W.E. UPJOHN INSTITUTE FOR EMPLOYMENT RESEARCH

Employment Research Newsletter

Volume 23 | Number 4 Article 2

2016

New Research on the Price Pass-Through Effects of the Minimum Wage

Daniel MacDonald
California State University at San Bernardino

Citation

MacDonald, Daniel. 2016. "New Research on the Price Pass-Through Effects of the Minimum Wage." Employment Research 23(4): 5-6. https://doi.org/10.17848/1075-8445.23(4)-2

Daniel MacDonald

New Research on the Price Pass-Through Effects of the Minimum Wage

The effect of the minimum wage on prices—the so-called pass-through effect—has received much less attention than the effect on employment, even though the two are linked: when employment goes down, supply reduces and prices go up; if employment increases, supply increases and prices go down (Card and Krueger 1995). The few existing studies of price pass-through using U.S. data tend to find significant price increases after a minimum wage hike, as well as in the period leading up to the hike. This logic therefore supports the research that has found significant negative employment effects.

As we know from decades of research, however, the employment effects of the minimum wage are a hotly debated issue, with some studies using cutting-edge causal analysis finding little to no impact on employment (Dube, Lester, and Reich 2010). With this in mind, a more careful review of the price pass-through-effect literature is certainly in order.

In our most complete specification, we find that a 10 percent increase in the minimum wage leads to about a 0.46 percent increase in prices (equivalent to a $5.00 hamburger becoming a $5.02 hamburger).

Upon review of the literature, however, a number of problems with it arise. One is that most existing studies confine their analyses to the period ending around 1997 (Aaronson 2001; Aaronson, French, and MacDonald 2008). Another issue is that the data were not sufficient to permit the kinds of conclusions many of the studies were making. Finally, minimum wage policy has changed a lot since 1997—including the increasing use of state- and city-level laws as well as indexation. Since a price increase is still a price increase, one could argue that such policy nuances shouldn't matter, but the question is at least worth exploring.

In a recent working paper for the Upjohn Institute (funded by an Early Career Research Grant awarded in 2015), my coauthor Eric Nilsson and I address these problems in the existing literature and update the estimate of the pass-through effect with more recent data. We collected data from the Bureau of Labor Statistic's "Food Away from Home" CPI series (an index of prices in the restaurant industry) for 28 metropolitan areas between 1978 and 2015 and joined it with a large data set of all binding minimum wage changes affecting those areas between 1978 and 2015. We also took into account several weaknesses in these data that were not addressed before.

In our most complete specification (found in Table 7, Column 7 of the paper), we find that a 10 percent increase in the minimum wage leads to about a 0.46 percent increase in prices (equivalent to a $5.00 hamburger becoming a $5.02 hamburger). This estimate is about 50–75 percent smaller than what previous studies find, although there has been some evidence of variation in the effects between full- and limited-service restaurants (with the latter seeing even larger increases due to a higher concentration of minimum wage workers in those restaurants). We also find no evidence that restaurants raise prices in advance of a minimum wage increase, contrary to what previous studies have found (Aaronson 2001).

How were we able to obtain results so much at odds with existing research? One factor relates to the time period that was covered. Even though these studies had about 20 years of data from which to draw, several of these years were considered "high inflation years"—between 1978 and 1982—and eliminating these years from the data does in fact lead to lower estimates of pass-through. Additionally, there has been much more variation in minimum wage policy since 1997, as more states have taken it upon themselves to raise their minimum wage, partly due to failure to raise the federal minimum wage. From a statistical perspective, more variation is always helpful for obtaining more accurate estimates of the pass-through effect.

A second factor explaining why our results varied so much from past research pertains to the kind of data used. Most metropolitan areas that publish Food Away from Home price index data only do so on a bimonthly basis (today, New York City, Los Angeles, and Chicago are the only cities that report this index monthly. Three others—Detroit, Philadelphia, and San Francisco—used to report monthly data but no longer do so). That makes it impossible to measure the impact of a minimum wage change in January if the particular metropolitan area did not have a price index reported in January. A way around this problem is to interpolate the series. So if the index is 100 in December and 103 in February, a number can be derived for January through an interpolation process that meets in the middle of those two (say, 101.5).

We find no evidence that restaurants raise prices in advance of a minimum wage increase, contrary to what previous studies have found.

While a few of the existing studies appear to have used bimonthly data, none admitted to interpolation, even though interpolation was likely used to generate some of the major findings—a point that we demonstrate in the paper and illustrate below (in Table 1). The major problem is that interpolation changes how to interpret the findings. In other words, we can still use the bimonthly data as long as

Table 1 Effects of a 10% Increase in the Minimum Wage on Food away from Home Prices

Months before or after the minimum wage change (T = month of change)	(1) Noninterpolated data	(2) Interpolated data	(3) From Aaronson (2001, Table 4, col. 2)
1 month prior to change	−0.01	0.13***	0.22**
Month of change	0.39***	0.17***	0.28**
1 month after change	0.08	0.15***	0.14**
Cumulative (T − 1 through T + 1)	0.46***	0.45***	0.64**

NOTE: * significant at the 90% level; ** significant at the 95% level; *** significant at the 99% level. Column 1 uses data from six cities for which monthly Food Away from Home data exist. Column 2 uses data from all other cities for which only bimonthly data exist. Column 3 reports results from Aaronson (2001) for comparison purposes, to illustrate the impact of interpolation. As can be seen, the effect of interpolating price indexes is to spread the effects of the minimum wage increase over a longer period.
SOURCE: MacDonald and Nilsson (2016, Tables 5 and 6).

the drawbacks of doing so are observed. Most importantly, interpolation raises the chances that a pass-through effect is detected in the months before and after a minimum wage change, instead of just on the month of the minimum wage change. When we estimate the pass-through effect on data that were not interpolated at all (the six metropolitan areas mentioned earlier), we find no evidence of pre- or post-effects. But when we include the interpolated data, the pre- and post-effects appear.

In the second part of the paper, we take advantage of the rich variation in minimum wage policy. Dividing all minimum wage increases into "large" and "small" (defined by the median percentage increase in our data of 6.8 percent), we find that the pass-through effect is mostly concentrated on the "large" increases—increases of 6.8 percent or less had no statistically significant effect on prices (see Table 2). We also find evidence to support the claim that indexation of the minimum wage to inflation significantly lowers its effect on prices. For several years now, San Francisco has indexed its minimum wage to the city's inflation rate, and Ohio (indexed to national inflation) and Florida (indexed to the regional South inflation rate) have done similarly. As more states and cities consider indexation, policymakers should note the fact that smaller, regular, and more predictable changes in the minimum wage might make it easier for businesses to adjust.

Table 2 Effects of a 10% Increase in the Minimum Wage on Food away from Home Prices, by Policy Context

Time period	(1) Baseline estimate	(2) "Large" wage hike	(3) "Small" wage hike	(4) Indexed minimum wage
1 month prior to change	0.10***	0.11***	−0.11	0.08
Month of change	0.23***	0.23***	0.13	0.11**
1 month after change	0.13***	0.14***	−0.05	0.01

NOTE: * significant at the 90% level; ** significant at the 95% level; *** significant at the 99% level. Column 1 reports baseline estimates from our fully specified model. Columns 2 and 3 report estimates from a regression in which the effects of "large" minimum wage increases (those greater than the median value of 6.8 percent in our sample) are considered separately from "small" minimum wage increases. Column 4 reports estimates from a regression in which metropolitan areas that have indexed their minimum wage to regional inflation are considered separately.
SOURCE: MacDonald and Nilsson (2016, Tables 7, 8, and 10).

Our results are of immense importance to policymakers seeking to improve workers' standard of living without necessarily creating an environment where prices and employment respond dramatically. Our results also lend support to a growing consensus that minimum wages do not lead to substantially lower employment, because if the price effects were not large (or in some cases nonexistent), we would expect similarly for the employment effects, just as recent research has shown.

References

Aaronson, Daniel. 2001. "Price Pass-Through and the Minimum Wage." *Review of Economics and Statistics* 83(1): 158–169.

Aaronson, Daniel, Eric French, and James MacDonald. 2008. "The Minimum Wage, Restaurant Prices, and Labor Market Structure." *Journal of Human Resources* 43(3): 688–720.

Card, David, and Alan Krueger. 1995. *Myth and Measurement: The New Economics of the Minimum Wage.* Princeton, NJ: Princeton University Press.

Dube, Arindrajit, William T. Lester, and Michael Reich. 2010. "Minimum Wage Effects across State Borders: Estimates Using Contiguous Counties." *Review of Economics and Statistics* 92(4): 945–964.

MacDonald, Daniel, and Eric Nilsson. 2016. "The Effects of Increasing the Minimum Wage on Prices: Analyzing the Incidence of Policy Design and Context." Working Paper No. 16-260. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research. doi:10.17848/wp16-260 (accessed September 13, 2016).

Daniel MacDonald is an assistant professor at California State University at San Bernardino.