

Anticipatory effects of the new German minimum wage

Evidence from the IAB Establishment Panel

Motivation

- A new minimum wage was introduced on 1 January 2015.
- It was suggested that the minimum wage dampened the economic development already in 2014 (Sachverständigenrat 2014).
- Most evaluation methods exclude anticipation by assumption.

Objects of analysis:

1. I analyze whether negative anticipation effects appear in employer expectations.
2. Firms may introduce productivity enhancing measures:
 - Further training to increase productivity.
 - Introduction of working time accounts to more efficiently use the work force.

Timeline

Timeline of the minimum wage introduction

Date	Event
22 September 2013	Federal election
14 December 2013	Signing of coalition agreement mentioning the minimum wage
2 April 2014	Government announces to propose a minimum wage of € 8,50 in parliament
3 July 2014	Parliament approves the legislation
1 January 2015	New regulation comes into force

→ This timeline makes anticipation in 2014 likely

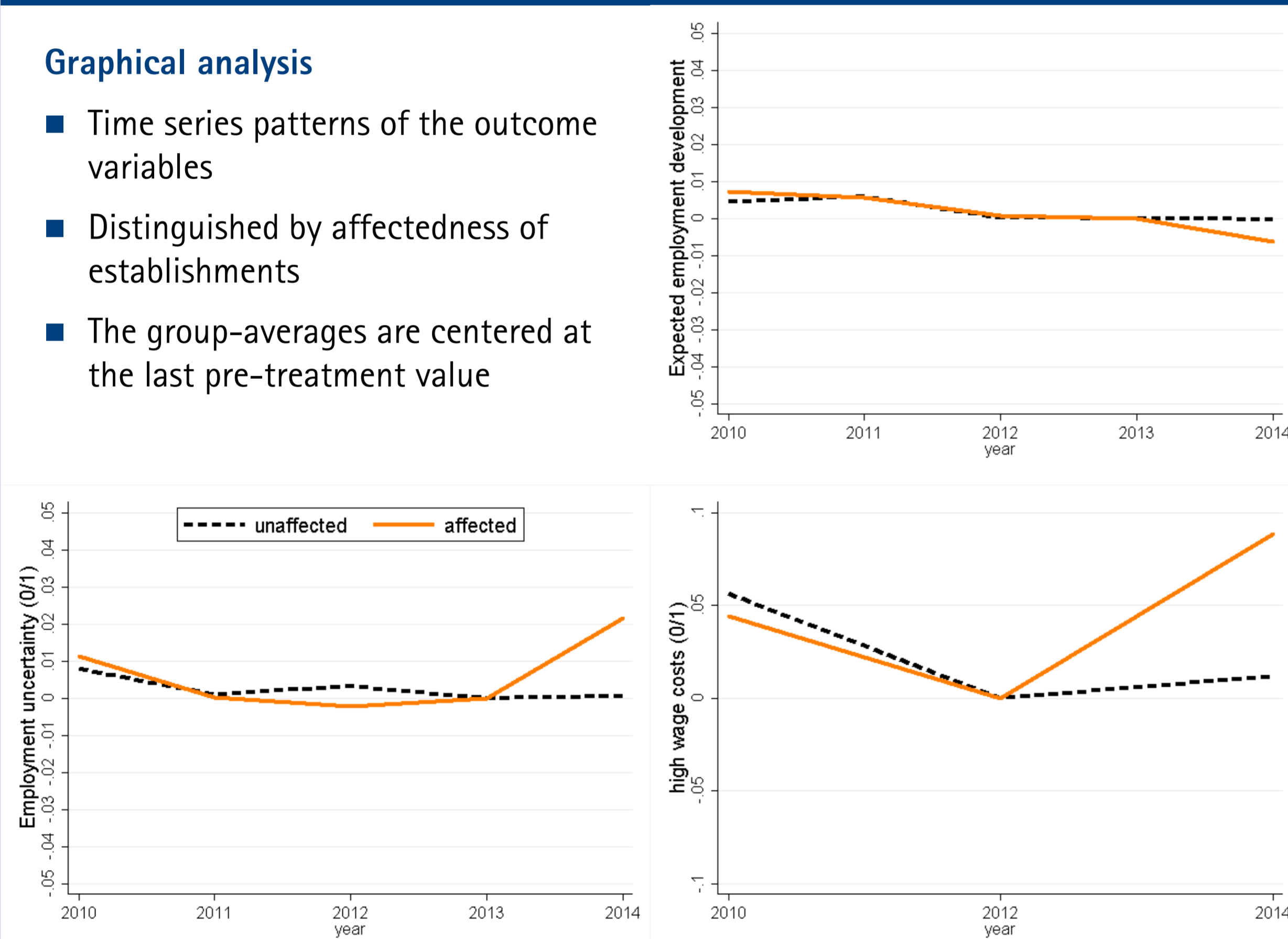
Data

- IAB Establishment Panel
 - Survey panel data, which comprise about 15,000 establishment-level observations each year.
 - Allows to track establishments over time while using the 2014 affectedness information.
- Treatment assignment:
 - Affected establishments (extensive margin)
 - Fraction of affected employees (intensive margin)
- Outcome variables:
 1. Employment uncertainty, expected employment development, and the problem of high wage costs
 2. Intra-firm adjustments: further training, working time accounts, bargaining coverage

The employers' employment expectations ahead of the minimum wage introduction

Graphical analysis

- Time series patterns of the outcome variables
- Distinguished by affectedness of establishments
- The group-averages are centered at the last pre-treatment value



Regression results

	(1) Baseline	(2) With controls
Dep. var.: Empl. development is uncertain		
ToT	0.027 (0.008)	0.028 (0.008)
Dep. var.: Expected employment development		
ToT	-0.008 (0.003)	-0.009 (0.003)
Dep. var.: Problem of high wage costs		
ToT	0.104 (0.016)	0.101 (0.016)

Notes: Treatment effects on the treated from a difference-in-difference specification with establishment and time fixed effects. Cluster robust standard errors in parentheses (cluster=establishment).

Conclusion

- Interpretation of baseline results:
 - Uncertainties increase by about 2.7 percentage points corresponding to a 40 percent increase.
 - The employment development was expected to decrease by 0.8 percent.
 - The affected establishments' reporting that wage cost become a problem increased by 10 percentage points.
- Effect sizes increase in the intensity of affectedness.
- The effects slightly increase when looking at managers respondents only.
- Robustness checks include a matching on parallel trends and non-linear diff-in-diff.
- The anticipatory expectations translate into a prospective employment loss of 12,800 jobs.

Intra-firm anticipatory adjustments (joint work with Lutz Bellmann, Hans-Dieter Gerner, and Olaf Hübler)

Estimation strategy

- No parallel trends ahead of the treatment.
- We use a propensity score weighting (PSW) conditional on past levels of the outcome variables to construct a comparable control group.
- The treatment effect (ToT) can be retrieved from (Rosenbaum, 1987; Wooldridge, 2010):

$$ToT_{psw} = \frac{1}{N} \sum_{i=1}^N \frac{[Affected_i - \hat{p}(\cdot)] * \Delta y_i}{\hat{p}[1 - \hat{p}(\cdot)]}$$

- \hat{p} is the fraction of affected establishments.
- $\hat{p}(\cdot)$ is the estimated propensity score, which is conditional on past values of y , and on dummies indicating missing observations, which control for selective panel entry.
- Major assumptions to receive a treatment effect on the treated are:
 1. Mean ignorability
 2. Overlap

Conclusion

- Descriptive results (not on this poster):
 - Large negative conditional correlations between affectedness and variables indicating industrial relations.
 - Collective bargaining participation and works councils largely reduce the affectedness by the minimum wage.
- Empirical interpretation:
 - We find robust evidence for a decrease in the collective bargaining coverage.
 - No robust evidence concerning changes in the use of further training or working time accounts.
- Economic implications:
 - Establishments do not make use of intra firm measures to increase productivity.
 - We find a decreasing bargaining coverage induced by the minimum wage with counteracts the intention of the law, which was named the „Tarifautonomie-stärkungsgesetz“.

Estimation results

	(1) D-in-D	(2) PSW	(3) PSM	(4) D-in-D	(5) PSW	(6) PSM	(7) D-in-D	(8) PSW	(9) PSM
Dep. var.:	Collective bargaining participation			Prevalence of working time accounts			Provision of further training		
ToT	-0.011 (0.006)	-0.024 (0.005)	-0.023 (0.005)	0.018 (0.011)	0.003 (0.009)	0.002 (0.008)	0.018 (0.011)	-0.006 (0.008)	-0.003 (0.008)

Notes: Treatment effects on the treated from difference-in-differences regressions (D-in-D), from propensity score weighting estimation (PSW), and from propensity score matching on the 5 nearest neighbors (PSM). Block bootstrapped cluster robust standard errors are in parentheses (cluster=establishment).