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8th vintage stylized facts

(20e weighted sample) CompNet – 25 October 2021

- This is a report including data available as of October 2021.
- All results have been reviewed and disclosure methods approved to ensure no confidential information is disclosed.
- Compilation of the data would not have been possible without the active participation and support of dozens of individuals from each of the data providing institutions. We thank them all for their work.

- There are 2 kinds of samples in the CompNet dataset.
- All firms: This includes all firms in the business economy with at least one employee.
- 20e sample: This includes only firms with 20 or more employees. By omitting the smallest firms, the 20e sample improves cross-country comparability and coverage.
- We use the 20e weighted sample in this presentation. Data is aggregated at 3 levels: 2-digit NACE Rev.2 sectors, 1-digit NACE Rev.2 sectors (macrosectors), and country level.

Time coverage

Country	Year	Country	Year
Belgium	2000-2018	Netherlands	2007-2018
Croatia	2002-2019	Poland	2002-2019
Czech Republic	2005-2019	Portugal	2004-2018
Denmark	2001-2018	Romania	2007-2019
Finland	1999-2019	Slovakia	2000-2019
France	2004-2018	Slovenia	2002-2019
Germany	2001-2018	Spain	2008-2018
Hungary	2003-2019	Sweden	2003-2019
Italy	2006-2018	Switzerland	2009-2018
Lithuania	2000-2019		

Industry coverage

• There are 9 macro-sectors included in the dataset:

- Manufacturing
- Construction
- Wholesale and retail trade
- Transportation and storage
- Accommodation and food service activities
- Information and Communication
- Real Estate
- Professional, scientific and technical activities
- Administrative and support service activities

Productivity and related indicators

Total Factor Productivity – EU aggregated



- TFP is derived from the industry-level OLS Cobb-Douglas specification.
- On average, the region experienced anemic annual productivity growth of 0.47%.

TFP index by country (2010=1)

Increasing TFP

Decreasing TFP





- There is a general uptrend for productivity in most countries.
- Romania stands out with productivity increase of over 20% from 2010 to 2019.

Productivity dispersion



- Productivity dispersion is the difference between p90 (frontier) and p10 (laggard) of labour productivity distribution.
- The productivity gap between top and bottom firms becomes wider since 2010 for the region.

Productivity dispersion (con't)

Increasing dispersion



Decreasing dispersion



- There are increases in dispersion in most countries.
- Only Finland, France and Italy shows an overall decrease in dispersion.

Productivity – laggard vs frontier



- Going into the actual productivity level of laggard and frontier firms, the changes in dispersion mostly come from changes in productivity of frontier firms over the years.
- Productivity of laggard firms remains stagnant.



- Labour cost is measured in thousands of Euros.
- Overall labour cost increases gradually over time for EU.

Labour cost (con't)

Increasing/stable labour cost



Decreasing labour cost



- Most countries follow the overall trend of increasing labour cost.
- Finland, Germany and Spain are the exceptions. France also reports a sharp drop after 2016.

Financial

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Value added over revenue ratio



Value added over revenue ratio

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The ratio of Value added

the profit rate, displays

cyclical patterns in most

countries.

over revenue - a measure of

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Financially constrained firms



Financially constrained firms % by country

- A firm is financially constrained when its total investment is positive and larger than its cash flow, conditional on a negative annual change in debt and equity.
- Most countries have less than 20% of their firms being financially constrained. The only exception is France where the share is 30%.

Financially constrained firms (cont')



- Figure plots the relation between share of financially constrained firms and VAbased log labour productivity. All available mac-sectors (1 digit sectors) and countries are pooled.
- There is a negative correlation. Firms tend to be more productive when they are less financially constrained.

Capital intensity



- Capital intensity is the ratio
- of real capital over labour.
 Most countries have higher capital intensity after the crisis in comparison to precrisis levels.
- Capital intensity in Italy, Finland, Germany, and Sweden decrease over the sample period.
- Portugal and Spain also shows drastic drops after 2014.

Allocation, concentration, and others

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Allocative efficiency



Increasing efficiency

Decreasing efficiency

- Allocative efficiency is measured as the difference between the weighted average and the unweighted average of labour productivity. Number of employees is used as the weight in this chart.
- Low allocative efficiency is a sign of labour misallocation as less productive firms have disproportionally large employment shares.
- The overall trend in EU shows better allocation over time, as 12 out of 19 countries have stable or increased allocative efficiency in recent years.

Herfindahl–Hirschman Index







- The 3 charts compare the Herfindahl– Hirschman Index calculated using different weights: revenue, value-added, and labour.
- The ranking of firm concentration generally does not change much across the 3 methods. However, the difference between the highly concentrated countries and the others is more significant for the VA-based HHI and the revenue-based HHI.
- Denmark, Hungary, Slovakia and Slovenia are the most concentrated countries overall.

Export



- We compare the average export/revenue ratio across countries.
- Export value takes around 20%-40% of revenue in most countries.
- Slovenia reports the highest ratio at 46%, while France has the lowest ratio at 17%.

Appendix

Productivity – by firm size



Labour productivity by firm size

- Looking at labour productivity by different firm sizes, larger firms tend to have higher productivity.
- Firms with < 50 employees and firms with 50 to <250 employees generally have their productivity move in similar patterns.
- The largest firms (more than 250 employees), while still respecting the general trend in each country, move faster than the smaller firms. The productivity gap between the large and small firms thus increase over time in some countries: Denmark, Finland, Spain and Sweden.
- Some countries have the reversed pattern, where the larger firms are less productive, including Belgium and Slovenia.

TFP index – Manufacturing sector



- TFP index for manufacturing sector shows similar patterns to the country index for most countries.
- Denmark and Netherlands show weaker growth within manufacturing, while Italy shows stronger growth.

Validation

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Productivity growth



- Growth rate of average TFP is shown in the chart. Solow residual is used for CompNet.
- CompNet indicator tends to move in same direction as TFP from other sources. It is more volatile in some countries.

Sources:

- Ameco: https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/macro-economicdatabase-ameco/ameco-database_en
- PWT: https://www.rug.nl/ggdc/productivity/pwt/?lang=en
- Conference Board: https://conference-board.org/retrievefile.cfm?filename=TED_1_AUGUST20211.xlsx&type=subsite

Comparison – OLS vs ACF



- Log TFP comparison between OLS and ACF.
- Similar patterns in all countries.
- ACF for Poland is more volatile.

Annual growth rate of nominal wage



- Wages and salaries variable from Eurostat - V13320
- Identical trends from both sources.
- CompNet data is more volatile in Belgium, Netherlands, and Spain

Source from Eurostat: https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=sbs_na_sca_r2&lang=en



- Value added variable from Eurostat -V12150
- Also identical trends from both sources.
- Slight variations in Belgium, Poland, and Sweden, but the general direction is similar between CompNet and Eurostat.

Source from Eurostat: https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=sbs_na_sca_r2&lang=en

Export dynamics (2004=1)



Source from Eurostat: https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ext_tec01&lang=en

- CEE countries: HR, CZ, LT, PL, SK, SI; Non-CEE countries: DK, FI, FR, SE.
- 20e sample CompNet
- Similar patterns across CompNet and Eurostat in both country groups.

Export dynamics (2004=1)



Source from Eurostat: https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ext_tec01&lang=en

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Country	CompNet	Eurostat
Croatia	73%	38%
Czech Republic	70%	49%
Denmark	83%	77%
Finland	80%	64%
France	68%	50%
Germany	74%	53%
Hungary	73%	65%
Lithuania	71%	73%
Netherlands	83%	76%
Poland	68%	75%
Portugal	74%	41%
Romania	99%	44%
Slovakia	83%	74%
Slovenia	93%	79%
Sweden	99%	78%

- For manufacturing sector, firms with at least 10 employees.
- Data is average from 2016 to 2018.
- Link to trade dataset (including number of exporting firms): <u>https://appsso.eurostat.ec.europa.eu/</u> <u>nui/show.do?dataset=ext_tec01&lang</u> <u>=en</u>
- Link to the total number of firms in manufacturing (after filtering): https://appsso.eurostat.ec.europa.eu/ nui/show.do?dataset=sbs_sc_sca_r2&l ang=en

Share of credit constrained firms by country (%)



- Overall, there is no significant divergence between CompNet and SAFE.
- However, the share of credit constrained firms in Compnet is lower than in SAFE for most countries, except Belgium.

In SAFE, a firm is defined as credit constrained if: the firm reports loan applications which were rejected; the firm reports loan applications for which only a limited amount was granted; the firm reports loan applications which were rejected by the firms because the borrowing costs were too high; the firm did not apply for a loan for fear of rejection (i.e. discouraged borrowers).

https://www.ecb.europa.eu/stats/pdf/surveys/sme/SAFE main series.zip - for SMEs (sizeclass 2,3,4)