estimating employment loss from minimum wage changes is subject to a high degree of uncertainty.

Introduction

There are fewer labor market issues more contentious than the effects of a minimum wage. This debate has recently been reignited in policy circles with national political leaders proposing to increase the federal minimum wage from $7.25 to $10.10 per hour. Despite national attention in the media, by policy makers, and in academic journals, little thought seems to have gone into how such a policy proposal would impact labor markets across different parts of the country.

Considering the differences in current minimum wage policies across states, and the vast differences in the nominal wage distribution across geography, it is natural to examine how increasing the federal minimum wage might impact state labor markets differently.

This paper examines the impact of the proposed increase in the federal minimum wage to $10.10 on state-level labor markets. We estimate both the number of workers that would be covered by the new minimum wage, and the potential employment loss from the policy proposal. This work extends the recent Congressional Budget Office (CBO) analysis of the $10.10 proposal that examined national effects by considering the heterogeneous effects across states.

Using 2012 Bureau of Labor Statistics (BLS) data on the 10th, 25th, median, 75th, and 90th percentiles of the wage distribution across states, we linearly impute the full wage distribution for each location. We deflate the proposed $10.10 minimum wage increase to 2012 dollars to calculate how much of the employed population in each state would be covered by the proposed policy. Using labor demand elasticities from the literature, we then estimate potential employment losses from the proposed minimum wage increase.

We find substantial heterogeneity in the percentage of covered employees at the state level. While the proposed minimum wage would be binding for between 17 and 18 % of workers nationally, we estimate coverage rates ranging from just 4 % in Washington, D.C. to as high as 51 % in Puerto Rico, with 13 states exceeding 20 % coverage rates. These coverage rates imply national employment losses between 550,000 and 1.5 million workers. The range of state and U.S. territory estimates shows a differential impact across areas, with Puerto Rico potentially losing as much as 41 % of covered jobs, and Arkansas losing 2.8 %. Our estimates also highlight that even a simple methodology for estimating employment loss from minimum wage changes is subject to a high degree of uncertainty, sensitive to the chosen elasticity, assumed wage inflation, and the wage distribution imputation function.

The remainder of the paper begins by detailing the CBO methodology and findings for estimating job-loss nationally, as this forms the basis for our work. We then outline our methodology for estimating the number of covered employees and employment loss, highlighting the assumptions necessary in even a simple model. The fourth section of the paper reviews the literature on labor demand elasticities, and outlines the choice for our primary estimates. The fifth section presents the primary estimates of employment loss from increasing the minimum wage. Section six of the paper shows a sensitivity analysis for our primary assumptions, and the final section of the paper concludes.

National Estimates of Employment Loss- The CBO Report

In February 2014, the Congressional Budget Office (CBO) released a report examining the effects of increasing the federal minimum wage to $10.10/h. The $10.10 option was proposed by Congressional Democrats and endorsed by President Obama, and although the report also offered estimates of a more modest $9.00 minimum wage option, the $10.10 proposal seems to have garnered the most attention, and is therefore the focus of our study.

CBO estimates that increasing the federal minimum wage to $10.10/h would likely reduce employment by about 500,000 workers, and by as many as 1 million workers. Since the employment costs are the most controversial component to increasing the minimum wage, we focus our efforts on estimating them here, although the CBO also offers estimates for income gains by workers covered by the new minimum wage.

The CBO employment loss estimates include both workers covered by the minimum wage as well as some workers earning slightly higher than minimum wage who are likely to experience a spill-over from any law change. The CBO begins by using the 2013 wage distribution and projecting it forward to 2016, when the law would be fully phased in. The primary assumption in this forecast is that low wage workers will experience 2.9 % annual growth between 2013 and 2016.

After projecting the wage distribution out to 2016, the CBO then applied labor demand elasticity estimates to the distribution and projected an alternative distribution. The difference between these projections reveal the estimated employment loss from the proposed minimum wage change. This projection includes what aggregate demand increase may result from increasing income for those who do not lose their job, thus softening job loss estimates. The CBO draws on the empirical academic literature to supply labor demand elasticity estimates for their model. They use a point estimate for the labor demand elasticity for teenage workers of − 0.10, with a high of −0.20, and an elasticity for adults of “about one-third” the teenage estimates.

Our methodology differs from the CBO modeling in several important ways that may affect estimates of employment loss. First, we do not include any effects for an aggregate demand increase that could result from the increase in wages to covered workers. We choose not to include this because we believe the empirical estimates of labor demand elasticity implicitly account for this by examining employment before and after minimum wage changes. Second, instead of projecting the wage distribution out to 2016, we deflate the proposed minimum wage change back to 2012 dollars to match existing data on the wage distribution. Third, we do not make an exception for workers that may not be covered by the law change- all workers earning at or below the minimum wage are used in our calculations.[Footnote1] Fourth, our estimates include Puerto Rico, which has approximately 50 % of its labor force earning at or below the proposed new minimum wage. Lastly, our primary estimates use a teenage labor demand elasticity equal to −0.15 (coincidently, the mid-point of the CBO estimates), and an adult labor demand elasticity equal to −0.05.

Methodology and Cross-State Data

We build on the CBO modeling of national employment loss estimates from a proposed $10.10 minimum wage, and examine the heterogeneous impact of such a policy across labor markets in all 50 states, the District of Columbia, and Puerto Rico. The primary source of data for our estimates is the Bureau of Labor Statistics, which maintains the most current available summary of wage and salary data at the sub-national level.[Footnote2] The BLS data report wages at the 10th, 25th, median, 75th, and 90th percentiles of the distribution for all states and U.S. territories.

Covered Employees

The first step in creating employment loss estimates from the $10.10 proposal with these data, is to match the wage in the year of the proposal with data on the wage distribution. The proposal is to implement the $10.10 minimum wage by 2016, but the BLS data on the wage distributions across states are from 2012. To give an estimate of the effect of the proposed minimum wage changes on employment across states, we need to either inflate employment and wage data up to the 2016 implementation date, or deflate the proposed $10.10 wage back to the year of our data (2012). Because we are estimating across states that may experience different rates of price and wage inflation, we deflate the proposed minimum wage rate to today’s dollars, as it is not indexed to local price levels. To do this we use the annual consumer price index (CPI) for all goods from 2014, reported by the BLS as 1.6 %.Footnote3 Deflating the proposed $10.10 minimum wage back to 2012 at an annual rate of 1.6 % yields a minimum wage in 2012 dollars of $9.63/h.Footnote4

Using $9.63/h as the point in the distribution where the policy becomes binding, we need a method to estimate where $9.63 falls in the distribution for each state. To estimate where the minimum wage is in the distribution, we use a linear imputation between the known values in the data. This effectively assumes that the wage distribution grows by the same dollar amount for every percentile of the distribution. In the sensitivity analysis, we use an alternative imputation method- assuming a constant growth rate function. Besides the growth approximation, the other assumption in making these estimates is that no workers are paid below current minimum wage in each state.

We use a linear imputation between known values of the data to solve for the growth in each percentile between the known values using the initial value, *I*, and the endpoint of that piece of the distribution, *P*, and the following formula:

$$g = \frac{P - I}{N}$$

Where N is the number of percentiles between P and I. We then add gg to the initial wage rate to impute a value for each percentile of the distribution up to the next known value.

Figure 1 shows the known parts of the wage distribution for both California and Texas, and the linear imputation for each state. The figure shows that in these states, $10.10 ($9.63 deflated) is between the 10th and 25th percentile of the wage distribution. The figure below shows by example, what parts of the wage distribution come from data, and what is imputed using California and Texas as examples. The bold points in the figure represent actual data from the wage distribution in each state, as reported by the BLS. The dashed lines show the linear imputation done between data points used to calculate the percentage of covered workers. This method does not assume a shape for the overall distribution of wages, by using the actual data points, but does assume a uniform distribution between known values.

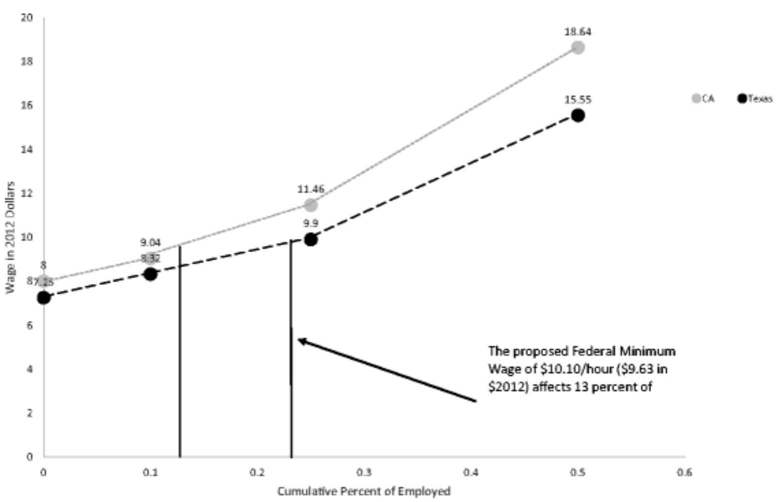

Fig. 1 The proposed Federal Minimum Wage of $10.10/hour ($9.63 in $2012) affects 13 percent of workers in CA, but 22 percent in TX

The linear imputation between known values of the distribution allows us to see approximately where the new minimum wage proposal would fall in each state, and how many workers would be covered by the policy- to the nearest percentile. We could conceivably cut the distribution between known values into smaller pieces to give an approximation at a level smaller than percentiles, but we choose to offer estimates of both a high and low percentile of the distribution to highlight that the linear imputation is an approximation of the true point in the distribution.

Table 1 shows the employed population by area from the BLS data, along with our estimates for how many employees would be covered by the proposal and what percentage of the employed population that represents. We offer a high and low estimate, where the estimates differ when the minimum wage falls in between two percentiles of the distribution. The high estimate counts the entire percentile, while the low estimate does not count any of that percentile.

Table 1 Employees subject to the proposed $10.10 minimum wage (2012 employment and population estimates)

State	Employed population	Number of employees covered (low)	Number of employees covered (high)	Percent of employed covered (low)	Percent of employed covered (high)
Alabama	1,824,400	456,100	474,344	25.00 %	26.00 %
Alaska	318,700	25,496	28,683	8.00 %	9.00 %
Arizona	2,414,340	386,294	410,438	16.00 %	17.00 %
Arkansas	1,155,020	300,305	311,855	26.00 %	27.00 %
California	14,303,630	1,859,472	2,002,508	13.00 %	14.00 %
Colorado	2,226,160	311,662	333,924	14.00 %	15.00 %
Connecticut	1,620,620	178,268	194,474	11.00 %	12.00 %
Delaware	405,750	60,863	60,863	15.00 %	15.00 %
District of Columbia	653,760	26,150	32,688	4.00 %	5.00 %
Florida	7,273,850	1,454,770	1,527,509	20.00 %	21.00 %
Georgia	3,815,530	801,261	801,261	21.00 %	21.00 %
Hawaii	588,210	76,467	82,349	13.00 %	14.00 %
Idaho	598,540	131,679	137,664	22.00 %	23.00 %
Illinois	5,640,740	902,518	958,926	16.00 %	17.00 %
Indiana	2,811,920	534,265	562,384	19.00 %	20.00 %
Iowa	1,470,740	264,733	279,441	18.00 %	19.00 %
Kansas	1,320,920	264,184	264,184	20.00 %	20.00 %
Kentucky	1,764,750	370,598	388,245	21.00 %	22.00 %
Louisiana	1,868,210	429,688	448,370	23.00 %	24.00 %
Maine	581,110	87,167	92,978	15.00 %	16.00 %
Maryland	2,510,680	326,388	351,495	13.00 %	14.00 %
Massachusetts	3,202,080	320,208	352,229	10.00 %	11.00 %
Michigan	3,918,120	626,899	666,080	16.00 %	17.00 %
Minnesota	2,641,110	369,755	396,167	14.00 %	15.00 %
Mississippi	1,080,420	291,713	302,518	27.00 %	28.00 %
Missouri	2,605,910	521,182	547,241	20.00 %	21.00 %
Montana	432,380	86,476	90,800	20.00 %	21.00 %
Nebraska	914,830	164,669	173,818	18.00 %	19.00 %
Nevada	1,127,160	191,617	202,889	17.00 %	18.00 %
New Hampshire	612,710	85,779	85,779	14.00 %	14.00 %
New Jersey	3,793,720	493,184	531,121	13.00 %	14.00 %
New Mexico	773,860	154,772	162,511	20.00 %	21.00 %
New York	8,542,280	1,110,496	1,195,919	13.00 %	14.00 %
North Carolina	3,878,800	736,972	775,760	19.00 %	20.00 %
North Dakota	403,290	60,494	64,526	15.00 %	16.00 %
Ohio	5,054,250	909,765	960,308	18.00 %	19.00 %
Oklahoma	1,529,900	351,877	367,176	23.00 %	24.00 %
Oregon	1,609,900	193,188	209,287	12.00 %	13.00 %

Pennsylvania	5,596,480	839,472	895,437	15.00 %	16.00 %
Rhode Island	453,020	63,423	67,953	14.00 %	15.00 %
South Carolina	1,796,550	431,172	449,138	24.00 %	25.00 %
South Dakota	398,680	71,762	75,749	18.00 %	19.00 %
Tennessee	2,657,280	584,602	584,602	22.00 %	22.00 %
Texas	10,579,400	2,327,468	2,433,262	22.00 %	23.00 %
Utah	1,200,850	204,145	216,153	17.00 %	18.00 %
Vermont	294,090	32,350	35,291	11.00 %	12.00 %
Virginia	3,597,100	575,536	575,536	16.00 %	16.00 %
Washington	2,764,080	193,486	221,126	7.00 %	8.00 %
West Virginia	710,540	184,740	191,846	26.00 %	27.00 %
Wisconsin	2,673,280	454,458	481,190	17.00 %	18.00 %
Wyoming	278,040	36,145	38,926	13.00 %	14.00 %
Puerto Rico	942,080	471,040	480,461	50.00 %	51.00 %
U.S. Total	131,229,770	22,387,175	23,575,380	17.06 %	17.96 %

These estimates show that between 22.3 and 23.5 million workers would be covered by the new minimum wage, or between 17 and 18 % of the employed population. Table 1 also highlights the vast differences in the number of employed workers covered by the proposed policy across labor markets. The high estimates show that 19 states (and Puerto Rico) would have at least 20 % of the employed population covered by the new minimum wage, and 5 states would have at least 25 %. Outside of Puerto Rico, where more than 50 % of the employed population would be covered by the $10.10 proposal, the policy would clearly be more binding in Southeastern and Midwestern states than in high-cost coastal areas.

The low-end estimates suggest the same pattern, with a slightly more tempered percentage of employees bound by the proposal. These estimates suggest that 17 states (and Puerto Rico) would have at least 20 % of the employed population covered by the new minimum wage, and 4 states would have at least 25 %.

Wage Changes and Employment Loss

With estimates of the number of covered employees in hand, we need to consider how wages would change for this group to estimate the employment change they would experience from the $10.10 proposal. To calculate the percentage wage change for each percentile of the distribution that happens when instituting the minimum wage, we take the difference between the new minimum wage and the simple average between the high and low values at the ends of each percentile and apply the mid-point formula as follows:

$$Pct\ Wage\ Change = \$10.10 - \frac{H+L}{2} \Big/ \frac{\$10.10 + \left(\frac{H+L}{2}\right)}{2}$$

Where H represents the top wage in the percentile, and L represents the lowest wage in the same percentile.

Calculating wage changes at each percentile for each state reveals that even among states with many workers below the proposed minimum, wages would increase relatively modestly for some workers, and relatively drastically for others. Table 2 shows estimates of the percent increase for workers covered by the proposed minimum wage at each covered percentile between the first and the 15th (many states have covered workers beyond this part of the distribution, but it is not practical to show the entire distribution for each state). This table highlights the differences in the distribution, even among covered workers.

Table 2 Percentage wage change for percentiles of the covered employee distribution

Percentile															
State	1st	2nd	3rd	4th	5th	6th	7th	9th	9th	10th	11th	12th	13th	14th	15th
AL	0.269	0.256	0.243	0.230	0.217	0.204	0.192	0.180	0.168	0.156	0.145	0.135	0.125	0.115	0.105
AK	0.188	0.160	0.133	0.107	0.081	0.056	0.031	0.008							
AZ	0.216	0.203	0.190	0.178	0.165	0.153	0.141	0.129	0.117	0.105	0.089	0.073	0.057	0.042	0.027
AR	0.269	0.256	0.244	0.231	0.219	0.207	0.195	0.183	0.171	0.159	0.149	0.140	0.130	0.120	0.111
CA	0.172	0.159	0.147	0.135	0.122	0.110	0.098	0.086	0.075	0.063	0.046	0.028	0.011		
CO	0.215	0.199	0.183	0.168	0.153	0.138	0.124	0.109	0.095	0.081	0.061	0.041	0.022	0.003	
CT	0.141	0.128	0.115	0.102	0.090	0.077	0.065	0.052	0.040	0.028	0.005				
DE	0.262	0.242	0.222	0.203	0.184	0.166	0.148	0.130	0.112	0.095	0.075	0.056	0.037	0.018	
DC	0.115	0.078	0.041	0.006											
FL	0.216	0.205	0.195	0.184	0.174	0.164	0.153	0.143	0.133	0.123	0.111	0.099	0.088	0.076	0.064
GA	0.267	0.252	0.238	0.224	0.209	0.195	0.182	0.168	0.154	0.141	0.127	0.114	0.101	0.087	0.074
HI	0.260	0.238	0.217	0.196	0.176	0.156	0.136	0.116	0.097	0.079	0.057	0.036	0.015		
ID	0.267	0.253	0.238	0.224	0.210	0.196	0.182	0.169	0.156	0.142	0.130	0.117	0.105	0.093	0.081
IL	0.145	0.136	0.127	0.118	0.110	0.101	0.092	0.084	0.075	0.067	0.054	0.041	0.029	0.016	0.004
IN	0.266	0.250	0.235	0.219	0.204	0.189	0.175	0.160	0.146	0.132	0.117	0.103	0.089	0.075	0.061
IA	0.265	0.249	0.233	0.217	0.201	0.186	0.170	0.155	0.140	0.126	0.110	0.095	0.080	0.065	0.051
KS	0.266	0.251	0.236	0.220	0.206	0.191	0.176	0.162	0.148	0.134	0.120	0.106	0.092	0.078	0.064
KY	0.267	0.252	0.238	0.224	0.209	0.195	0.182	0.168	0.154	0.141	0.128	0.115	0.103	0.090	0.078
LA	0.268	0.254	0.240	0.227	0.213	0.200	0.187	0.174	0.161	0.148	0.137	0.125	0.114	0.102	0.091
ME	0.231	0.214	0.197	0.180	0.164	0.148	0.132	0.116	0.101	0.086	0.069	0.053	0.037	0.021	0.006
MD	0.261	0.241	0.220	0.201	0.181	0.162	0.143	0.125	0.107	0.089	0.065	0.042	0.019		
MA	0.165	0.146	0.127	0.108	0.090	0.072	0.054	0.037	0.020	0.003					
MI	0.246	0.229	0.214	0.198	0.182	0.167	0.152	0.137	0.123	0.108	0.092	0.076	0.060	0.044	0.028
MN	0.261	0.241	0.220	0.201	0.181	0.162	0.143	0.125	0.107	0.089	0.069	0.049	0.030	0.011	
MS	0.270	0.258	0.246	0.234	0.222	0.210	0.199	0.188	0.176	0.165	0.156	0.147	0.139	0.130	0.121
MO	0.267	0.252	0.237	0.222	0.207	0.193	0.179	0.165	0.151	0.138	0.124	0.110	0.097	0.084	0.071
MT	0.218	0.207	0.196	0.185	0.174	0.163	0.152	0.142	0.131	0.121	0.109	0.097	0.085	0.073	0.061
NE	0.265	0.249	0.233	0.217	0.202	0.186	0.171	0.156	0.142	0.127	0.112	0.097	0.082	0.067	0.053
NV	0.151	0.147	0.144	0.140	0.136	0.133	0.129	0.126	0.122	0.119	0.102	0.085	0.068	0.051	0.035
NH	0.260	0.238	0.217	0.196	0.175	0.155	0.135	0.116	0.096	0.078	0.058	0.038	0.019		
NJ	0.259	0.237	0.215	0.193	0.172	0.151	0.131	0.111	0.091	0.072	0.051	0.030	0.009		
NM	0.235	0.222	0.209	0.196	0.184	0.171	0.159	0.146	0.134	0.122	0.110	0.098	0.086	0.074	0.062
NY	0.260	0.239	0.218	0.198	0.178	0.158	0.138	0.119	0.101	0.082	0.060	0.038	0.017		
NC	0.266	0.251	0.236	0.220	0.206	0.191	0.176	0.162	0.148	0.134	0.120	0.105	0.091	0.077	0.063

ND	0.262	0.242	0.222	0.203	0.184	0.165	0.147	0.129	0.111	0.093	0.075	0.056	0.038	0.020	0.002
OH	0.212	0.201	0.190	0.179	0.168	0.158	0.147	0.137	0.127	0.116	0.103	0.089	0.075	0.062	0.049
OK	0.268	0.253	0.239	0.226	0.212	0.198	0.185	0.172	0.159	0.146	0.134	0.122	0.111	0.099	0.088
OR	0.084	0.079	0.073	0.068	0.062	0.057	0.051	0.046	0.040	0.035	0.019	0.004			
PA	0.262	0.243	0.224	0.205	0.186	0.168	0.150	0.132	0.115	0.098	0.080	0.062	0.044	0.027	0.010
RI	0.243	0.224	0.206	0.188	0.170	0.153	0.135	0.119	0.102	0.086	0.065	0.045	0.025	0.006	
SC	0.268	0.255	0.241	0.228	0.215	0.202	0.189	0.177	0.164	0.152	0.141	0.130	0.119	0.108	0.097
SD	0.264	0.247	0.230	0.213	0.197	0.180	0.164	0.149	0.133	0.118	0.104	0.090	0.076	0.063	0.049
TN	0.267	0.253	0.239	0.225	0.211	0.197	0.183	0.170	0.157	0.144	0.131	0.118	0.106	0.094	0.081
TX	0.268	0.253	0.239	0.226	0.212	0.198	0.185	0.172	0.159	0.146	0.133	0.121	0.109	0.097	0.085
UT	0.264	0.246	0.228	0.211	0.194	0.177	0.160	0.144	0.128	0.112	0.096	0.080	0.064	0.048	0.033
VT	0.118	0.107	0.096	0.085	0.074	0.063	0.052	0.042	0.031	0.021	0.005				
VA	0.263	0.245	0.227	0.209	0.192	0.175	0.158	0.141	0.125	0.108	0.089	0.071	0.053	0.035	0.017
WA	0.055	0.047	0.039	0.031	0.023	0.015	0.007								
WV	0.269	0.257	0.244	0.232	0.220	0.208	0.196	0.185	0.173	0.162	0.152	0.143	0.134	0.125	0.116
WI	0.264	0.247	0.229	0.212	0.195	0.179	0.163	0.147	0.131	0.115	0.098	0.081	0.065	0.048	0.032
WY	0.259	0.237	0.215	0.194	0.173	0.153	0.133	0.113	0.093	0.074	0.053	0.032	0.011		
PR	0.272	0.262	0.252	0.242	0.232	0.223	0.213	0.204	0.194	0.185	0.178	0.171	0.164	0.157	0.150

Wage distribution data on the bottom decile from the Bureau of Labor Statistics, 2012. All percentiles besides the 10th are imputed using author calculations, and state minimum wages as the zero boundary

Table 2 reveals that for the first percentile of the distribution, the average wage increase ranges from a low of 5.5 % in Washington, to a high of over 27.2 % in Puerto Rico, with 33 areas show a wage increase of more than 25 % in the first percentile of the distribution. Moving to the second percentile, only 17 areas show a 25 % increase or larger, and only 1 (Puerto Rico) shows this large an increase for the 3rd percentile. By the 10th percentile (where the BLS data start), the average wage increase among covered states is down to just over 10 %.

After finding the percentage wage change at each percentile of the distribution we use labor demand elasticity estimates and existing employment levels and apply the mid-point formula to find employment when the minimum wage is instituted using the following equation:

$$\varepsilon_D = \frac{(N-C)}{(N+C)/2} \Big/ PctWageChange$$

Where ε_D is the labor demand elasticity and C is one percent of the current employment distribution, and we solve for N, or the new level of employment after the minimum wage increase in each percentile of the distribution. We take the labor demand elasticity from the literature on employment effects of covered minimum wage workers. As this elasticity is crucial for our estimates, we discuss this literature and our choice below. We also consider how using an alternative estimate for labor demand elasticity affects our estimates in the sensitivity analysis.

The Elasticity of Labor Demand

Estimating labor demand elasticity has been quite contentious in the economics literature, especially in recent years. We review the literature that is relevant to estimating employment changes that result from minimum wage changes, as our simulation requires an empirical estimate that necessarily includes any aggregate demand boost that comes along with increasing wage for covered employees who maintain employment. The first three quarters of a century yielded a consensus on labor demand elasticities—a moderate negative employment effect (estimated elasticity ranging from −0.1 to −0.3 (Brown et al. (1982)) for workers of low skill.[Footnote5]

Along with newer methodology and data sources, researchers reignited the debate on the employment effects of workers near the wage floor caused by a change in the minimum wage in the 1990's. Several papers served as catalyst for this discussion (Katz and Krueger 1992; Neumark and Wascher 1992; Card 1992a; b; Card and Krueger 1994; Neumark and Wascher 1994). The Neumark and Wascher (1992, 1994) and Card and Krueger (1994) papers garnered particular attention. Neumark and Wascher use national data to find significant negative employment effects on both teenage and young adult workers within the 'old consensus' range; whereas, Card and Krueger focused on restaurant employees from a particular case study and found near zero insignificant employment effects.

Researchers renew vigor in the debate with various econometric techniques and data sources; however, the discussion continues to investigate the employment effects of minimum wages on teenagers or more generally low-skilled workers (mainly the restaurant industry). For example, Addison et al. (2009) examine the retail trade sector focusing on low wage workers from 1990 to 2005 and find no evidence of negative employment effects but suggestion of positive effects on employment. The authors suggest the previous literature is lacking a critical empirical technique—the inclusion of county-level trends. On the other hand, Sabia (2009) uses econometric specifications favored from opposite sides of the literature and applies monthly data from 1979 to 2004 to show negative employment effects on teenagers.

Other research has branched off analyzing different types of questions such as heterogeneous effects within the wage distribution. Neumark et al. (2004) use OLS with bootstrapped standard errors on monthly CPS data from 1979 to 1997 to find negative employment effects on workers at or near the minimum wage, with elasticity results ranging from −0.12 to −0.17. The authors do not find significant effects on workers higher in the wage distribution. Variations by other researchers include examining the impacts of employment dynamics (Meer and West 2013) or business cycles (Addison et al. 2013; Giuliano 2013). Meer and West find non-significant near zero impacts on employment but show job growth and creation is slowed with increases in the minimum wage. The results of Addison et al. and Giuliano yield caution to locations experiencing economic downturn as they find increases in the minimum wage impacts employment more severely in recessionary times.

Most recently, Dube et al. (2010) and Allegretto et al. (2011) turn the discussion back to the econometric method used to estimate these elasticities. The authors stress the importance of finding the correct control group from which to draw the treatment effects. The papers add linear time trends to the standard approach and exploit within census division variation or cross-border county pair variation. The results imply the impacts of increased minimum wages on teenage or low-skilled workers are not statistically different from zero. The authors cast serious doubt on the preceding research's ability to capture the correct control group. Neumark et al. (2013) responds to these critiques by questioning the inclusion of only linear time trends (and not higher order) and questioning the division or county pair control groups. After including higher order time trends and analyzing different control groups, Neumark and coauthors find significant negative employment impacts on teenagers near the 'old consensus' of −0.15. The authors do not find as precise an estimate on restaurant (low-wage/skill) employment, but the point estimates are approximately −0.5.

Employment Loss Estimates

The literature on labor demand elasticity is varied but the balance of work seems to support the 'old consensus' of a moderate negative impact on employment from minimum wage increases. Neumark et al. (2013) supplies what we believe is the most convincing and strongly supported claim of the negative effect. Neumark and coauthors provide what we deem are plausible estimates of the employment effects on teenage workers and low-skill working adults, −0.15 and −0.05, respectively. The −0.15 estimate is the mid-point of the labor demand elasticities used in the CBO estimates, and we take this parameter to use for our preferred estimates, along with an adult labor demand elasticity of −0.05.

As we do not have a separate wage distribution for teenage and adult workers, we weight our elasticity point estimate by the fraction of adult and teenage workers earing at or below current minimum wage nationally. This choice is likely quite conservative, as the percentage of adult workers likely increases with wage. BLS data show that 24 % of the labor force earning at or below the minimum wage are teenagers (age 16–19) and we weight our elasticity estimates by this percentage. This leaves us with a point estimate of labor demand elasticity for all employed workers of −0.074.

Using the equations for percentage change in wage and solving for employment loss, we estimate new employment at each percentile of the distribution in each state. We then aggregate the estimates for each percentile and compare them to the current employment distribution to calculate employment losses. The primary difference in the low and high estimates is how the last percentile of the covered distribution is treated. For the low estimates, this is not considered part of the calculation, for the high estimates, this is treated as half of the piece of the distribution just below the minimum wage.

Table 3 details our high and low employment loss estimates across states. Nationally, our low end estimates are quite close to the CBO preferred estimate of approximately 500,000 jobs lost– our low end estimate is that the $10.10 proposal would cause an employment loss of 553,000 jobs (or 2.47 % of the covered population). Our high end estimate is that employment loss could grow to over 1.5 million jobs (or 6.66 % of the covered population), with the primary difference between these estimates being how the binding percentile is included.

Table 3 Employment loss from proposed $10.10 increase in minimum wage (2012 employment)

State	Employment loss (high)	% Reduction in covered employees	Employment loss (low)	% Reduction in covered employees
AL	13,663	2.88 %	4,361	0.96 %
AK	1,795	6.26 %	179	0.70 %
AZ	15,631	3.81 %	3,368	0.87 %
AR	8,764	2.81 %	2,875	0.96 %
CA	85,626	4.28 %	13,203	0.71 %
CO	13,917	4.17 %	2,611	0.84 %
CT	9,195	4.73 %	1,008	0.57 %
DE	4,639	7.62 %	4,639	7.62 %
DC	3,413	10.44 %	116	0.44 %

FL	49,160	3.22 %	12,214	0.84 %
GA	45,773	5.71 %	45,773	5.71 %
HI	6,652	8.08 %	770	1.01 %
ID	7,220	5.24 %	1,235	0.94 %
IL	89,896	9.37 %	61,391	6.80 %
IN	33,351	5.93 %	5,232	0.98 %
IA	17,314	6.20 %	2,607	0.98 %
KS	15,709	5.95 %	9,233	3.49 %
KY	21,232	5.47 %	3,585	0.97 %
LA	22,777	5.08 %	4,095	0.95 %
ME	6,562	7.06 %	751	0.86 %
MD	28,533	8.12 %	3,426	1.05 %
MA	33,963	9.64 %	1,942	0.61 %
MI	45,144	6.78 %	5,963	0.95 %
MN	30,077	7.59 %	3,666	0.99 %
MS	13,691	4.53 %	2,887	0.99 %
MO	31,151	5.69 %	5,092	0.98 %
MT	5,040	5.55 %	716	0.83 %
NE	10,786	6.21 %	1,637	0.99 %
NV	12,692	6.26 %	1,420	0.74 %
NH	6,929	8.08 %	3,923	4.57 %
NJ	42,739	8.05 %	4,802	0.97 %
NM	9,073	5.58 %	1,334	0.86 %
NY	96,760	8.09 %	11,337	1.02 %
NC	46,100	5.94 %	7,312	0.99 %
ND	4,610	7.14 %	577	0.95 %
OH	58,277	6.07 %	7,735	0.85 %
OK	18,582	5.06 %	3,283	0.93 %
OR	16,833	8.04 %	734	0.38 %
PA	64,218	7.17 %	8,253	0.98 %
RI	5,119	7.53 %	588	0.93 %
SC	22,047	4.91 %	4,081	0.95 %
SD	4,675	6.17 %	688	0.96 %
TN	32,073	5.49 %	19,047	3.26 %
TX	128,137	5.27 %	22,343	0.96 %
UT	13,954	6.46 %	1,946	0.95 %
VT	3,091	8.76 %	150	0.46 %
VA	41,543	7.22 %	23,904	4.15 %
WA	14,315	6.47 %	439	0.23 %
WV	8,941	4.66 %	1,836	0.99 %
WI	44,725	9.29 %	31,100	6.84 %
WY	3,136	8.06 %	356	0.98 %
PR	200,901	41.81 %	191,481	40.65 %
U.S. Total	1,570,143	6.66 %	553,244	2.47 %

Simulation estimates use Bureau of Labor Statistics data on state-level wage distribution. Estimates use a weighted labor demand elasticity of −0.074

Across states, the employment loss burden from a federal minimum wage is unevenly distributed. Puerto Rico would experience by far the largest drop in employment, both in terms of the percentage of covered workers (40.6–41.8 %) and the total jobs lost (191,000–200,000). Our high end estimates suggest that 22 states and Puerto Rico would experience employment losses in excess of 20,000 jobs, and 13 states and Puerto Rico would experience employment losses in excess of 40,000 jobs. The percentage of covered jobs lost among the states ranges from a low of 2.8 % in Arizona to a high of over 10 % in the District of Columbia, with 42 areas experiencing a loss of at least 5 % of covered employees.

The low end estimates in Table 3 highlight three important features of these estimates: there is still substantial heterogeneity in the impact across states; there is the potential for substantially smaller job losses in some areas than the high end estimates suggest; and the assumptions in even a simple model play a large role in the magnitude of the estimates. Our low end estimates still suggest significant job loss, but in most cases (40 areas) this loss is less than 1 % of the covered population. Puerto Rico is still by far the area that we expect to be impacted with the most job losses. The low end estimates also show a more geographically diffuse impact of the $10.10 proposal with the largest percentage losses coming in places like Wisconsin, Illinois, New Hampshire, and Virginia.

Sensitivity Analysis

There are three primary assumptions in our estimates that we perform sensitivity analysis for: the choice of labor demand elasticity, the method of imputing wage values between known parts of the reported BLS distribution, and the wage inflation rate between 2012 and 2016.

Alternative Elasticity Estimates

As an alternative to our preferred labor demand elasticity, we re-estimate the simulation using the elasticity endorsed by the CBO report. CBO suggests a high end labor demand elasticity of − 0.2 for teen workers, and "one third" of that for adults. We apply the CBO elasticities to our simulation by weighting the elasticity by the fraction of minimum wage and below workers that are teens– 24 %. The weighted elasticity in this sensitivity check is −0.09866.

Table 4 shows our employment loss estimates applying the more sensitive labor demand elasticity. Nationally, our low-end estimates suggest an additional 64,000 jobs lost compared to our preferred elasticity assumption. At the high-end our national employment loss estimate increases by about the same amount of job loss. Across states, the pattern is nearly identical to our preferred estimates.

Table 4 Employment loss from the $10.10 minimum wage proposal: alternative labor demand elasticity

State	Employment loss (high)	% Reduction in covered employees	Employment loss (low)	% Reduction in covered employees
AL	15,132	3.19 %	5,773	1.27 %
AK	1,860	6.48 %	237	0.93 %
AZ	16,785	4.09 %	4,460	1.15 %
AR	9,731	3.12 %	3,806	1.27 %
CA	90,204	4.50 %	17,488	0.94 %
CO	14,820	4.44 %	3,458	1.11 %
CT	9,549	4.91 %	1,335	0.75 %
DE	4,827	7.93 %	4,827	7.93 %
DC	3,459	10.58 %	154	0.59 %
FL	53,305	3.49 %	16,173	1.11 %
GA	48,238	6.02 %	48,238	6.02 %
HI	6,901	8.38 %	1,019	1.33 %
ID	7,620	5.54 %	1,635	1.24 %
IL	91,613	9.55 %	63,010	6.98 %
IN	35,044	6.23 %	6,925	1.30 %
IA	18,158	6.50 %	3,451	1.30 %

KS	16,518	6.25 %	10,083	3.82 %
KY	22,392	5.77 %	4,745	1.28 %
LA	24,103	5.38 %	5,420	1.26 %
ME	6,805	7.32 %	994	1.14 %
MD	29,642	8.43 %	4,535	1.39 %
MA	34,594	9.82 %	2,573	0.80 %
MI	47,075	7.07 %	7,894	1.26 %
MN	31,264	7.89 %	4,853	1.31 %
MS	14,625	4.83 %	3,821	1.31 %
MO	32,799	5.99 %	6,740	1.29 %
MT	5,272	5.81 %	948	1.10 %
NE	11,315	6.51 %	2,167	1.32 %
NV	13,153	6.48 %	1,881	0.98 %
NH	7,188	8.38 %	4,202	4.90 %
NJ	44,293	8.34 %	6,356	1.29 %
NM	9,505	5.85 %	1,767	1.14 %
NY	100,429	8.40 %	15,006	1.35 %
NC	48,466	6.25 %	9,678	1.31 %
ND	4,797	7.43 %	764	1.26 %
OH	60,784	6.33 %	10,242	1.13 %
OK	19,645	5.35 %	4,346	1.24 %
OR	17,072	8.16 %	973	0.50 %
PA	66,889	7.47 %	10,924	1.30 %
RI	5,309	7.81 %	779	1.23 %
SC	23,368	5.20 %	5,402	1.25 %
SD	4,897	6.47 %	911	1.27 %
TN	33,853	5.79 %	20,910	3.58 %
TX	135,368	5.56 %	29,574	1.27 %
UT	14,584	6.75 %	2,576	1.26 %
VT	3,140	8.90 %	199	0.62 %
VA	43,346	7.53 %	25,819	4.49 %
WA	14,477	6.55 %	582	0.30 %
WV	9,536	4.97 %	2,430	1.32 %
WI	46,222	9.61 %	32,514	7.15 %
WY	3,251	8.35 %	471	1.30 %
PR	201,893	42.02 %	192,472	40.86 %
U.S. Total	1,635,117	6.94 %	617,538	2.76

Estimates use a labor demand elasticity for teenage workers of −0.20 and −0.0666 for adult workers to create a weighted elasticity of −0.09866 for all covered employees. All other assumptions reflect the standard assumptions in our preferred model

Alternative Imputation Method

Our primary estimates assume a constant level growth in wages between known points of the BLS distribution. This assumption is easily violated if the wage distribution has curvature between these points, as is the case if wages follow a normal distribution. We examine the sensitivity of our estimates to this assumption by using constant growth rate imputation as opposed to the constant growth level imputation.

Solving for the constant growth rate, r, is done for each piece of the distribution by using the values at the known points of the distribution and solving for the rate, that fits the following equation:

$$P = I(1 + r)^N$$

Where N is the number of percentiles between the initial wage value I and the end value for that piece of the distribution, P. The number of percentiles varies between 10, 15, and 25 depending on what part of the distribution we are imputing.

The constant growth rate results generally show substantially larger employment loss estimates, especially for the low-end estimates. Nationally, changing the imputation method from linear to constant growth rate imputation increases the low-end employment loss estimates by about double to just over 1.1 million jobs. The top-end estimates are also larger, at 1.8 million jobs lost, compared to 1.5 million using the linear imputation. Across states, Arizona, California, Hawaii, Indiana, Kansas, Kentucky, Maryland, Michigan, New York, Oregon, and Washington show some of the biggest increases in job loss between the constant growth and linear imputation methods. Table 5 details the high and low estimates across states using the constant growth rate imputation. We submit that the most important take-away from comparing these methods is that even a small change in an assumption can cause employment loss estimates to become much larger.

Table 5 Employment loss from the $10.10 minimum wage proposal: alternative wage imputation method

State	Employment loss (high)	% Reduction in covered employees	Employment loss (low)	% Reduction in covered employees
AL	13,717	2.89 %	4,414	0.97 %
AK	1,807	6.30 %	191	0.75 %
AZ	39,842	9.17 %	27,578	6.72 %
AR	8,798	2.82 %	2,909	0.97 %
CA	156,474	7.81 %	85,865	4.29 %
CO	13,981	4.19 %	2,674	0.86 %
CT	9,215	4.74 %	1,027	0.58 %
DE	8,710	13.42 %	4,653	7.64 %
DC	3,434	10.51 %	136	0.52 %
FL	85,149	5.57 %	49,358	3.23 %
GA	84,073	10.02 %	45,918	5.73 %
HI	12,555	14.23 %	6,673	8.10 %
ID	7,243	5.26 %	1,258	0.96 %
IL	33,567	3.72 %	5,061	0.60 %
IN	33,462	5.95 %	33,462	5.95 %
IA	17,373	6.22 %	17,373	6.22 %
KS	22,493	8.11 %	15,759	5.97 %
KY	21,298	5.49 %	21,298	5.49 %
LA	22,842	5.09 %	4,160	0.97 %
ME	6,579	7.08 %	768	0.88 %
MD	53,729	14.27 %	28,622	8.14 %
MA	34,028	9.66 %	2,007	0.63 %
MI	84,456	11.98 %	45,275	6.80 %
MN	3,765	1.02 %	3,765	1.02 %
MS	13,723	4.54 %	2,918	1.00 %
MO	31,252	5.71 %	31,252	5.71 %
MT	5,052	5.56 %	5,052	5.56 %
NE	10,821	6.23 %	10,821	6.23 %
NV	12,722	6.27 %	1,450	0.76 %
NH	10,072	10.96 %	6,950	8.10 %
NJ	42,880	8.07 %	4,943	1.00 %
NM	9,097	5.60 %	1,359	0.88 %
NY	182,487	14.24 %	97,064	8.12 %
NC	46,251	5.96 %	46,251	5.96 %

ND	4,626	7.17 %	593	0.98 %
OH	58,416	6.08 %	58,416	6.08 %
OK	3,338	0.95 %	3,338	0.95 %
OR	16,841	8.05 %	742	0.38 %
PA	64,430	7.20 %	64,430	7.20 %
RI	5,134	7.56 %	604	0.95 %
SC	22,106	4.92 %	4,140	0.96 %
SD	4,690	6.19 %	4,690	6.19 %
TN	45,717	7.48 %	32,169	5.50 %
TX	128,528	5.28 %	22,734	0.98 %
UT	14,003	6.48 %	1,994	0.98 %
VT	3,094	8.77 %	153	0.47 %
VA	60,010	9.81 %	41,675	7.24 %
WA	28,089	12.70 %	14,325	6.48 %
WV	8,961	4.67 %	8,961	4.67 %
WI	44,826	9.32 %	31,200	6.87 %
WY	3,146	8.08 %	3,146	8.08 %
PR	201,621	41.96 %	192,200	40.80 %
U.S. Total	1,860,520	7.82 %	1,103,772	4.80 %

Estimates reflect using a constant growth rate imputation to assign wage values to each percentile of the distribution across states. All other assumptions reflect the standard assumptions in our preferred model

Alternative Wage Inflation

Another primary assumption in the simulation is the rate used to deflate the $10.10 proposal back to 2012 dollars to match it to the BLS wage distribution data. The preferred estimates use the 2014 CPI for all goods, but the CBO uses a 2.9 % annual growth rate to bring today's wage distribution into 2016 to match the proposal. We examined how our results would change if we deflated the $10.10 proposal using the 2.9 % annual rate from the CBO report. This equates to a $9.27 minimum wage in our data. In theory, this works like enacting a smaller minimum wage, which should have two effects on our estimates. First, there will be fewer workers covered by the wage change– resulting in smaller employment losses. Second, there will be smaller wage increases– resulting in fewer job losses due to the interaction with labor demand elasticity. These effects will offset to some degree when examining job loss as a percentage of covered workers, so it is more appropriate to compare total job loss to our preferred estimates.

Table 6 shows job loss estimates using the CBO alternative for wage inflation. Nationally, these estimates produce smaller job loss totals: a high-end estimate of 1.1 million jobs lost, and a low end estimate of just over 320,000 jobs lost. These estimates are still substantial, suggesting that at least 1.75 % of covered workers would lose their job, and they also show the same heterogeneous pattern across states that other estimates show.

Table 6 Employment loss from the $10.10 minimum wage proposal: alternative wage deflator

State	Employment loss (High)	% Reduction in covered employees	Employment loss (Low)	% Reduction in covered employees
AL	3,172	0.79 %	930	0.23 %
AK	1,728	7.75 %	117	0.61 %
AZ	14,588	4.03 %	2,358	0.70 %
AR	2,094	0.79 %	675	0.25 %
CA	80,618	4.70 %	8,393	0.53 %
CO	1,825	0.68 %	1,825	0.68 %
CT	559	0.38 %	157	0.11 %
DE	4,487	8.51 %	430	0.88 %
DC	58	0.30 %	58	0.30 %
FL	81,178	6.56 %	45,285	3.66 %

GA	43,771	6.37 %	5,616	0.87 %
HI	6,450	9.14 %	568	0.88 %
ID	6,890	6.06 %	905	0.84 %
IL	59,279	8.76 %	31,299	4.62 %
IN	31,972	6.69 %	3,853	0.86 %
IA	16,630	7.07 %	1,922	0.87 %
KS	8,556	3.81 %	1,841	0.87 %
KY	2,630	0.83 %	2,630	0.83 %
LA	21,674	5.80 %	2,991	0.84 %
ME	6,340	8.39 %	529	0.76 %
MD	2,554	0.85 %	2,554	0.85 %
MA	17,335	6.77 %	1,174	0.52 %
MI	4,318	0.79 %	4,318	0.79 %
MN	29,119	8.48 %	2,708	0.85 %
MS	12,921	4.78 %	2,117	0.82 %
MO	3,747	0.85 %	3,747	0.85 %
MT	4,820	6.56 %	496	0.72 %
NE	10,355	7.07 %	1,206	0.88 %
NV	12,203	7.22 %	932	0.59 %
NH	3,702	5.04 %	589	0.87 %
NJ	41,471	9.11 %	3,534	0.85 %
NM	8,680	6.60 %	941	0.76 %
NY	93,807	9.15 %	8,384	0.89 %
NC	44,180	6.70 %	5,392	0.87 %
ND	4,458	8.50 %	425	0.88 %
OH	55,912	6.91 %	5,369	0.71 %
OK	2,400	0.83 %	2,400	0.83 %
OR	8,333	5.75 %	256	0.20 %
PA	62,044	7.92 %	6,079	0.84 %
RI	427	0.79 %	427	0.79 %
SC	2,980	0.83 %	2,980	0.83 %
SD	4,488	7.04 %	501	0.84 %
TN	17,548	3.48 %	4,038	0.84 %
TX	122,180	6.08 %	16,386	0.86 %
UT	13,439	7.46 %	1,431	0.85 %
VT	72	0.31 %	72	0.31 %
VA	22,420	4.45 %	4,137	0.88 %
WA	6,988	8.43 %	52	0.09 %
WV	8,445	4.95 %	1,339	0.82 %
WI	16,822	4.20 %	3,234	0.86 %
WY	3,042	9.12 %	262	0.86 %
PR	134,199	33.92 %	124,778	32.30 %
U.S. Total	1,169,909	6.00 %	324,639	1.75 %

Estimates reflect 2.9 % annual wage growth between 2012 and 2016, following the assumption used by the Congressional Budget Office. All other assumptions reflect the standard assumptions in our preferred model

Conclusion

The simple model and results presented in this paper illustrate that a federal minimum wage increase to $10.10 will have drastically different consequences across states. The differential impact across geography is driven by the overall wage differences between these areas, differences in the shape of the wage distribution, and differences in state-level minimum wage laws.

In addition to the heterogeneity we show here, we would expect there to be additional differences across geography within states and across population sub-groups. While the $10.10 option would likely have only a modest impact on the San Francisco metropolitan area, it may have a substantial impact on the Central Valley and Sacramento area of California. Similarly, workers in Chicago may only experience small changes in job availability, but the farmlands of central Illinois are more likely to be hit hard with employment declines. Certainly these geographic disparities would be tied to local industries, with areas relying on agricultural and low-tier service sector jobs experiencing the bulk of employment losses.

We expect that geography is not the only dividing line where the $10.10 proposal would have a differential impact- the policy is likely to have a much different effect across age, industry, education/skill, and race groups. Looking just at the national distribution of wages across age, we would expect job losses to be concentrated at the ends of the distribution- younger workers and older workers doing part time work after retirement. Industries that can more easily replace labor with capital would likely be the first to adjust by shedding jobs, but we would also expect longer term investment in capital that can substitute for labor. Capital replacement and resulting job loss would be easiest for firms employing low skilled workers, whose tasks can more easily be replicated by machines.

Minorities that tend toward lower wages than whites, like Hispanics and African Americans, would also be differentially affected by these job loss estimates. Currently, about 5 % of Hispanic and 5.3 % of African American workers earn at or below minimum wage, compared to 4.7 % of whites (only 3.3 % of white men earn at or below minimum wage, while 6 % of white women do). The change in employment caused by raising the federal minimum wage would be exacerbated for minority groups to the extent that they experience discrimination in the labor market, and the correlation between where minorities live and current state minimum wage laws. Minority women would likely fare the worst, as 6.7 % of Hispanic women and 6.3 % of African American women are paid at or below current minimum wage.

An important caveat to consider with our estimates is that they do not account for unemployed workers who are currently seeking work. It is reasonable to assume a larger fraction of unemployed workers than the currently employed would be looking for jobs that would have paid less than $10.10. Our estimates do not account for the jobs that would have been created to employ these workers in the absence of a minimum wage increase, this would likely manifest as an increase in the number of people leaving the labor force entirely.

Our results and sensitivity analysis also highlight the uncertainty in forecasting the impact of changing the federal minimum wage. Even our simple model, using what we believe to be conservative assumptions, produces a wide range of job-loss estimates. Changing even basic parameters of the model, such as the wage inflation rate, induce large differences in expected employment losses.

We hope that the level of uncertainty in predicting job-loss from increasing the minimum wage pushes the conversation about how best to help struggling families away from policies that have the potential to reduce employment and toward policy options that unambiguously expand employment opportunities. A starting point would be an expansion of the Earned Income Tax Credit (EITC). In theory, an EITC expansion should not only boost take-home pay of low-wage workers, it should simultaneously expand employment opportunities.

Notes

1 The Fair Labor Standards Act, which established the minimum wage, currently applies to about two-thirds of workers (CBO 2014).

2 See http://www.bls.gov/oes/current/oessrcst.htm to download the state-level files detailing the wage and salary distribution.

3 See http://www.bls.gov/news.release/cpi.nr0.htm for the most current CPI data.

4 The CBO report inflates the wage and employment distribution by a 2.9 % annual rate up to 2016 to match the $10.10 proposal.

5 For a thorough review of this literature see Brown et al. (1982).

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