

# The rise in orientation at collective bargaining without formal contract

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# Research question and contribution



- Collective bargaining is ascribed efficient characteristics:
  - Reduces transaction costs in wage bargaining.
  - Reduces conflicts between employers and employees (Hübler and Jirjahn 2003).
  - It sets a minimum standard.
- Collective bargaining coverage and firm participation in industry-wide bargaining contracts has been decreasing over the last two decades (Addison et al. *forthcoming*; Ellguth and Kohaut 2016).
- At the same time orientation at collective bargaining contracts without formal commitment has been rising (Addison et al. 2016; Visser 2016).
- Is this rise in the orientation at collectively bargained wages a desirable alternative?

## Contributing questions:

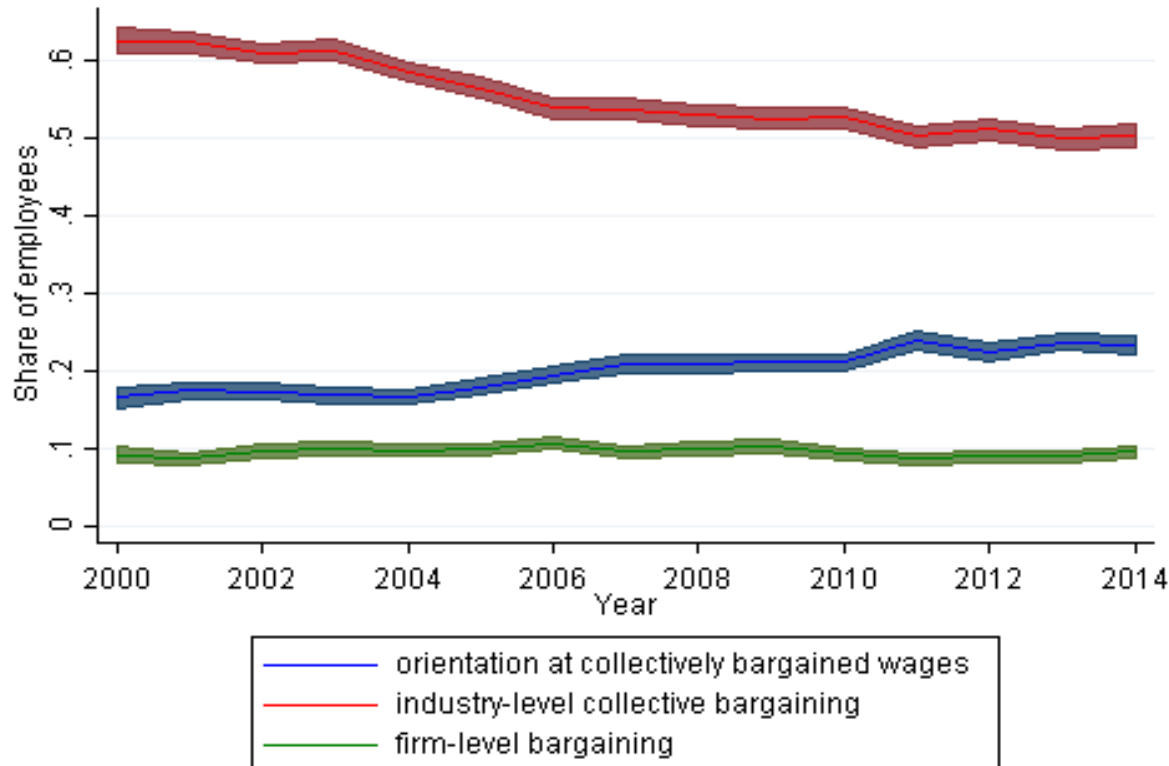
1. Does the rise in bargaining orientation compensate for the decreasing participation in bargaining contracts?
2. Do wages match up with fully committed plants?
3. Does orientation at collectively bargained wages serve as a stepping stone, or is it the pathway out of full commitment?
4. To what extent do transitions between bargaining regimes explain the decreasing coverage and the increase in orientation without a contract?

# The IAB Establishment Panel



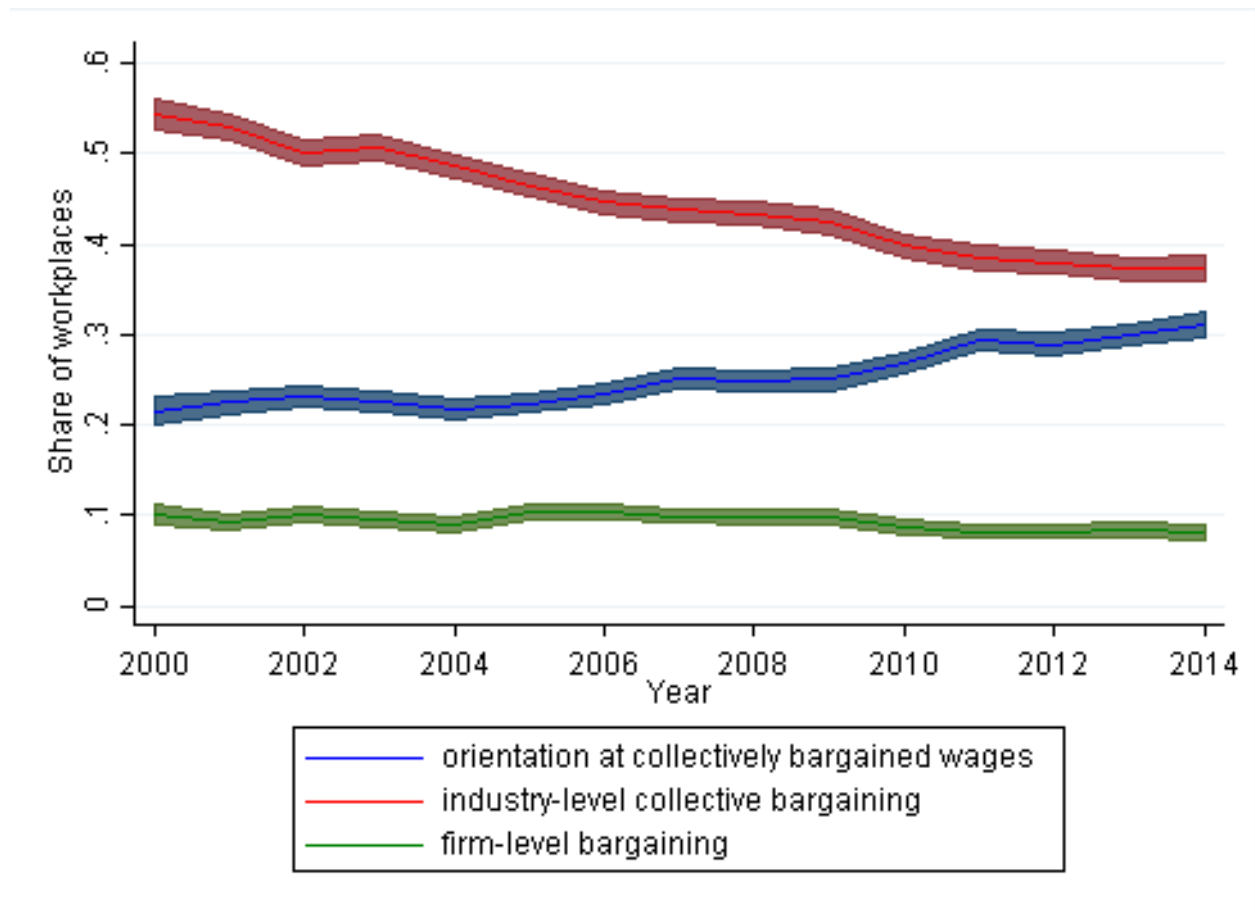
- Large establishment-level panel data with more than 15.000 observations each year.
- Represents the gross population of all establishments in Germany with at least one employee liable to social security.
- Survey is conducted by the institute *infratest sozialforschung* in face-to-face interviews in the months from June to September each year.
- Panel continuation rate of about 83 percent and an establishment identifier allows tracking units over time.
- Includes information on personnel developments and firm-level policies such as participation in different bargaining regimes.
- Data can be linked to the administrative individual information of the Federal Employment Agency (“Beschäftigtenstatistik”).

## Descriptive bargaining coverage



- Analysis sample:
  - IAB-Establishment Panel 2000-2014
  - All private sector establishments
  - At least 5 employees

# Firm participation in bargaining contracts



## Wage differentials by bargaining regimes

- Do plants that align wages to collective bargaining contracts actually pay similar wages, i.e. do they match-up in pay?
- I estimate a regression of log individual wages on the bargaining regimes as the major explanatory variable of interest:

$$\ln(w_{it}) = bargaining_{jt}\delta + x_{jt}\beta^x + z_{it}\beta^z + \gamma_t + \varepsilon_{it}$$

- $x_{jt}$  captures plant-level controls
- $z_{it}$  captures individual controls
- Literature: Addison et al. (2016), Addison et al. (2015), and Gürtzgen (2016)

# Wage differentials by bargaining regimes

	(1) Regression to the mean	(2) 20th cond. quantile	(3) 80th cond. quantile	(4) Wage growth rate
No bargaining regime	reference	reference	reference	reference
Orientation	0.060*** (0.000)	0.079*** (0.001)	0.035*** (0.001)	0.004*** (0.001)
Collective bargaining	0.128*** (0.000)	0.178*** (0.000)	0.087*** (0.000)	0.010*** (0.001)
Firm-level bargaining	0.107*** (0.000)	0.151*** (0.001)	0.080*** (0.001)	0.007*** (0.002)
Plant controls	yes	yes	yes	yes
Individual controls	yes	yes	yes	yes

- W.r.t. wages orientation at collective bargaining does not match up with legal commitment.



# Do we observe transition between bargaining regimes?



- Descriptive transition frequencies

		t				Total
		Without any bargaining coverage	Orientation	Collective bargaining	Firm-level bargaining	
t-1	Without any bargaining coverage	<b>73.4</b>	<b>21.6</b>	3.0	2.1	100
	Orientation	<b>18.1</b>	<b>68.1</b>	<b>9.8</b>	4.0	100
	Collective bargaining	1.7	6.4	<b>88.4</b>	3.5	100
	Firm-level bargaining	5.5	10.7	<b>15.8</b>	<b>68.0</b>	100
Total in t		21.0	25.3	44.3	9.4	100

## Transitions between bargaining regimes

- The model we would want to estimate:

$$y_{ist}^* = x_{it}\beta_s + y_{i,t-1}\rho_s + \alpha_{is} + \varepsilon_{ist}$$

- $\alpha_{is}$  is modeled by Mundlak-terms and a random effect:

$$\alpha_{is} = \bar{x}_i\theta_s + \mu_{is}$$

- As the random effect is correlated with the initial condition, which is endogenous, Wooldridge (2005) suggests an estimation conditional on the initial value  $y_{i0}$ :

$$\alpha_{is} = \bar{x}_i\theta_s + y_{i0}\delta_s + \mu_{is}$$

- This can be estimated from multinomial logit:

$$P(y_{it} = s | y_{i,t-1}, x_{it}, y_{i0}, \bar{x}_i) = \frac{\exp(y_{i,t-1}\rho_s + y_{i0}\delta_s + x_{it}\beta_s + \bar{x}_i\theta_s + \mu_{is})}{\sum_{k=1}^{S=4} \exp(y_{i,t-1}\rho_k + y_{i0}\delta_k + x_{it}\beta_k + \bar{x}_i\theta_k + \mu_{ik})}$$

- Effects for interpretation:

- True state dependence:

$TSD^{collective\ bargaining}$

$$= P(y_{it} = cb \mid y_{i,t-1} = cb, x_{it}, y_{i0}, \bar{x}_i, \mu_{i,cb})$$

$$- P(y_{it} = cb \mid y_{i,t-1} = reference, x_{it}, y_{i0}, \bar{x}_i, \mu_{i,cb})$$

- Cross state dependence:

$CSD^{collective\ bargaining}$

$$= P(y_{it} = cb \mid y_{i,t-1} = orientation, x_{it}, y_{i0}, \bar{x}_i, \mu_{i,cb})$$

$$- P(y_{it} = cb \mid y_{i,t-1} = reference, x_{it}, y_{i0}, \bar{x}_i, \mu_{i,cb})$$

# True state dependence and cross state dependence (with controls)



	Outcome state in t			
	Without any bargaining coverage	Orientation	Collective bargaining	Firm-level bargaining
Without any bargaining coverage	reference	reference	reference	reference
Orientation	-0.069 (0.003)	<b>0.057</b> <b>(0.005)</b>	<b>0.015</b> <b>(0.006)</b>	-0.003 (0.004)
Collective bargaining	-0.087 (0.005)	<b>-0.029</b> <b>(0.006)</b>	<b>0.131</b> <b>(0.006)</b>	-0.015 (0.004)
Firm-level bargaining	-0.061 (0.006)	-0.019 (0.008)	<b>0.033</b> <b>(0.007)</b>	<b>0.047</b> <b>(0.004)</b>

# True state dependence and cross state dependence (with a works council)



	Outcome state in t			
	Without any bargaining coverage	Orientation	Collective bargaining	Firm-level bargaining
Without any bargaining coverage	reference	reference	reference	reference
Orientation	-0.043 (0.004)	0.041 (0.007)	0.019 (0.014)	-0.016 (0.011)
Collective bargaining	-0.058 (0.006)	-0.044 (0.009)	<b>0.158</b> <b>(0.014)</b>	-0.056 (0.011)
Firm-level bargaining	-0.056 (0.006)	-0.032 (0.009)	0.025 (0.014)	<b>0.063</b> <b>(0.011)</b>

# True state dependence and cross state dependence (without a works council)



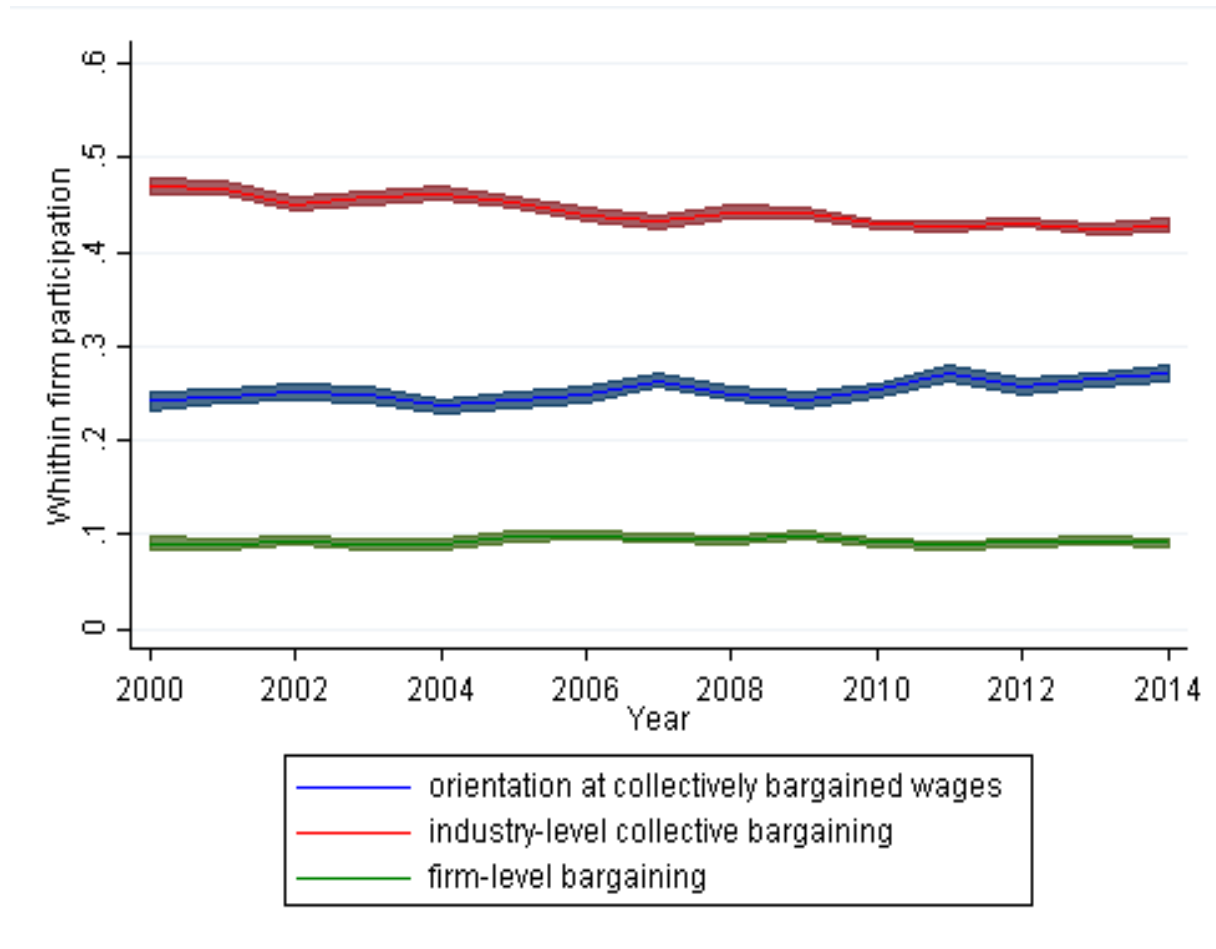
	Outcome state in t			
	Without any bargaining coverage	Orientation	Collective bargaining	Firm-level bargaining
Without any bargaining coverage	reference	reference	reference	reference
Orientation	-0.089 (0.005)	<b>0.071</b> <b>(0.007)</b>	0.016 (0.006)	0.002 (0.003)
Collective bargaining	-0.113 (0.008)	-0.032 (0.009)	0.138 (0.007)	0.007 (0.004)
Firm-level bargaining	-0.066 (0.010)	-0.027 (0.012)	0.061 (0.009)	0.032 (0.004)

## Transitions versus composition

- Is the decrease in formal collective bargaining coverage and rise in orientation at collectively bargained wages explained
  - a. by transitions, i.e. behavioral changes between bargaining regimes?
  - b. by composition, i.e. different plants entering the market that are less likely to be covered by formal bargaining contracts?
- I decompose the likelihood for each bargaining regime into a constant (compositional) component and a time-varying (behavioral) component:

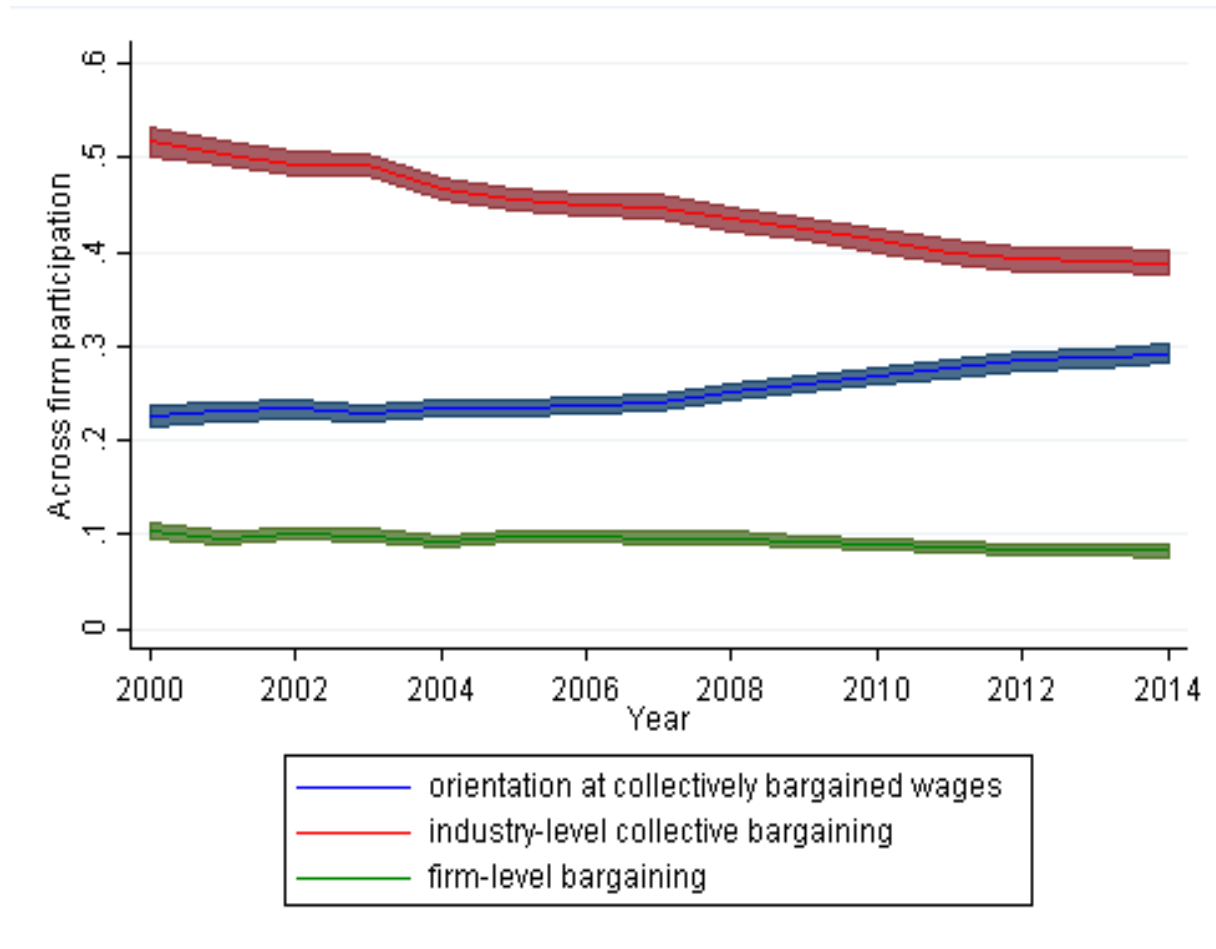
$$y_{sjt} = \bar{y}_{sj}^t + \tilde{y}_{sjt}$$

# Time-varying behavioral transitions





# Time-constant compositional change



# Can we explain the compositional change?

Blinder-Oaxaca Decomposition of bargaining regimes in 2013 compared with 2001

	(1)	(2)	(3)
	<b>Orientation at collectively bargained wages</b>	<b>Collective bargaining</b>	<b>Firm-level bargaining</b>
<b>Mean of 2013</b>	0.241*** (0.009)	0.498*** (0.012)	0.086*** (0.009)
<b>Mean of 2001</b>	0.176*** (0.009)	0.620*** (0.011)	0.086*** (0.007)
<b>Difference</b>	0.065*** (0.013)	-0.123*** (0.016)	0.001 (0.011)
<b>Explained</b>	0.016*** (0.005)	-0.037*** (0.007)	-0.003 (0.004)
<b>Unexplained</b>	0.048*** (0.013)	-0.086*** (0.016)	0.004 (0.004)

# Can we explain the compositional change?

	(1)	(2)	(3)
	Orientation at collectively bargained wages	Collective bargaining	Firm-level bargaining
<i>Explanatory factors</i>			
Firm age	0.001 (0.001)	0.001 (0.001)	-0.0009* (0.0005)
Prevalence of R&D	0.001 (0.001)	-0.002* (0.001)	0.0008 (0.0005)
Export	0.001 (0.001)	<b>-0.006***</b> <b>(0.002)</b>	0.0003 (0.0008)
Workforce composition	0.002 (0.002)	<b>-0.006**</b> <b>(0.003)</b>	0.0011 (0.0017)
East/West	-0.001 (0.001)	0.002 (0.002)	-0.0006 (0.0004)
Establishment size	0.003 (0.002)	-0.004 (0.003)	-0.0013 (0.0009)
Industries	0.009** 0.004	<b>-0.022***</b> <b>(0.006)</b>	-0.0023 (0.0031)

# Conclusions (1)



- While formal collective bargaining coverage decreases since 2000, the phenomenon of orientation at collectively bargained wages increases.
- Even though employers claim to orientate at collectively bargained wages, workers' wages do not match up.
- I further disentangle TSD and CSD from spurious state dependence:
  - Results show significant state dependence in all bargaining regimes.
  - State dependence is larger when there is a works council present.
  - Orientation is a small stepping stone into formal bargaining commitment.
  - We do not observe orientation on the pathway out of bargaining contracts.

## Conclusions (2)



- The decrease/increase in bargaining participation/orientation is a compositional rather than a behavioral change.
- Barely any observable firm characteristics explain the compositional change:
  - Sectoral composition: Shift from
  - Exports explain a small fraction of the decreasing bargaining coverage

**Thanks for your attention!**

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# True state dependence and cross state dependence (second lag)

	Outcome state in t			
	Without any bargaining coverage	Orientation	Collective bargaining	Firm-level bargaining
Without any bargaining coverage	reference	reference	reference	reference
Orientation	-0.033 (0.003)	0.019 (0.005)	0.017 (0.006)	-0.003 (0.004)
Collective bargaining	-0.054 (0.005)	-0.011 (0.006)	0.082 (0.006)	-0.017 (0.005)
Firm-level bargaining	-0.035 (0.006)	-0.011 (0.008)	0.027 (0.007)	0.019 (0.004)

# True state dependence and cross state dependence (without controls)

	Outcome state in t			
	Without any bargaining coverage	Orientation	Collective bargaining	Firm-level bargaining
Without any bargaining coverage	reference	reference	reference	reference
Orientation	-0.070 (0.003)	<b>0.057</b> <b>(0.005)</b>	<b>0.015</b> <b>(0.006)</b>	-0.003 (0.004)
Collective bargaining	-0.088 (0.005)	-0.029 (0.006)	<b>0.131</b> <b>(0.006)</b>	-0.014 (0.004)
Firm-level bargaining	-0.062 (0.006)	-0.019 (0.008)	<b>0.035</b> <b>(0.007)</b>	<b>0.046</b> <b>(0.004)</b>