

Natural Experiments: Case Study Minimum Wage

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Monopsony

ES pp73

Borjas pp 193

One-company town

Intuition: firm has to increase wage to attract workers

Firm level and market level labor supply curve

- upward sloping firm labor supply curve
(competitive: elastic firm level supply)
- upward sloping market supply curve

Part 1: Theory – Monopsony

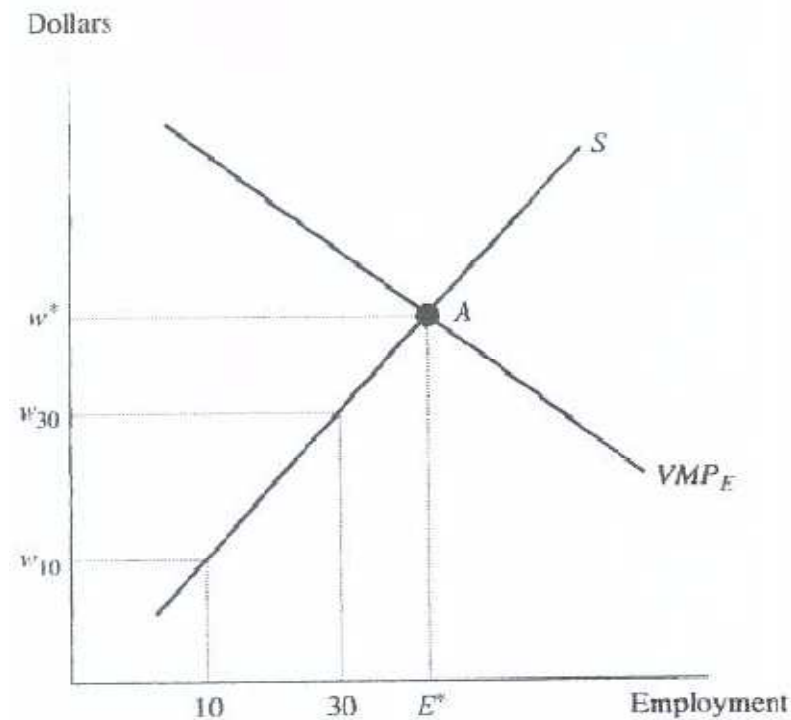


Two cases:

a) perfectly discriminating monopsonist

B figure 5.16

The hiring decision of a perfectly discriminating monopsonist



Part 1: Theory – Monopsony

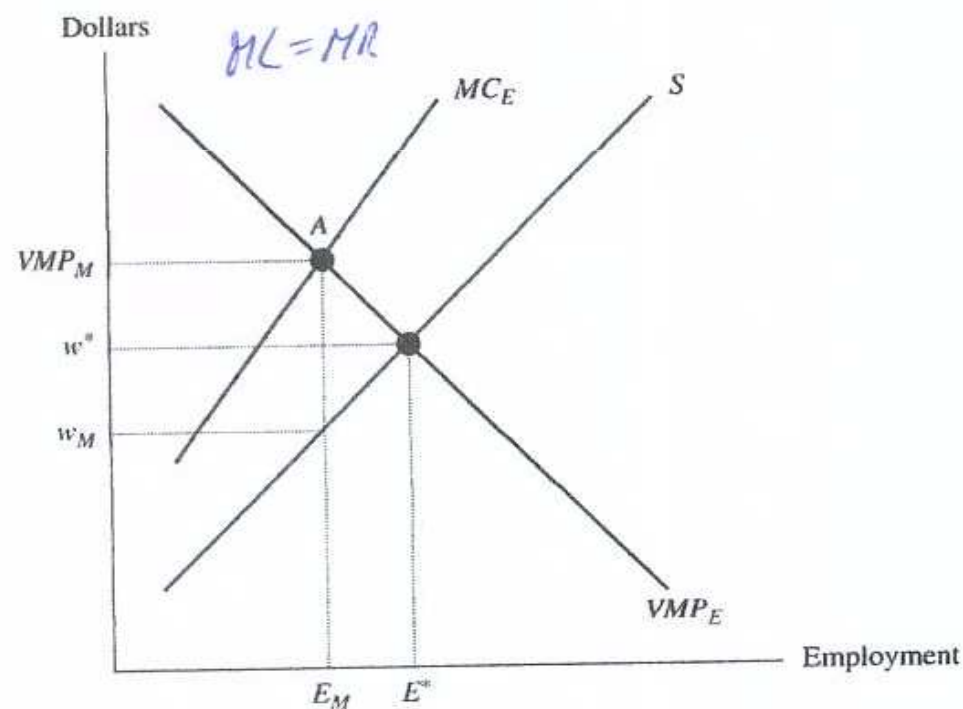


b) nondiscriminating monopsonist

B figure 5.17

The hiring decision of a nondiscriminating monopsonist

Here number example:
B Table 5.3



Part 1: Theory – Monopsony



Properties of the new equilibrium A:

- a) Fewer workers are employed than would be employed in a competitive market
- b) Workers earn less than the competitive equilibrium wage and are, in this sense, “exploited”

Part 1: Theory – Monopsony



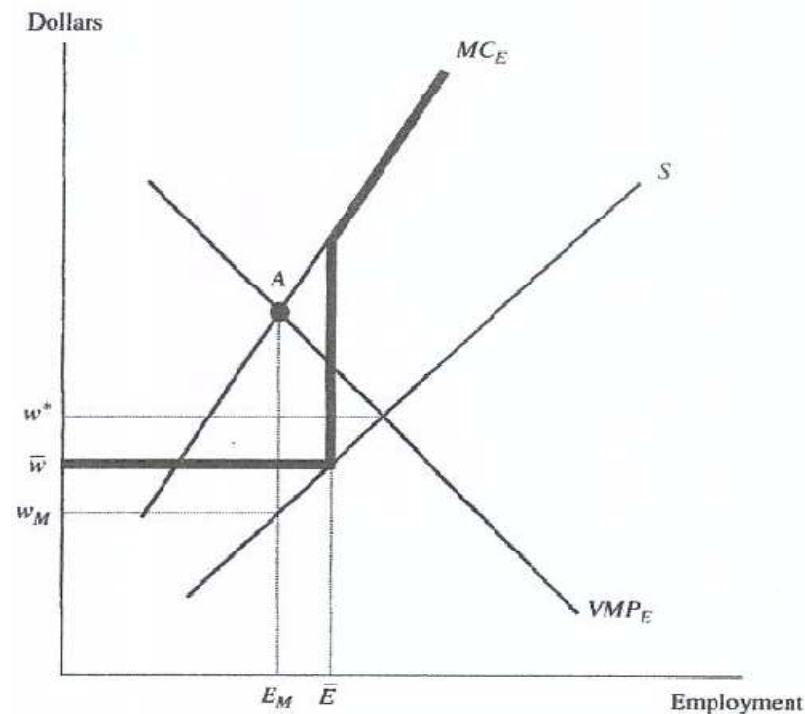
Effect of Minimum Wage

B figure 5.18

The impact of the minimum wage on a nondiscriminating monopsonist

Conclusion:

Higher wages could result in higher employment depending on the level of the minimum wage





Hints:

1. Be careful and do not mix up
 - a) reason for the upward sloping labor supply curve (intuition: firms have to pay more to attract workers)
 - b) reason for lower wages for workers in the nondiscriminating case (intuition: firms pay less than MR: firms exploit workers)



2. Note on the connotation of discrimination

In case of a discriminating monopsony workers are paid according to their reservation wage. They earn more than in the non-discriminating case. Therefore, in their view discrimination is a good thing. The same is true for price discrimination. In your view as an international student, it is a good thing because you get US textbooks cheaper than your colleagues in the US.



Search Theory

Equilibrium Search Model

Pissarides/Mortensen (Monopsony in Motion)

B pp 487

C/Z Chap. 3 pp. 127 and Ch.12.1



Search Theory

Basic idea:

- people maximize dynamically (Hamiltonian)
- discount rate
- wage offer distribution
- search costs
- search strategies (non-sequential and sequential)
- reservation wage
- unlike partial model: endogenous distribution of wages (strategic behavior of firms is integrated)
- 5 advantages (C/Z, pp. 131): pretty realistic, just one major flaw



Search Theory

Main message for our purposes:

Employer may realize a monopsony position in case of

- a) High search costs
- b) High mobility costs (Jobwechselkosten)



Matching Model

C/Z Ch. 9 and 12.1

Blanchard/Diamond 1994

Analytical foundation for the Beveridge curve

- flow approach
- transaction costs
- hiring and firing costs
- job creation
- job destruction



Matching Model

For our purposes:

Matching models with endogenous labor market participation and job search effort provide further arguments for minimum wages

- a) participation may increase employment
- b) higher job search effort may increase employment

Part 2: Empirical Analysis – Microsimulation



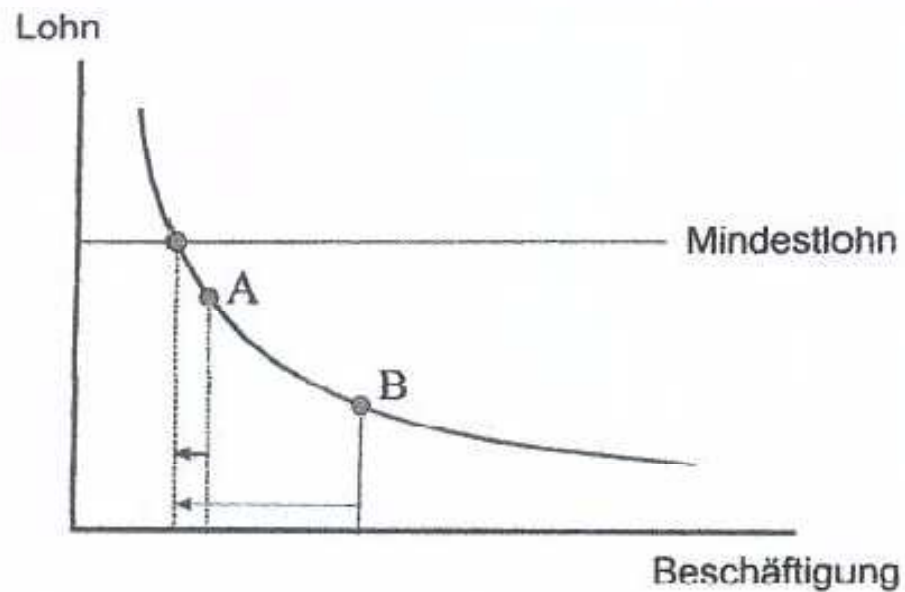
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„Microsimulation“

ifo-institut

Ragnitz/Thum 2007

Ragnitz/Thum 2008, Abb. 3 p. 65



Part 2: Empirical Analysis – Microsimulation



Labor demand elasticity -0.75

Assumptions:

- Iso-elastic labor demand curve
- Competitive model

Minimum wage 7.5 € reduces employment by 1.1 million

- 800.000 West Germany
- 300.000 East Germany
- even with 4.5 €: -360.000 employed



Conclusion:

There is no alternative to these results given the chosen model. However, theory and empirical approach is due to the early 90s. It ignores theoretical progress and empirical research of more than one decade.



Natural Experiment

(see Tutorial)

C/Z, p. 41 with application

Wooldridge, pp. 129

The seminal study of Card/Krueger 1994 and CK 2000

- Results hold even with administrative data
- See Tutorial

Part 2: Empirical Analysis – Natural Experiment



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Approach (Summary C/Z p. 730)

- selection on unobservables assumption
- Diff in Diff
- Survey data (1994)
- Administrative data (2000)



Data

Individual longitudinal data

Advantages

- Removes biases associated with a common time trend unrelated to the intervention (Athey, Imbens 2006)
- Elimination of fixed individual effects



Identifying assumption

Time-invariant linear selection effects i.e. biases are the same on average in different time periods before and after the period of participation in the programme so that differencing the differences eliminates the biases (see Caliendo 2006)

However, if selection effect varies over time or is non-linear, DID is not identified

Ashenfelter's dip is problem for this estimator

Part 2: Empirical Analysis – Natural Experiment



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Estimator in practice:

OLS estimator with interpretation of dummy variable regression coefficient as DID estimator

Formally follow C/T p. 56

Part 2: Empirical Analysis – Natural Experiment



One simple regression method is based on a comparison of outcomes in one group before and after a policy intervention. For example, consider

$$y_{it} = \alpha + \beta D_t + \varepsilon_{it}, \quad i = 1, \dots, N, \quad t = 0, 1,$$

where $D_t = 1$ in period 1 (postintervention), $D_t = 0$ in period 0 (preintervention), and y_{it} measures the outcome. The regression estimated from the pooled data will yield an estimate of policy impact parameter β . This is easily shown to be equal to the average difference in the pre- and postintervention outcome,

$$\begin{aligned} \hat{\beta} &= N^{-1} \sum_i (y_{i1} - y_{i0}) \\ &= \bar{y}_1 - \bar{y}_0. \end{aligned}$$



German natural experiment: Minimum wages in the construction sector

König/Möller 2007

Exogenous variation

- Introduction of a minimum wage in the construction sector 1997
- Treatment group: employees before introduction who earned less than the m.w.
- Control group: employees in the same sector who earned more than the m.w. before introduction



Result:

- West Germany: no significant negative employment effect
- East Germany: significant negative employment effect

Same methodology like Machin et al. (2003)



Critique:

- shadow economy/moonlighting ignored
- other behavioral responses (work more hours) not measured
- Schmidt/Kluve 2008 (Handelsblatt): control group was also affected by treatment due to substitution. Hence the study is not credible.
- Fitzenberger 2008: argument of Schmidt/Kluve is right in principle but irrelevant for the results of K/M 2007 (details do not play a role for our purposes)



Conclusion:

- Results are a methodological progress for German empirical results



Overall conclusion:

- No clear evidence that a low minimum wage, e.g. 5 € per hour, really destroys employment opportunities
- Maybe job search efforts would increase
- Maybe wages would be perceived as fair wages
- Maybe wage inequality (other policy goal) would not increase as much as in the counterfactual state
- Maybe fiscal savings would occur due to lower unemployment benefit II expenditures
- Maybe Pandora's box will be predominant
- Maybe we need a neutral institution such Low Pay Commission to avoid Pandora's box



Overall conclusion:

- We better discuss low minimum wages on a serious theoretical and empirical level rather than destroying an important discussion by results based on crude and old fashioned methods
- However: a high minimum wage would certainly destroy employment opportunities!! Be cautious with this topic

Literature:

- Ehrenberg/Smith (2009), Modern Labor Economics, 10th edition, Addison Wesley
- Borjas (2008), Labor Economics, 4th edition, Mc Graw Hill
- Cahuc/Zylberberg (2004), Labor Economics, MIT Press
- Wooldridge (2002), Econometric Analysis of Cross Section and Panel Data
- Cameron/Trivedi (2005), Microeconometrics, Cambridge



German Minimum Wage discussion:

- Fitzenberger (2008)
- Schmidt/Kluve (2008)
- König/Möller (2007)
- Franz (2008)