Corporate Economic Profits in the Euro Area and the United States: Market Power or Competitive Advantage?

Preliminary version

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(*) The views expressed in this presentation are those of the authors alone and do not necessarily reflect the views of the Banco de España or the Eurosystem.

Outline

1. Motivation
2. Our contribution
3. Methodology and data
4. Results
5. Conclusions

1. Motivation

- **Business profits are relevant for assessing: i) market competition; ii) capital investment decisions (and economic growth), iii) income inequality**

- **Recent research has raised policy interest in business profits:**

  - **A secular decline in the labor shares of developed economies (Elsby et al., 2013; Karabarbounis and Neiman, 2013; Dao et al., 2017; Abdih and Danninger, 2017)**

  - **A generalized rise in firms' price-costs ratios (De Loecker and Eechout, 2017, 2018; Calligaris et al, 2018; Diez et al., 2018)**

  - **Against a background of increasing market concentration (Grullon et al., 2016; Autor et al., 2017, 2018; Criscuolo, 2018)**

- **Overall, the evidence appears consistent with decreasing product market competition and with rising profits and market power of firms**

- **Still some issues underexplored:** **[Graph]**

  1. **Which is the right measure to estimate business profits?: non-labor income vs economic profits (Hall, 2018; Traina, 2018) WE EXPLORE THIS**

  2. **Does increasing market concentration have to do with a lack of enforcement of antitrust policies (Zingales, 2017) or rising dispersion in firms' productivity (Van Reenen, 2018, Decker et al., 2018; Berlingieri et al., 2018) ?**

2. What we do

- **We provide new evidence on the evolution of corporate costs and profit shares across the big-4 Euro Area (EA) countries. To this end:**
  - **We construct a database with labor and capital costs, and profit shares for the non-financial corporations (NFCs) as a whole of the big-4 EA countries (and the US) over 1995-2016**
  - **We extend the work by Barkai (2017) for the US, estimating the economic profits (GVA – labor and capital costs) for the big-4 EA countries**
  - **We exploit industry-level data from CompNet (only available for EA countries)**
- **We highlight the relevance of using economic profit shares instead of non-labor income to measure markups and market power**
- **We test the hypothesis of rising market power in the EA under two alternative competitive settings:**
  - **NFCs of each country operate in a closed economy**
  - **EA corporate sectors compete in a single product market**
- **The possibility of firms competing in supranational or global markets has not yet been explored!**

3. Methodology and data

We measure economic profits as:

$$\Pi_t = p_t\, Y_t - w_t L_t - R_t^{\tau} p_{Kt} K_t$$

$$\Pi_t = \boxed{\boldsymbol{GVA} - \boldsymbol{Compensation\ of\ employees}} - \boldsymbol{Estimate\ of\ capital\ payments}$$

NFCs Sector Account data

So, we estimate the user cost of capital as:

$$R_t^{\tau} = \Big(\underbrace{b_t i_t^b (1-\tau_t)}_{\text{Debt cost}} + \underbrace{(1-b_t)\alpha_t}_{\text{Equity cost}} + \underbrace{\delta_t - E(\pi_{t+1})}_{\text{Depreciation rate – capital asset expected inflation}}\Big) \frac{1-\tau_t z_t}{1-\tau_t}$$

Weighted financial cost

τ_t: Corporate income tax (OECD data)

Z_t: Net present value of tax-deductible capital depreciation allowances (US Tax Foundation data)

and the capital stock by the Permanent Inventory Method:

$$p_{Kt} K_t = p_{kt-1} K_{t-1} (1-\delta_t) \frac{p_{Kt}}{P_{Kt-1}} + p_{Kt} I_t = p_{kt} K_{t-1} - \boxed{Dep_t + p_{Kt} I_t}$$

NFCs Sector Account data

from an initial value of the capital stock $p_{K1995} K_{1994} = Dep_{1995} / \delta_{1995}$, where δ_{1995} is calculated with KLEMS data from different depreciation rates across non-residential assets and industries for each country

3. Methodology: the relevance of considering capital as a variable input in measuring profit shares (and market power)

Two approaches to measure the economic profits (and market power):

- **The traditional one (from FOCs of a profit-maximizing firm):**

$$S_{NLI_t} = 1 - S_{L_t} = 1 - E_{Y/L}\eta_t \quad \Rightarrow \quad \frac{1}{\eta_t} = \frac{\varepsilon_t}{\varepsilon_t - 1} = \frac{E_{Y/L}}{S_{L_t}}$$

ε_t is the price elasticity of demand

Under <u>constant</u> output elasticity to labor ($E_{Y/L}$), e.g. Cobb Douglas production function

Changes in labor share (S_{L_t}) will be inversely related to changes in market power ($1/\eta_t$)

A reminder (CES pf):

$$E_{Y/L} = \frac{\gamma}{1 + \left(\frac{1-a}{a}\right)^{\frac{1}{1+\rho}} \left(\frac{Rp_K}{w}\right)^{\frac{\rho}{1+\rho}}}$$

γ is the parameter of returns to scale

σ is the elasticity of substitution between *L* and *K*, $\sigma = \frac{1}{1+\rho}$

So, $E_{Y/L}$ can change with relative input prices!

- **<u>An alternative approach</u> which includes K as a variable input is:**

$$S_{\Pi_t} = 1 - \left(S_{L_t} + S_{K_t}\right) = 1 - \gamma\eta_t \quad \Rightarrow \quad \boxed{\frac{1}{\eta_t} = \frac{\gamma}{1 - S_{\Pi_t}}}$$

<u>We follow this approach</u> by which <u>we can infer market power from profit shares</u>

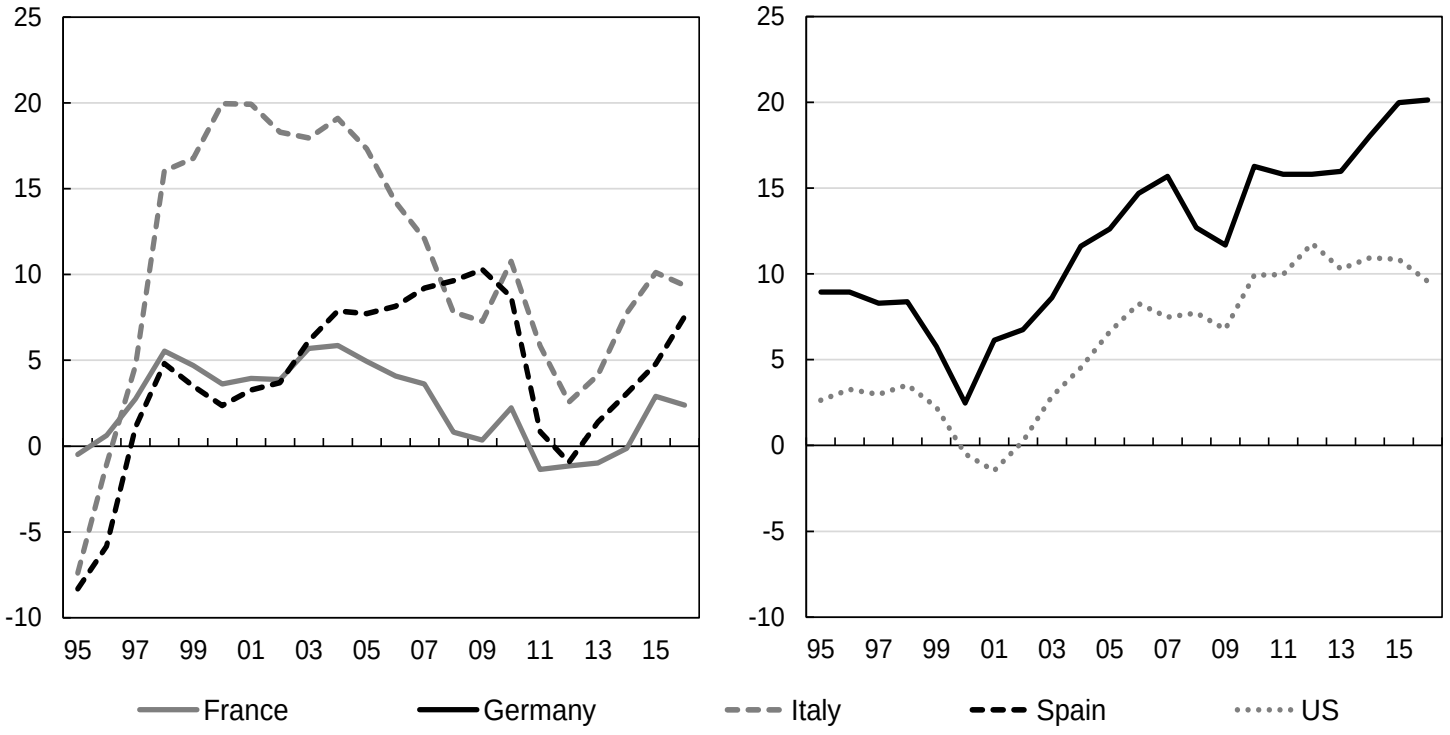
This holds under constant (Cobb-Douglas pf) or non-constant (CES pf) output elasticity to inputs. We still need a constant γ

[Estimates of γ]

4. Results (I): corporate profit shares, S_{Π_i}, increasing in Germany and US

- **A positive and parallel course of the profit shares of NFCs in Germany and US (our estimate of the US profit share is very similar to that of Barkai, 2017)**
- **The gap between both countries widens during the expansionary ECB monetary policy**
- **The profit shares of France, Italy and Spain do not show any clear trend**

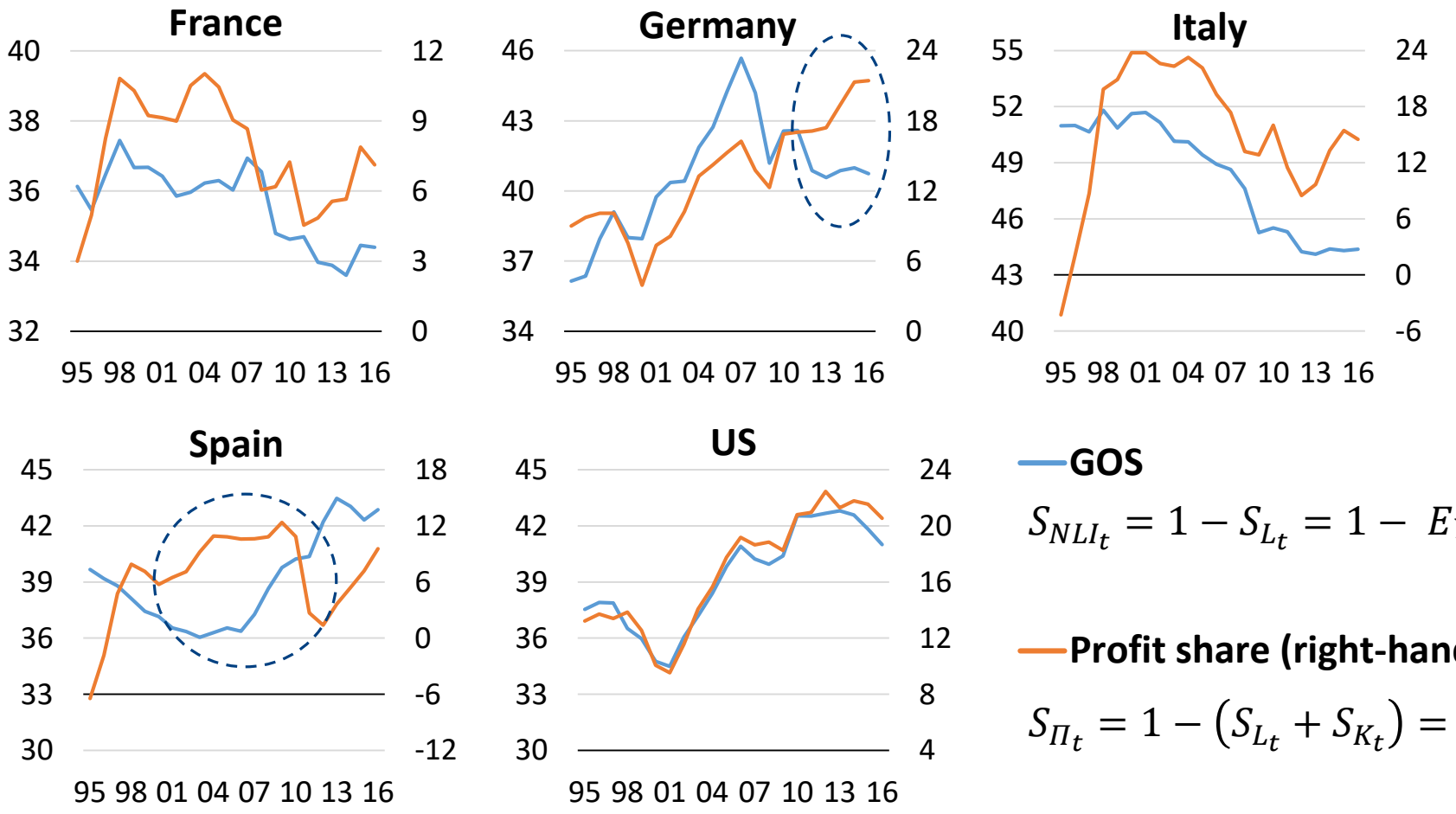
ECONOMIC PROFIT SHARES RELATIVE TO GVA, $S_{\Pi_{i,t}} = \frac{\Pi_t}{p_t Y_t}$ (%)



4. The relevance of considering capital as a variable input in measuring profit shares (S_{Π_t} vs S_{NLI_t})

- **The positive trend of the corporate profit share S_{Π_t} coincides with that of the non-labor income share S_{NLI_t} for the US**
- **That is <u>not</u> the case for the EA countries!**

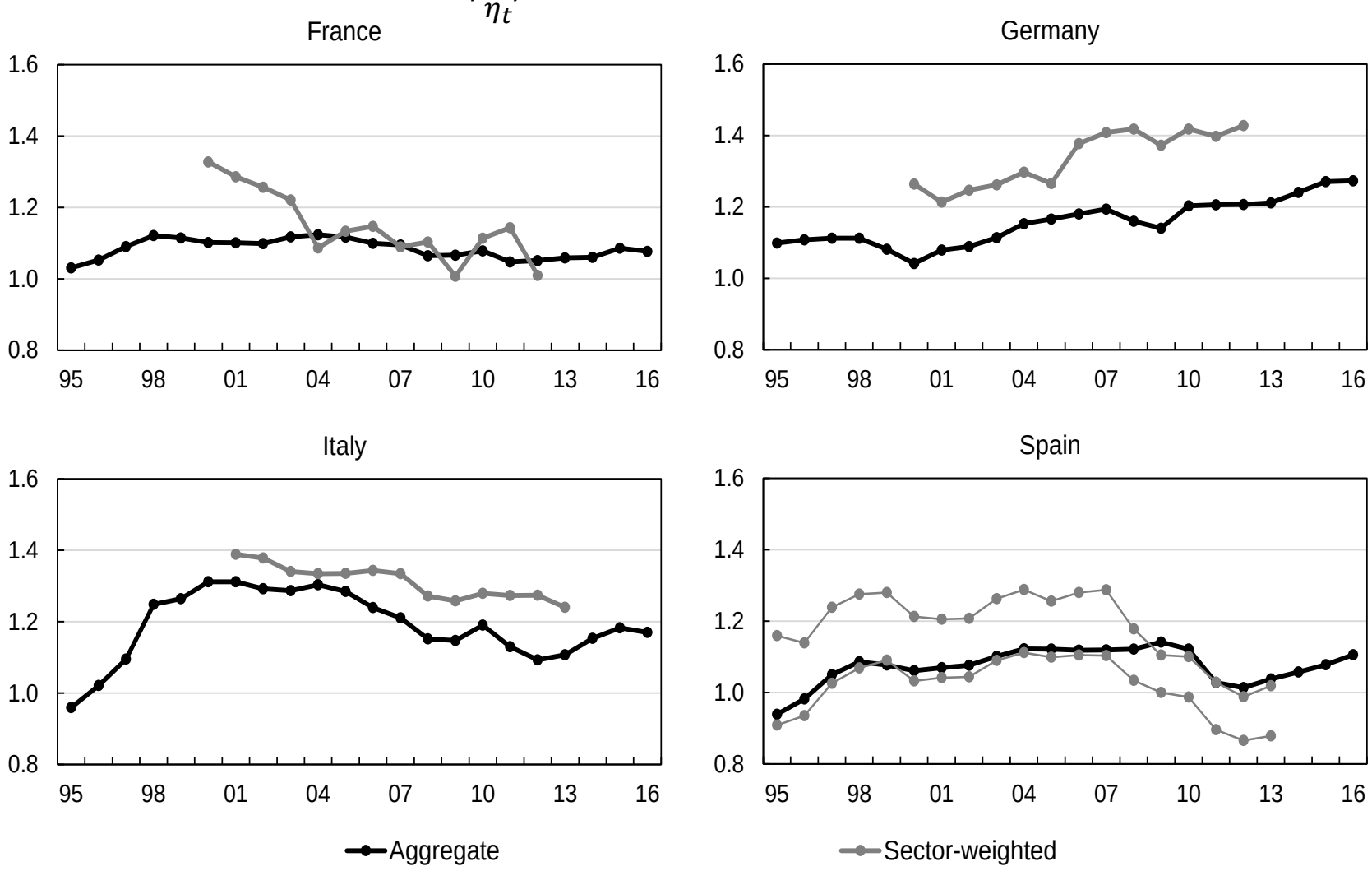
ECONOMIC PROFIT SHARE, S_{Π}, VS. NON-LABOR INCOME SHARE, S_{NLI} (% OF GVA)



4. …our estimates of markups, $\frac{1}{\eta_t} = \frac{1}{1-S_{\Pi_i}}$, only increasing in Germany

- **Based on the approach we follow, we find similar trends between industry-level data and corporate sector data as a whole for each EA country**

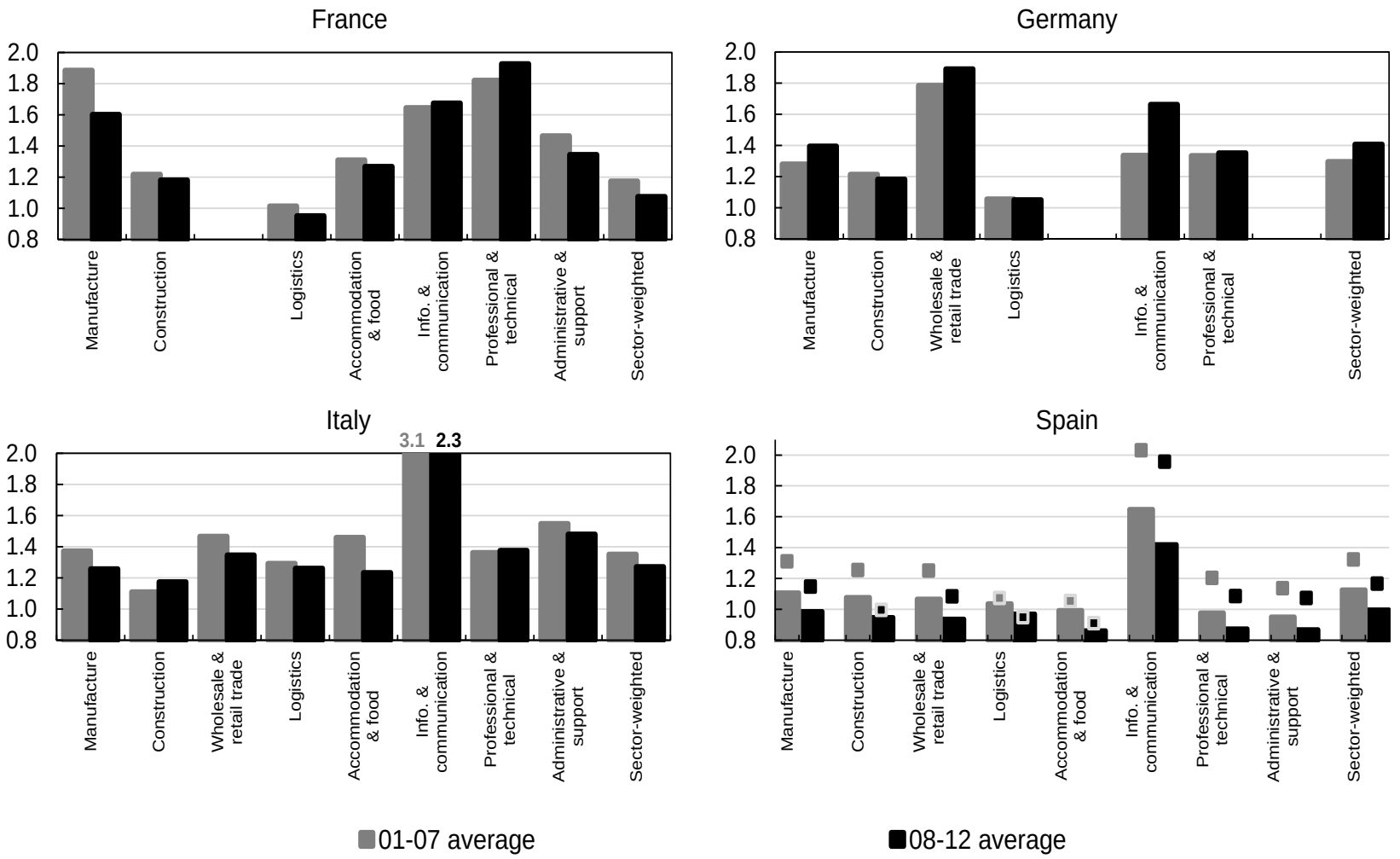
MARKUPS, $\frac{1}{\eta_t}$, OF EA COUNTRIES: AGGREGATE VS INDUSTRY-WEIGHTED



4. …markups rising in manufacturing in Germany and in some services

- **Despite a large variability across sectors, we observe an increase (until 2012) in markups in the manufacturing sector in Germany but the opposite in France, Italy and Spain. Also, a rise in few services activities**

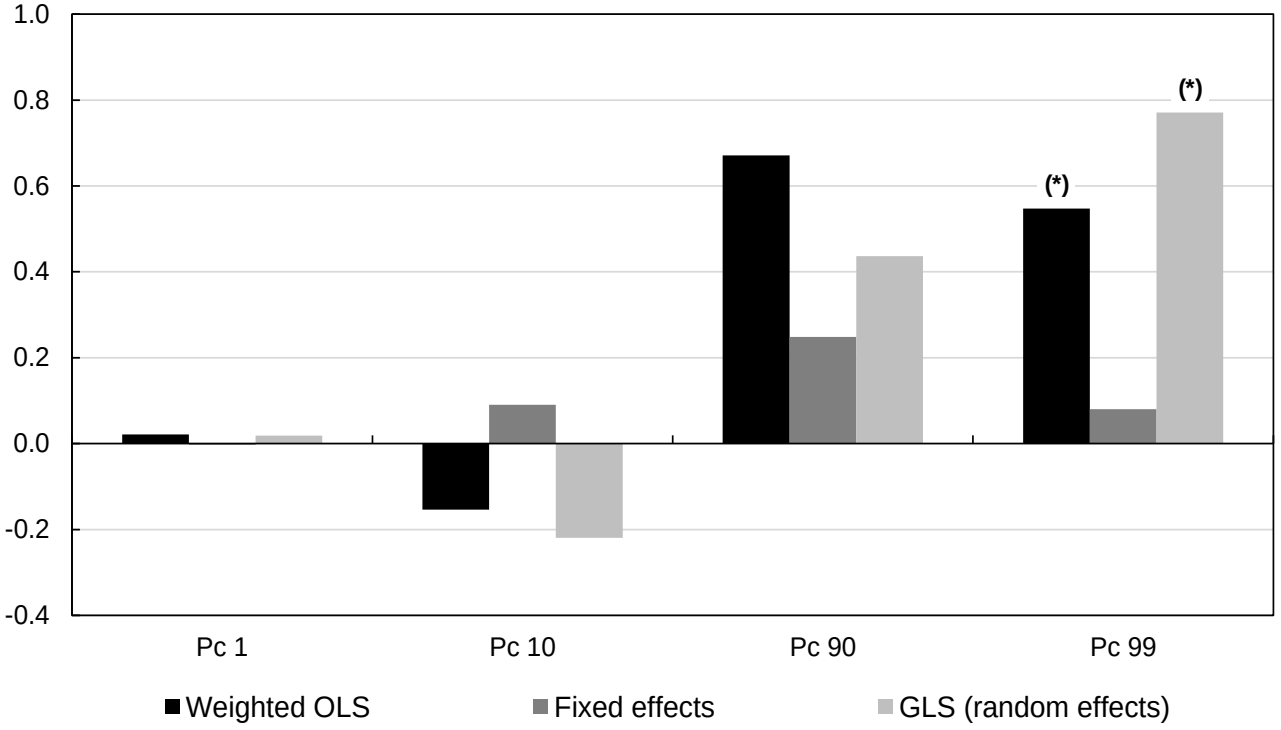
MARKUPS OF EA COUNTRIES: BREAKDOWN BY INDUSTRY



4. …the increase in German markups can be explained by the top performing firms

- **We find preliminary evidence that the rising trend in markups in Germany may be driven by the firms in the highest percentile of the markup distribution, controlling by industry**

REGRESSIONS' COEFFICIENTS OF MARKUPS (WEIGHTED-MEAN) FOR NFCs IN GERMANY ON THEIR PERCENTILE DISTRIBUTIONS ACROSS 2-DIGIT INDUSTRIES



4. Results (II): no industry-level evidence of markups dynamics being explained by market concentration in the EA countries

In the Nash-Cournot equilibrium (firms competing in quantities)

$$\frac{p_t - c_t^{mg}}{p_t} = \frac{H_t}{\varepsilon_t}$$

H_t is the Herfindahl index of market concentration
ε_t is the price elasticity of demand

More concentrated product markets will show higher markups

So, we estimate, for each EA country:

$$\log\left(\frac{1}{\eta_{s,t}}\right) = \alpha_t + \beta_{FE} C_{s,t} + \mu_s + \epsilon_{s,t}$$

Dependent variable: **log markup $_{s,t}$** [Table in detail]

	France		Germany		Italy		Spain	
	Fixed effects	First differences	FE	FD	FE	FD	FE	FD
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Concentration ratio (%)	0.007	0.021	0.002	0.045	0.011	0.012	0.000	0.067
(p-values)	(0.264)	(0.251)	(0.503)	(0.817)	(0.190)	(0.286)	(0.896)	(0.758)
Constant	0.132	-0.006	**0.208***	0.010	0.045	**-0.012****	**-0.215*****	0.019
(p-values)	(0.597)	(0.451)	(0.081)	(0.800)	(0.857)	(0.026)	(0.000)	(0.529)
Time dummies	Yes	No	Yes	No	Yes	No	Yes	No

- **But we do not find industry-level evidence of a significant relationship between markups and market concentration in the EA countries (even in Germany!)**
- **These results are robust to other specifications and concentration measures**

4. Results (III): differences in profit shares among EA countries can be explained by differences in cost competitive advantages

- **If NFCs compete in a supranational product market like the EA Single Market, then the law of one price will apply (under homogenous products)**

- **So, differences in profit shares across NFCs in EA will be explained by differences in unit production costs**

$$S_{\Pi_{si}} = \frac{p_s - c_{si}}{p_s}, s = 1, \ldots S;\ i = 1, \ldots I \qquad (*)$$

- **Where $S_{\Pi_{si}}$ is the economic profit share of industry *s* in country *i*, p_s is the common selling output price for industry *s* and c_{si} is the unit production cost for industry *s* in country *i*, $c_{si} = \frac{w_{si}L_{si} + R_{si}p_{ksi}K_{si}}{Y_{si}}$** **[Graph]**

- **To test (*), we estimate a pooled regression of markups on unit costs, both in logs:**

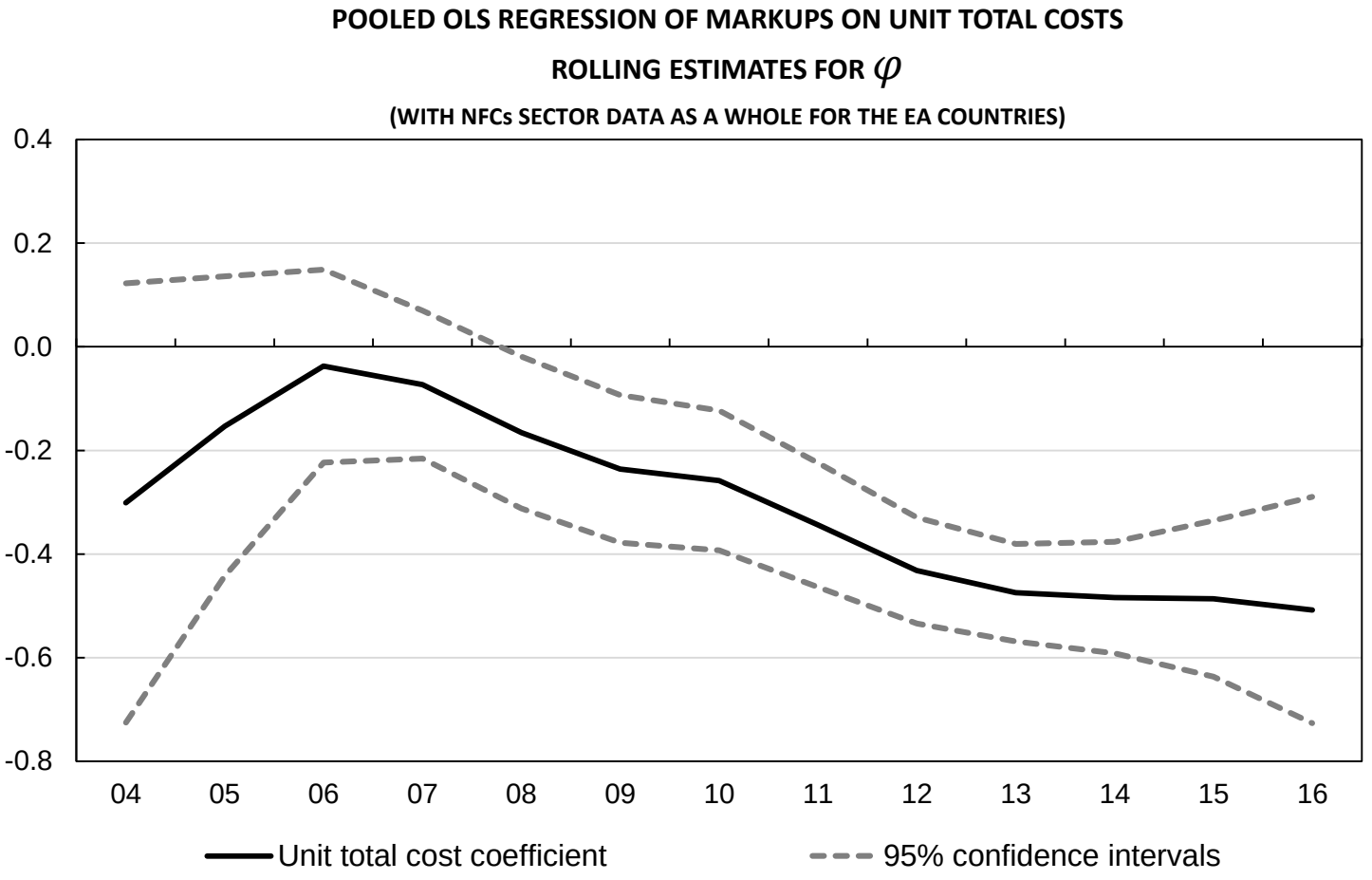
$$log\left(\frac{1}{\eta_{s,i,t}}\right) = \delta_t + \varphi log\left(c_{s,i,t}\right) + \tau_s + \vartheta_i + \zeta_{s,i,t}$$

- **We expect markups inversely related to unit cost ($\varphi < 0$)**

- **Furthermore, if the transition to the single market progresses gradually, then φ would become more negative over time**

4. …differences in profit shares among EA countries can be explained by differences in cost competitive advantages

- **In aggregate terms, the evolution of markups appear to respond increasingly to differences in unit production costs among EA countries**



10-year Rolling Pooled OLS Regression with aggregate NFCs Data of the big-4 Euro Area Countries. All variables in logs. The regression includes country dummies.

4. …differences in profit shares among EA countries can be explained by differences in cost competitive advantages

- **This result is also confirmed at industry level**

$$log\left(\frac{1}{\eta_{s,i,t}}\right) = \delta_t + \varphi log(c_{s,i,t}) + \tau_s + \vartheta_i + \zeta_{s,i,t}$$

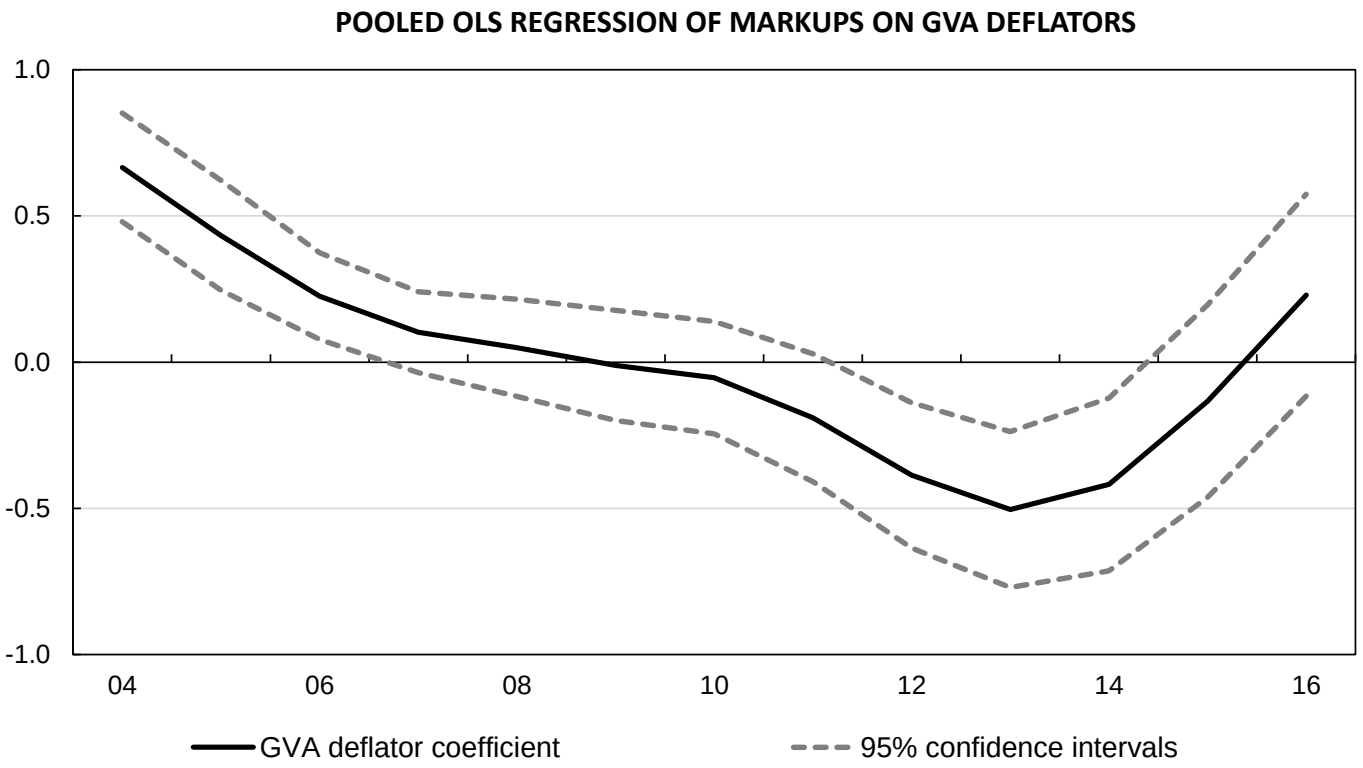
Dependent variable:	**log markup $_t$**	
	Sector data: Euro area countries, 2003-2012	
	Fixed effects	First differences
log unit total cost $_t$	**-0.388*** **	**-0.680*** **
(p-values)	(0.000)	(0.000)
Constant	**0.247*** **	0.004
(p-values)	(0.000)	(0.300)
Time dummies	Yes	No
Number of sectors	41	41
Number of observations	1,604	1,597

[Table in detail]

[Robustness]

4. …differences in profit shares among EA countries less dependent on output price differences

- **However, the differences in output prices seem to be progressively less relevant in explaining markups**
- **We find empirical support to the hipothesis of price convergence of close substitute products under rising economic integration into a single market**



[Robustness]

10-year Rolling Pooled OLS Regression with aggregate NFCs Data of the big-4 Euro Area Countries. All variables in logs. The regression includes country dummies.

5. Conclusions

- **We present new empirical evidence on the evolution of corporate costs and economic profit shares of the Big 4 euro area countries, at national and industry levels**
- **We find a remarkable parallelism in the positive evolution of the economic profit shares of German and US NFCs in 2000-2016, clearly differentiated from the behaviour in the other EA countries**
- **However, contrary to the case of the US corporations where market concentration is a key driver of profit shares, we find the rise in profit share of German firms since 2000 better explained by their growing competitive advantages (in terms of unit production costs) in a time of progressive advances towards the EA Single Market**
- **These results point to the limitations of using national boundaries when studying firms' market power and its determinants in industries operating in global markets**
- **These results also highlight the relevance of using economic profit shares instead of labor cost shares to estimate markups and assess market power of firms**

THANK YOU FOR YOUR ATTENTION

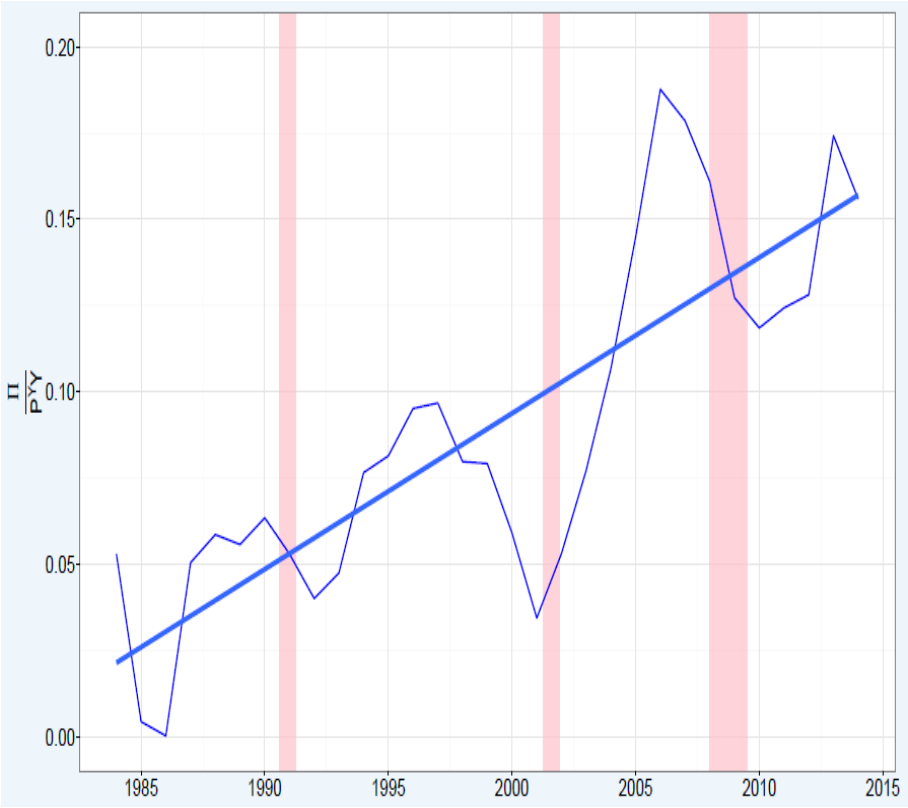
ADDITIONAL INFORMATION

1. Motivation: rising profits and positively associated with concentration. The case of the US corporations

- Barkai (2017): This relationship is significant over time and across sectors

- Grullon et al. (2017): Higher profit margins in US industries with the largest increases in market concentration. Two factors behind this trend: i) lax enforcement of antitrust regulations ii) increasing technological barriers to entry

US CORPORATE PROFIT SHARE (AS A RATIO OF GVA)



Source: Barkai (2017), "Declining Labor and Capital Shares".

CONCENTRATION INDEX (HHI) FOR US PUBLICLY LISTED FIRMS

Source: Grullon et al. (2017), "Are U.S. Industries Becoming More Concentrated? ".

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3. Methodology: markups ($\frac{1}{\eta_t}$) are directly related to profit shares ($S_{\Pi} = \frac{\Pi_t}{p_t Y_t}$) under constant returns to scale (γ=1) (Salas, San Juan and Vallés, 2018)

$$\frac{1}{\eta_t} = \frac{\gamma}{1 - \frac{\Pi_t}{p_t Y_t}} = \frac{1}{1 - \frac{\Pi_t}{p_t Y_t}} = \frac{1}{1 - S_{\Pi}}$$

- **Several estimation methods of a standard Cobb-Douglas production function (60 sector data from CompNet: $y_{s,t} = \beta_0 + \beta_l l_{s,t} + \beta_k k_{s,t} + \omega_{s,t} + \epsilon_{s,t}$, where β_l and β_k are the elasticity of output to labor and capital, and $\beta_l + \beta_k = \gamma$**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	Tests on γ = 1 not rejected at 5% (% of total)	Avge.
France											
Returns to scale (γ)	0.93	0.93	0.91	0.92	0.92	0.93	0.92	0.92	0.92		0.92
P-value (γ = 1)	0.40	0.22	0.12	**0.01**	0.38	**0.00**	0.23	**0.04**	0.21	67%	
Germany											
Returns to scale (γ)	0.94	0.78	0.90	0.77	0.96	0.96	1.00	0.98	0.93		0.91
P-value (γ = 1)	0.34	**0.01**	**0.00**	**0.00**	0.73	**0.00**	1.00	0.61	0.54	56%	
Italy											
Returns to scale (γ)	1.03	1.03	0.98	0.98	1.00	1.00	0.99	1.00	0.99		1.00
P-value (γ = 1)	0.44	0.56	0.27	0.37	0.99	0.99	0.89	0.94	0.93	100%	
Spain											
Returns to scale (γ)	1.04	1.04	1.04	1.00	1.00	1.05	0.99	1.00	1.00		1.02
P-value (γ = 1)	0.32	0.18	**0.03**	0.87	0.96	**0.00**	0.88	0.97	0.92	78%	
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		
Sector dummies	Yes	Yes	Yes	Yes	No	Yes	No	No	No		

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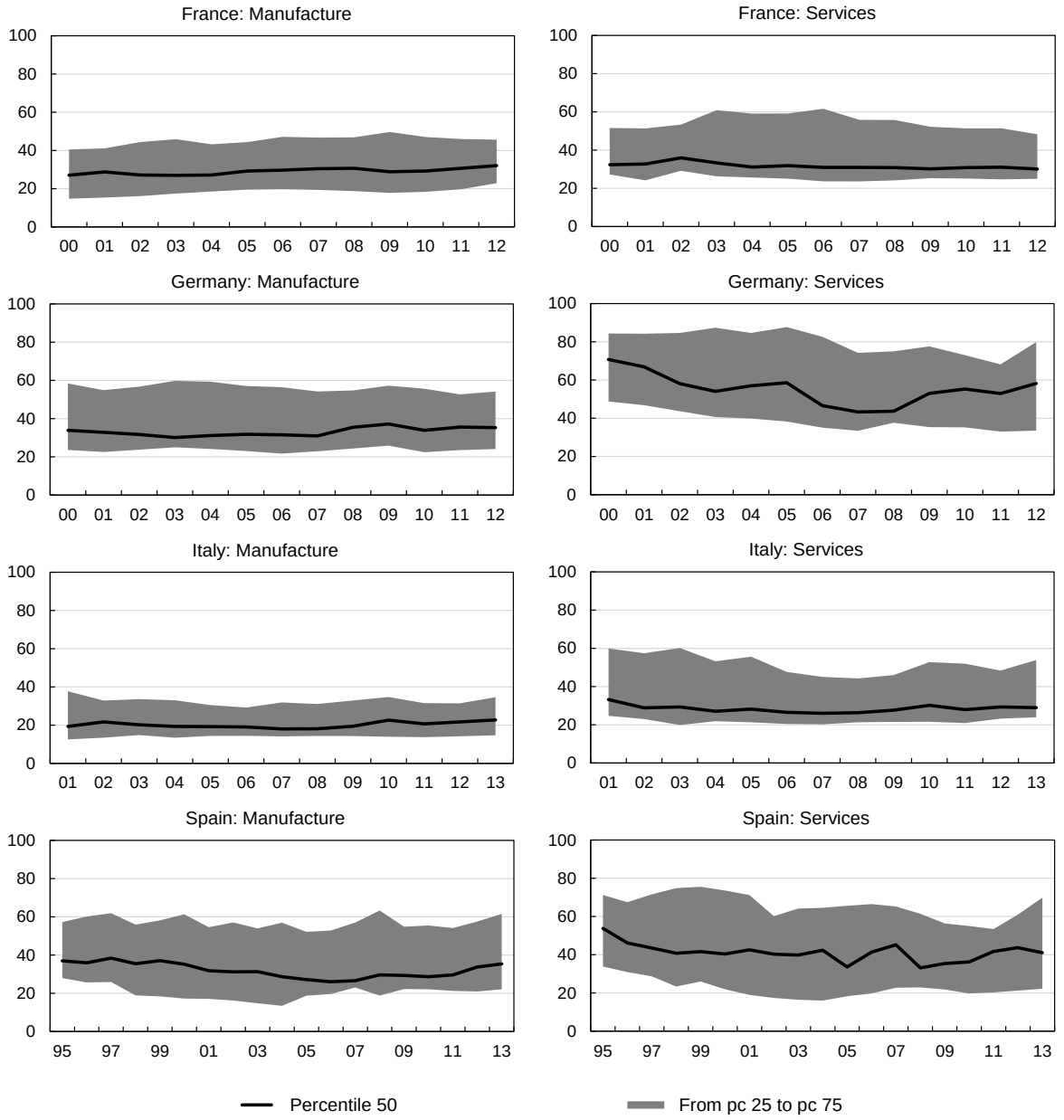
(1) and (2) Olley and Pakes (1996); (3) and (4) Ackerberg, Caves and Frazer (2015) correction to (1) and (2), respectively; (5) Levinsohn and Petrin (2003); (6) ACF correction to (5); (7) Robinson (1988); (8) Wooldridge (2009); (9) Mollisi and Rovigatti (2017)

4. Additional results: concentration ratios

- **We do not appreciate a clear increase in concentration ratios except for some countries and sectors in the most recent sample period.**



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The concentration ratios are available in the CompNet dataset at the 2-digit sector and are defined as the share of the sales of the 10 largest companies relative to the total sales of firms in the 2-digit sectors. We represent the 25th, 50th and 75th percentiles of the distribution over time of the concentration ratios across 2-digit sectors within each of the two largest industries, manufacturing and services.

4. Additional results: robustness checks reinforce the previous results towards the single market hypothesis

- **When we run our regressions of markups on unit total costs with data for NFCs as a whole from pre-euro years (1995-98), the estimated coefficient decreases in absolute value and also its statistical significance**
- **If we include in our sample the US aggregate corporate sector data, a non-euro area country, the estimated coefficient associated with unit labor cost is no longer significantly different from zero**
- In the case of output prices, for the whole sample period, the non-significant coefficient holds under alternative econometric specifications and also using industry-level data. In the latter case, we also use total turnover deflators instead of GVA deflators as final good price deflators with similar results

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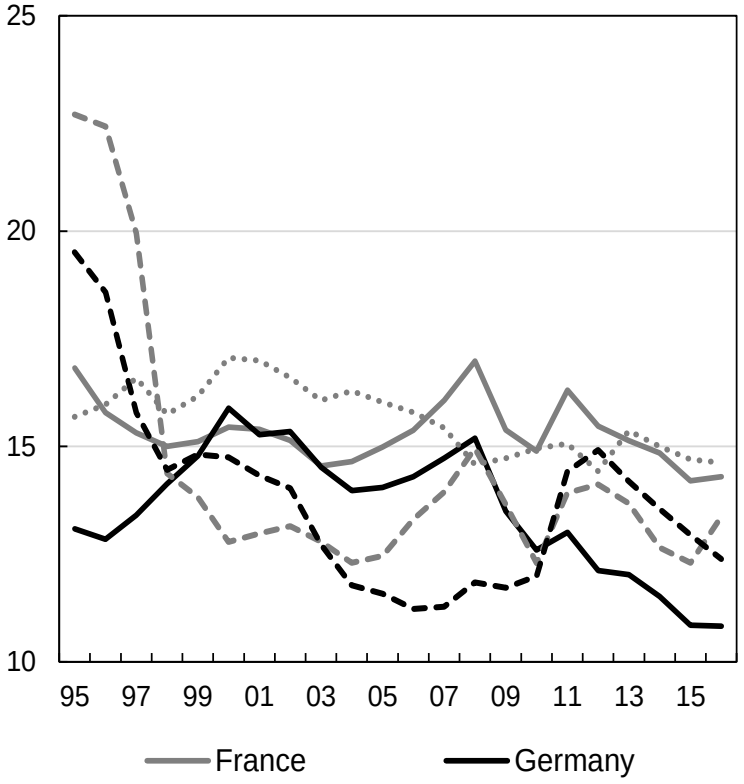
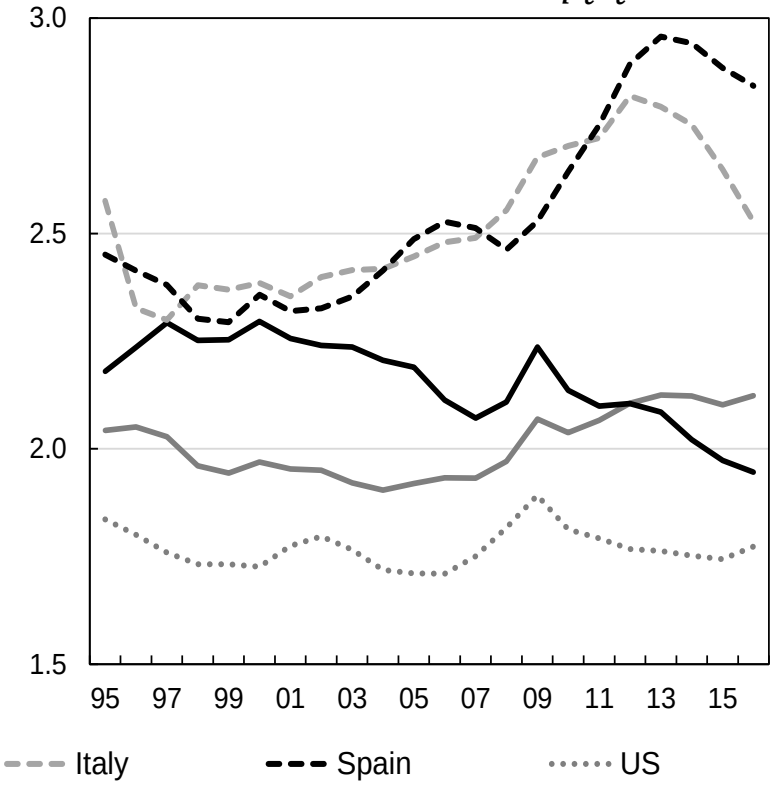
Estimates of the user cost of capital and the capital stock

- **Before crisis: A fall in the user cost of capital, more pronounced in Italy and Spain, which leads them to record the lowest levels from the highest in mid-90s**
- **In the wake of the European sovereign debt crisis: German corporations benefit from the lowest user cost of capital**
- **The US NFCs shows the lowest and the most stable capital stock ratio. The opposite is observed in Italy and Spain (higher weight of commercial properties)**

USER COST OF CAPITAL, R_t^τ, %



CAPITAL STOCK (OVER GVA), $\frac{p_{Kt}K_t}{p_tY_t}$



France Germany Italy Spain US

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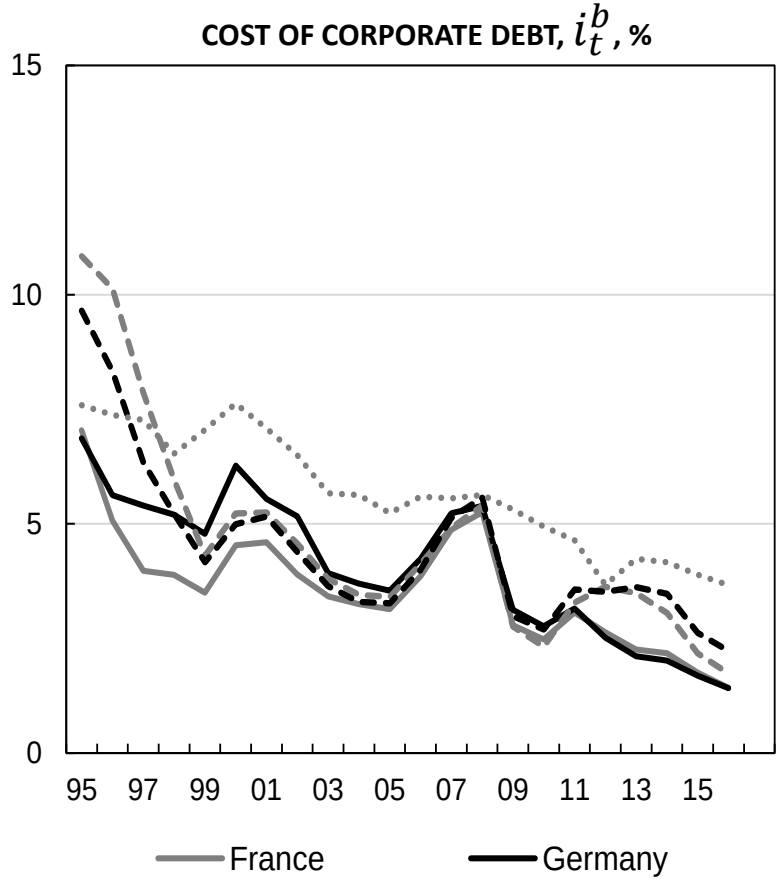
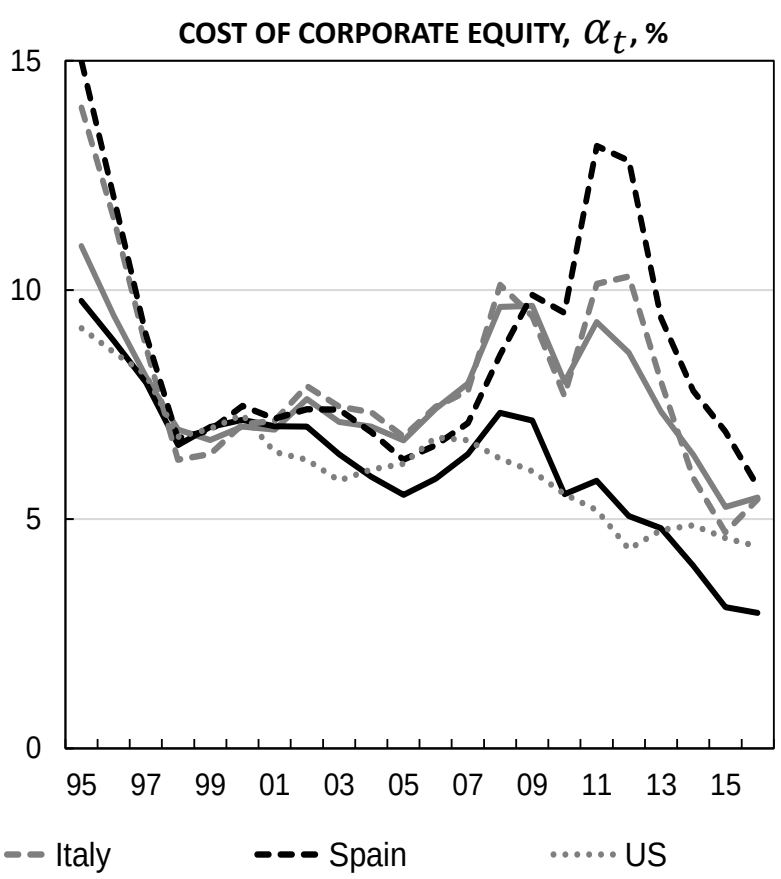
The main driver of the user cost of capital is the financial cost (both debt and equity cost)

- **With the euro, the corporate debt cost in Spain and Italy converged towards the low values in France and Germany, but diverged again in the first countries in the wake of the European sovereign debt crisis in 2011-2012, which had some lagged effects on bank financing costs**
- **This process of convergence and divergence in corporate costs has been more acute in the case of equity financing**





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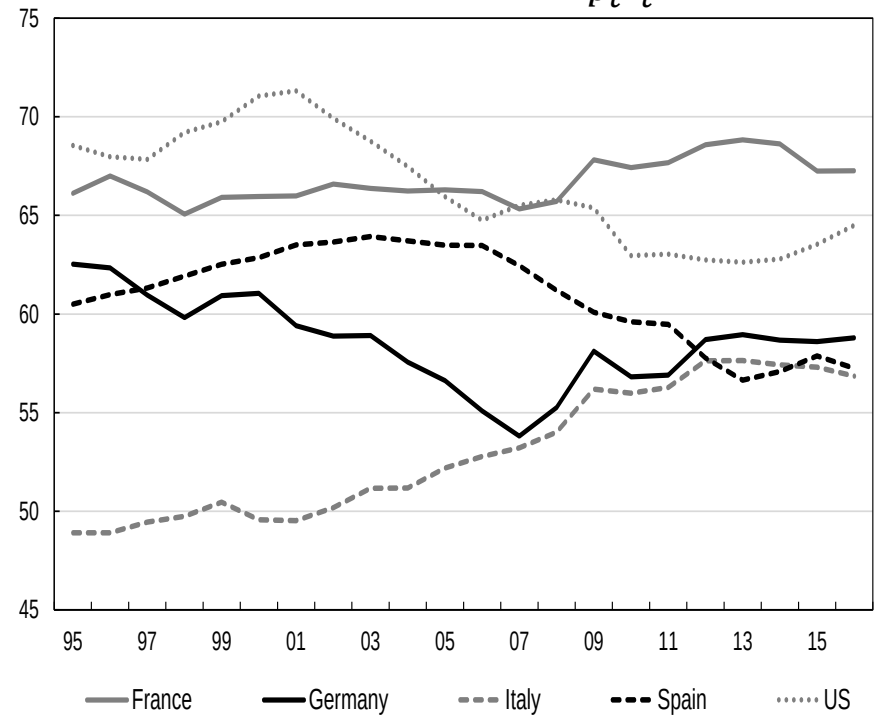
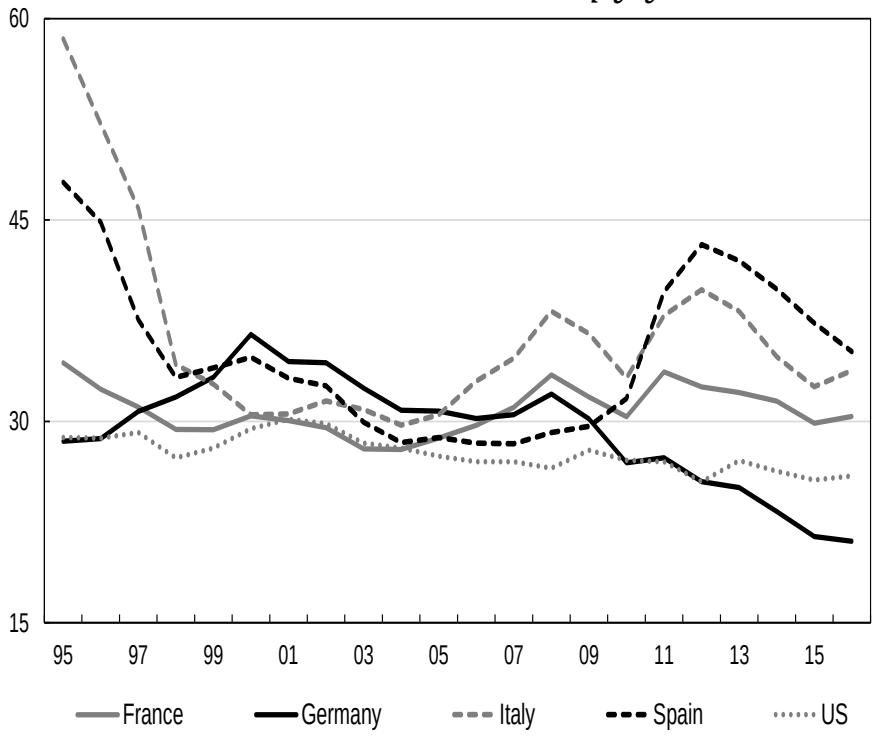
Labor and capital shares

- **There is no common pattern in cost shares across countries**
- **We do not find evidence of a decreasing trend in the aggregate labor share for EA countries. On the contrary, a fall is observed in the US in 2001-2014**
- **However, there was cross-country convergence of capital shares before the Euro, which continued until the onset of the crisis in 2008. Since then, they clearly diverge**

LABOR SHARE (OVER GVA), $\frac{w_t L_t}{p_t Y_t}$, %



CAPITAL SHARE (OVER GVA), $\frac{R_t p_{Kt} K_t}{p_t Y_t}$, %



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4. Results (II): no evidence of markups dynamics being explained by market concentration in the EA countries

- **We do not find industry-level evidence of a significant relationship between markups and market concentration in the EA countries (even in Germany!)**

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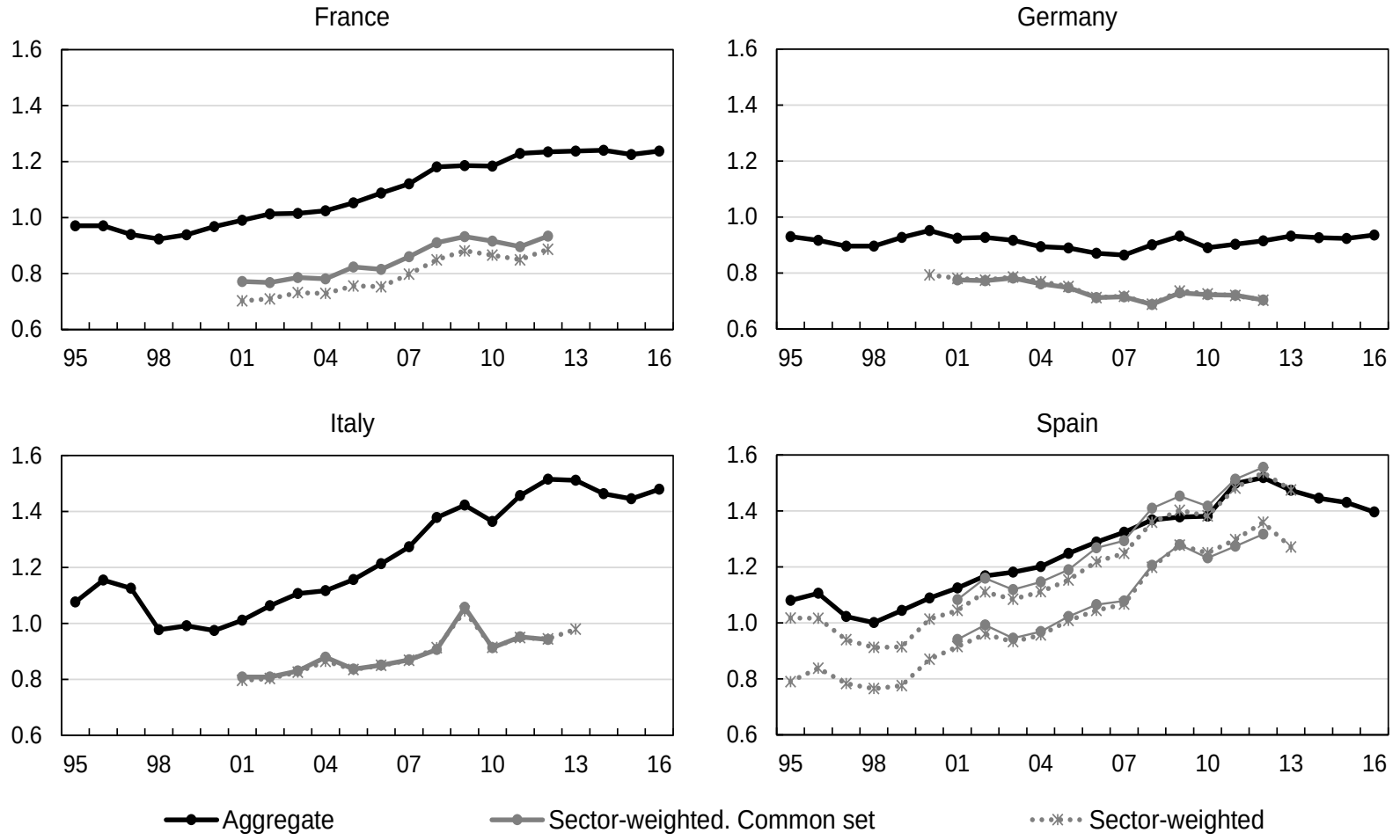
Dependent variable:	log markup $_{s,t}$										
	OLS	GLS (random effects)	Fixed effects	First differences	First differences	2012-2001	2012-2001	2012-2007 and 2007-2001	2012-2007 and 2007-2001	2012-2007 and 2007-2001	Five-year differences in 2001-2012
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
France											
Concentration ratio $_{s,t}$ (%)	-0.002	0.002	0.007	-	0.021	-	0.007	-0.001	0.000	-0.001	-0.001
	(0.266)	(0.523)	(0.264)	-	(0.251)	-	(0.309)	(0.795)	(0.982)	(0.875)	(0.896)
Constant	**0.513*** **	**0.328*** **	0.132	-0.004	-0.006	**-0.134*** **	**-0.133*** **	-	-	-0.060	-0.074
	(0.000)	(0.010)	(0.597)	(0.699)	(0.451)	(0.001)	(0.002)	-	-	(0.190)	(0.424)
Germany											
Concentration ratio $_{s,t}$ (%)	**-0.005*** **	-0.001	0.002	-	0.045	-	-0.001	0.001	0.000	0.005	0.002
	(0.000)	(0.508)	(0.503)	-	(0.817)	-	(0.794)	(0.714)	(0.896)	(0.126)	(0.349)
Constant	**0.479*** **	**0.484*** **	**0.208***	0.001	0.010	**0.077*** **	**0.075** **	-	-	**0.080*** **	**0.083*** **
	(0.000)	(0.000)	(0.081)	(0.872)	(0.800)	(0.007)	(0.011)	-	-	(0.001)	(0.002)
Italy											
Concentration ratio $_{s,t}$ (%)	0.004	**0.009***	0.011	-	0.012	-	0.008	0.001	0.003	0.003	0.002
	(0.272)	(0.052)	(0.190)	-	(0.286)	-	(0.301)	(0.865)	(0.670)	(0.726)	(0.697)
Constant	**0.269*** **	0.119	0.045	0.001	**-0.012** **	**-0.097*** **	**-0.098*** **	-	-	-0.022	-0.018
	(0.000)	(0.274)	(0.857)	(0.959)	(0.026)	(0.000)	(0.000)	-	-	(0.117)	(0.313)
Spain											
Concentration ratio $_{s,t}$ (%)	0.003	0.000	0.000	-	0.067	-	-0.002	0.000	-0.001	-0.001	-0.001
	(0.160)	(0.579)	(0.896)	-	(0.758)	-	(0.514)	(0.765)	(0.676)	(0.757)	(0.473)
Constant	**-0.328*** **	**-0.230*** **	**-0.215*** **	**0.012*** **	0.019	**0.060** **	**0.063** **	-	-	**0.061** **	**0.053** **
	(0.001)	(0.000)	(0.000)	(0.000)	(0.529)	(0.046)	(0.040)	-	-	(0.015)	(0.021)

*** indicates significant at 1%; ** at 5%, and * at 10%. P-values for regression coefficients are reported in parenthesis. Standard errors, not reported, are clustered by 2-digit NACE sectors (around 60), and are robust to heteroskedasticity and serial autocorrelation. Observations of cross-section and of cumulative differences of several years' regressions are weighted by sectors' shares in GVA (in each year and in the last year of each difference, respectively). First difference regressions are performed with 2-step feasible Generalized Method of Moments (GMM) where the instrumented variable is the concentration ratio in first differences and the instrument is the concentration ratio lagged one period in order to mitigate the correlation between the regressor in first differences and the new error term arised when first-differencing the equation in levels. The sectoral markup is defined as the inverse of the complementary of the profit share for each sector. The sectoral concentration ratio is defined as the total sales of the ten largest firms of each sector divided by the total sales in that sector.

4. Unit production costs: Aggregate vs Industry-Weighted in the EA

- **The German corporate sector has the lowest unit production cost practically throughout the sample period, while in the other countries increases over time**
- **As a result, cost competitive advantages of NFCs in Germany rise over time**
- **There is consistency between the unit costs calculated with aggregate corporate data and the unit costs calculated weighting the industry data**



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4. …differences in profit shares among EA countries can be explained by differences in cost competitive advantages

- Results confirmed for different specifications at aggregate and industry levels

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Dependent variable:	log markup $_t$								
	Aggregate data: Euro area countries, 1999-2016				Sector data: Euro area countries, 2003-2012				
	OLS	Weighted OLS	GLS (random effects)	First differences	Unweighted OLS	Weighted OLS	Fixed effects	GLS (random effects)	First differences
log unit total cost $_t$	**-0.240*** **	**-0.213***	**-0.237*** **	**-0.508***	**-0.534*** **	**-0.228****	**-0.388*** **	**-0.355*** **	**-0.680*** **
	(0.000)	(0.051)	(0.000)	(0.053)	(0.000)	(0.029)	(0.000)	(0.000)	(0.000)
Constant	-	**0.110*** **	**0.120*** **	**0.008****	**0.669*** **	**0.254*** **	**0.247*** **	-	0.004
	-	(0.000)	(0.008)	(0.037)	(0.000)	(0.000)	(0.000)	-	(0.300)
Sector dummies: intercept	-	-	-	-	**Yes**	No	No	No	No
Sector dummies: slope	-	-	-	-	**Yes**	No	No	No	No
Country dummies: intercept	**Yes**	No	No	No	**Yes**	No	No	No	No
Country dummies: slope	No	No	No	No	Yes	No	No	No	No
Time dummies	Yes	Yes	Yes	No	Yes	Yes	Yes	**Yes**	No
Number of sectors	-	-	-	-	41	41	41	41	41
Number of observations	72	72	72	72	1,604	1,604	1,604	1,604	1,597
Hausman test (p-value)	-	-	0.712	-	-	-	-	**0.033**	-
Endogeneity test (p-value)	-	-	-	0.214	-	-	-	-	**0.093**

*** indicates significant at 1%; ** at 5%, and * at 10%. P-values for regression coefficients are reported in parenthesis. Standard errors, not reported, are clustered by 2-digit NACE sector, and are robust to heteroskedasticity and serial autocorrelation. P-value for the Hausman test is reported. Under the null hypothesis of this test, random effects model is preferred to fixed effects. When relevant, dummies are highlighted in bold. First difference regressions are performed with 2-step feasible Generalized Method of Moments (GMM). Data from Germany, Italy and Spain come from the full sample of firms meaning all firm sizes. For France, only data on companies with more than 20 employees are available. In Germany, we adjust the nominal capital stock by the same proportion across sectors to take into account the capital stock underestimation problem presented in the balance-sheet data of firms of this country. We exclude the pharmaceutical manufacturing sector and the land transport and transport via pipelines sector due to the strong volatility in some of the variables underlying the calculation of their markups and unit total costs in France. For the same reason, but with origin in Germany in some years, we exclude the postal and courier activities sector. Furthermore, we exclude the air transport sector as this is not available in Germany before 2005. In Spain, there are missing data up to 2007 in CompNet on the nominal capital stock and the proxy for the user cost of capital across sectors, so we take as approximation to estimate the capital shares and, therefore, the markups across sectors and the unit total costs, our capital share estimates for the corporate sector as a whole (principally, from National Accounts data). The periods are common across countries, as well as sectors in the case of industry-level regressions (41 sectors). The sectoral markup is defined as the inverse of the complementary of the profit share for each sector. The unit total cost is calculated as the labor cost (compensation of employees in nominal terms) plus the capital payments (nominal capital stock times the user cost of capital, proxied by the ratio between interest and other financial charges, and costly financial liabilities), as a fraction of the real GVA for each sector.