

# Minimum Wage Compliance in the German Construction Sector

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4th Potsdam PhD Workshop in Empirical Economics / EVA-MIN Summer School "Effects and Evaluation of Minimum Wages"  
University of Potsdam, September 21-24, 2015

## Motivation

### Compliance as factor interacting with MW effects

- Under non-compliance, in response to MWs: Wage increases fall behind → Income inequality reducing impact cannot take full effect.
- Only complementary employment reactions studied excessively.

### The German primary construction sector

- Considerable non-compliance, but only qualitative evidence so far.
- MW introduction in 1997 evaluated, MW II introduction in 2003 hardly studied despite considerable bite.

## Main Findings

- In 2001/6 considerable, generally increasing level and extent of sub-MW payments (non-compliance), increasingly equally distributed across firms.
  - Neglecting non-compliance can bias estimated wage developments.
  - Non-compliance can serve as substitute to employment losses.
- ### Institutional Setting
- MW in the primary construction sector since 1997.
  - Since 2003 additional MW II for higher-skilled.

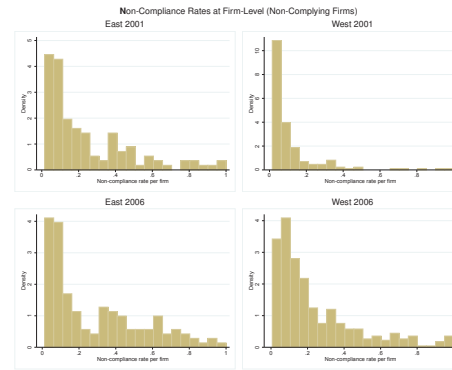
## Data

- Waves 2001 and 2006 of the German Structure of Earnings Survey (representative, obligatory firm survey by the German Statistical Office, linked employer-employee).
- Allows to
  - identify workers covered by the MW.
  - calculate hourly wages in a way that makes them directly compared to the hourly MW.
  - distinguish MW I and MW II eligible workers.

## Results

### Level, Extent, and Distribution of Non-Compliance

Impressive rates that generally increase with the introduction of the minimum wage II in 2003. Substantial average wage deductions for non-compliers compared to compliers. Substantial maximum wage deductions. Heterogeneity across MW groups (MW I / II eligible) and regions (East / West).



### Influence of Non-Compliance in Wage and Employment Regressions around the MW II Introduction

Between 2001 and 2006, in general, hourly wages of compliers increase relatively less than average and non-compliers' wages. Assuming full compliance downward biases the estimated wage developments for affected workers (which are only compliers), cp. coefficient on y2006 in (1) and (3) in West.

	MW Group 1			MW Group 2		
	(1)	(2)	(3)	(1)	(2)	(3)
<b>East</b>						
y2006	-0.030 (0.0287)	-0.0138 (0.0270)	-0.0078 (0.0283)	0.0363** (0.0119)	0.0475*** (0.0119)	0.0396** (0.0157)
nc				-0.2341*** (0.0309)	-0.2041*** (0.0314)	-0.2760*** (0.0412)
y2006Xnc				-0.0564 (0.0696)	-0.0742 (0.0696)	0.0823** (0.0324)
y2006+y2006Xnc				0.786 (0.0654)	0.353 (0.0654)	0.547 (0.0654)
R <sup>2</sup>	0.738	0.785	0.786	0.353	0.547	0.548
N	845	845	845	8705	8705	8705
<b>West</b>						
y2006	-0.0648*** (0.0145)	-0.0389*** (0.0107)	-0.0470*** (0.0116)	-0.0499*** (0.0097)	-0.0134 (0.0082)	-0.0173** (0.0080)
nc				-0.2768*** (0.0215)	-0.3461*** (0.0225)	-0.4248*** (0.0489)
y2006Xnc				0.0782** (0.0319)	0.1389*** (0.0508)	0.1389*** (0.0508)
y2006+y2006Xnc				0.0312 (0.0292)	0.157 (0.0292)	0.370 (0.0292)
R <sup>2</sup>	0.264	0.510	0.521	0.157	0.370	0.380
N	2013	2013	2013	21418	21418	21418

All regressions include individual and firm characteristics (including sector dummies) and state fixed effects.

Between 2001 and 2006 non-compliance can substitute employment losses for West German MW I eligible workers.

	MW Group 1			MW Group 2		
	(1)	(2)	(3)	(1)	(2)	(3)
<b>East</b>						
y2006	-0.2771 (0.2428)	-0.2981 (0.2399)	-0.2138 (0.2365)	-0.0563 (0.0645)	-0.0578 (0.0375)	-0.0312 (0.0404)
nc				0.6485 (0.6066)	0.9306 (0.7021)	0.2345 (0.2267)
y2006Xnc				-0.4118 (0.8655)	-0.1554 (0.2376)	-0.1866 (0.3786)
y2006+y2006Xnc				0.7299 (0.6256)	0.7699 (0.2186)	0.1106 (0.0936)
R <sup>2</sup>	0.595	0.600	0.602	0.368	0.370	0.371
N	157	157	157	393	393	393
<b>West</b>						
y2006	-0.5542*** (0.1042)	-0.6154*** (0.1106)	-0.5459*** (0.1170)	0.0064 (0.0335)	0.0282 (0.0375)	0.0165 (0.0404)
nc				0.5321** (0.3010)	1.6120*** (0.5982)	-0.3550 (0.1152)
y2006Xnc				-1.2267* (0.6690)	-0.4327 (0.4327)	0.2030 (0.4327)
y2006+y2006Xnc				-1.7726*** (0.6418)	-0.0718*** (0.0936)	0.0718*** (0.0936)
R <sup>2</sup>	0.213	0.223	0.230	0.320	0.323	0.324
N	678	678	678	1109	1109	1109

All regressions include firm characteristics (including sector dummies) and state fixed effects.

## Outlook

- Do composition effects drive the results?
- Empirical application: What role does non-compliance play for the effects of the MW II introduction on wages and employment? (Diff-in-Diff)

## Drivers of Non-Compliance

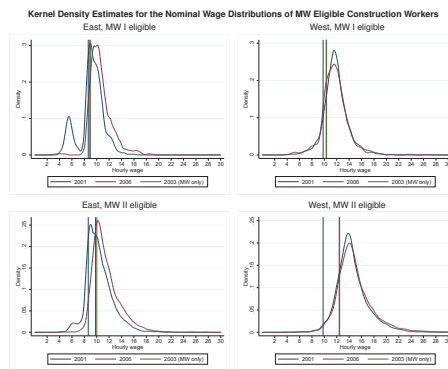
Non-Compliance is based on relatively lower wages, not on higher hours worked.

	East			West		
	2001	2006	Difference	2001	2006	Difference
<b>Average Monthly Wage Deductions</b>						
MW Group 1	-42%	-32%	24%	41%	-27%	27%
MW Group 2	-33%	-27%	18%	-37%	-30%	30%
Total	-36%	-27%	25%	-40%	-30%	30%
<b>Average Weekly Hours Deductions</b>						
MW Group 1	-12%	-9%	25%	-24%	-6%	75%
MW Group 2	-9%	-8%	11%	-8%	-12%	-50%
Total	-9%	-8%	11%	-12%	-12%	0%

The probability of personal non-compliance varies with personal and firm characteristics.

Impacts of characteristics are heterogeneous across MW groups and regions.

	East		West	
	MW Group 1	MW Group 2	MW Group 1	MW Group 2
y2006	-0.0463* (0.0274)	0.0465 (0.0377)	0.0930*** (0.0270)	0.1252*** (0.0121)
age	-0.0134 (0.0171)	-0.0208** (0.0077)	-0.0219** (0.0086)	-0.0233** (0.0033)
age2	0.0001 (0.0002)	0.0002*** (0.0001)	0.0002** (0.0001)	0.0002*** (0.0000)
tenure_m	-0.0004 (0.0004)	-0.0013*** (0.0003)	-0.0013*** (0.0004)	-0.0007*** (0.0001)
tenure_m2	0.0000 (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)
collective_agr	0.0101 (0.0435)	-0.0328 (0.0408)	-0.1167*** (0.0403)	-0.0695*** (0.0197)
edu2	-0.1704*** (0.0723)	-0.0252 (0.0550)	-0.0513 (0.0243)	-0.0785*** (0.0136)
edu3	-0.4405*** (0.1038)	0.0063 (0.0749)	-0.1169 (0.0881)	-0.0564 (0.0797)
edu jointly	***	-	-	***
Occupational dummies	***	***	***	***
Firm size dummies	***	***	***	***
Sector dummies	***	***	***	***
State fixed effects	***	***	***	***
R <sup>2</sup>	0.680	0.238	0.190	0.123
N	845	8705	2013	21418



At the firm level, between 2001 and 2006, non-compliance reaches higher levels within firms and becomes more distributed across firms, in particular in West Germany.

	East			West		
	2001	2006	Difference	2001	2006	Difference
Share fully complying	43%	29%	-33%	67%	24%	-64%
Share to reach 50% overall non-compliance	89%	86%	-3%	89%	86%	-3%
Augmented Herfindahl index	0.017	0.012	-27%	0.016	0.004	-73%
N	199	202		527	599	