Turning a blind eye? Compliance with minimum wage standards and employment

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Introduction

Sparkling debates on the minimum wage (including sectoral wage floors), but an "elephant in the debate": compliance to the minimum wage regulation.

> *In the midst of numerous studies intended to establish the quantitative effects of the minimum wage law, it is remarkable that no one has bothered to establish that this law actually affects wage rates [...] presumably reflecting the belief that employers fully comply with this law. [...] The most useful future analyses of the effects [of the minimum wage] will incorporate a thorough analysis of the compliance issue.* Ashenfelter and Smith (1979)

Introduction

Non-compliance can be substantial in low-income countries:

- Subsaharian Africa: from 20% in Tanzania to 80% in Mali (Bhorat et al., 2015).
- Other developing countries: from 5% in Vietnam to 51% in Indonesia (Rani et al., 2013).

But also in OECD countries

- US: 1.5% (3/4 of total MW earners) (US BLS, 2020)
- UK: 1.5% (1/5 of MW earners) (LPC, 2020)
- Germany: 3 to 4% (Bruttel et al., 2017)
- CEE: from 1% in Bulgaria to 6.9% in Lithuania (Goraus-Tanska & Lewandowski, 2019)

Introduction

If enforcement is not perfect, non-compliance may be an alternative adjustment mechanism:

- Basu et al. (2010): "turning a blind eye" can be an efficient, and credible, strategy for governments more interested in efficiency than in distribution as it guarantees higher wages for some workers while not harming employment opportunities of the less productive ones.

However:

- If employers anticipate the risk of sanctions, employment still lower with non-compliance (Chang and Ehrlich, 1985)
- In fact, when employers are free to choose the level of compliance along with total employment, the resulting level of employment is likely to be in line with the full-compliance one (Yaniv, 2001)
- Under monopsony, stronger enforcement leads to higher employment (Soundararajan, 2019)

This paper

In Italy hundreds of wage floors, increasing use of pirate agreements and significant share of workers paid less than the minimum (Garnero, 2018 and Lucifora, 2017).

Research question: Is non-compliance the price to pay to safeguard employment in an otherwise rigid wage-setting system?

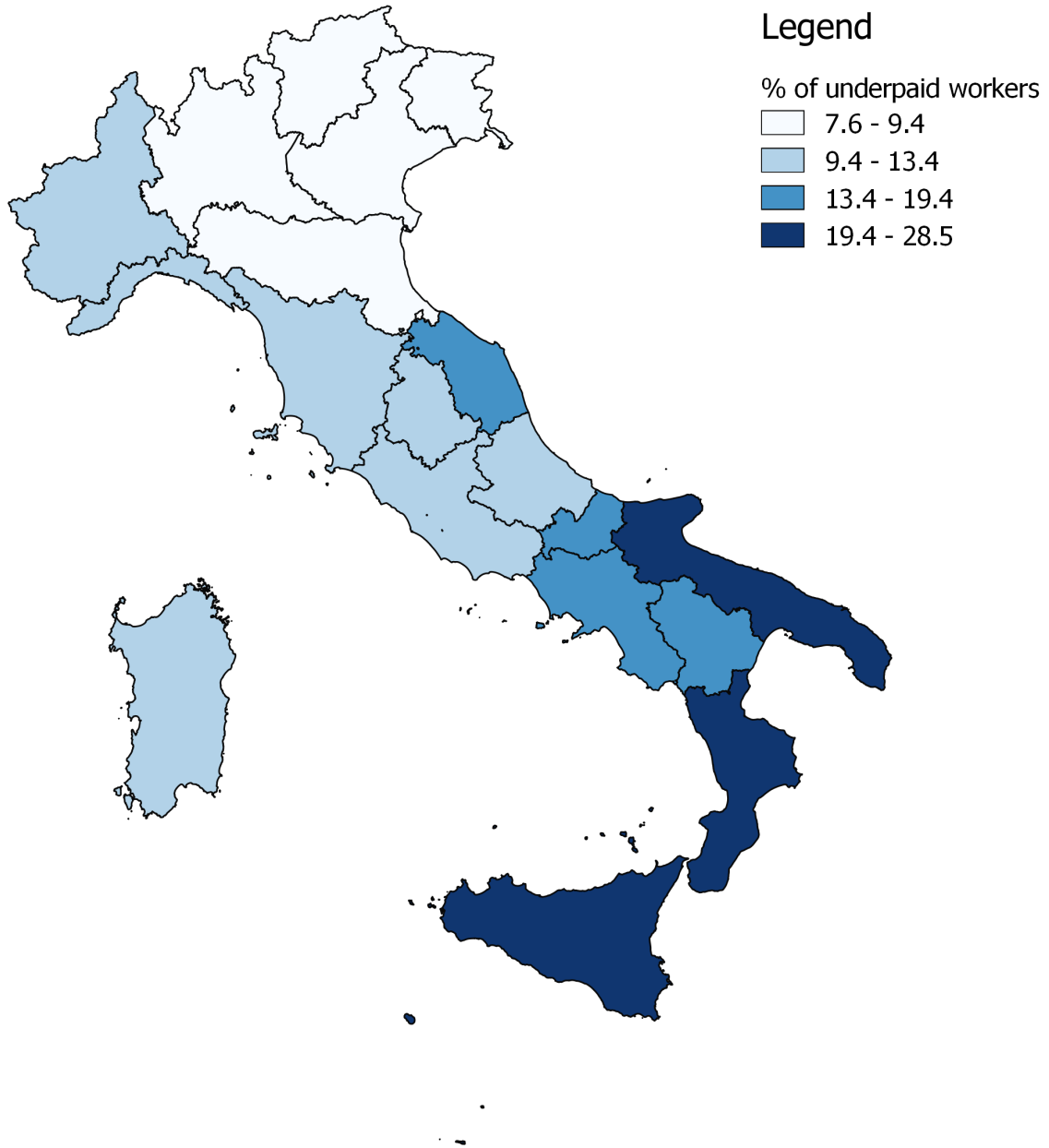
- We model firms' non-compliance and employment decisions
- We specify and estimate the effect of non-compliance on employment in the Italian economy

We find: *some evidence of a trade-off between non-compliance and employment at low levels of non-compliance, but not very large as employers internalise the risk of non-compliance.*

How are wage floors set in Italy?

- In Italy there is no national or subnational statutory minimum wage but wage floors are fixed at sectoral level via collective agreements between trade unions and employers organisations.
- Currently, >900 sectoral collective agreements cover practically all private-sector employees with detailed pay scales (96% SES, 99% ECS).
- No formal extension mechanism but functional equivalent in art. 36 of the Constitution (*commensurate pay*).
- Spread of *pirate* agreements: +61% CCNL in 6 years: *escape valve*? (D'Amuri and Nizzi, 2017)
- Enforcement of the "correct" wage is left to labour courts, but it requires an individual or collective complaint.

Non-compliance by region



A model of non-compliance

- Output: $y = \theta f(L)$
- Employer can pay the bargained wage (w^B) or pay a lower wage level equal to the market clearing level (w)
- Employer deviates only partially paying w^B to L^B workers ($L^B \leqslant L$), while paying, w, to the remaining ($L - L^B$) workers
- Worker can accept the wage offer (w) or sue the employer in a labour court to claim the *fair* wage (w^B)
- If employers are referred to a labour court they incur in additional costs:
  - τ (red tape), if the court ruling is in favour to the employer
  - $\tau + \lambda(w^B - w)(L - L^B)$, if the court decides against

A model of non-compliance

- Employers are risk-averse with utility $U(\pi)$, defined as a strictly concave function of profits (π) with three pay-offs:

$$U(\pi)^{NC} > U(\pi)^{W} > U(\pi)^{L}$$

- Employer's expected utility is then:

$$EU(\pi) = [1 - \phi(L - L^{B})]U(\pi^{NC}) + q\phi(L - L^{B})U(\pi^{W}) + (1 - q)\phi(L - L^{B})U(\pi^{L}) \quad (1)$$

  - where $\phi(L - L^{B})$ is the probability that workers sue the employer, with $\phi'(L - L^{B}) > 0$ and $\phi''(L - L^{B}) \geqslant 0$
  - and, q is the probability that the court rules in favour of the employer

Firms' non-compliance and employment decisions

Employer maximises expected utility choosing both total employment (L) and non-compliance ($L - L^B$). Differentiating (1) with respect to L and L^B, we get the following FOCs:

$$\theta f'(L) = w + \frac{\Psi}{EU'(\pi)} \tag{2}$$

$$(w^B - w) = \frac{\Psi}{EU'(\pi)} \tag{3}$$

where $\Psi/EU'(\pi)$ is the shadow hiring cost:

- Ψ: marginal (dis)utility associated to labour court ruling
- $EU'(\pi)$: expected marginal utility from paying a wage lower than the bargained minimum wage

Firms' non-compliance and employment decisions

- FOC (3): the optimal level of non-compliance $\uparrow$ with probability of winning the case but $\downarrow$ with severity of sanctions and probability of being referred to a court.
- FOC (2): with $\uparrow$ sanctions, probability of being referred to a court and $\downarrow$ probability of winning the case, total employment L $\downarrow$ for a given level of non-compliance.
- rearranging (2) and (3), we obtain

$$\theta f'(L^*) = w^B \tag{4}$$

- implying that employment is chosen w.r.t. the *negotiated wage*, and set quite independently from compliance (Yaniv, 2001).

Firms' non-compliance and employment decisions

- however, for low levels of NC, the probability that workers sue the firm may be small
- when NC is high the probability that the employer is referred to a court could increase discontinuously
  - $\phi(L - L^B) = 0$ if $y < y^*$ and jump upwards if y^*
- in this case the employer sets $L^B = (1 - y^*)L$ and the optimality condition for L becomes
  - $\theta f'(L^*) = y^* w + (1 - y^*) w^B$

$\rightarrow$ where authorities are more permissive y^* tends to be larger and the employer has an incentive to hire more.

Empirical specification

$$L_{jrt} = \lambda w_{jt}^{B} + \beta NC_{jrt} + X'_{jrt}\delta + \gamma_{jr} + \eta_t + \epsilon_{jrt} \quad (5)$$

where:

- L_{jrt} is the log of the nb of employees in industry j, region r and time t
- NC_{jrt} is non-compliance (% or 0/1)
- w_{jt}^{B} is the sectoral wage floor
- X'_{jrt} is a vector of time-varying covariates
- γ_{jr}, η_t are, respectively, a set of industry-region and time fixed effects and ϵ_{jrt} is the error term.

NB: The region x industry level of analysis attenuates unobserved idiosyncratic firm-specific shock, but does not rule out the risk of endogeneity $\rightarrow$ results to be interpreted with caution

Data sources

- LFS data from 2008 to 2015* at the industry level (Nace rev. 2, 2-digit)
- Istat database on negotiated gross wage floors (2008-2015) in ∼90 "leading collective agreements"
  - ∼5,800 industry-region-year observations
- Sample: full-time employees in all business sectors. Des stats
- Non-compliance: the share of underpaid workers with a monthly gross wage lower than 90% of the bargained wage.
  - To further minimise the possible measurement error, we also use a simple dummy for non-compliance (1 if there are workers underpaid in a given sector-region, 0 otherwise).

* In 2015 there was a major reform (i.e. "Jobs Act") combined with generous reductions in social security contributions, both of which are likely to confound our analysis.

Baseline results

Table 1: Non-compliance % - fixed effects, 2008-2015.

	(1)	(2)	(3)	(4)	(5)
Non-compl (*100)	1.45***	1.49***	1.48***	1.49***	1.48***
	(0.17)	(0.17)	(0.17)	(0.15)	(0.15)
Non-compl^2 (*100)	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Log wage floors		-1.24***	-1.28***	-1.26***	-1.30***
		(0.31)	(0.31)	(0.25)	(0.25)
Controls	no	no	yes	no	yes
Year FE	yes	yes	yes	yes	yes
Industry x region FE	yes	yes	yes	yes	yes
Ind x reg time trends	no	no	no	yes	yes
R-squared	0.95	0.95	0.95	0.95	0.95
Observations	5816	5816	5816	5816	5816

Controls: % young <35, % temporary, % women, % immigrants extra EU, % emp in SMEs, % low edu.

- Elasticity of employment to non-compliance $\approx$ 0.2 (turning point around 40%)
- Elasticity of employment to negotiated wages $\approx$ -1.2/-1.3

Baseline results

Table 2: Non-compliance 0/1 - fixed effects, 2008-2015.

	(1)	(2)	(3)	(4)	(5)
Non-compliance	0.29***	0.30***	0.30***	0.30***	0.30***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Log wage floors		-1.20***	-1.26***	-1.22***	-1.27***
		(0.30)	(0.30)	(0.24)	(0.24)
Controls	no	no	yes	no	yes
Year FE	yes	yes	yes	yes	yes
Industry x region FE	yes	yes	yes	yes	yes
Ind x reg time trends	no	no	no	yes	yes
R-squared	0.89	0.90	0.91	0.94	0.95
Observations	5816	5816	5816	5816	5816

Controls: % young <35, % temporary, % women, % immigrants extra EU, % emp in SMEs, % low edu.

Baseline results

Table 3: Non-compliance 0/1 - fixed effects, 2008-2015.

	(1)	(2)
Non-compliance >0% & <2%	0.36***	0.36***
	(0.03)	(0.03)
Non-compliance >2% & <4%	0.32***	0.33***
	(0.03)	(0.03)
Non-compliance >4% & <10%	0.33***	0.33***
	(0.02)	(0.02)
Non-compliance >10% & <20%	0.33***	0.33***
	(0.03)	(0.03)
Non-compliance >20% & <30%	0.31***	0.31***
	(0.03)	(0.03)
Non-compliance >30% & <50%	0.27***	0.27***
	(0.04)	(0.04)
Non-compliance >50%	0.10*	0.11*
	(0.06)	(0.06)
R-squared	0.95	0.95
Observations	5816	5816

Both regressions include all controls and fixed effects as in previous tables.

The role of the efficiency of labour courts

Does the duration of labour court proceedings affect the non-compliance/employment trade-off?

- Data available from the Italian Labour Ministry of Justice. Duration constructed using a caseflow approach (Menon and Giacomelli, 2013):

$$D_t = \frac{(P_t + P_{(t+1)})}{(E_t + F_t)} \tag{6}$$

  - where P are pending cases at the beginning of the year t,
  - F are the new cases filed during the year
  - and E are cases that ended

The role of the efficiency of labour courts

Table 4: Estimates augmented with the efficiency of the labour court - fixed effects, 2008-2015.

	(1)	(2)	(3)	(4)
Non-compliance (*100)	1.48***	1.04***		
	(0.17)	(0.38)		
Non-compliance^2 (*100)	-0.02***	-0.02***		
	(0.00)	(0.01)		
Non-compliance dummy			0.30***	0.31***
			(0.03)	(0.04)
Non-compliance*Duration LC		0.00		
		(0.00)		
Non-compliance^2*Duration LC		-0.00		
		(0.00)		
Non-compliance dummy*Duration LC				0.00
				(0.05)
Duration LC	-0.02	-0.04	-0.01	-0.01
	(0.03)	(0.03)	(0.02)	(0.05)
R-squared	0.95	0.95	0.96	0.96
Observations	5816	5816	5816	5816

Regressions include all controls and fixed effects as in previous tables.

Robustness checks

- No specific sector driving the results — See figure
- No specific region driving the results — See figure
- Results valid in the North and in the South — See table
- Results valid in services and manufacturing — See table
- Results valid pre- (2008-10) or post-GFC (2014-15) — See table
- Robust when adding region- or industry-time trends — See table

Conclusions

- **Theory**: Link between non-compliance and employment depends on the costs of non-compliance (probability of being referred to court and sanctions) and on employers internalising these costs.
- **Empirics**:
  - Small trade-off between compliance with minimum wage standards and employment at relatively low levels of non-compliance.
  - Trade-off all but disappears at higher levels (40-50%) of non-compliance.
  - The efficiency of the labour court does not appear to affect firms' behaviour

Implications for policy: *cracking down on "pirate agreements" may affect employment at the margin in less productive firms. But not a sustainable long-term solution.*

Thank you!

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Annex

Other controls

Variable	Mean	Std. Dev.	Min	Max
log employment	8.06	1.70	2.06	13.05
log wage floors	4.86	0.14	4.52	5.25
% young <35	29.13	20.09	0	100
% temporary empl.	12.73	15.29	0	100
% women	29.75	26.23	0	100
% immigrants extra EU	4.29	7.86	0	100
% emp in SMEs	26.04	22.75	0	100
% low edu	49.92	29.34	0	100
Sectors				
Agricolture	2.61			
Manufacturing	34.41			
Services	62.98			
Regions				
North	37.67			
Center	21.26			
South	30.41			
Islands	10.65			

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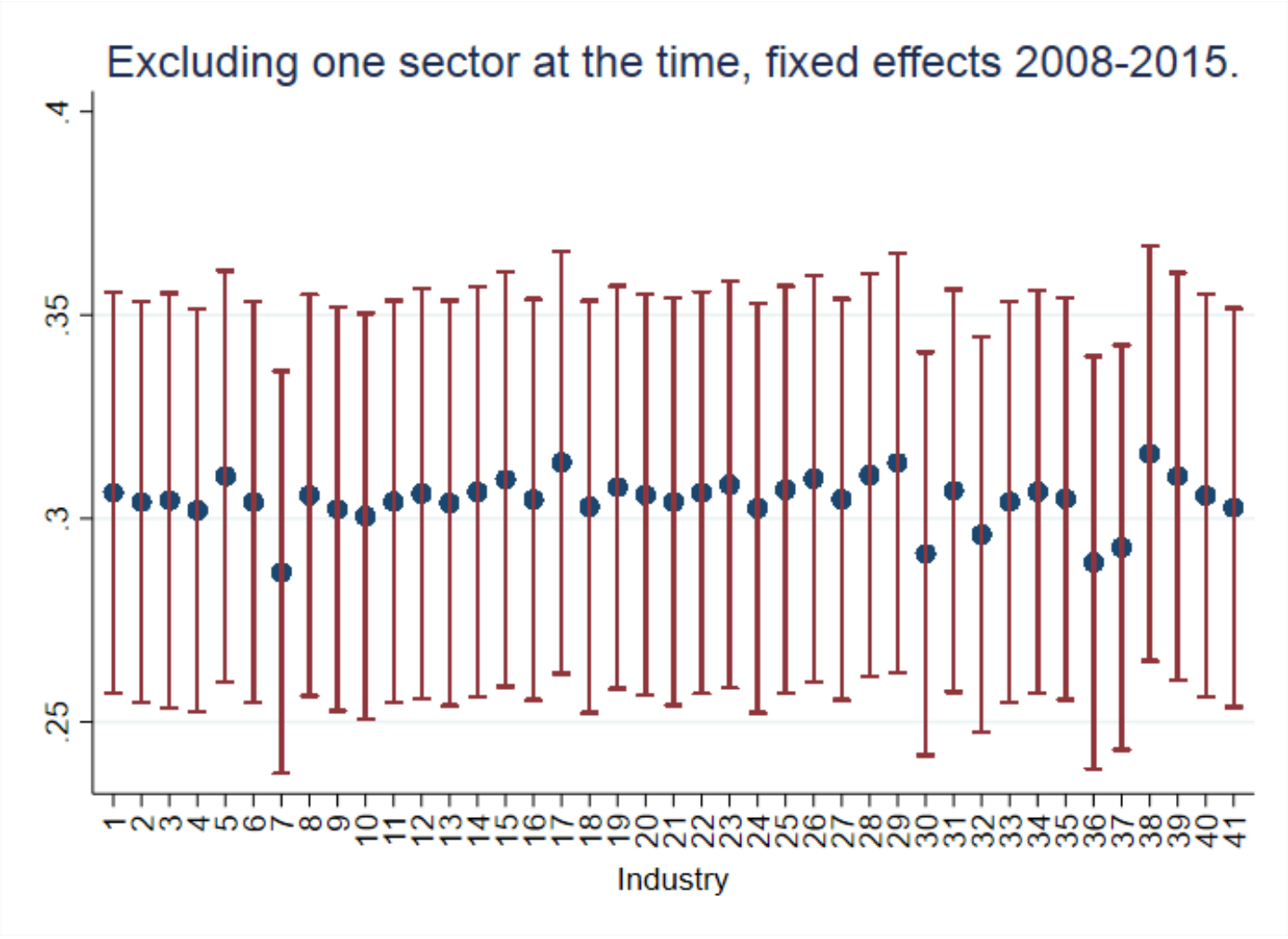
Robustness test - Varying industry sample



Note: Each dot indicates the coefficient when excluding the industry from the estimation. The vertical bars indicated 90% confidence intervals.

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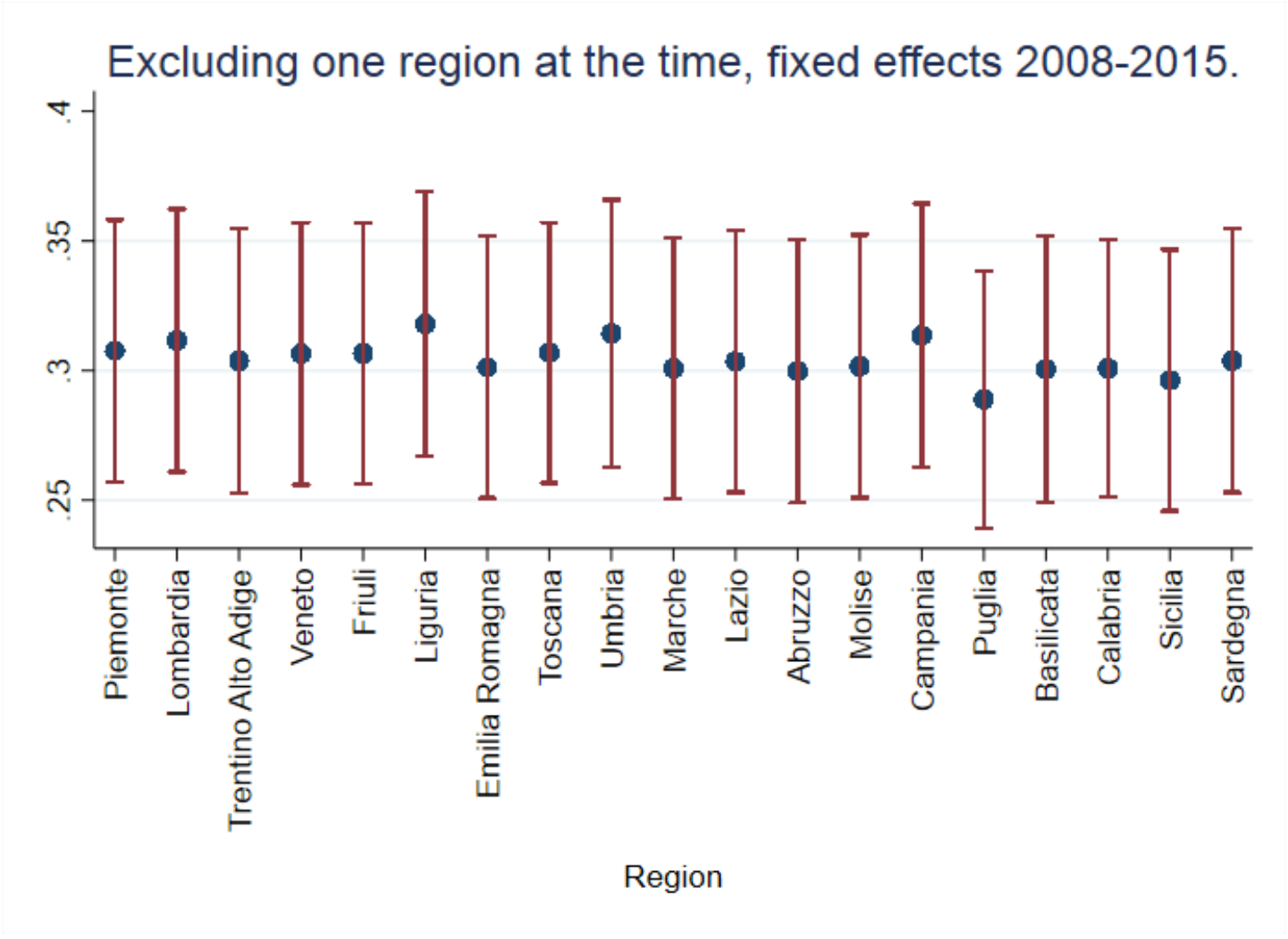
Robustness test - Varying region sample



Note: Each dot indicates the coefficient when excluding the region from the estimation. The vertical bars indicated 90% confidence intervals.

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Robustness test - Manufacturing vs. Services

Table 5: Heterogeneity across sectors, fixed effects estimates, 2008-2015.

	(1) Manufacturing	(2) Services	(3) Manufacturing	(4) Services
Non-compliance (*100)	1.33***	1.54***		
	(0.28)	(0.26)		
Non-compliance^2 (*100)	-0.02***	-0.02***		
	(0.00)	(0.00)		
Non-compliance dummy			0.36***	0.30***
			(0.06)	(0.04)
R-squared	0.96	0.95	0.96	0.95
Observations	1602	3362	1602	3362

Regressions include all controls and fixed effects as in previous tables.

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Robustness test - North vs. South

Table 6: Heterogeneity across regions, fixed effects estimates, 2008-2015.

	(1) South	(2) North	(3) South	(4) North
Non-compliance (*100)	1.65***	1.30***		
	(0.26)	(0.22)		
Non-compliance^2 (*100)	-0.02***	-0.02***		
	(0.00)	(0.00)		
Non-compliance dummy			0.36***	0.24***
			(0.04)	(0.03)
R-squared	0.93	0.95	0.93	0.95
Observations	2387	3429	2387	3429

Regressions include all controls and fixed effects as in previous tables.

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Robustness test - Pre/post global financial crisis

Table 7: Estimates in crisis (2008-2009) and post-crisis years (2014-2015), fixed effects

	2008-2009	2013-2015	2008-2009	2013-2015
Non-compliance (*100)	0.62*	1.35***		
	(0.35)	(0.24)		
Non-compliance^2 (*100)	-0.01***	-0.02***		
	(0.01)	(0.00)		
Non-compliance			0.16***	0.23***
			(0.06)	(0.04)
R-squared	0.97	0.95	0.97	0.95
Observations	1430	2122	1430	2122

Regressions include all controls and fixed effects as in previous tables.

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Robustness test - Additional time trends

Table 8: Baseline with additional time trends - fixed effects, 2008-2015.

	(1)	(2)	(3)	(4)	(5)	(6)
Non-compliance	0.29***	0.30***	0.29***	0.30***	0.29***	0.30***
	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
Region time trends	**yes**	**yes**	no	no	**yes**	**yes**
Industry time trends	no	no	**yes**	**yes**	**yes**	**yes**
R-squared	0.95	0.95	0.95	0.95	0.95	0.95
Observations	5816	5816	5816	5816	5816	5816

Regressions include all controls and fixed effects as in previous tables.

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