

The Highs and Lows of the Minimum Wage Effect

Baker et al. (1999)

<https://github.com/s-saisw/readingSummary>

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- “New MW research” usually find small negative or positive elasticities. Baker et al. (1999) attempt to reconcile these new findings with the previous ones. They argue that the lack of disemployment effect comes from falsely excluding lags of MW.
 - “New MW research” usually assume the contemporaneous effect of MW e.g. by excluding the lag terms, or by using only first difference estimates.
 - Using Canadian data from 1975 to 1993, Baker et al. (1999) find that
 - at low frequency (MW increase is gradual) → employment elasticity is negative
 - at high frequency (MW increase is sharp) → employment is small, insignificant, and sometimes positive
- ⇒ Employment adjusts in a long-run manner ⇒ We need to include lag of the MW in the regression.
- Long-difference estimates are not consistent across the number of differences.
 - The sign is inconsistent.
 - Significance is found only at 3rd and 4th difference.

Table 4
The Effect of Differencing on the Minimum Wage Elasticity

	Elasticity Estimates		Specification Test	
	Base	Interactions	Base	Interactions
Levels	-.296 (.090)	-.267 (.123)
First differences	.064 (.100)	.074 (.114)	-.031 (.019)	.019 (.044)
Second differences	-.080 (.094)	-.127 (.116)	-.048 (.025)	.004 (.066)
Third differences	-.167 (.084)	-.306 (.113)	-.065 (.024)	-.115 (.069)
Fourth differences	-.232 (.082)	-.398 (.113)	-.098 (.026)	-.205 (.069)

NOTE.—All elasticities are evaluated at a common sample mean. The sample for the elasticity estimates is 1979–93 (losing the first 4 years), while the sample for the specification tests is 1980–93 (losing an additional year for the extra lagged variable). The specification test is a test of the linear fixed effects specification, and we report the coefficient and standard error for an n -lagged dependent variable, where n is the degree of differencing.

- This inconsistency can be explained by

1. Fixed effect is not fixed (Neumark and Wascher, 1992).

In longer difference specifications, province fixed effect becomes stronger and absorbs the effect of policy variable. One way to check the fixed effect specification is to use the procedure proposed by Heckman and Hotz (1989).

2. Short and long differences are filters of data (Baker et al., 1999).

- Baker et al. (1999) decomposes MW into

$$\begin{aligned} MW_{it} &= \frac{1}{2}(MW_{it} - MW_{it-1}) + \frac{1}{2}(MW_{it} + MW_{it-1}) \\ &= MW_{it}^H + MW_{it}^L \end{aligned}$$

MW_{it}^H corresponds to “high frequency” changes, while MW_{it}^L corresponds to “low frequency” changes.

- Table 5 shows that MW^H is positive while MW^L is negative. This means when MW changes for one unit, employment increases, but when the overall trend of MW increases for one unit, employment decreases (and by more).

Table 5
Filtered Minimum Wage Elasticities

	Base	Interactions
A. Using “Lag operator” filter:		
High frequency, MW^H	.219 (.175)	.128 (.165)
Low frequency, MW^L	-.413 (.094)	-.471 (.120)
B. Using the “Frequency” Filter:		
Lowest frequency	-.475 (.110)	-.635 (.123)
Lower frequency	-.368 (.083)	-.494 (.103)
Medium frequency	.055 (.128)	.050 (.127)
Higher frequency	.113 (.139)	.103 (.122)
Highest frequency	.098 (.188)	.000 (.163)

NOTE.—Standard errors are in parentheses. MW^H and MW^L are defined in equation (2). For panel A, the sample covers 1976–93, while for panel B, the sample covers 1975–93. All elasticities are evaluated at the common sample mean. For the lag-operator filtered variables, high frequency = $\frac{1}{2}(1 - L)X$, and low = $\frac{1}{2}(1 + L)X$. The lowest, lower, medium, higher, and highest frequency variables (frequency filter) are projections of the minimum wage variable on a finite fourier series, corresponding to different frequencies. See the text for a more detailed explanation.

- The preferred specification does not include year FE but time trend. Provincial variation is also limited as there are only 10 provinces in Canada.

References

Baker, M., Benjamin, D., and Stanger, S. (1999). The highs and lows of the minimum wage effect: A time-series cross-section study of the canadian law. *Journal of Labor Economics*, 17(2):318–350.

- Heckman, J. J. and Hotz, V. J. (1989). Choosing among alternative nonexperimental methods for estimating the impact of social programs: The case of manpower training. *Journal of the American statistical Association*, 84(408):862–874.
- Neumark, D. and Wascher, W. (1992). Employment effects of minimum and subminimum wages: panel data on state minimum wage laws. *ILR Review*, 46(1):55–81.