

$CompNet \ \ {\rm The \ Competitiveness \ Research \ Network}$

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The Technical Support Instrument (TSI): Year One: Achievements and way ahead

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This project has received funding from the European Commission; Directorate-general for Structural Reform Support under grant agreement No 101101853.

- Economic motivation for using MICRO information
- The Microdata platform for productivity (TSI): concept and results
- The Microdata Infrastructure (MDI)
- Conclusions





Micro-based data analysis: Motivation

- Firm performance distribution is very disperse and asymmetric
- In the second second
- France's curve shifted to the right direction... Higher productivity for more firms (i.e., higher AVERAGE aggregate productivity)



Micro-based data analysis: Motivation

- There is therefore not such a thing as a representative firm
- ...considering averages (without looking at distribution) can generate wrong policy recommendations
- CompNet allows cross-country comparisons along these dimensions leveraging on <u>official</u> balance-sheet information of European firms...i.e., of HIGH QUALITY



Micro-based data analysis: Motivation

Let's take the case of Unit Labour costs (ULC)

ULC = tot labor cost / productivity
→ When ULC ↑ Competitiveness ↓

GERMANY

- Overall rising ULC....loss of competitiveness
- Flat productivity of both least and most productive firms
- Rising wages of top productive firms...
- ...but totally out of whack with their productivity for the least performing firms

POLAND

- Broadly constant ULC
- Rising productivity for top and bottom firms
- Stagnant wages of top productive firms compensating for rising wages of least productive firms

→ Cannot have an AVERAGE wage policy



- Develop microdata infrastructure and train NPBs to use it for concrete policy research projects.
- First year: USE existing micro-founded dataset (CompNet)
 - Train NPBs staff and develop research out of it
 - in parallel, work with the respective NSIs on more granular and modular micro-data infrastructure (MDI)
- Second year: USE the MDI for policy research applications

Website.....check at www.comp-net.org



Project Information: Microdata platform for productivity

Participating Countries: Slovakia, Slovenia, France, Germany, Portugal, Latvia and Austria.

Coordinated by: Halle Institute for Economic Research (IWH)

Project Outline: Enhancing the Micro Foundation of the Research Output of National Productivity Board (NPBs). Using CompNet and expanding its Micro Data Infrastructure (MDI).

Motivation: Access to cross-country comparable micro-based data entails many challenges due to confidentiality concerns. The Microdata platform for productivity aims to provide national authorities of participating productivity boards with the tools to improve their ability to analyze productivity and development and design policy reforms.

Implementation: This ambitious objective is achieved by providing the beneficiaries with

1) harmonized data (micro-aggregated and cross-country comparable) to conduct policy analysis and produce policy recommendations,

2) the necessary training to ensure that the beneficiaries can fully exploit the potential of the microbased data infrastructure, and

3) finally with a network to share best practices and common goals.

It Started in October 2022 for a period of 24 months.

This project has received funding from the European Commission; Directorate-general for Structural Reform Support under grant agreement No. 101101853 and No. 101140673 (Austria).



THE PROJECT



Enhancing the Micro Foundation of the Research Output of National Productivity Board. Using CompNet and expanding its Micro Data Infrastructure.

EU TECHNICAL

ASSISTANCE

PROGRAM (TSI)

PROJECT TEAM

OVERVIEW

GOALS

DATA

TRAININGS

VISUALIZATION

OUTPUT

NEWS

MEMBER LOGIN

The CompNet Dataset



- Unbalanced panel of productivity and competitiveness indicators
- Started in 2012 at the ECB
- Our data providers (NCBs, NSIs, other academic Institutions) run our codes on the best existing national FIRM LEVEL datasets
- They give us in return aggregate cross-country harmonized info
- Confidentiality is ensured
- 9th Vintage (July 2023): <u>22 European countries, 1999-2020/21</u>

Countries	Aggregation levels
Belgium, Croatia, Czech Republic, Denmark, Finland, France, Germany, Hungary, Italy, Netherlands, Poland, Portugal, Romania, Slovakia,	Country, Macro-Sector, Macro- Sector-Size-Class, 2-digits NACE Industry, NUTS Region
New: Latvia, Lithuania, Malta, UK	New: Technology Class and Age

The CompNet Dataset – 9th Vintage

Productivity	Financial	Trade	Competition	Labour	
Labour productivity	Investment ratio	% permanent exp.	Price-cost margins	% firms that change employment	
	RoA	% sporadic exp.	Mark Ups –various	between t and t+3 (t+1)	
VA and revenue TFP; various estimation techniques	Cash holdings	Export intensity	techniques	Share of high-growth firms	
	Leverage	Characteristics of top exporters	Herfindahl index	Job creation and job	
ULC	Financing gap		Concentration of	destruction rates	
Firm size	Collateral	Productivity premium of	sales in top 10 firms of a sector	for human capital)	
Capital Intensity	Equity to Debt	exporters		Firm entry and	
Marginal revenue productivity of inputs	Cash flow Interest coverage ratio	Characteristics of firms that export AND import)	exit	
Static and	Trade Credit/Debt	Exports by	Droviouch	wa had addad	
dynamic allocative efficiency Energy cost	Debt burden	destination	 Zombie firms Regional dimension within countries 		
	Credit constraint index				
	"distressed" firms		- Intangi	bles proxies	

The CompNet Dataset – Joint Distributions

Productivity	Financial	Trade	Competition	Labour
Labour productivity	Investment ratio	% permanent exp.	Price-cost margins	% firms that change employment
VA and rev TFP; various es on technic ULC Firm size	RoA	% sporadic exp.	Mark Ups –various	between t and t+3 (t+1)
	Cash holdings	Export intensity	techniques	Share of high-growth firms
	Leverage	Characteristics of top exporters Productivity premium of exporters	Herfindahl index	Job creation and job
	Financing gap		Concentration of sales in top 10 firms of a sector	Wage premium (proxy for human capital)
	Collateral			
Capital Intensit	Equity to Debt			Firm entry and
Capital Intensity	Cash flow	Characteristics of		exit
Marginal revenue productivity of inputs	Interest coverage firms that export AND import			
Static and	ade Credit/Debt	Exports by		
efficiency		destination		
Energy cost	Credit constraint index	Example ty	ype of questior	1:
	Share of "distressed" firms	Are low p character	roductive firm ized by highei	s in a country credit constr

The TSI First Year: CompNet related activities

- Provided training to NPBs to use CompNet dataset for research and policy
- Set Up common research agenda across participating NPBs
- Written in collaboration with NPBs Firm prodcutivity report



The 2023 CompNet Firm Productivity Report



EU-TSI Weblink

- Coordinators: Marco Matani and Marcelo Piemonte Ribeiro (both CompNet)
- **Contributors**: CompNet Team together with
- Urska Cede (IMAD, Slovenia)
- Eva Pereira (GEE, Portugal)
- Jan Sebo (UVSR, Slovakia)

Ch.1 - The productivity puzzle revisited: Firm performance after COVID-19



- COVID-19 crisis was followed by a decline in within-industry total factor productivity (TFP) growth in the short term in Europe •
- Amidst unprecedented cross-country variation ٠

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firm-level

productivity?

Competitiveness is key; we show 2 aspects:

- 1) Export drop during COVID-19
- 2) Role of EU Global Value Chains (GVCs) for productivity transmission

- **1)** Were export drops driven by firm characteristics?
- We disentangle heterogeneity in export performance by size classes, destination, and margin
 - **intensive**, i.e., same firms exporting more or less
 - **extensive**, i.e., change in the number of firms

Ch.2 - EU firms in the global economy: Export drop decomposed

Export y-o-y rates of change by margin. European countries, 2012-2020 (y-o-y growth rate)



> Overall result: drop in total 2019 2020 and export in resulted from BOTH the intensive extensive and margin alike

102

100

98

108

104

98

> However, for small exporters (20-49 employees) and for those exporting outside the EU the drop was due to the **EXTENSIVE** margin only, i.e., there has been a cut in number of firms exporting (only red histogram)

Ch.2 - EU firms in the global economy: GVCs in the TFP shock transmission

TFP growth transmission with time interactions.

European countries, 2005-2020

	(1)	(2)	(3)
	Frontier	Middle	Laggards
TFP growth GVC (import) frontier	0.4636***	0.2243**	0.2342
	(0.1352)	(0.0905)	(0.1466)
TFP growth GVC (import) frontier × 2008-2010 dummy	0.1790	0.1652	0.7637**
	(0.2684)	(0.1614)	(0.3617)
TFP growth GVC (import) frontier \times 2020 dummy	1.5797**	0.1781	0.9058
Lagged labor productivity gap with CV/C (import)	(0.7425)	(0.7159)	(1.2805)
Lagged labor productivity gap with GVC (import)	(0.0101)	(0.0345	(0.0260)
GVC (import) participation growth	-1.5198	0.3132	0.7987
	(1.0663)	(1.4075)	(2,0003)
TFP growth national frontier	(0.5267***	0.5121***
		(0.0457)	(0.0682)
TFP growth national frontier × 2008-2010 dummy		0.5842***	0.8458
		(0.1285)	(0.1966)
TFP growth national frontier \times 2020 dummy		0.5762***	0.8796***
Lesson distances and set the same of the set of the set		(0.1311)	(0.2848)
Lagged labor productivity gap with national frontier		0.0277	-0.0227
2008 2010 dummy	0 5012**	(0.0227)	(0.0390)
2008-2010 duffithy	-0.5013	-0.3038	(0.2421)
2020 dummy	-0.3018	-0.6983***	-2 1518***
2020 dominy	(0.3260)	(0.2302)	(0.4884)
Constant	1.0791***	-1.2086**	-1.9191**
	(0.2399)	(0.5449)	(0.9170)
Country-MacroSector FE	YES	YES	YES
Observations	1,872	1,867	1,835
Adjusted R-squared	0.0468	0.6793	0.4658

2) We find evidence that the GVCs set in motion a **two-stages productivity diffusion** within and between European countries

- 1st Stage: From GVC to national frontier (most productive) firms
- 2nd Stage: From national frontier to national mid-productive and laggard (least productive) firms



We see strong TFP transmission at both stages

Ch.2 - EU firms in the global economy: Decomposing the TFP shock



Contributions to EU TFP y-o-y growth rates within EU global value chains

- Strong contribution of productivity gap Balassa-Samuelson "catching-up effect"
- The TFP contribution of EU GVC counterparts (dashed blue) becomes strongly negative during crises

Competitiveness at the core of the EU Agenda

- President von der Leyen put <u>competitiveness</u> at the top of the EU agenda (SOU address)
- Mario Draghi was tasked to prepare a report

Participating NPBs will be in a condition to provide support
 to the endeaviour with solidly micro-founded research

 ...and we have been already contributing to the debate co

• VoxEU Column "Talking about competitiveness in Europe: Productivity not protection"



The Micro-data Infrastucture (MDI)

The MDI – Setup – Getting more granular

Homogeneized set of datasets (sourced from National Statistical Institutes) LINKED



Much more granular than the traditional CompNet dataset





MDI: status of development by countries

Country	Fully Established	Advanced Preparation	Contract Signed	In Negotiation
Austria			Х	
France	X			
Germany			Х	
Latvia				X
Portugal		X		
Slovenia		X		
Slovakia		X		
Non- TSI				
Finland	X			
Netherlands	X			
Italy			X	
Malta				X
UK				X

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The TSI project going forward

Second year TSI

- Make the MDI Fully operational as a policy research tool
- Convert CompNet projects into the MDI whenever possible to enhance granularity
- <u>5 meta Research directions:</u>
- Trade and Competitiveness
- Phillips Curve and Monetary Policy
- Energy
- Firm Dynamics
- SME financial constraints
- Output expected over the next few months

TSI: Timeline



Conclusions

- The TSI was very successfull in
 - Training NPBs staff in micro data analysis
 - Produce concrete joint output using CompNet dataset. Productivity Report
 - Set up at respective NSIs Micro Data Infrastrucutre
- In the coming second year the created MDI infrastructure will bear fruits

We look forward to interacting with participating NPB staff members

...but we will keep the door open for collaborations with other NPBs



Thank you! Looking forward to hearing your feedback also via email!

Important Links

- <u>TSI Website</u>
- The 2023 CompNet Firm Productivity Report

