Minimum Wage

Employment Effect

- A legally binding wage floor induces a movement along the labor demand curve. The competitive model predicts that raising the minimum wage reduces employment
- This is not the same as saying that minimum wage increases unemployment, because we do not know whether reduced employment takes the form of people dropping out of the labor force or people finding it hard to look for jobs
- The minimum wage is not binding for high wage workers. Its employment effect most likely falls on low skill workers and teenage workers

Spillover Effects

- If low-skill workers and high-skill workers are substitutes, making low-skill workers more expensive may increase the demand for high-skill workers, therefore boosting their wage
- There is also the possibility of a ripple effect. Suppose the government raises the minimum wage from HKD 37.5 to HKD 40 per hour. Workers making HKD 41 may get a raise from their employer even though they are not directly affected by the statutory increase. The employer may do this because she wants to maintain "internal relativity" of wages across different levels of employees within the firm

Non-wage Benefits

- In addition to the wage rate, labor contracts specify (at least implicitly) other things such as fringe benefits, training opportunities, and expected effort level
- Fixing the wage rate may cause employers and employees to adjust these other dimensions. For example, employers may provide fewer in-kind benefits, less training opportunities to employees or require them to exert greater effort
- In a gift exchange model, employees may exert greater effort if they are paid higher wages by the employer

Imperfect Labor Market

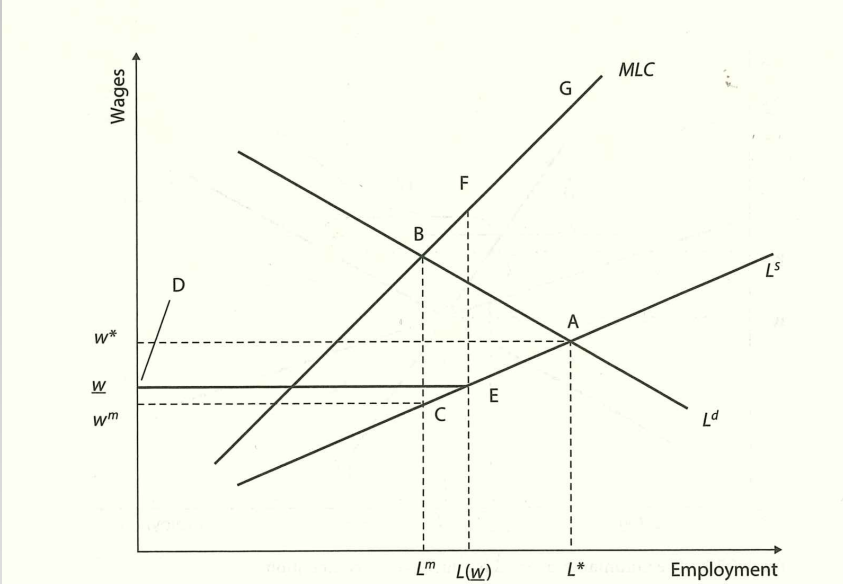


FIGURE 2.5. Monopsony and the minimum wage

- Introducing a minimum wage at $\underline{w}$ induces a movement along the supply curve, from point C to point E
- Wage increases from w^m to $\underline{w}$ and employment increases from L^m to $L(\underline{w})$

Minimum Wage in the American South

- When the federal minimum wage first went into effect in 1938, wages in the South were much lower than wages in other parts of the U.S.
- In the seamless hosiery industry employment fell by 5.5 percent in southern mills but rose by 4.9 percent in northern mills
- Moreover, employment fell by 17 percent in mills that had previously paid less than the new minimum wage, while it stayed virtually the same at higher wage mills
- The minimum wage also seemed to have accelerated the switch to more automation. There was greater investments in converted-transfer machines and fully automatic machines. In addition, the machines were used more intensively than before. A night shift was added at many mills, and these workers did not receive extra pay for working this undesirable shift
- Total imports of seamless hosiery surged by about 27 percent within two years of the minimum wage's enactment

Minimum Wage and Demographic Groups

- U.S. federal minimum wage increased from \$3.35 in 1989 to \$3.80 in 1990 and further to \$4.25 in 1991

TABLE 3—FRACTIONS OF LOW-WAGE WORKERS AND THE PERCENTAGE CHANGE IN EMPLOYMENT/POPULATION RATIOS OVER LEVELS FOR APRIL 1, 1989–MARCH 31, 1990, BY SELECTED POPULATION CHARACTERISTICS

	Men		Women	
Group	Fraction low-wage	Employment change, 12 months beginning April 1, 1991	Fraction low-wage	Employment change, 12 months beginning April 1, 1991
Age:				
15–19	44.5	−15.4	51.8	−12.9
20–24	14.2	−5.6	19.0	−4.3
25–64	3.3	−2.5	8.8	−0.3
65–69	14.0	−4.3	21.0	+3.5
Race:				
Black	11.0	−4.8	16.9	−3.4
White	7.2	−3.1	13.0	−0.6
Asian	5.4	+0.7	9.3	−0.3
Spanish ethnicity:				
Mexican	15.6	−4.8	21.9	−5.5
Other Spanish	8.8	−3.3	16.4	−0.7
Non-Spanish	7.1	−3.2	12.9	−0.8
Years of school completed:				
Less than 12	20.7	−6.6	35.4	−7.3
12	6.0	−4.0	13.5	−2.2
More than 12	3.5	−2.8	6.4	−0.7
Marital status:				
Single	15.1	−4.4	18.4	−3.2
Married	2.7	−2.4	9.0	+0.7
States:				
10 lowest-wage	13.1	−1.5	23.7	+0.0
Middle-wage	7.9	−3.4	14.2	−0.7
10 highest-wage	3.5	−4.0	5.6	−2.9
All	7.5	−3.2	13.3	−1.1

Note: "Single" refers to all but married, spouse present.

Demographics

- For all categories except partition by states or by gender, groups with more low-wage workers experienced greater employment decline, as predicted by theory
- The employment rate of women does not fall relative to men, though there are more low-wage workers among women than among men. This has to be understood in the background of persistent growth in female labor participation over the past few decades
- What about classification by states?

Differential State Effects

- During the 1980s and 1990s, low wage states (e.g., southern states) grew faster than other states → the key assumption behind difference-in-differences estimates may not be valid

- Deere, Murphy and Welch (1995) used employment rate for men aged 15-64 as a control for local economic conditions

TABLE 4—REGRESSION ESTIMATES OF EMPLOYMENT LOSSES FROM THE 1990–1991 INCREASE IN THE FEDERAL MINIMUM WAGE

Variable	Men	Women	Blacks
Teenagers, Aged 15–19:			
Employment rate, men aged 15–64	3.29	2.27	4.76
	(18.37)	(8.19)	(6.41)
Year effects			
Minimum = $3.80	−4.78	−6.63	−7.47
	(4.97)	(3.73)	(2.02)
Minimum = $4.25	−7.29	−11.37	−10.00
	(9.04)	(4.80)	(3.16)
Test: other year effects, Pr > *F*	0.87	0.32	0.88
High-School Dropouts, Adults Aged 20–54:			
Employment rate, men aged 15–64	1.19	1.66	1.32
	(12.18)	(7.42)	(3.50)
Year effects			
Minimum = $3.80	−1.49	−2.54	−4.43
	(2.93)	(1.80)	(2.33)
Minimum = $4.25	−3.13	−5.17	−6.66
	(7.14)	(2.72)	(4.10)
Test: other year effects, Pr > *F*	0.19	0.924	0.39

What They Learned

- Employment of teenagers and high school dropouts are highly sensitive to aggregate employment (with elasticities greater than one)
- Controlling for aggregate employment, the years with minimum wage increases were associated with significant employment decline for teenagers and for high school dropouts
- For teenagers, a 17% increase (30% in 1991) in minimum wage was associated with a 4.78% decline (7.29% in 1991) in employment rate. The implied elasticity is between —0.24 and —0.28

Fast Food Restaurants

- Card and Krueger (1994) compared employment levels of fast food restaurants in New Jersey and Pennsylvania before and after New Jersey raised the state minimum wage from \$4.25 to \$5.05 (there was no change in the Pennsylvanian minimum wage)
  - fast food stores are a leading employer of low wage workers; compliance with minimum wage laws is high (these are national chain stores)
  - job requirements are fairly homogenous
  - the absence of tips simplifies the measurement of wages
  - the rise in minimum wage occurred during a recession; it is unlikely that the effects of the higher minimum wage were obscured by a rising tide of general economic conditions
  - economic conditions in New Jersey and neighboring eastern part of Pennsylvania were similar
  - the authors consider both intensive and extensive margins

Card and Krueger Results

- Before-and-after comparison across states:
  - New Jersey: $21.03 - 20.44 = +0.59$ (FTE employment)
  - eastern Pennsylvania: $21.17 - 23.33 = -2.16$
  - $DD = 0.59 - (-2.16) = +2.76$
- Within New Jersey, some stores (those paying over the new minimum wage) are not affected by the legislations. They form another natural control group for comparison
  - wage $= 4.25$ (treatment 1): $20.88 - 19.56 = +1.32$
  - wage $= 4.26$–4.99 (treatment 2): $20.96 - 20.08 = +0.87$
  - wage > 5.00 (control group): $20.21 - 22.25 = -2.14$

Measurement Issues

- Neumark and Wascher (2000) re-examined the issue using administrative payroll records drawn from the same geographical areas and the same chains.
- Employment data collected by Card and Krueger (using telephone surveys) indicate substantially more variability than do the payroll data
- A simple replication of Card and Krueger's difference-in-differences estimation using the payroll data indicates that the New Jersey minimum wage increase led to a 3.9% to 4.0% decrease in fast food employment in New Jersey relative to eastern Pennsylvania, with elasticities in the range of −0.21 to −0.22.

Minimum Wage and Poverty

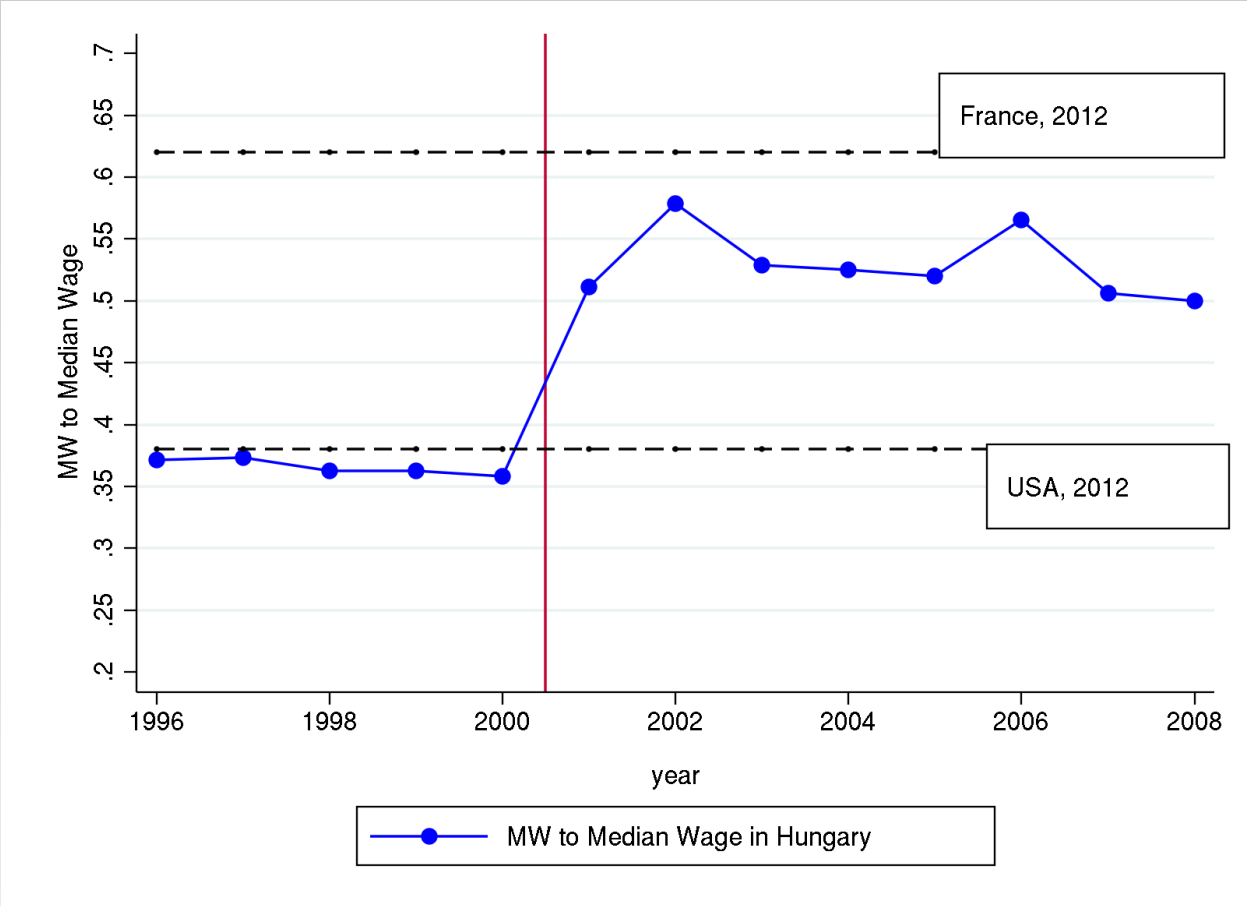
- Most supporters of the minimum wage propose it as an anti-poverty measure. Is it effective?
  - coverage is small
  - minimum wage workers are not always from poor households—teenage workers and second earners
  - effects on prices
  - jobless people do not benefit
- Many minimum wage workers (e.g., teenagers) are second earners in the family. A rise in minimum wage for such workers may have little effect on reducing poverty. Minimum wage increased from $3.35 to $4.25 between 1989 and 1992 in the U.S. Only 7.1% of workers were directly affected. About 19% of the increased income generated by higher minimum wage accrued to poor households

Cost of Living

- Costs of minimum wage increases may be passed back to consumers. Thomas MaCurdy (2015) finds that these extra costs attributable to higher prices equaled 0.63% of non-durable goods purchases made by the poorest fifth of households, and 0.52% of non-durable goods purchases made by the top fifth
- Higher prices are borne disproportionately by poorer households because the poor tend to spend a disproportionate share of the income on goods produced by minimum-wage worker intensive industries (e.g., fast food restaurants, retail services, groceries, etc.)

The Hungarian Experience

- Minimum wage was raised from 25,500 HUF to 40,000 HUF in 2001, and increased further to 50,000 HUF in 2002



- Source: Harasztosi and Lindner (2019)

Across-Firm Variations

- Firms which hire more sub-minimum wage workers are more affected

	(1)	(2)	(3)	(4)	(5)	(6)
	Main Changes between 2000 and 2002		Main Changes between 2000 and 2004		Placebo Changes between 2000 and 1998	
Panel A: Change in Firm-Level Employment						
Fraction Affected	-0.078	-0.076	-0.093	-0.100	-0.003	0.002
	(0.008)	(0.010)	(0.012)	(0.012)	(0.008)	(0.009)
Constant	-0.050		-0.105		0.046	
	(0.005)		(0.007)		(0.005)	
Observations	19,485	19,485	19,485	19,485	19,485	19,485
Employment elasticity wrt. MW (directly affected)	-0.11	-0.10	-0.15	-0.15		
	(0.01)	(0.01)	(0.02)	(0.02)		

Results

- Employment elasticity is small
  - estimated employment elasticity w.r.t. minimum wage is −0.15 for if fraction affected increased from 0 to 100%. On average, fraction of workers affected is 0.25 for teenage workers. So if we include the indirectly affected workers, the "base" for employment should be 4 times as large, meaning that the "elasticity" using the base of all workers is $-0.15 \times 0.25 = -0.0375$
- Placebo change refers to using employment change from 1998 to 2000 (before minimum wage increase took effect) as the dependent variable
  - The fact that the coefficient on "fraction affected" is small and statistical insignificant suggests that is no pre-existing difference between firms with lots of affected worker and firms with very few such workers

Who Pays for the Minimum Wage

Table 5: Incidence of the Minimum Wage

	(1) Changes between 2000 and 2002	(2) Changes between 2000 and 2004
Change in **Total Labor Cost** relative to Revenue in 2000	0.038	0.021
Change in Revenue relative to Revenue in 2000 ($\triangle Revanue$)	0.066	0.036
Change in Materials relative to Revenue in 2000 ($\triangle Material$)	0.033	0.014
Change in MiscItems relative to Revenue in 2000 ($\triangle MiscItems$)	0.005	0.005
Incidence on Consumers ($\triangle Revenue - \triangle Material - \triangle MiscItems$)	0.028	0.017
Change in Profits relative to Revenue in 2000 ($\triangle Profit$)	-0.011	-0.008
Change in Depreciation relative to Revenue in 2000 ($\triangle Depr$)	0.001	0.003
Incidence on firm-owners ($-\triangle Profit - \triangle Depr$)	0.010	0.005
Fraction paid by consumers (in percent)	74	77
Fraction paid by firm-owners (in percent)	26	23

Lessons for Causal Inference

- Difference-in-differences estimates and using multiple control groups
  - but they are not always fool-proof
- Find your own data and make sure they are accurate
- Placebo test: What did not happen can be as revealing as what did happen