Some thoughts on CBO's employment estimate

Arindrajit Dube @arindube, twitter, February 8, 2021

Today the Congressional Budget Office released its projections for $15/2025 min wage. Here are some thoughts on their employment estimate. They used same evidence (11 studies) as 2019 report but upweighted more negative studies; the implied OWE=-0.48 instead of -0.38

In the 2019 they used 11 studies, and found the median "directly affected employment" elasticities (closely related to the own-wage elasticity of employment) of around -0.25. Then they multiplied by 1.5 to capture "long run" effects, getting -0.38.

Table A-2.

Employment Elasticities for All Directly Affected Workers, by Study

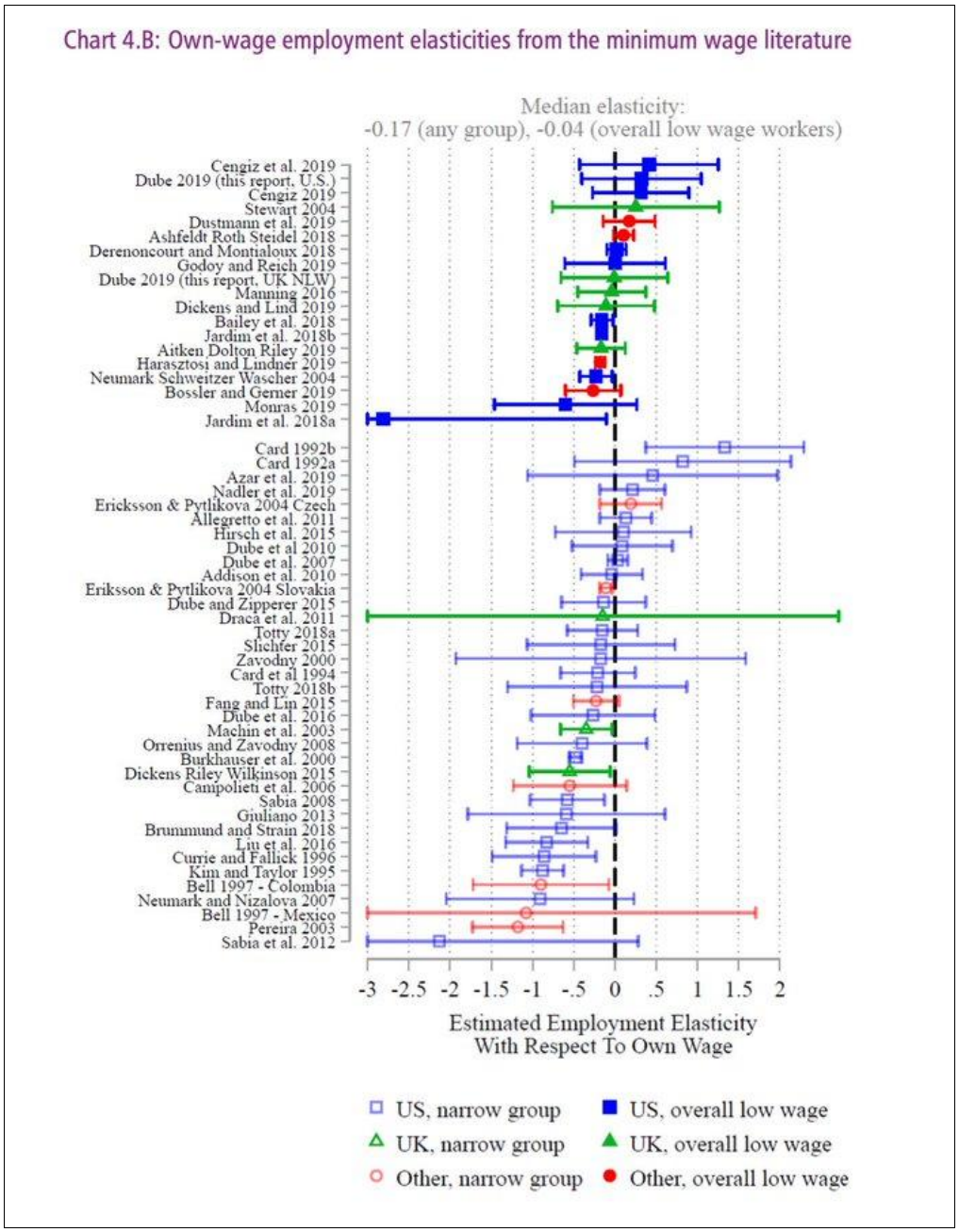
Study	Short-Run Elasticities	Ratio of Long-Run to Short-Run Elasticities
Cengiz and others (2019)	0.4	1.0
Cengiz (2019)	0.3	1.0
Derenoncourt and Montialoux (2018)	0.2	1.0
Bailey, DiNardo, and Stuart (2018)	-0.1	2.0
Aaronson, French, and Sorkin (2018)	-0.2	2.0
Neumark, Schweitzer, and Wascher (2004)	-0.2	n.a.
CBO's Median Estimate	**-0.25**	**1.5**
Gopalan and others (2018)	-0.9	n.a.
Monras (2019)	-1.0	1.5
Meer and West (2015)	-1.2	1.7
Jardim and others (May 2018)	-1.7	n.a.
Clemens and Wither (2016)	-1.7	n.a.

Source: Congressional Budget Office.

This time, they used the same elasticities, but now decided to not use the median elasticity but simulate the mean employment effect by randomly drawing from these elasticities. Change of this method leads to 1.4 million job loss instead of 1.1 million using old approach.

Taken together, those differences led to differences in the reports' projected effects on employment and family income. In the 2019 report, CBO estimated that employment would fall by 1.3 million workers in 2025; in this report, the estimated reduction is 1.4 million workers. The most important analytical change that led to that difference was CBO's use of the mean rather than the median in determining its central estimates. The distribution of possible employment effects is asymmetric, and the mean is greater than the median. If CBO had used the median values of key inputs, as it did in the 2019 report, its central estimate of the employment effect in 2025 would have been a reduction of 1.1 million workers—a smaller amount than in the 2019 report.

CBO's implied OWE* is now around -0.48 (= -0.38 x 1.4 / 1.1). I felt -0.38 was already somewhat too negative based on my comprehensive 2019 review conducted for @hmtreasury. The comparable OWE (broad group) was -0.04. (-0.14 incl narrow groups) -0.48 goes in wrong direction.



The new CBO averaging implicitly puts more weight on some of the most negative estimates, including the Seattle study by Jardim et al. However, in our new JEP paper, we show evidence from 21 major city minimum wage (incl Seattle) and find an OWE of -0.12.

City Limits: What Do Local-Area Minimum Wages Do? (Winter 2021) - Cities are increasingly setting their own minimum wages, and this trend has accelerated sharply in recent years. While in 2010 there were only three cities with their own minimum...
https://www.aeaweb.org/articles?id=10.1257/jep.35.1.27

Importantly, we can replicate a similar pattern as in the Seattle study suggesting large losses in jobs below a threshold (but unrealistic big job gains at very top) from our 21 city case *when we don't factor in that these cities were experiencing very high wage growth.*

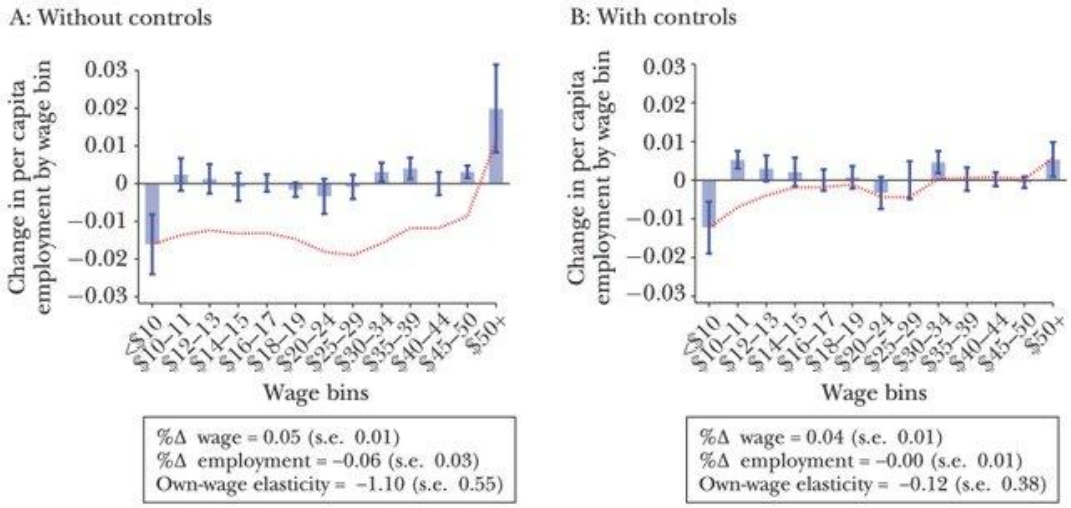
ment changes were negligible. The implied employment elasticity with respect to wage is –0.12. The 90 percent confidence interval rules out own-wage employment elasticities more negative than –0.75 (including the point estimate of –1.1 from the specification without controls).

These estimates are quite similar to the overall minimum wage literature to date. For example, the median own-wage employment elasticity in the literature is around –0.17, while it is around –0.04 when restricting attention to broad-based groups (Dube 2019). At the same time, the confidence interval here also rules out some other prominent negative estimates from the minimum wage literature. Importantly, the aggregate own-wage employment elasticity of –2.18 in the Jardim et al. (2017) study of Seattle lies far outside of our confidence interval.

Indeed, the differences between the two panels in Figure 3 can help shed light on the controversy surrounding the Seattle minimum wage studies. The findings in Panel A are strikingly similar to the aggregate-level findings in Jardim et al. (2020, see Appendix Figure 7). In Seattle, too, there was an apparent drop in jobs below the new minimum wage and those jobs did not recover if only jobs below a certain threshold (say, $20, $25, or $30 per hour) are considered. Nevertheless, similar to our results here, Jardim et al. (2020) find an overall increase in jobs in Seattle that mainly came from an unusual job creation above $50 per hour. These employment patterns are observed even though Jardim et al. (2020) are careful to construct a synthetic control; however, as we pointed out before, all of their control areas come from within Washington state. The raw-versus-control comparisons in Figures 2 and 3 document that the cities with minimum wages are often unique in terms of economic structure, costs of living, and wage and employment growth trends, and in general, it might be difficult to find comparable cities within a state with similar characteristics.

Figure 3

City-Level Minimum Wages and Employment Changes



Note: The figure shows the bin-by-bin employment changes from our regression analysis (based on the equation in the text) exploiting 21 city-level minimum wage changes between 2012 and 2018. The blue bars show, for each wage bin, the estimated average employment change in that bin relative to the total employment in the city in 2012. The error bars show the 95 percent confidence intervals. The red line shows the running sum of employment changes up to the wage bin to which it corresponds. Panel A shows the estimates with time- and city-fixed effects but without controlling for the set of 2012 covariates interacted with the post dummy. Panel B controls for 2012 values of cost of living, employment to population ratio, average wage, wage percentiles, shares of employment below wage cutoffs, and 1-digit level sectoral shares. Results are weighted by the population size of the city. For detailed regression results, see the online Appendix available at the *JEP* website with this paper.

So, the research evidence since 2019 has provided more information about why the very large negative effect from the Jardim et al study likely overstates the true employment effect. However, the CBO increased the implicit weight put on that study through change in its methods.

At the end of the day, the CBO estimates still suggest wage gains are >> job losses, and reduced poverty. However, I think the CBO's choices here move it in the wrong direction when it comes to reliable aggregation of the best evidence on the overall emp effect of min wages.

Another historical data point to consider. Here are the implicit OWE's used by various CBO minimum wage projections as best I can tell:
2014: - 0.16 2019: - 0.38 2021: - 0.48
These are somewhat different policies, but I'm concerned how CBO is updating based on new research.

*For those not in the weeds, here is an explanation of the "own-wage elasticity" of employment for minimum wage studies; this is closely related to what the CBO uses. There is a large literature on the employment effect of minimum wages for a wide variety of groups. To make apples-to-apples comparison, I use “own-wage employment elasticity” (OWE) which scales the employment effect by the wage effect.

$$OWE = \frac{\left(\frac{\%\Delta\ Employment}{\%\Delta\ Minimum\ Wage}\right)}{\left(\frac{\%\Delta\ Average\ Wage}{\%\Delta\ Minimum\ Wage}\right)} = \frac{MWE}{AWE}$$

A generally more binding minimum wage increase, and use of a sub-group for whom the minimum wage is more binding, will tend to produce a larger average wage elasticity (i.e., the denominator above). This normalizes the MWEs to produce a more apples-to-apples comparison. Unfortunately, not all studies actually report the effect on the group average wage, which makes it difficult to meaningfully compare employment estimates across studies. However, focusing on the studies that do report both allows a more informative evaluation of the existing evidence base. The magnitude of the OWE is important: for example, an OWE = -1 implies that job losses and wage gains fully cancel out, and the affected group sees no net increase in total earnings. In contrast, an OWE of say -0.1 implies a very small impact of employment; the increase in total earnings to the group in this case is only slightly smaller than the "no job loss" scenario. While all categorizations are inherently arbitrary, we can roughly think of an OWE less negative than -0.4 as small in magnitude, between -0.4 and -0.8 as medium, and more negative than -0.8 as large.