CompNet's 6th vintage: novelties and main stylized facts

Paloma Lopez-Garcia
ECB and *CompNet's Adviser*

EUROPEAN CENTRAL BANK
EUROSYSTEM

Paloma Lopez-Garcia
ECB and *CompNet's Adviser*

CompNet's 6th vintage: novelties and main stylized facts

2018 CompNet conference, Halle

I want to thank the great contributions of: Ana Cristina Soares, Roberta Serafini, Jan Paul van der Kerke, Matteo Sartori, Daniele Aglio, Alessandro Zona Mattioli (ECB), Richard Brauer, Matthias Mertens, Peter Haug and Viktor Slatchev (IWH)

Increasing demand for micro-founded analysis

But firm-level data is confidential, and relies on existing administrative databases

- Country coverage and cross-country comparability is hindered
- A solution is to use the micro-aggregated methodology: collects moments of the distribution of indicators in a harmonised way across countries
  - STATA code to compute firm-level indicators of competitiveness is distributed to data providers
  - The code deflates, cleans and weights the raw data in the same way across countries
  - Data providers run the code on their firm-level data and send back aggregated output to preserve confidentiality
  - Not only mean or median but full distribution of indicators, at different levels of aggregations

Available indicators by topic

Productivity and allocative efficiency	Financial	Trade	Competition	Labour
Labour productivity	Investment ratio	% permanent exp.	Price-cost margins	% firms that change employment between t and t+3 (t+1)
VA and revenue TFP, various estimation techniques (New! Translog and revenue prod. Functions)	RoA	% sporadic exp.	Concentration of sales in top 10 firms of a sector	Share of high-growth firms
ULC	Cash holdings	Export intensity	Herfindahl index	Job creation and job destruction rates
Firm size	Leverage	Characteristics of top exporters		Wage premium (proxy for human capital)
Capital intensity	Financing gap	Productivity premium of exporters		
Marginal revenue productivity of inputs	Collateral	Characteristics of firms that export AND import		
Static and dynamic allocative efficiency (New! Petrin-Sivadasan wedge)	Equity to Debt			
	Cash flow			
	Interest coverage ratio			
	Trade Credit/Debt			
	Debt burden			
	Credit constraint index			
	Share of "distressed" firms			

List of raw variables required

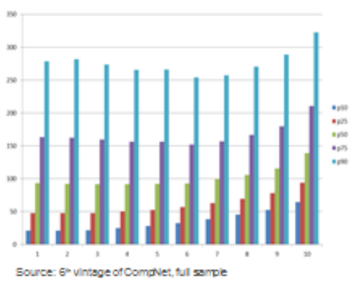
Richness of the CompNet dataset

Despite not providing firm-level information, there is lot of granularity in the dataset

For each year, level of aggregation and indicator CompNet collects detailed info

Levels of aggregation	Moments of the distribution collected
Country	p1, p5, p10, p25, p50 p75, p90, p95, p99
Country/macro-sector (1 digit)	mean
Country/macro-sector/size class	sd
Country/sector (2 digits)	skew
Country/region (NUTS2)	kurt

As well as the "joint distributions"
(productivity distribution of firms in different size deciles, Sweden 2011)



Source: 6th vintage of CompNet, full sample

Country information: 14 countries as of May 2018, 19 expected

Country information as of today; coming up: DE, HR, SI, DK, CH

	Time Span	Sample Available	Excluded Sectors (Besides the Sectors Excluded by Default)*	Export Information	Regional Information	Employment coverage vs. Eurostat	Firm coverage vs. Eurostat
BE	2004-2015	Full and 20e		No	Yes	25%	18%
CZ	2003-2015	Full and 20e		Yes	Yes	6%	3%
FI	1999-2015	Full and 20e	Real estate activities	Yes	Yes	42%	45%
FR	2004-2014	Full and 20e		Yes	No	39%	41%
HR	2002-2016	Full and 20e		Yes	No	55%	39%
HU	1999-2015	Full and 20e		Yes	No	46%	44%
IT	2001-2014	Full and 20e		Yes	Yes	20%	11%
LT	2000-2015	Full and 20e		No	Yes	48%	40%
NL	2000-2014	Full and 20e		No	No	19%	19%
PL	2005-2015	20e		Yes	Yes	65%	76%
PT	2006-2015	Full and 20e	Manufacture of tobacco products, Manufacture of coke and refined petroleum products, Postal and courier activities, Real estate activities	No	No	41%	30%
RO	1999-2015	Full and 20e		yes	Yes	69%	73%
SP	2009-2015	Full and 20e		No	Yes	18%	15%
SE	2003-2015	Full and 20e		Yes	No	33%	33%
SI	2005-2016	Full and 20e		Yes	Yes	36%	29%
SK	2000-2015	20e		Yes	Yes	99%	78%

Sample representativeness: employment by size class

Use of indicator-specific population weights also for the full sample have improved a lot the representativeness of the samples

Representativeness in terms of employment

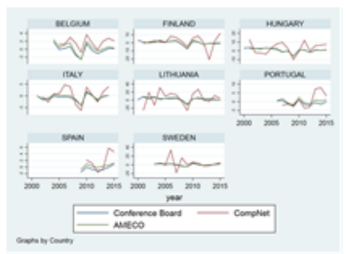
Country \ Size Classes	1 - 9 Employees	10 - 19 Employees	20 - 49 Employees	50 - 249 Employees	+ 250 Employees
Belgium	21.5% (26.3%)	12.5% (7.5%)	20.3% (12.4%)	24.4% (16.5%)	20.5% (36.5%)
Croatia	27.2% (9.3%)	12.9% (13.0%)	17.4% (15.1%)	26.4% (27.5%)	14.9% (34.6%)
Czech Republic	2.2% (21.3%)	4.5% (6.0%)	16.2% (11.7%)	36.2% (22.2%)	38.1% (38.7%)
Finland	28.1% (26.2%)	14.0% (6.7%)	18.5% (11.2%)	24.9% (18.4%)	12.7% (33.3%)
Hungary	37.2% (27.1%)	15.1% (6.6%)	15.4% (9.2%)	20.5% (16.7%)	11.6% (25.1%)
Italy	22.0% (41.0%)	16.3% (11.5%)	21.2% (10.5%)	25.1% (14.2%)	11.6% (21.5%)
Lithuania	22.4% (25.5%)	13.9% (11.1%)	20.2% (13.7%)	29.4% (22.0%)	12.5% (21.1%)
Portugal	36.5% (32.1%)	16.4% (11.5%)	19.4% (13.7%)	19.5% (18.4%)	7.7% (23.5%)
Romania	29.3% (21.7%)	13.3% (6.2%)	18.4% (12.4%)	26.2% (23.3%)	10.5% (34.3%)
Spain	33.3% (27.7%)	17.2% (9.5%)	20.2% (11.4%)	17.2% (14.6%)	11.5% (26.6%)
Sweden	28.1% (21.9%)	11.9% (9.7%)	23.1% (13.4%)	23.9% (20.0%)	2.9% (34.5%)
France	20.4% (25.7%)	14.5% (6.1%)	19.2% (11.2%)	24.9% (15.9%)	10.5% (25.9%)
Netherlands	16.9% (26.2%)	12.4% (6.5%)	20.1% (11.5%)	30.1% (20.9%)	19.3% (22.5%)
Slovenia	34.3% (26.9%)	11.7% (10.2%)	16.3% (6.5%)	23.6% (22.9%)	13.9% (21.5%)
Poland*			13.4% (13.6%)	40.2% (34.4%)	46.3% (51.9%)
Slovakia*			13.8% (14.6%)	34.1% (22.9%)	50.5% (52.4%)

Here for macro-sectors, and firms

Productivity: Checking the data

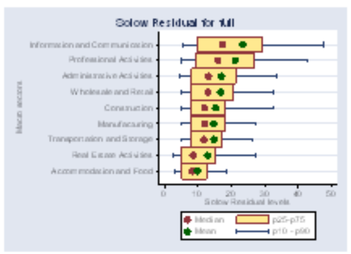
Wide range of parametric and non-parametric productivity indicators to let the researcher choose the most convenient

Validation: TFP in CompNet, AMECO and Conference Board
(TFP growth rates)



Source: 6th vintage of CompNet full sample, AMECO and Conference Board.
Notes: The TFP indicator used for CompNet is the SR.

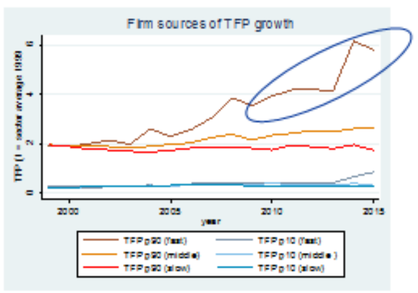
Granularity: TFP distribution by sector, western countries
(TFP levels)



Sources: 6th vintage of CompNet, full sample, year 2010..
Note: Countries included are BE, IT, PT, SP and SE

Productivity: Growth in the age of the superstars

Dynamics of high and low productive firms in fast-low growing sectors



Sources: 6th vintage of CompNet data, full sample.
Notes: TFP is indexed to average productivity in 1999, which is the start year.

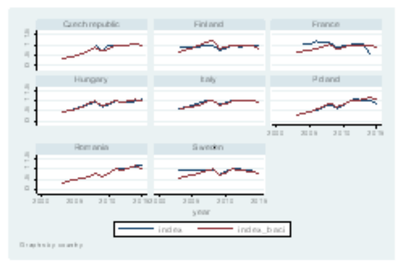
What makes the difference between fast and slow growing sectors (in terms of TFP)?

- The chart shows the dynamics of top and bottom productive firms in 3 types of sectors:
  - Fast growing: top-third of distribution of TFP growth
  - So-so: Middle third of the TFP growth distribution
  - Slow growing: bottom third
- What distinguishes fast growing sectors is the super-performance of top firms

Trade: Checking the data

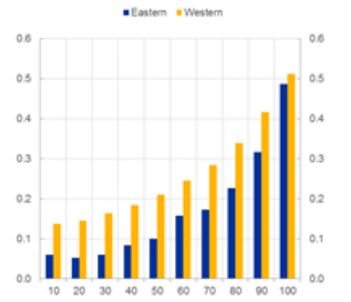
Information on exporting firms in each manufacturing industry (hopefully to be improved)

Validation: Dynamics of exports in CompNet and BACI
(2011=1)



Source: 6th vintage of CompNet 20E sample and CEPII-BACI.
Notes: 2011=1

Granularity: Share of exporters by TFP decile, Western and Eastern countries,



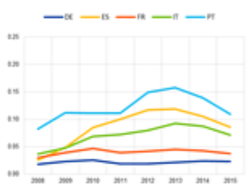
Sources: 6th vintage of CompNet full sample
Notes: Joint distribution by TFP computed as a SR.
Countries included are: IT, SE, FI (Western), CZ, FI, HU and RO (Eastern) over the period 1999-2015.

Distressed firms: Checking the data

Non-viable firms still in the market; we use different definitions (interest coverage ratio, negative profits excluding HGF)

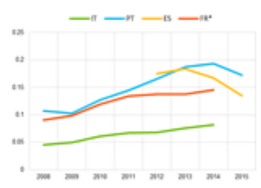
Validation: CompNet, ORBIS and SAFE
(share of distressed firms)

ORBIS: Storz et al. (2017)



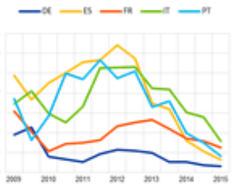
Source: ORBIS.
Note: Distressed firms are defined accoraing to Storz et al. (ECB WP, No. 2104/2017): Non-financial firms with negative investment, negative return on assets and EBITDA to financial debt of less than 5% for two consecutive years.

CompNet: Persistent negative profits



Sources: 6th vintage of CompNet
Notes: Firms with negative operating profits for 3 consecutive years, excluding high-growth firms.
*Countries marked with * rely on the sample with at least 20 employees.*

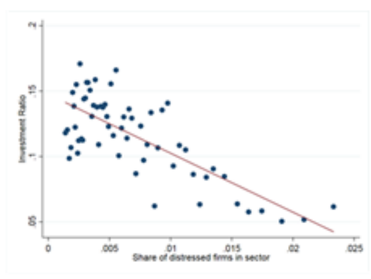
SAFE: Deterioration relative to previous 6 months



Sources: SAFE survey
Notes: Firms experiencing lower turnover, lower profits and higher interest expenses compared to the previous six months

Distressed firms: Zombie congestion?

Sector investment and share of distressed firms
(median investment of the 2-digit industry and share of distressed firms)



Source: 6th vintage of CompNet, full sample.
Notes: Firms with interest payments higher than operating profits for 3 consecutive years, conditional on positive profits. Countries included: BE, CZ, FI,HU, IT, LT, PT,RO, SP, SE. Binscatter controlling for country FE.

Do distressed firms have a sizeable economic impact?

- The chart shows median investment in each country-sector-year and share of distressed firms
  - Share of distressed firms measured as share of firms with positive profits but below interest payments for 3 consecutive years
- Sector with a higher share of distressed firms show significantly lower investment ration and job creation rates

Available documentation

The new vintage of CompNet data comes with:

- A cross-country report providing an overview of the main novelties of the dataset
- A cross-country comparability report providing metadata and documenting existing differences across countries
- A comparability tool for the user to track cross-country differences in each indicator
- A user's guide with detailed information on definitions of and methodology used to compute some of the core indicators
- A "road-map" mapping indicators to data files and vice versa

All soon to be uploaded in **www.comp-net.org**