



CompNet

The Competitiveness Research Network

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IWH Senior fellow

Chairman of CompNet

European firm concentration and aggregate productivity

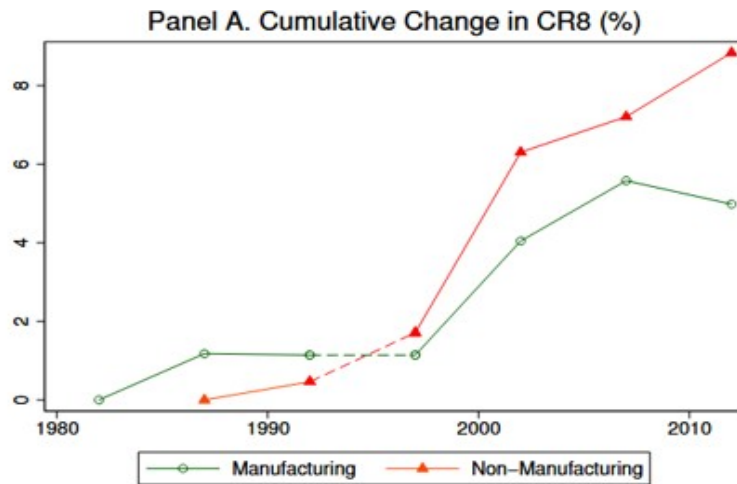
(joint with Tommaso Bighelli, Marc Melitz and Matthias Mertens)

Prague, 7 December 2022



Motivation and results

Motivation: Concentration and market power are increasing in the US



Covariubas et al. (2020)

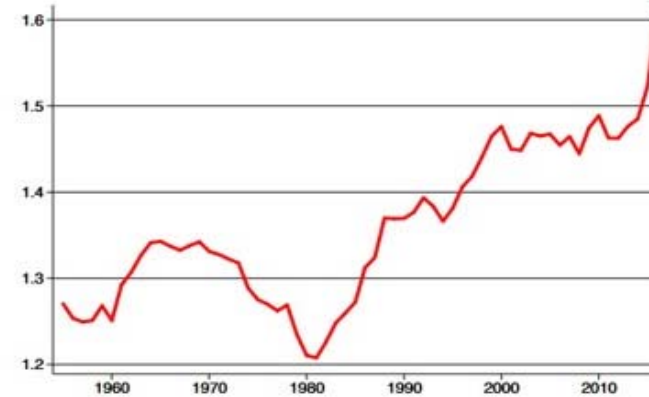


FIGURE I

Average Markups

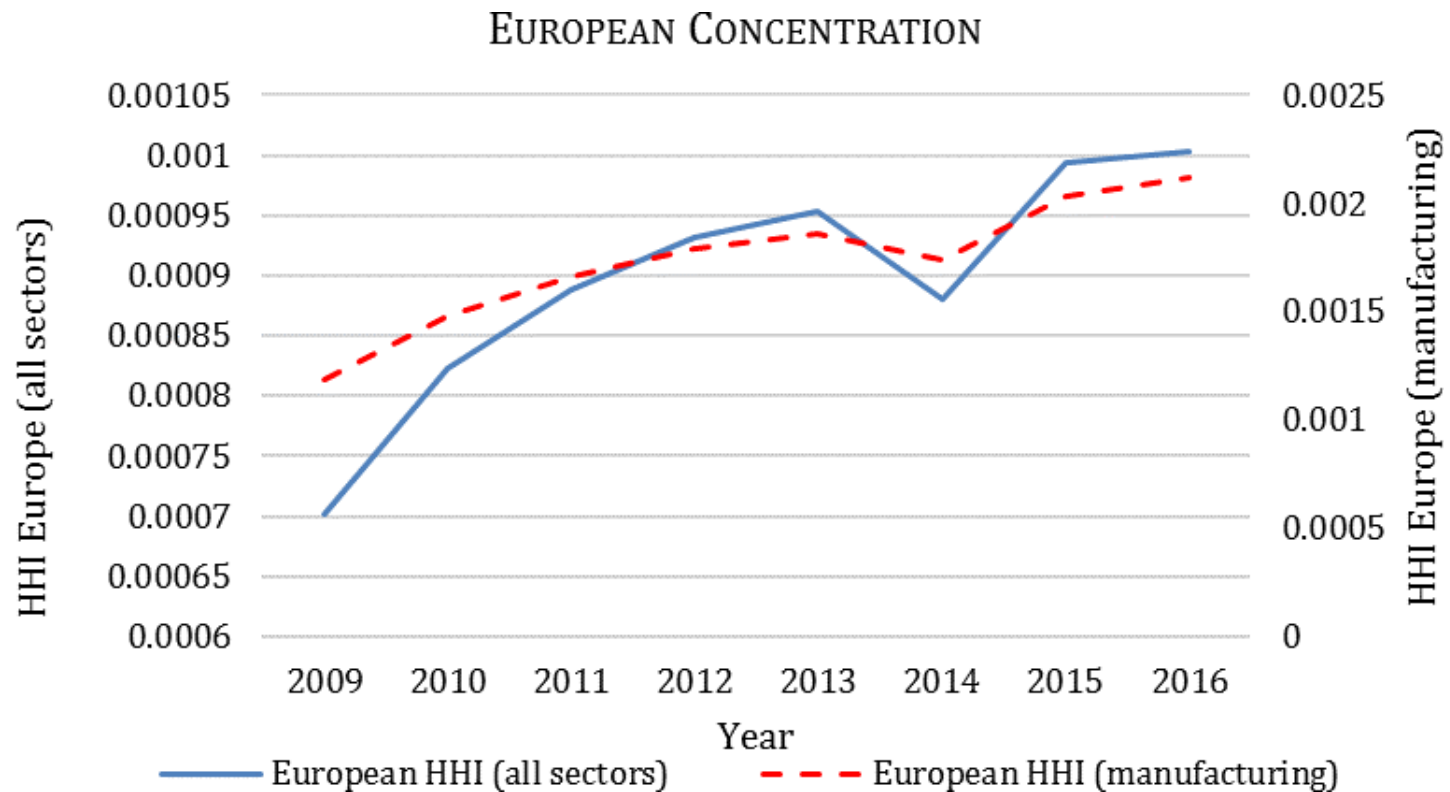
De Loecker et al. (2020)

Research questions

How has firm concentration changed in Europe?

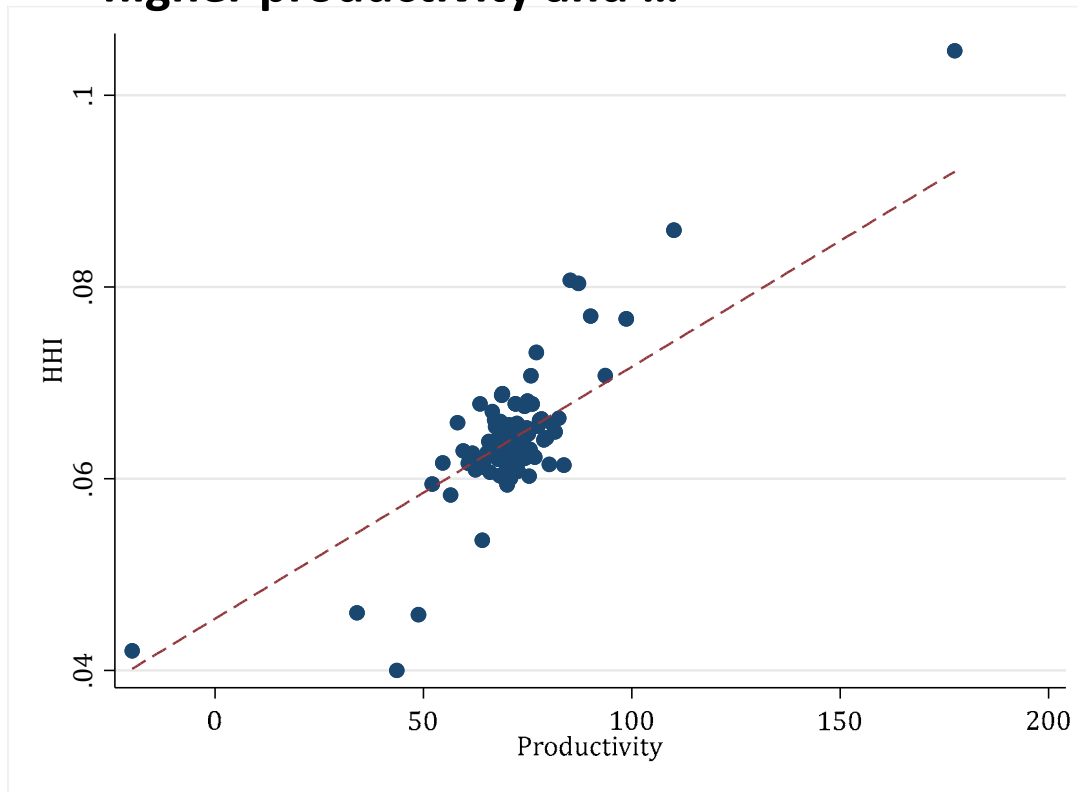
Is firm concentration in Europe an outcome of a more efficient market environment (winner-takes-all), or a reflection of higher firm market power and less competition?

Firm Concentration in Europe is rising

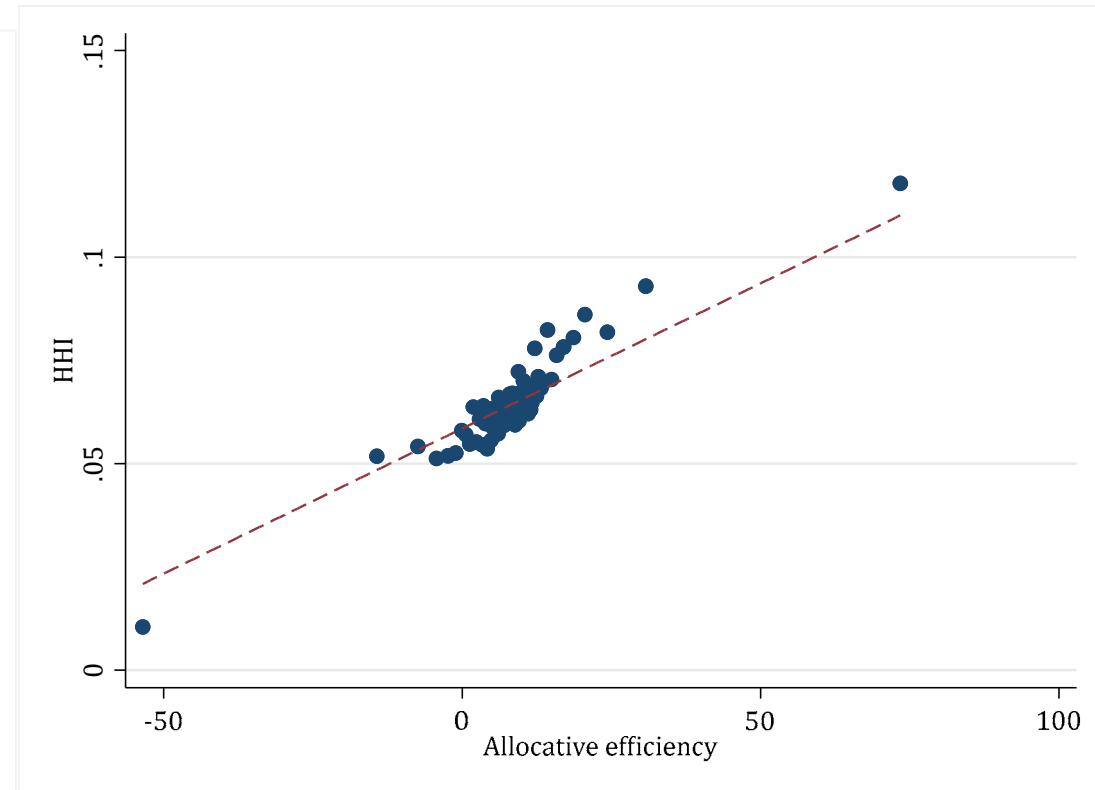


Higher concentration is associated with ..

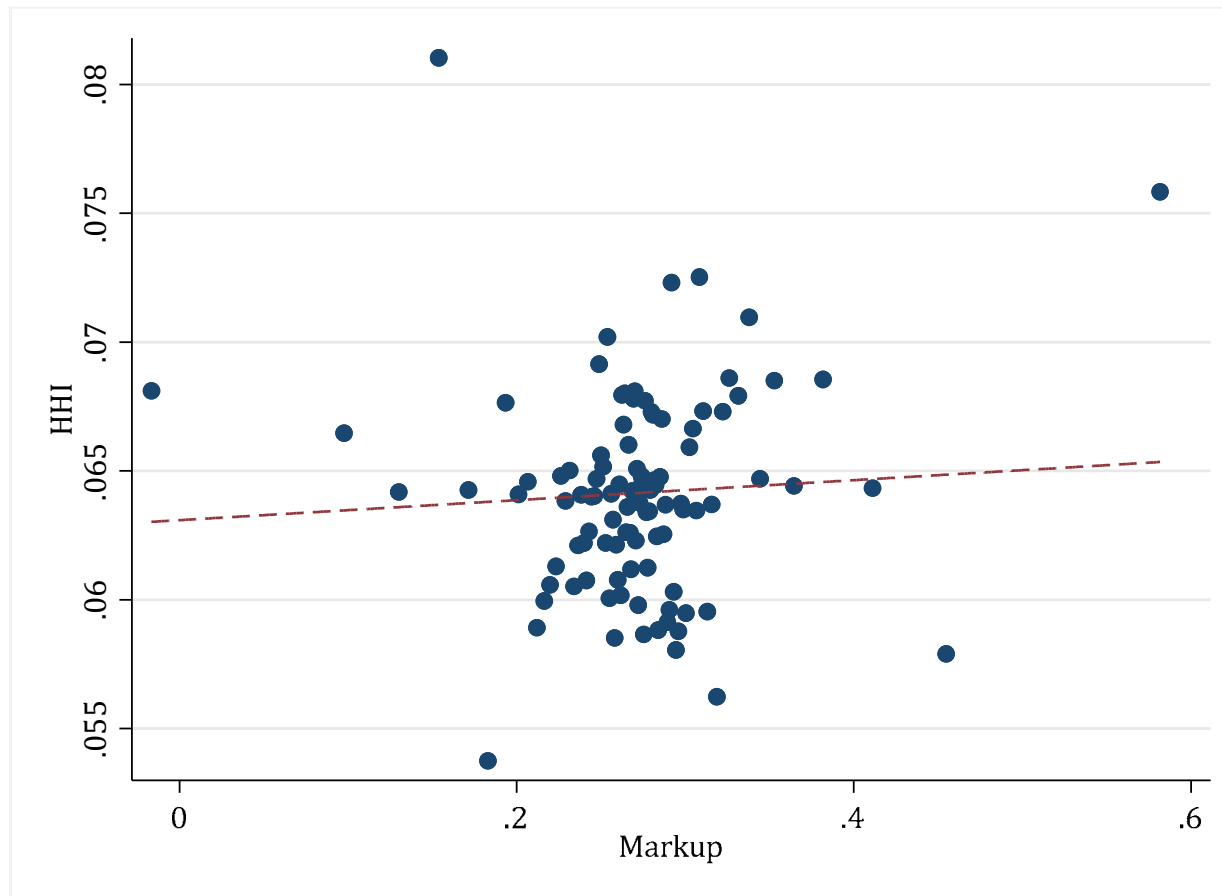
higher productivity and ...



more efficient allocation of resources



...BUT is statistically unrelated to markup changes



Summary results

- European Concentration is increasing after 2009;
- Changes in productivity and changes in concentration are positively associated, but not with Market Power;
- Rise in concentration is driven by reallocation of market share towards concentrated sectors and countries
- Germany explains the largest share of European Concentration

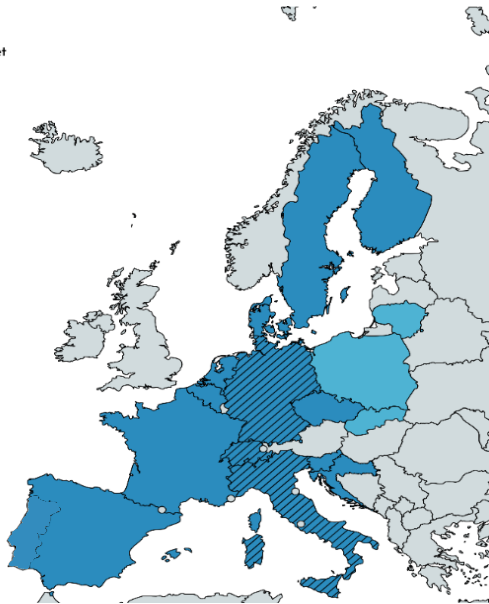
1. Derives a European concentration index from 15 independently derived micro-aggregated country datasets;
2. Tests the association between concentration, productivity and market-power using European data at 2-digits industry level ;
3. Investigates whether the observed concentration trend is the results of within/between changes;

CompNet Dataset

The CompNet Dataset

Countries included in the 7th Vintage of the CompNet Dataset

- All and 20e Sample available
- 20 Sample available
- New Data Sources



- Micro-aggregated data on firm and market performance for 19 European countries (next vintage 22-23) spanning years 1999-2018 (soon, 2020). Here up to 2017.
- Run harmonized codes on administrative firm-level data
- Rich information on firm distribution within aggregation levels on productivity drivers including concentration
- Data providers: **National statistical institutes, national central banks.**

Countries	Aggregation levels
Belgium, Croatia, Czech Republic, Denmark, Finland, France, Germany, Hungary, Italy, Lithuania, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland. New: Latvia, Malta, Lithuania, UK	Country, Macro-Sector, Macro-Sector-Size-Class, Industry 2-digits, NUTS2 [technology class, young/old firms]



Concentration in Europe

Aggregating European Concentration starting from country HHI

Define two countries, A and B, which compose the world population of firms. Define r^A the total revenue of country A and r^B the total revenue of country B.

$$\sum_{i=1}^T r_i = r^A + r^B = \sum_{i=1}^{T-k} r_i + \sum_{i=T-k+1}^T r_i$$

$$HHI^A = \sum_{i=1}^{T-k} \left(\frac{r_i}{r^A}\right)^2 \quad HHI^B = \sum_{i=T-k+1}^T \left(\frac{r_i}{r^B}\right)^2$$

$$HHI = \sum_{i=1}^N s_i^2 \quad \left[\frac{1}{N}, M\right]$$

Aggregating European Concentration starting from country HHI

The World HHI is given by:

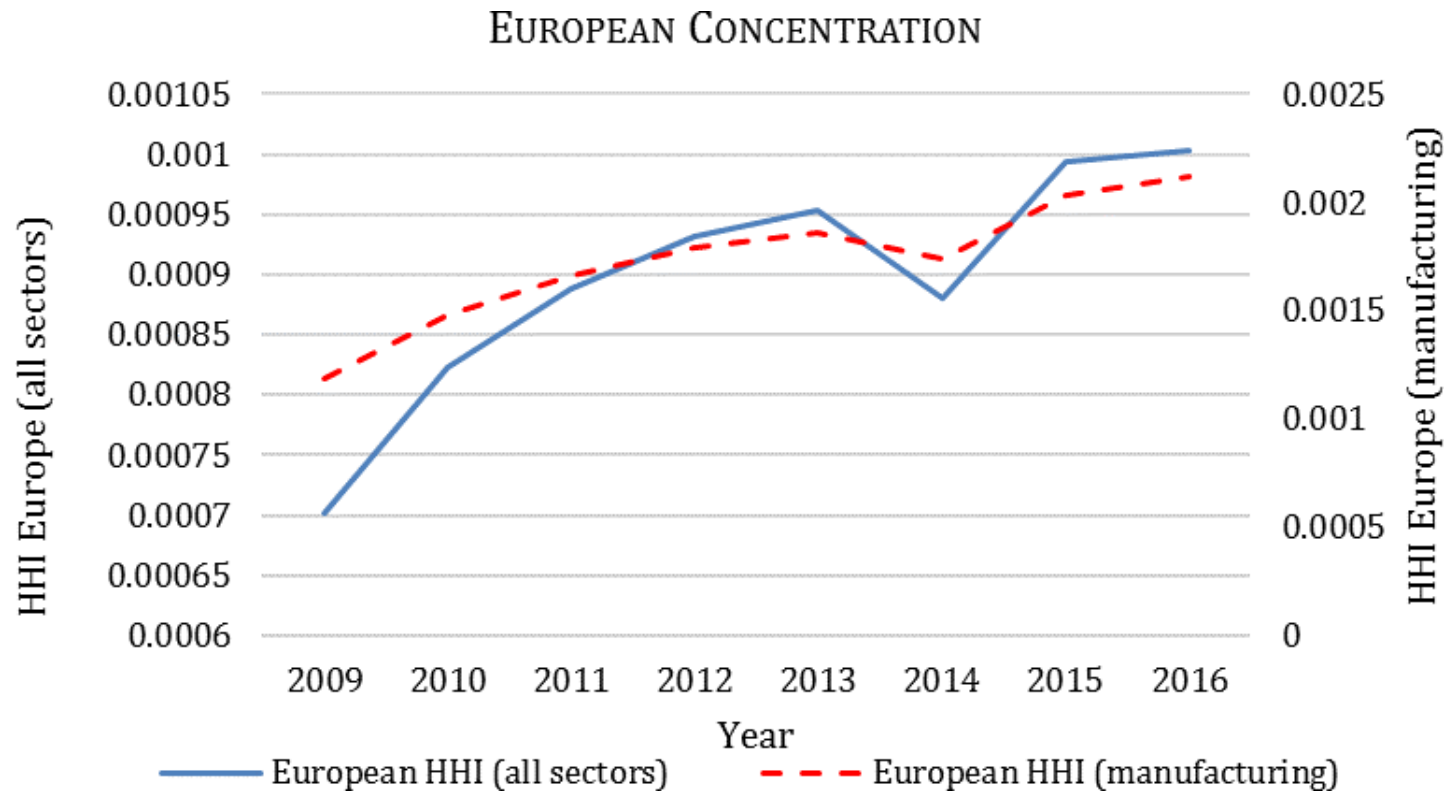
$$HHI = \sum_{i=1}^T \left(\frac{r_i}{\sum_{i=1}^T r_i} \right)^2 = \sum_{i=1}^{T-k} \frac{r_i^2}{(\sum_{i=1}^T r_i)^2} + \sum_{i=T-k+1}^T \frac{r_i^2}{(\sum_{i=1}^T r_i)^2} \quad (3)$$

Which can be rewritten as:

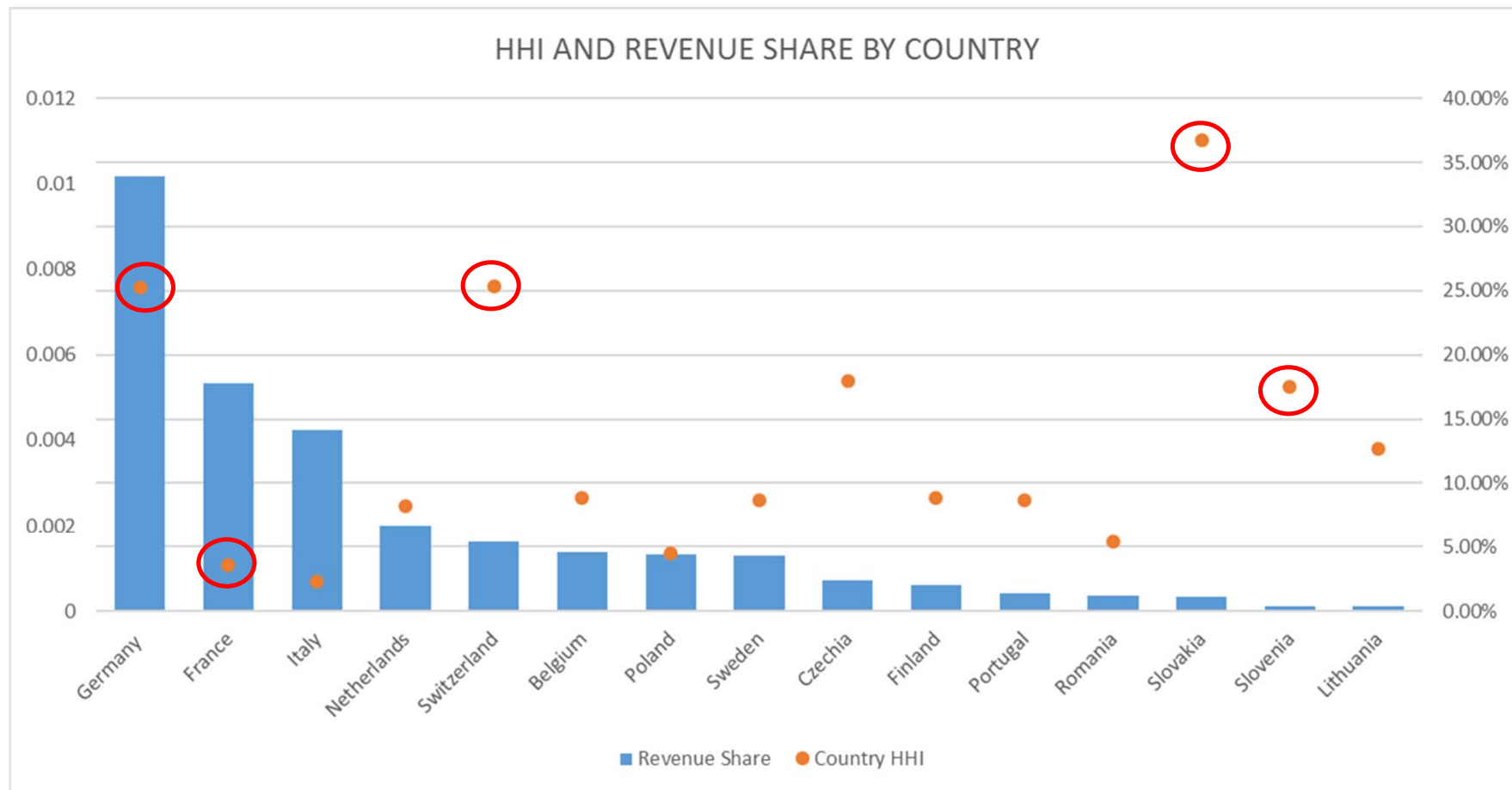
$$HHI = \sum_{i=1}^{T-k} \left(\frac{r_i}{r^A} \right)^2 \left(\frac{r^A}{\sum_{i=1}^T r_i} \right)^2 + \sum_{i=T-k+1}^T \left(\frac{r_i}{r^B} \right)^2 \left(\frac{r^B}{\sum_{i=1}^T r_i} \right)^2 \quad (4)$$

$$HHI = HHI^A \left(\frac{r^A}{r^A + r^B} \right)^2 + HHI^B \left(\frac{r^B}{r^A + r^B} \right)^2 \quad (5)$$

European Concentration Aggregated



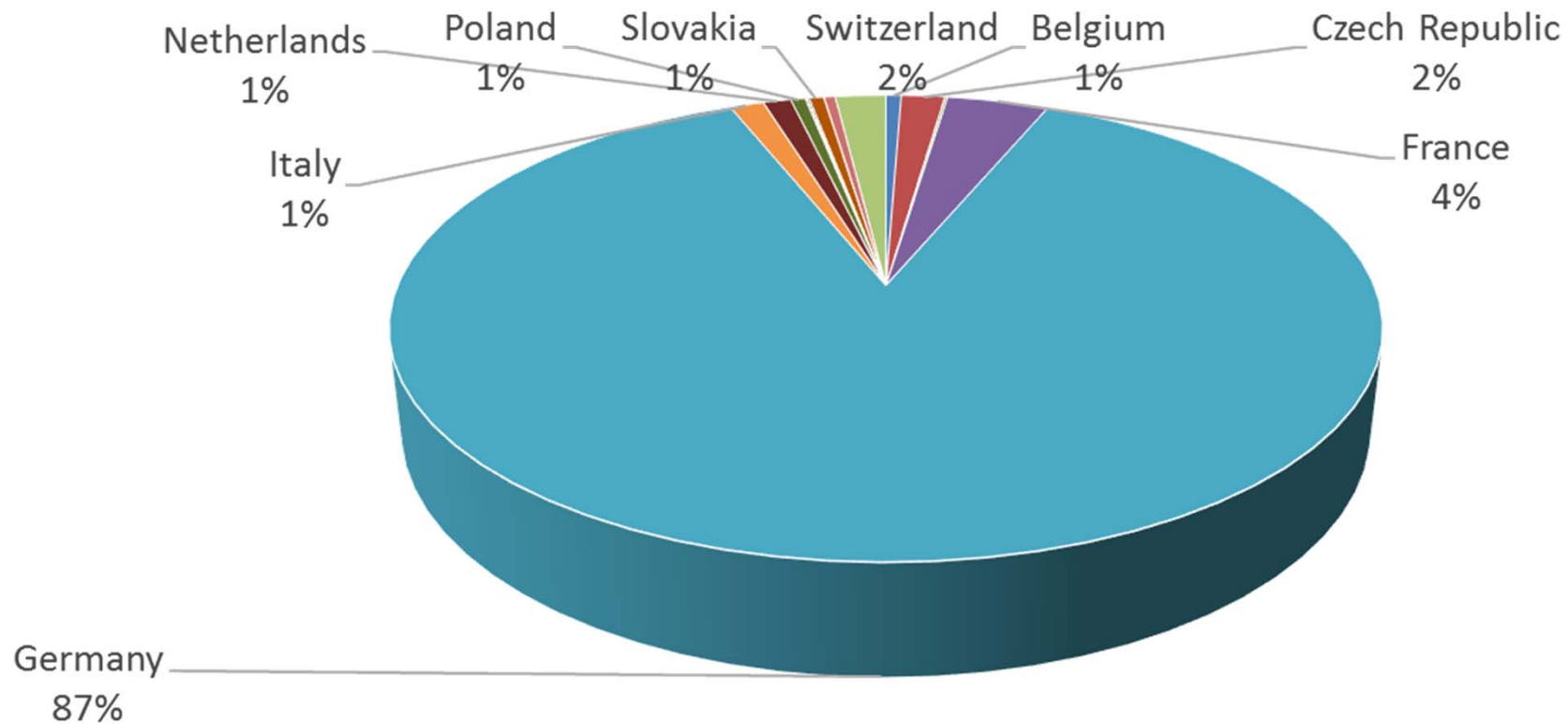
Concentration derives from national concentration and size of the country



Country contribution to European HHI

Country	HHI contribution 2009 (in %) (1)	HHI contribution 2016 (in %) (2)	HHI 2009 (times 100) (3)	HHI 2016 (times 100) (4)	Revenue Share 2009 (in %) (5)	Revenue Share 2016 (in %) (6)
Belgium	0.71	0.57	0.37	0.45	3.66	3.57
Czech Republic	1.15	1.63	0.57	0.99	3.76	4.07
Finland	0.31	0.10	0.95	0.54	1.52	1.38
France	5.24	3.79	0.19	0.23	13.75	12.85
Germany	69.05	84.12	0.47	0.71	31.99	34.47
Italy	4.04	1.27	0.18	0.11	12.42	10.79
Lithuania	0.01	0.01	0.50	0.31	0.36	0.49
Netherlands	2.34	1.03	0.77	0.50	4.63	4.55
Poland	0.79	0.54	0.16	0.11	5.83	6.90
Portugal	0.12	0.07	0.34	0.32	1.59	1.46
Romania	0.25	0.08	0.49	0.18	1.90	2.08
Slovakia	0.37	0.54	1.29	2.09	1.41	1.61
Spain	12.70	3.94	0.76	0.49	10.87	9.01
Sweden	0.80	0.42	0.68	0.56	2.89	2.74
Switzerland	2.10	1.89	1.26	1.17	3.42	4.03
Europe	100	100	0.07	0.10	100	100

Market concentration in Europe is mostly related to Germany



Concentration and Markups by Country

Country	Average HHI (times 100) (1)	Δ HHI (times 100) (2)	Average Markup (3)	Δ Markup (4)
Belgium (2003-2017)	0.45	-0.03	1.14	0.04
Czech Republic (2005-2017)	0.80	0.37	1.14	0.08
Finland (1999-2017)	0.73	-0.35	1.09	0.05
France (2004-2016)	0.20	0.09	1.32	0.07
Germany (2003-2016)	0.62	0.05	1.10	0.04
Italy (2006-2016)	0.13	0.02	1.47	0.05
Lithuania (2000-2016)	0.54	-0.35	1.12	0.06
Netherlands (2007-2017)*	0.78	-1.10	1.11	0.01
Poland (2005-2017)	0.16	-0.11	1.17	0.03
Portugal (2004-2017)**	0.36	-0.02	1.21	-0.01
Romania (2005-2016)	0.40	-0.36	1.12	0.01
Slovakia (2000-2017)	2.50	-1.34	1.12	0.06
Spain (2008-2017)	0.56	-0.26	1.25	0.00
Sweden (2008-2016)	0.60	-0.06	1.27	-0.02
Switzerland (2009-2017)	1.21	0.26	1.23	-0.02
Europe (2009-2016)	0.09	0.03	1.18	0.01



Empirical analysis

Labor Productivity is decomposed as in Olley-Pakes (1996)

$$y_{n,s,t} = \bar{y}_{n,s,t} + \sum (y_{it} - \bar{y}_{st}) (l_{it} - \bar{l}_{st})$$

PRODUCTIVITY DYNAMICS			
Year	Aggregate productivity growth (in %)	Contribution within-firm changes (in percentage points)	Contribution reallocation processes (in percentage points)
	(1)	(2)	(3)
2009	-	-	-
2010	5.71	3.46	2.25
2011	0.73	1.60	-0.87
2012	-0.17	-0.81	0.64
2013	-0.12	-0.01	-0.10
2014	0.32	0.59	-0.27
2015	0.11	-0.51	0.62
2016	0.84	-0.38	1.22
2009-2016	7.5	3.94	3.59

- Industry 2-digits data, panel of 15 countries, 2000-2017, 20e firms
- $HHI_{n,s,t} = \alpha + \beta_1 LProductivity_{n,s,t} + \beta_2 \log PMP_{n,s,t} + \log X_{n,s,t} + r_{n,s,t}$
- X is a vector of controls: Median Firm size, Capital/labor ratio, year FE, country-industry FE
- SE clustered at industry level

Results

	HHI (1)	HHI (2)	HHI (3)
Aggregate Productivity	0.026*** (0.006)		
Within-firm productivity		-0.008 (0.007)	
Between-firm productivity			0.069*** (0.020)
K/L	-0.003 (0.002)	-0.001 (0.001)	-0.002 (0.002)
log Avg. Firm size	4.493** (1.718)	4.183 (1.697)	4.332*** (1.567)
log PMP	0.768 (1.496)	3.394 (2.097)	-0.123 (1.327)
Observations	6,364	6,364	6,364
R-squared	0.799	0.793	0.812
# of Clusters	47	47	47

SE clustered at industry level in parentheses

*** p<0.01, ** p<0.05, * p<0.1

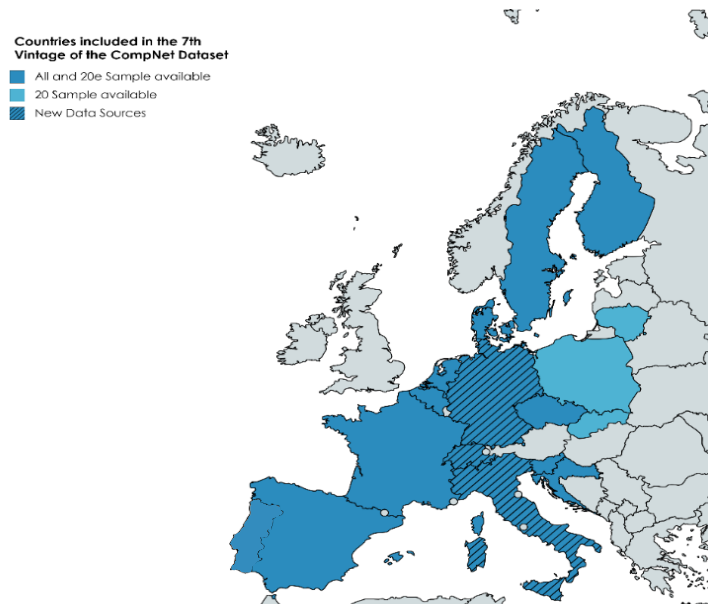
Conclusion

- European Concentration is increasing over the last 10 years;
- This increasing trend is related to productivity and allocative efficiency
- It is the results of *reallocation* of market shares towards more concentrated sectors and countries;



Appendix 1 – CompNet Dataset

The CompNet Dataset



- Micro-aggregated data on firm and market performance measure for 19 European countries (next vintage 22-23) spanning years 1999-2018 (soon, 2020). Yearly and sectoral coverage varies.
- Run harmonized codes on administrative firm-level data that construct aggregate results.
- Rich information on firm distribution within aggregation levels.
- Perfectly suited when no direct access to firm-level data is necessary (incl. Validation of individual country results)
- Data providers: **National statistical institutes, national central banks.**

Countries	Aggregation levels
Belgium, Croatia, Czech Republic, Denmark, Finland, France, Germany, Hungary, Italy, Lithuania, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland. New: Latvia, Malta, Lithuania, UK	Country, Macro-Sector, Macro-Sector-Size-Class, Industry 2-digits, NUTS2 [technology class, young/old firms]

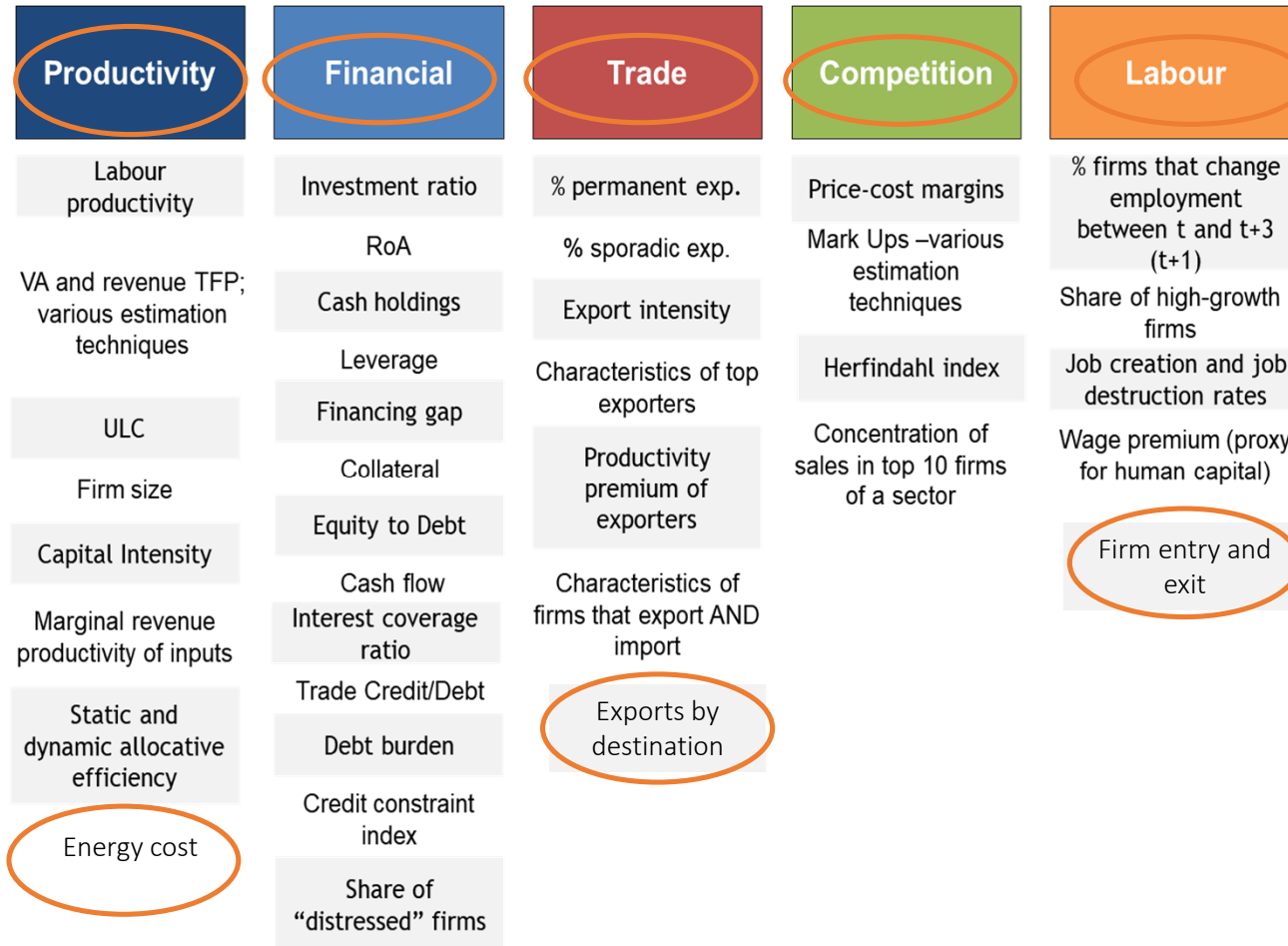
7^o vintage CompNet – used for this Paper

COUNTRY AND SECTOR COVERAGE					
Panel A: Country Coverage					
Country	Years	Number firms first year CompNet	Number firms last year CompNet	Population number firms First year	Population number firms Last year
	(1)	(2)	(3)	(4)	(5)
Belgium	2003-2017	4,462	7,129	8,092	8,873
Czech Republic	2005-2017	7,480	6,825	11,848	12,808
Finland	1999-2017	3,937	5,730	3,940	5,735
France	2004-2016	45,497	44,872	45,598	44,862
Germany*	2003-2016	D	D	70,103	104,288
Italy	2006-2016	38,127	40,563	48,866	46,493
Lithuania	2000-2016	2,537	3,531	2,539	3,550
Netherlands**	2007-2017	10,875	13,013	10,884	13,022
Poland	2005-2017	14,026	18,345	20,095	24,492
Portugal	2004-2017	11,006	10,531	11,033	10,561
Romania**	2005-2016	13,727	13,328	14,185	14,284
Slovakia	2000-2017	1,652	4,360	3,960	4,621
Spain	2008-2017	13,198	16,205	40,136	34,234
Sweden	2008-2016	8,533	8,894	8,861	10,061
Switzerland	2009-2017	4,296	4,089	8,922	10,337
TOTAL	2009-2016	191,711	195,142	323,550	344,623

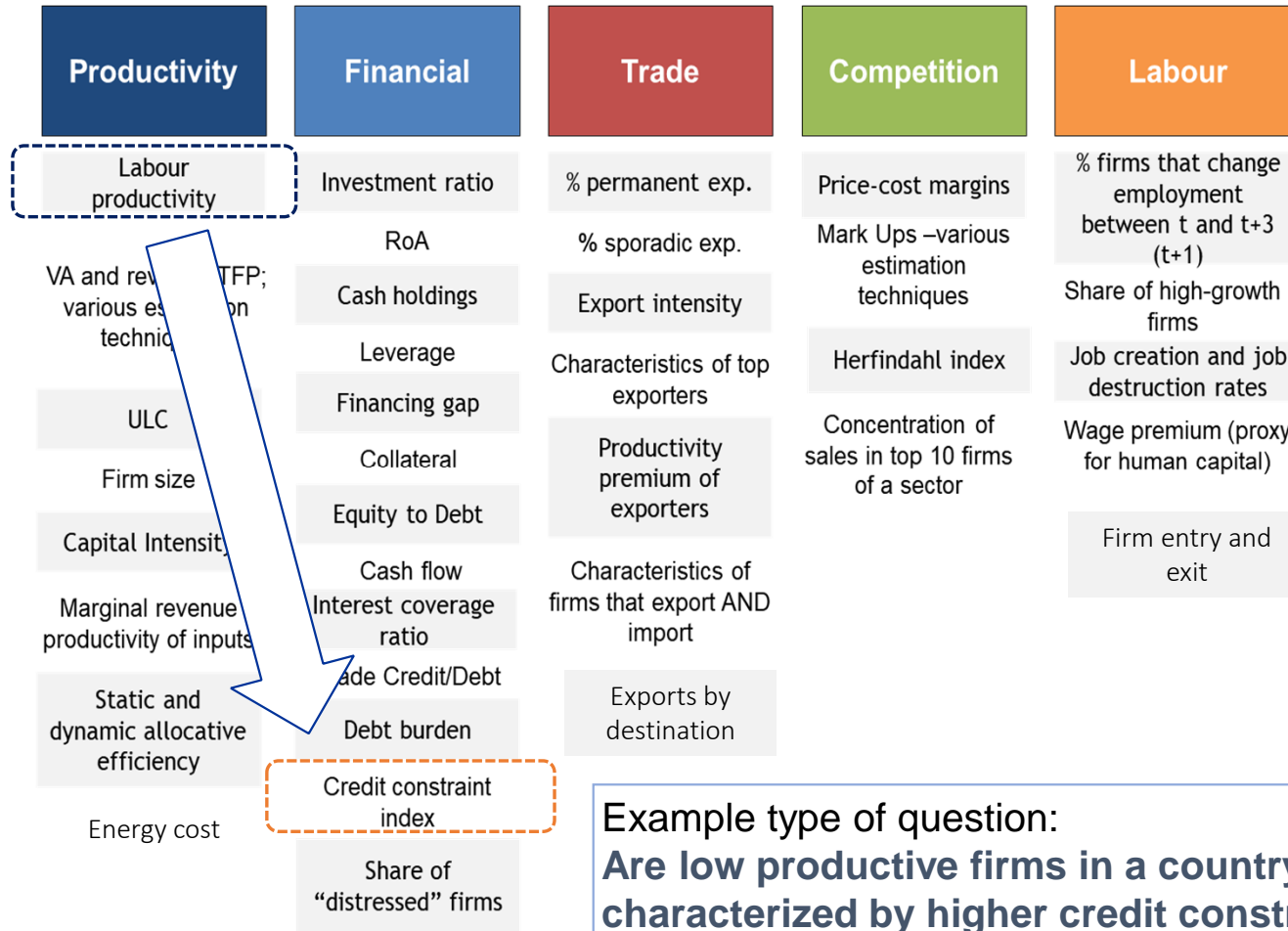
The 8th Vintage of the CompNet Dataset – country coverage

Country	All firm sample	20e firm sample	Available years
Belgium	X	X	2002-2018
Croatia	X	X	2002-2019
Czech Republic	X	X	2005-2019
Denmark	X	X	2001-2018
Finland	X	X	1999-2019
France		X	2004-2018
Germany	X (for some sectors)	X	2001-2017
Hungary	X	X	2003-2019
Italy	X	X	2006-2018
Lithuania	X	X	2000-2019
Netherlands	X	X	2007-2018
Poland		X	2002-2019
Portugal	X	X	2004-2018
Romania		X	2007-2019
Slovakia		X	2000-2019
Slovenia	X	X	2002-2019
Spain	X	X	2008-2018
Sweden	X	X	2003-2019
Switzerland	x	x	2009-2018

The 8th Vintage of the CompNet Dataset - variables



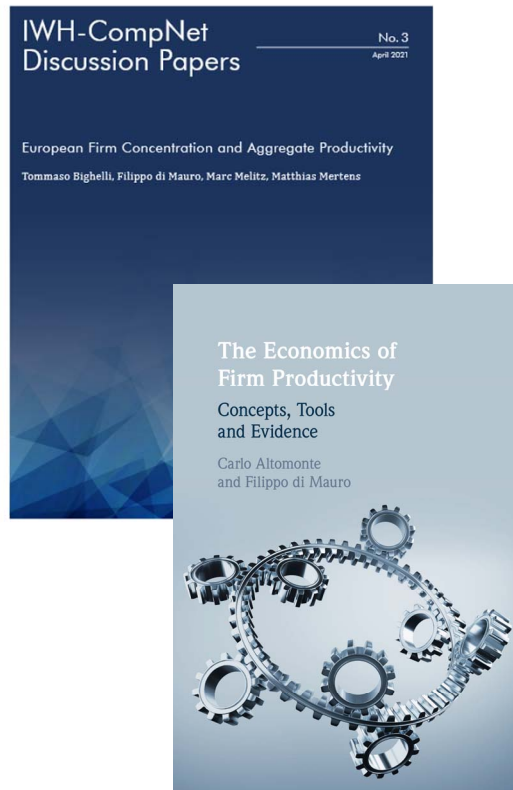
Example of joint distributions



CompNet is used widely for policy and research work

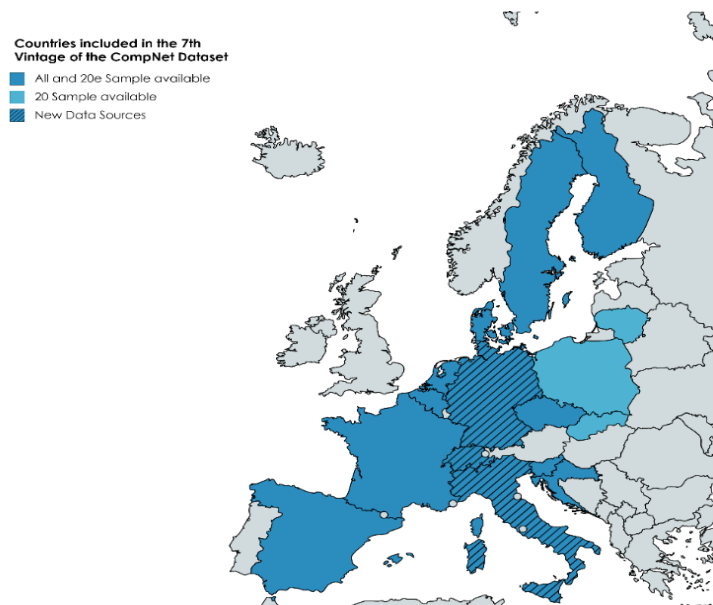


CompNet
The Competitiveness Research Network



- Wide range of users in policy and academia (e.g., Autor et al. (2020), Gutiérrez & Piton (2020),...)
- Our latest publications with the data:
 - Bighelli et al. (2022) forthcoming in JEEA
 - Book on Economics of Firm productivity
- In addition, several working papers/work in progress

The 9th vintage data collection is running



- 9th vintage has started in Summer 2022 and we expect to receive output by end of October 2022.
- Some issues in data provision remain (Poland, Germany).
- Depending on solving these issues, we expect to release the data during the first half of 2023.
- Major updates:
 - Improved methodology to estimate market power and productivity
 - New statistics on business dynamism
 - Separate statistics for young/old firms
 - Update to first year of Covid-19 pandemic for several countries
 - Updated deflators, solving smaller bugs,....



Appendix 2 - Building an EU concentration index

Deriving European Concentration based on HHI

$$HHI = \sum_{i=1}^N s_i^2 \quad \left[\frac{1}{N}, N\right]$$

Define two countries, A and B, which compose the world population of firms. Define r^A the total revenue of country A and r^B the total revenue of country B.

$$\sum_{i=1}^T r_i = r^A + r^B = \sum_{i=1}^{T-k} r_i + \sum_{i=T-k+1}^T r_i \quad (1)$$

Deriving European Concentration based on HHI

$$HHI = \sum_{i=1}^N s_i^2 \quad \left[\frac{1}{N}, N \right]$$

Define two countries, A and B, which compose the world population of firms. Define r^A the total revenue of country A and r^B the total revenue of country B.

$$\sum_{i=1}^T r_i = r^A + r^B = \sum_{i=1}^{T-k} r_i + \sum_{i=T-k+1}^T r_i \quad (1)$$

$$HHI^A = \sum_{i=1}^{T-k} \left(\frac{r_i}{r^A} \right)^2 \quad HHI^B = \sum_{i=T-k+1}^T \left(\frac{r_i}{r^B} \right)^2 \quad (2)$$

The World HHI is given by:

$$HHI = \sum_{i=1}^T \left(\frac{r_i}{\sum_{i=1}^T r_i} \right)^2 = \sum_{i=1}^{T-k} \frac{r_i^2}{(\sum_{i=1}^T r_i)^2} + \sum_{i=T-k+1}^T \frac{r_i^2}{(\sum_{i=1}^T r_i)^2} \quad (3)$$

Which can be rewritten as:

$$HHI = \sum_{i=1}^{T-k} \left(\frac{r_i}{r^A} \right)^2 \left(\frac{r^A}{\sum_{i=1}^T r_i} \right)^2 + \sum_{i=T-k+1}^T \left(\frac{r_i}{r^B} \right)^2 \left(\frac{r^B}{\sum_{i=1}^T r_i} \right)^2 \quad (4)$$

$$HHI = HHI^A \left(\frac{r^A}{r^A + r^B} \right)^2 + HHI^B \left(\frac{r^B}{r^A + r^B} \right)^2 \quad (5)$$

Appendix 3 – Decomposing the HHI

Decomposing the HHI

For each country c we have:

$$HHI = \sum_{c=1}^C \left(HHI_c \left(\frac{r_j}{\sum_{i=1}^T r_i} \right)^2 \right) = \sum_{c=1}^C HHI_c s_c \quad (6)$$

$$= \sum_{c=1}^C \left(HHI_c + \bar{HHI} - \bar{HHI} \right) \left(s_c + \bar{s} - \bar{s} \right) \quad (7)$$

$$= N * \bar{s} * \bar{HHI} + \sum_{c=1}^C \left(HHI_c - \bar{HHI} \right) \left(s_c - \bar{s} \right) \quad (8)$$

$$= N * \bar{s} * \bar{HHI} + cov(HHI_c, s_c) \quad (9)$$

Appendix 4 – Additional charts/tables related to this paper

Fixed Effect Results by Country

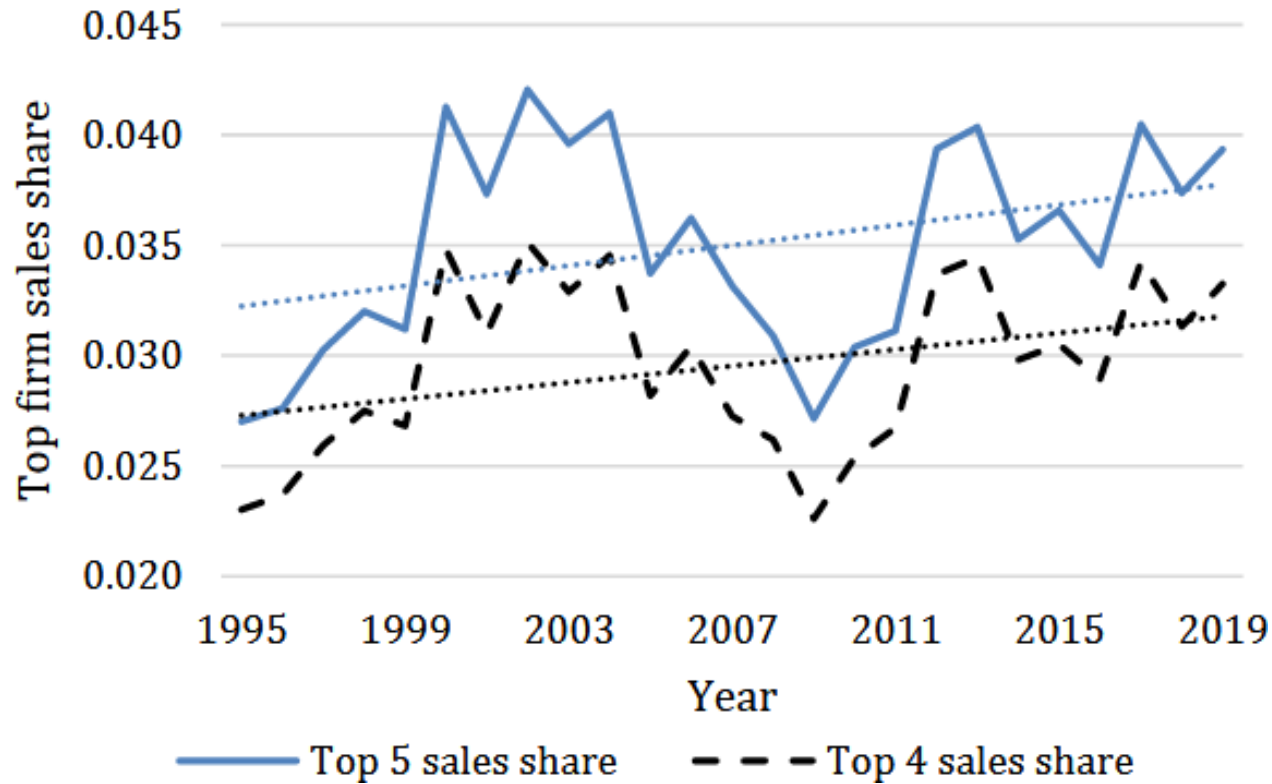
CONCENTRATION AND PRODUCTIVITY			
	<i>Aggregate productivity_{jt}</i>	<i>Within – firm productivity_{jt}</i>	<i>Between – firm productivity_{jt}</i>
	(1)	(2)	(3)
Belgium	0.0117 (0.00876)	0.00540 (0.00710)	0.0553* (0.0277)
Czech Republic	0.0430 (0.0361)	-0.00869 (0.0304)	0.168** (0.0696)
Finland	0.0768*** (0.0251)	0.110*** (0.0199)	0.136*** (0.0420)
France	0.0494*** (0.00997)	0.0345* (0.0204)	0.0692*** (0.00967)
Germany	0.0248*** (0.00718)	0.00647 (0.0195)	0.0522*** (0.0154)
Italy	0.00946 (0.00924)	0.00500 (0.0115)	0.0138 (0.0175)
Lithuania	-0.0117 (0.0794)	-0.148** (0.0547)	0.266** (0.114)
Netherlands	0.167* (0.0810)	-0.177 (0.119)	0.254** (0.100)
Poland	0.0372 (0.0370)	-0.0121 (0.0320)	0.0968 (0.0639)
Portugal	0.0797** (0.0361)	-0.0370 (0.0346)	0.145*** (0.0395)
Romania	-0.0116 (0.0245)	-0.0492* (0.0265)	0.0858* (0.0488)
Slovakia	-0.0349*** (0.00564)	-0.0426*** (0.00631)	-0.0152 (0.0849)
Spain	0.0107 (0.00917)	-0.0114 (0.0166)	0.0388* (0.0211)
Sweden	0.0192 (0.0231)	-0.0284*** (0.00939)	0.0635 (0.0460)
Switzerland	0.104 (0.0681)	0.0827 (0.0660)	0.105 (0.0695)

Fixed Effect Results by Macro-Sectors

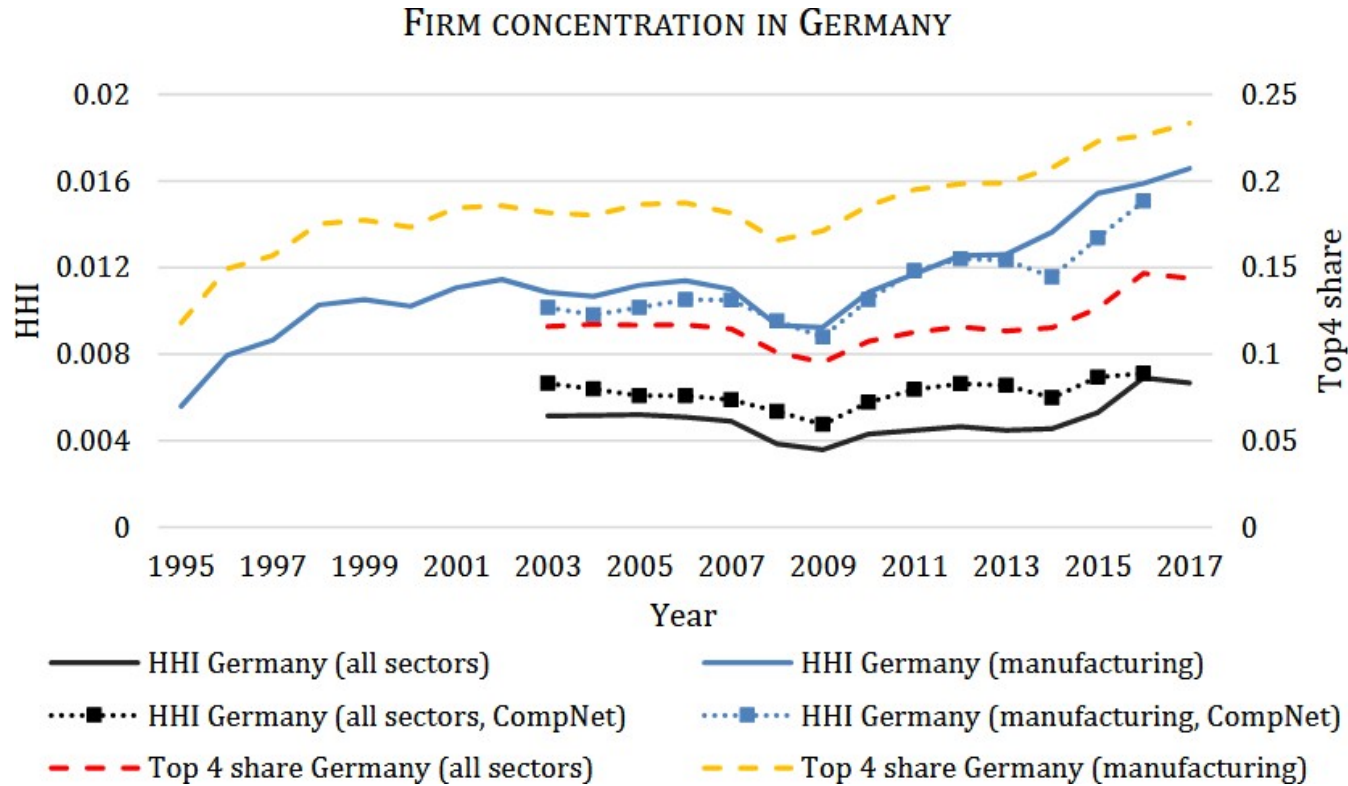
	CONCENTRATION AND PRODUCTIVITY		
	<i>Aggregate productivity_{jt}</i>	<i>Within – firm productivity_{jt}</i>	<i>Between – firm productivity_{jt}</i>
	(1)	(2)	(2)
Manufacturing	0.0337* (0.0165)	-0.00897 (0.0112)	0.212*** (0.0590)
Transportation, storage	0.0178*** (0.00124)	-0.0114 (0.00613)	0.0412*** (0.00185)
Information, communication	0.0253* (0.0121)	-0.0116 (0.0192)	0.0626** (0.0174)
Real estate*	0.00914 (-)	-0.0120 (-)	0.0355 (-)
Professional, scientific, technical activities	0.0442 (0.0335)	-0.0128 (0.0125)	0.0915 (0.0672)
Administrative, support service activities	0.0215 (0.0162)	-0.00620 (0.0285)	0.0048* (0.0111)
High-tech, knowledge intensive	0.0306*** (0.0101)	-0.0121* (0.00656)	0.0750** (0.0278)
Low-tech, not knowledge intensive	0.0164** (0.00698)	0.00706 (0.00541)	0.0447** (0.0170)

European Firm concentration based on worldscope data

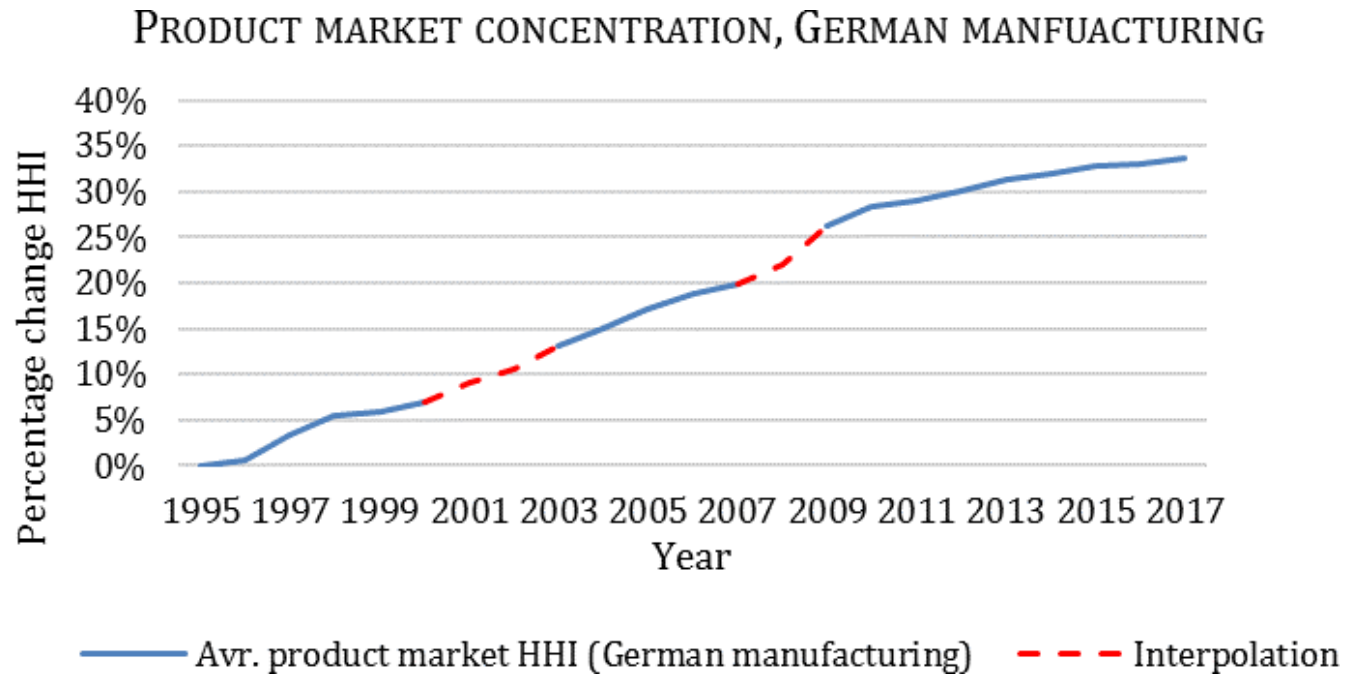
EUROPEAN FIRM CONCENTRATION BASED ON WORLDSCOPE DATA



Firm concentration in Germany



Product market concentration, German Manufacturing



Country–sector contribution to European HHI 2009-2016

TABLE H.4.1

COUNTRY-SECTOR CONTRIBUTION TO EUROPEAN HHI 2009-2016, LEVELS AND CHANGES			
Top 5 (average 2009-2016) (1)	Bottom 5 (average 2009- 2016) (2)	Top 5 changes (2009-2016) (3)	Bottom 5 changes (2009-2016) (4)
Germany -Manufacturing (74.98%)	Lithuania – Real estate (0.00002%)	Germany – Manufacturing (17.66%)	Spain – ICT (-5.50%)
Spain – ICT (2.79%)	Lithuania – Professional, scientific, technical activities (0.0004%)	Czech Republic – Manufacturing (0.56%)	Spain – Manufacturing (-2.64%)
Germany – ICT (2.66%)	Slovakia – Real estate (0.0004%)	France – Transportation and storage (0.27%)	Germany – ICT (-2.37%)
Spain – Manufacturing (2.42%)	Belgium – Real estate (0.0005%)	Slovakia – Manufacturing (0.18%)	Italy – ICT (-1.75%)
France – ICT (1.99%)	Lithuania – Administrative, support service activities (0.0007%)	Germany– Administrative, support service activities (0.12%)	France – ICT (-1.34%)

Cost-weighted Markups based on intermediates (De Loecker and Warzynski (2012), Mertens (2020)):

$$\mu_{it}^M = \alpha_{it}^M \frac{P_{it} Q_{it}}{P_{it}^M M_{it}} \quad (10)$$


Derived from OLS estimation of a translog production function for each 2-digit industries in each country

Results

	HHI	HHI	HHI
	(1)	(2)	(3)
Aggregate Productivity	0.025***		
Within-firm productivity		-0.007 (0.007)	
Between-firm productivity			0.069*** (0.021)
K/L	-0.003 (0.002)	-0.001 (0.001)	-0.002 (0.002)
Observations	6,364	6,364	6,364
R-squared	0.791	0.785	0.805
# of Clusters	47	47	47

SE Clustered at industry level in parentheses

*** p<0.01, ** p<0.05, * p<0.1



Appendix 5 - Literature


- ▶ Van Reenen (2018): concentration and higher technology, higher productivity and efficiency
- ▶ Autor et al. (2019, QJE): superstar firms, sector concentration and productivity growth;
- ▶ Crouzet and Eberly (2019): intangibles are positively associated with concentration
- ▶ Rossi-Hansberg et al. (2020): *increasing* U.S. national concentration VS *decreasing* local concentration;
- ▶ Philippon et al. (2019): *efficient* concentration during 90s VS *inefficient* concentration during 00s

- ▶ Grullon (2019, *Review of Finance*): concentration, profits, markups, weaker US antitrust policies;
- ▶ De Loecker et. al (2020, QJE): increasing within sector markup in the US

European Studies:

- ▶ Cavalleri et al. (2019): flat concentration trends in Germany, France, Spain and Italy since 2006 (ORBIS);
- ▶ Bajgar et al. (2019): increase in concentration in Europe since 2000 (Multiprod);

- ▶ Van Reenen (2018): concentration and higher technology, higher productivity and efficiency
- ▶ Autor et al. (2019, QJE): superstar firms, sector concentration and productivity growth;
- ▶ Crouzet and Eberly (2019): intangibles are positively associated with concentration
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Appendix 6 – Comments paper

1- Definition of Competition

• Crescioli and Martelli →

- 1 The Euro, by fostering trade openness (e.g. Gunnella et al. 2021), increases foreign competition.
- 2 Superstar firms (i.e., highly productive firms) expand at the expense of low-productivity enterprises.
- 3 Consequently, competition deteriorates in the long run.

Bighelli et al →

- Competition is NOT measured by the number of firms.
- At the contrary, Schumpeterian creative destruction (of less productive firms) is GOOD,
- to the extent that it improves aggregate productivity via better resource allocation

Suggestion to the authors

➔ Have you tried to measure the effect of euro adoption on productivity, considering it as the dependent variable?

2 - Definitions of mark up

.....methods following Hall (1988) (including recent methods such as De Loecker and Warzynski (2012)) struggle to

- a) account for **changing capital shares**– a substantial problem when considering long periods, including the recent shift towards intangible capital. (**Philippon and Gutierrez (2017)**)
- b) without firm-specific price information they are open to the critique by Bond et al (2021)

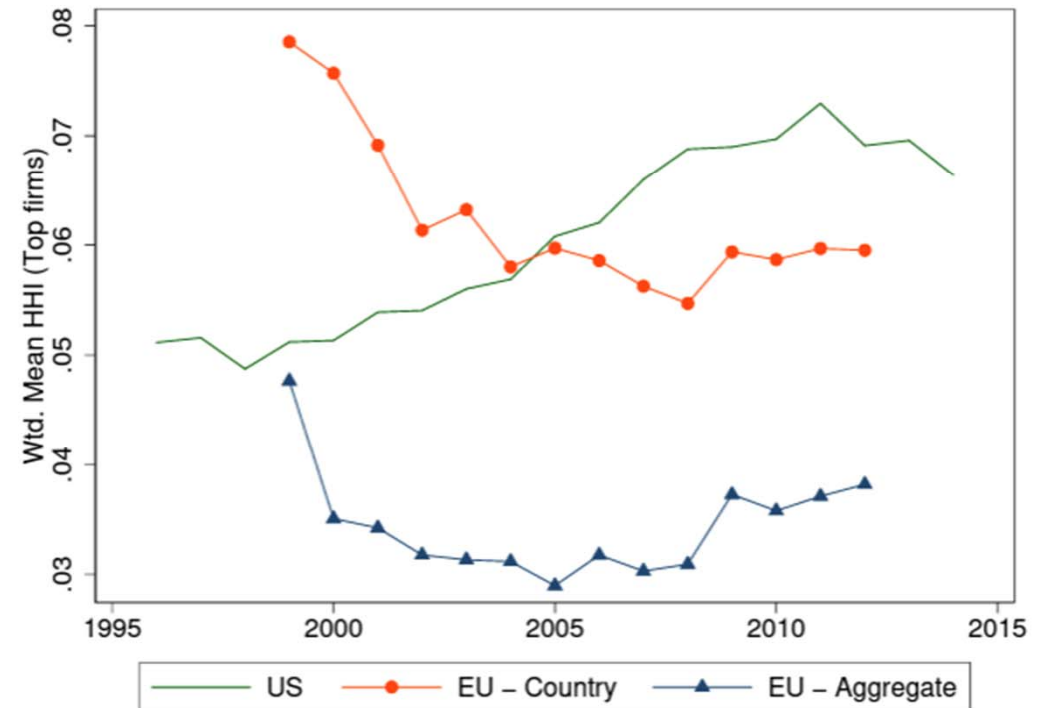
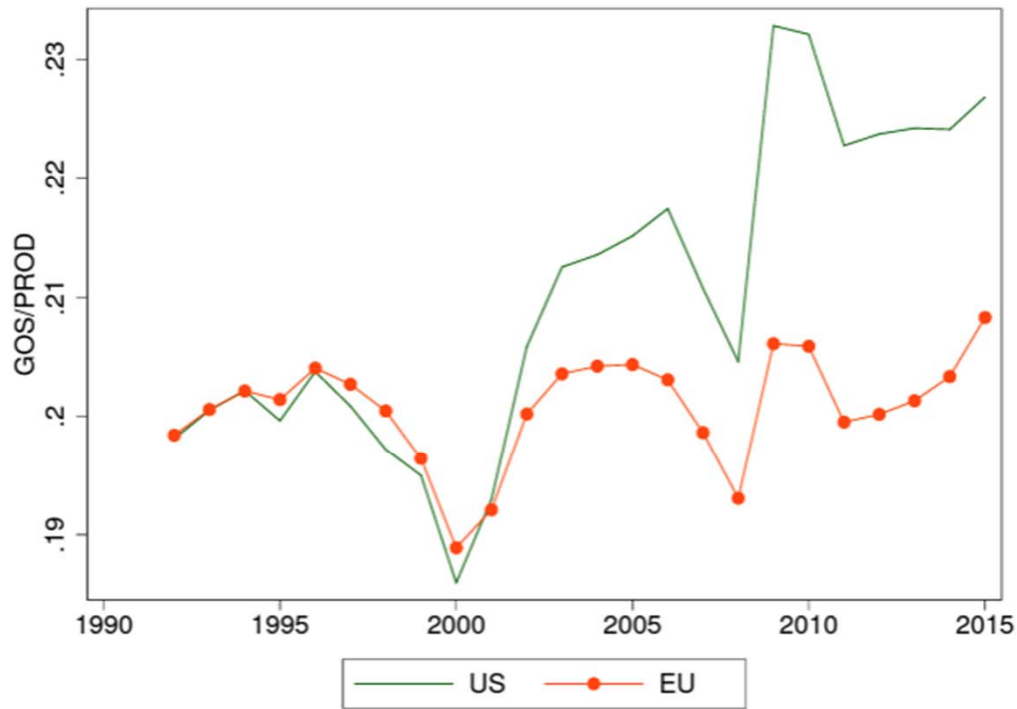
To address some of these weaknesses,

Philippon and Gutierrez (2017) estimate an alternate measure of industry-level markups that roughly follows Barkai (2017) and Caballero et al. (2017), i.e. an industry-level Equity Risk Premia using Analyst earnings projections; and use it to calculate the capital share of output. The estimated capital share and the labor share are then combined to obtain the profit share of output– a measure of average mark-ups.

- They find that the profit share IN THE US increased more at industries that have become more concentrated
- Bighelli et al (2022) address the Bond critique using firm-price data of German manufacturing sector: no significant difference

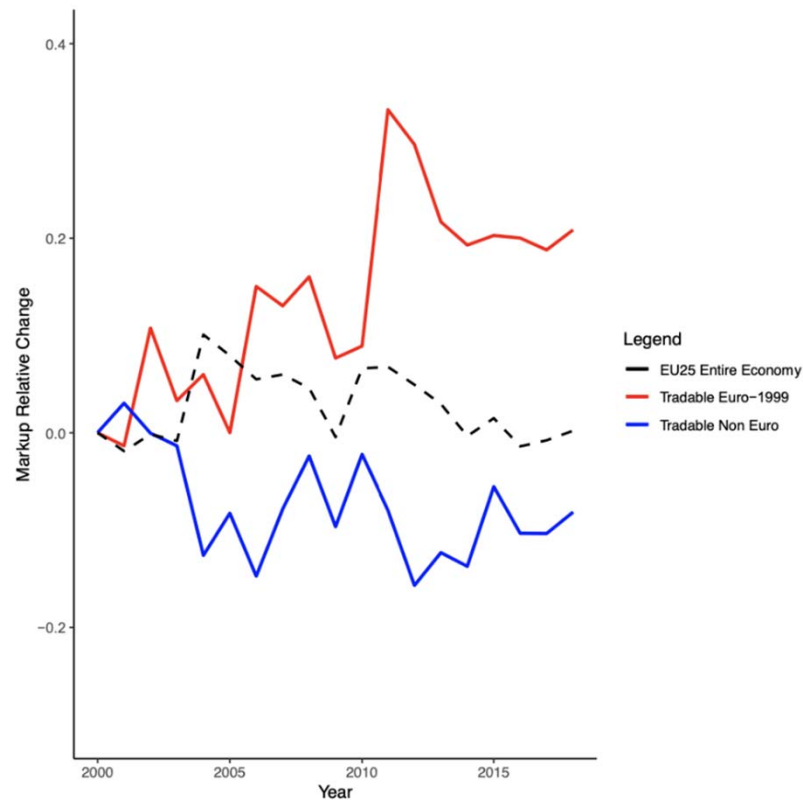
Finding on more competition in EU (Charts from Philippon Gutierrez (2018))

Figure 1: Profit Rates and Concentration Ratios: US vs. EU

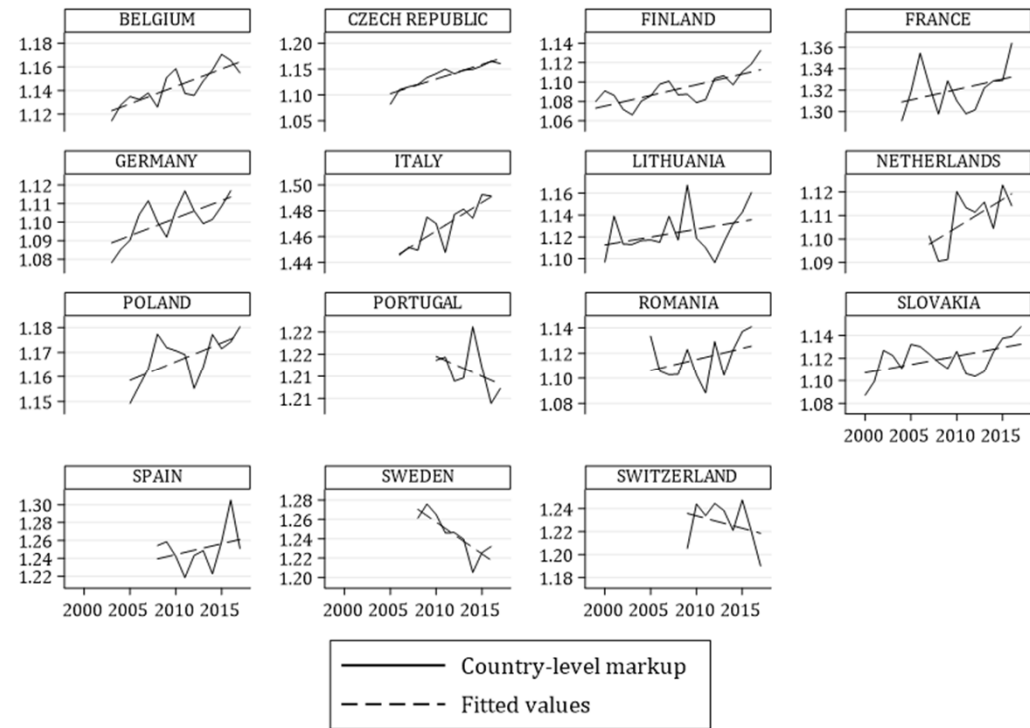


3 - Findings on Mark up

Crescioli and Martelli



Bighelli, di Mauro, Melitz, Mertens



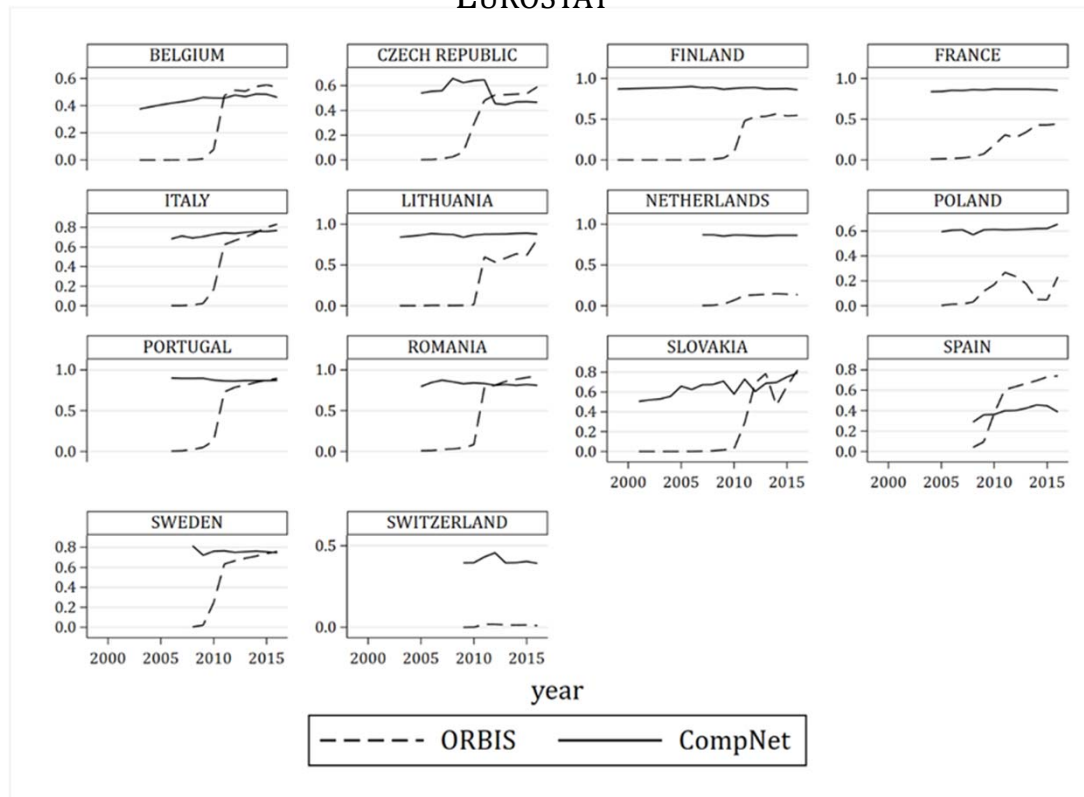
4 - Data sources

Crescioli and Martelli data source. Can we trust the Orbis sample composition?

COUNTRY	FIRMS	PERCENTAGE
AUSTRIA	1,958	0.03%
BELGIUM	45,626	0.71%
BULGARIA	111,946	1.74%
CROATIA	206,724	3.22%
CZECH REPUBLIC	160,429	2.50%
DENMARK	46,149	0.72%
ESTONIA	78,925	1.23%
FINLAND	138,776	2.16%
FRANCE	845,708	13.15%
GERMANY	38,813	0.60%
GREECE	97,589	1.52%
HUNGARY	16,618	0.26%
IRELAND	9,486	0.15%
ITALY	1,037,531	16.14%
LATVIA	4,191	0.07%
LITHUANIA	14,131	0.22%
NETHERLANDS	1,218	0.02%
POLAND	56,915	0.89%
PORTUGAL	439,339	6.83%
ROMANIA	706,714	10.99%
SLOVAK REPUBLIC	114,930	1.79%
SLOVENIA	94,598	1.47%
SPAIN	1,358,413	21.13%
SWEDEN	378,036	5.88%
UNITED KINGDOM	424,506	6.60%
TOTAL	6,429,269	100%

A comparison ORBIS - CompNet

ORBIS AND COMPNET FIRM NUMBER COVERAGE AGAINST EUROSTAT



Additional comments

- The distinction of tradable and non-tradable industries appears to be getting obsolete. (What are the tradable industries btw?).
- There is more and more evidence that rise of concentration and trade is on the service sector (see Rossi-Hansberg 2022)
- How do the authors treat multinationals? How much of the findings are driven by MNLs (firms belonging to the same business group that PRODUCE and not only sell in different countries)? We suspect that Euro adoption strongly increase MNLs share, so it would be interesting to see how they drive the results