

CompNet

The Competitiveness Research Network

CompNet Annual Conference

Introductory Remarks

Filippo di Mauro

Chairperson CompNet

Brussels, 19. October 2023

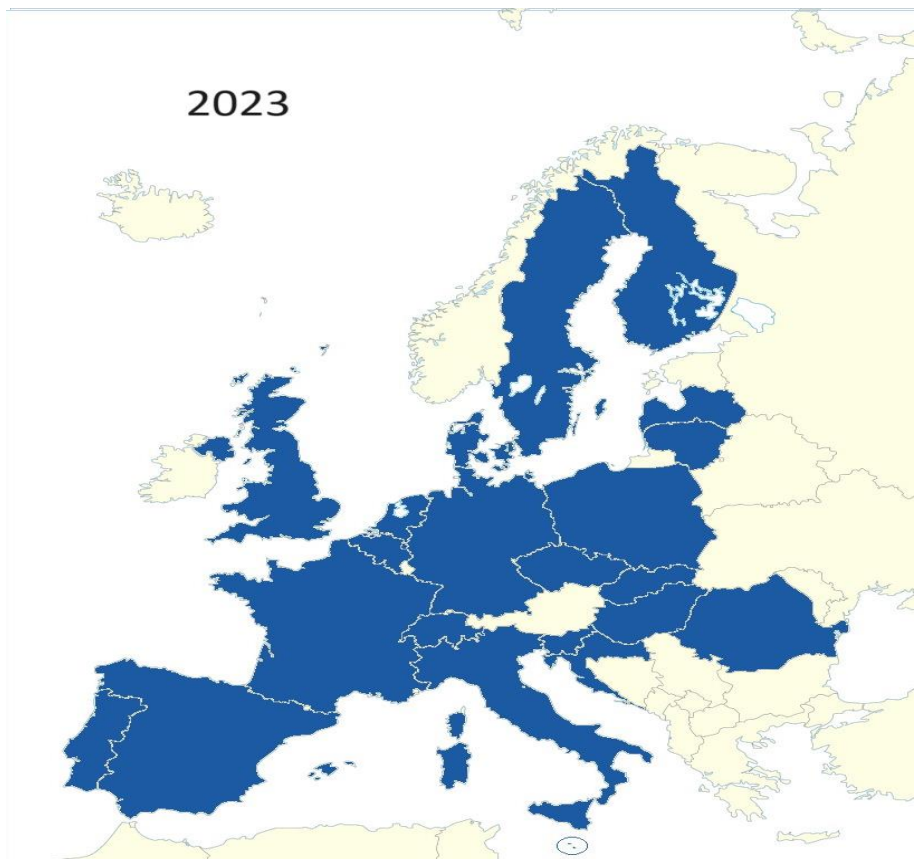
Introduction

- Thank you to the European Commission for co-hosting

Roadmap

- CompNet Data
- Publications and Events
- CompNet going forward

The CompNet Dataset 9th Vintage



- Started in 2012 from research departments of the ECB/Eurosystem, hosted at IWH since 2017
- **9th Vintage**: out in July 2023 for **23 European countries**, 1999-2020/21
- Technical improvements

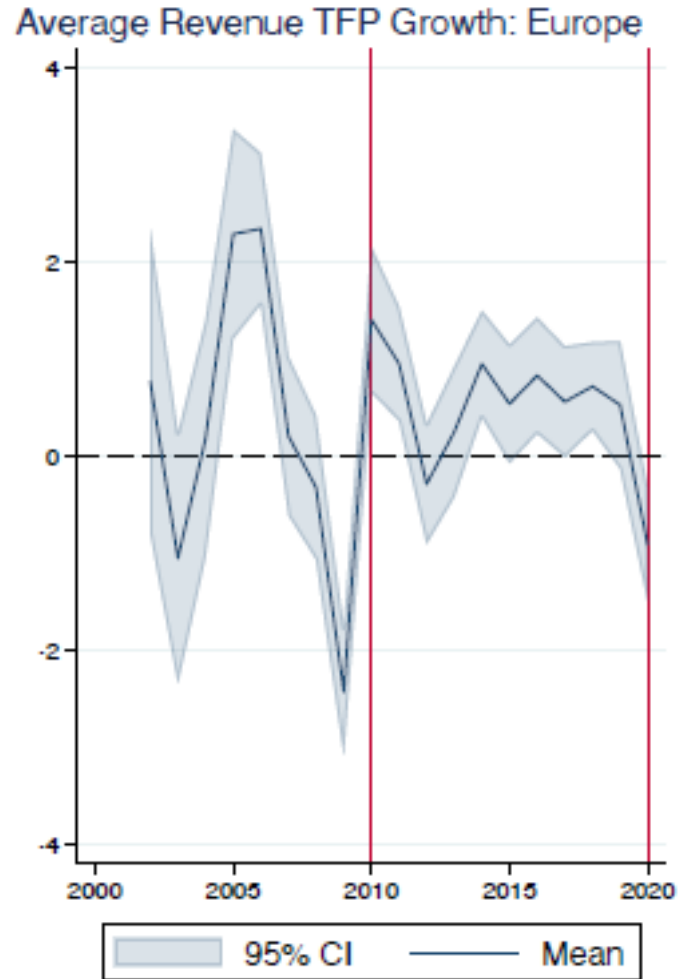
Countries	Aggregation levels
Belgium, Croatia, Czech Republic, Denmark, Finland, France, Germany, Hungary, Italy, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland.	Country, Macro-Sector, Macro-Sector-Size-Class, 2-digits NACE Industry, NUTS Region
New: Latvia, Lithuania,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

The 2023 CompNet Firm Productivity Report



[EU-TSI Weblink](#)

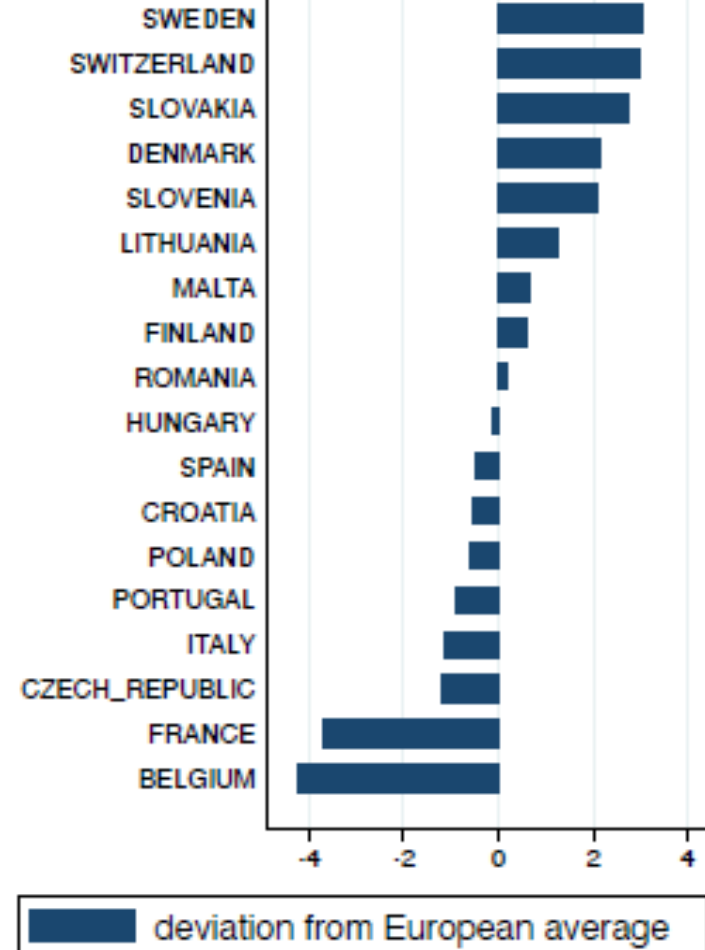
The 2023 CompNet Firm Productivity Report



TFP growth trends (year-on-year changes)

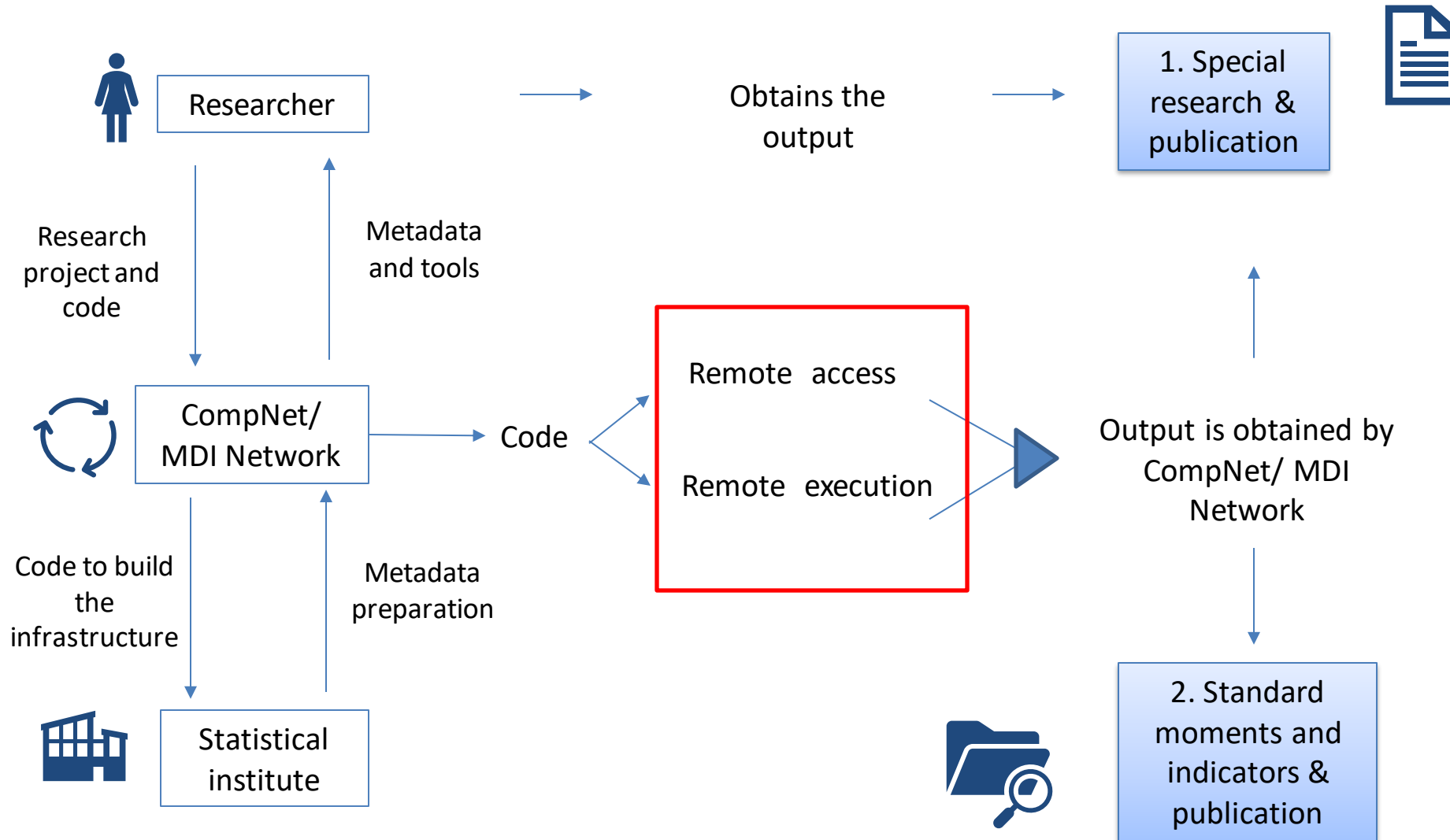
Sharp decline
of TFP after
COVID-19

Deviation per country (2020)



....amid an
unprecedented
variation across
countries

The MDI – Setup



The MDI – Current status

Country	Fully Established	Advanced Preparation	Contract Signed	Not Started
Austria			X	
Finland		X		
France	X			
Germany			X	
Latvia				X
Netherlands	X			
Portugal		X		
Slovenia		X		
Slovakia				X

→ Soon available for 7 countries

→ With colleagues from DG ECFIN and DG GROW we are concretely testing the MDI for a research project on trade and firm performance

→ Thanks a lot for your help

Publications using CompNet (from June 2023)

■ Journal Publications

- Labor Market Power and Between-Firm Wage (In)Equality, International Journal of Industrial Organization (M. Mertens)

■ Working/Discussion Papers

- Declining Business Dynamism in Europe: The Role of Shocks, Market Power, and Technology, IWH-CompNet Discussion Paper (F. Biondi, S. Inferrera, M. Mertens, J. Miranda)
- Do Larger Firms Have Higher Markups?, IWH-CompNet Discussion Paper (M. Mertens and B. Mottironi)

■ Policy Notes

- Talking about competitiveness in Europe: Productivity not protection, VoxEU, 29 September (F. di Mauro and M. Matani)

Are you already collaborating? If not, are you interested in any of our topics?

CompNet Events (from June 2023)

■ Data Provider Forum

- **6th Data Provider Forum**, 22 June 2023, Halle

■ Academic Conferences attended by scholars active in the field

- **European Micro Data Workshop co-organized with CEPR**, 15-16 June 2023, Paris
- **12th Annual Conference hosted by the EC**, 19-20 October 2023, Brussels

■ Policy Workshops promoting applications of our data to policy questions

- **2nd TSI Workshop**, 23 June 2023, Halle
- **Pre-Conference Internal Workshop**, 18-19 October 2023, Brussels

CompNet going forward: DATA

- CompNet dataset
 - New data collection July-September 2024, ready for **December 2024**
- MDI
 - **operationalising it as an easy usable tool**
 - **Convert CompNet projects into the MDI** whenever possible

CompNet going forward: Research

- 4 meta research/policy directions:
 - Trade and Competitiveness
 - Phillips Curve and Monetary Policy
 - Energy
 - Firm Dynamics
- ➔ **Special focus on Competitiveness in EU in line with President von der Leyen indication**
 - *VoxEU Column "Talking about competitiveness in Europe: Productivity not protection"*

CompNet going forward: Events

■ Academic Conferences

- **Conference on innovation and Productivity**, Helsinki 5-6 June
- **FINPRO IV**, 26-27 September 2024, Barcelona (Call for papers to be circulated shortly)
- **13th Annual Conference**, October 2024 (Location TBD: Proposals welcome)

■ Policy Workshops promoting applications of our data to policy questions

- **3rd TSI Workshop**, 22-23 February 2024, Vienna
- **Workshop on Productivity**, May 2024, Helsinki (Call for papers to be circulated shortly)
- **Events** to present our latest **Productivity Report**, Malta, Austria, by the end of 2023

Conclusions

- **CompNet is thriving on**
 - Data generation (CompNet and MDI)
- **.. Research output**
 - CompNet flagship Report
 - Diverse publications
- **Going forward**
 - Keeping up with the research and policy debate
 - Focus on Competitiveness
 - Concentration, mark up, firm dynamismTodays conference

Enjoy our annual conference

Important Links

- [TSI Website](#)
- [The 2023 CompNet Firm Productivity Report](#)
- [VoxEU Column on Competitiveness](#)

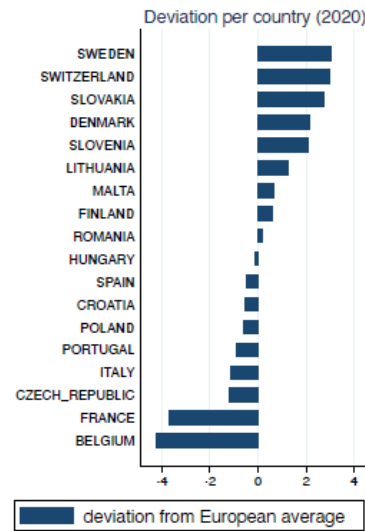
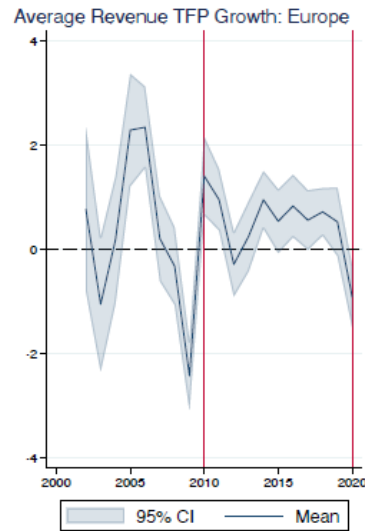
Additional Slides

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

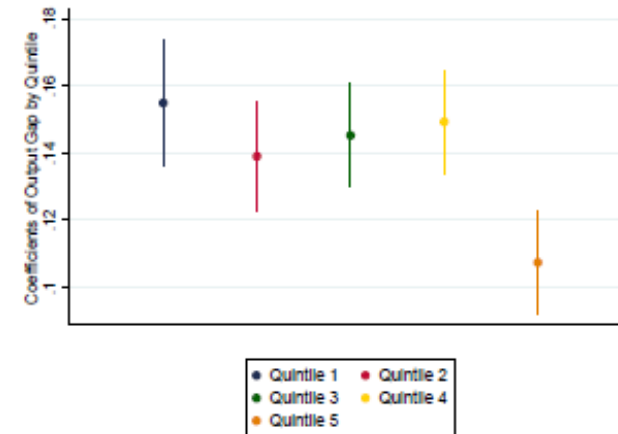
Reference CompNet persons: Anmol Kaur Grewal, Neeharika Kakunuri, Daniele Aglio, and Eric Bartelsman (Tinbergen Institute)

Collaborating National Productivity Board: Urska Cede (Institute of Macroeconomic Analysis and Development, Slovenia)

❖ How did COVID-19 impact post-COVID firm-level productivity? What about inflation pressures?



(a) Slope of the Phillips curve by productivity quintile (% changes)



COVID-19 crisis was followed by a decline in total factor productivity (TFP) in the short term in Europe

The Phillips curve is flatter for the most productive firms.

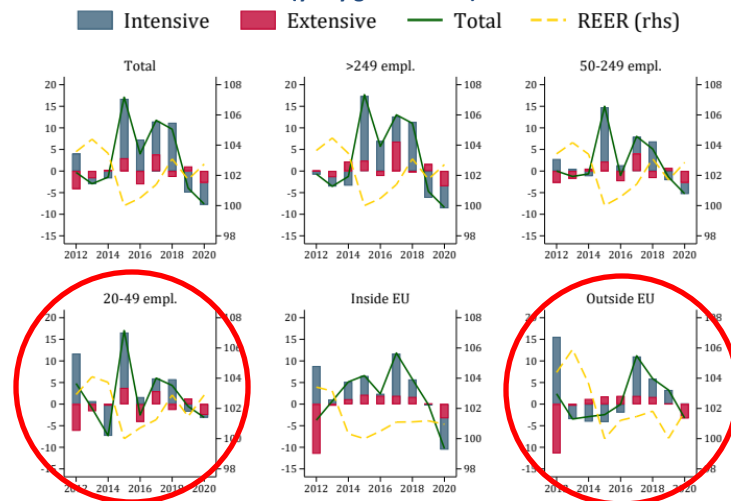
Ch.2 - EU firms in the global economy: A competitiveness assessment

Reference CompNet persons: Marco Matani, Sara Azzarito, Neeharika Kakunuri, and Leonardo Indraccolo

Collaborating National Productivity Board: Eva Pereira (Gabinete de Estratégia e Estudos, Portugal)

❖ How did COVID-19 impact trade patterns of European firms and productivity transmission in GVCs?

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



Small exporters and those exporting outside the EU were more likely to cease export activity (almost all drop is at extensive margin)

TFP growth transmission with time interactions. European countries, 2005-2020

	Frontier
TFP growth GVC (import) frontier	0.4636*** (0.1352)
TFP growth GVC (import) frontier × 2008-2010 dummy	0.1790 (0.2684)
TFP growth GVC (import) frontier × 2020 dummy	1.5797** (0.7425)
Lagged labor productivity gap with GVC (import)	0.1138*** (0.0191)
GVC (import) participation growth	-1.5198 (1.6663)

Heightened GVC productivity transmission in 2020 (propagation of trade disruptions)

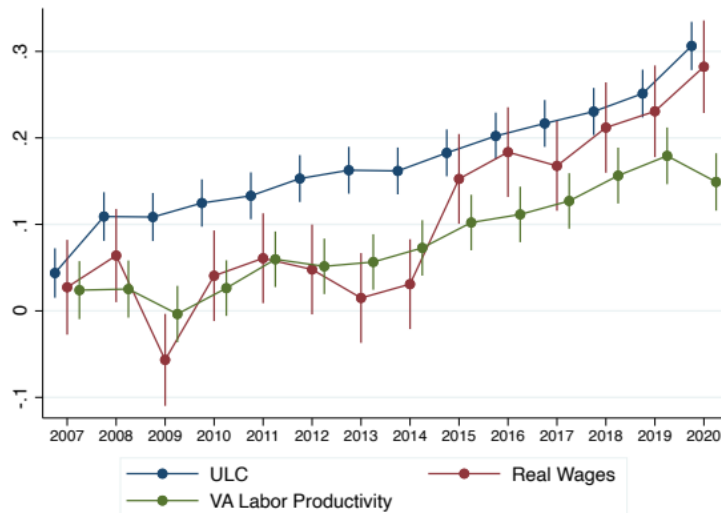
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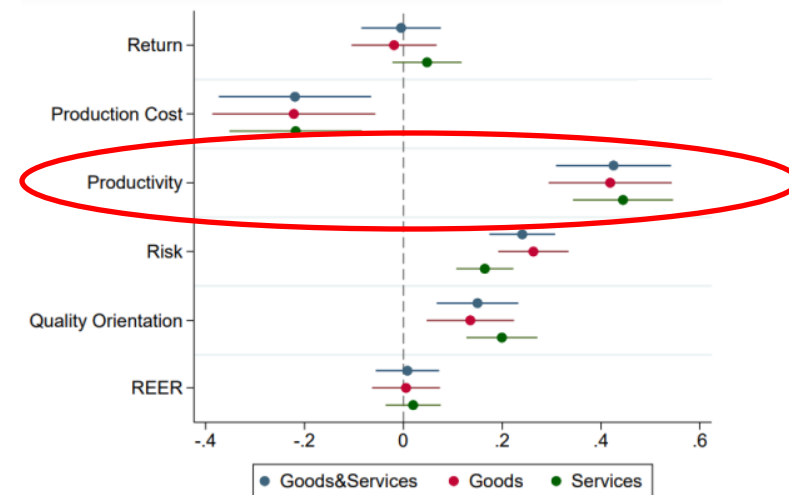
- ❖ How competitive are European countries and what bolsters external firm competitiveness?

Growth in Value-Added Labour Productivity, Real Wages and ULC. European Countries, 2007-2020 (y-on-y changes)



Deteriorating ULC outlook

ECI by dimension, REER, and Market Shares. European countries, 2012-2020



Market shares most strongly correlate with productivity (computed according to the Competitiveness Indicator developed with PT colleagues)

Ch.3 - Resource reallocation over the business cycle: A cross-country comparison

Reference CompNet persons: Leonardo Indraccolo and Laura LufRay

- ❖ How are resources (capital and labor) reallocated during expansionary and recessionary periods?

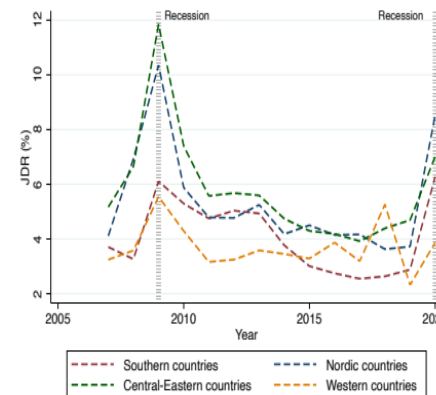
OP measure across countries and aggregate states of the economy for European regions, 2008-2020

	Expansions	Recessions
	Op measure	Op measure
Nordic countries	8.057	12.239
Southern countries	0.149	0.152
Central-East countries	0.699	0.979
Western countries	6.566	8.119

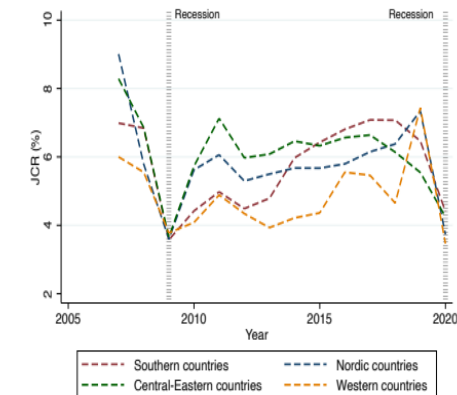
Recessions in Europe can have a positive cleansing effect by which resources flow to more productive firms
However, less so in Southern-European countries

JDR and JCR over the business cycle by European countries across sectors, 2008-2020

(a) JDR over the business cycle



(b) JCR over the business cycle



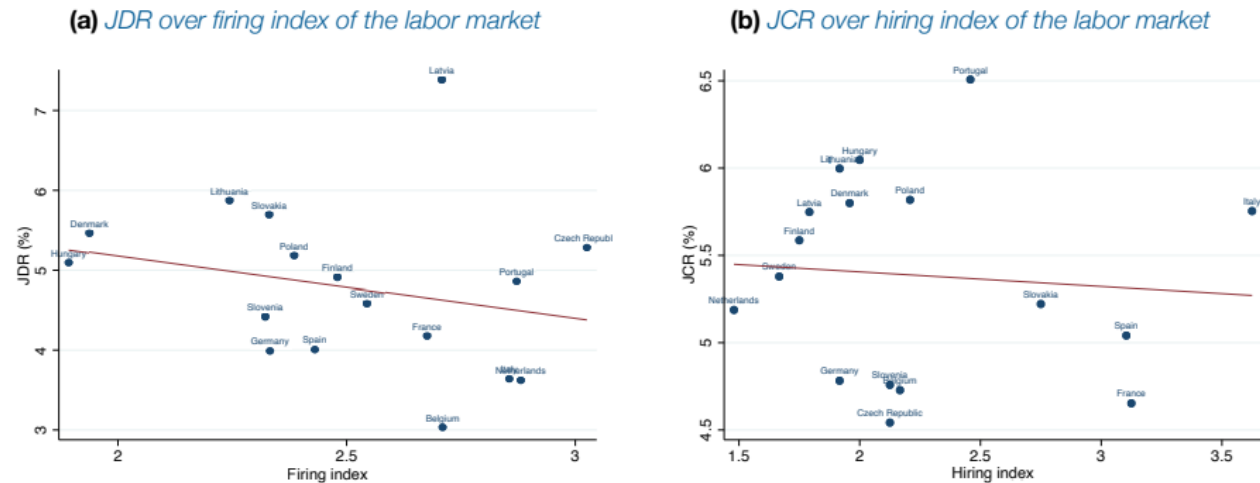
Job destruction and creation rates (strongly related to reallocation) are resp. higher in recessions and expansionary periods

Ch.3 - Resource reallocation over the business cycle: A cross-country comparison

Reference CompNet persons: Leonardo Indraccolo and Laura LufRay

- ❖ How does firm responsiveness (job creation and destruction rates) relate to country-specific institutional features?

JDR & JCR and indexes of labor market rigidity, European countries, 2008-2020



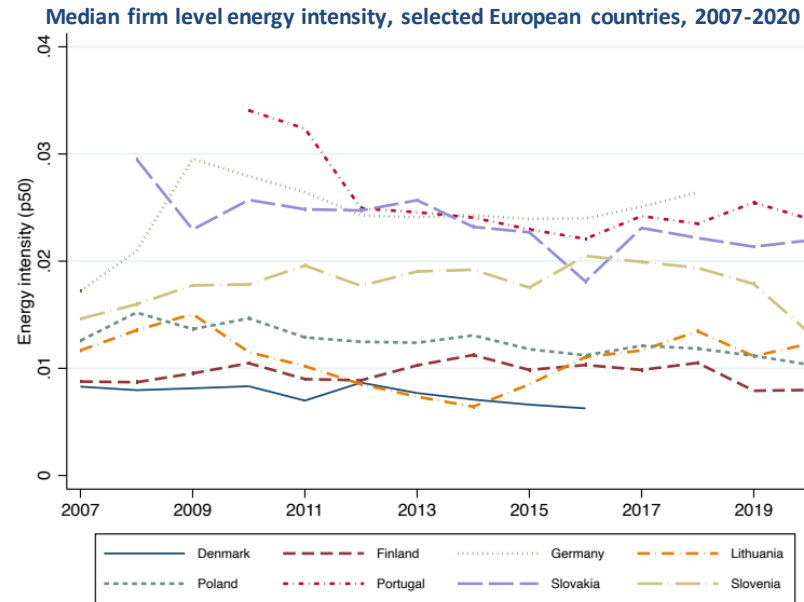
Countries where it is more difficult to fire workers also have lower JDRs; similar but weaker association between JCRs and the index of ease of hiring (statistics on labor market rigidity from the OECD Employment Protection Legislation Database)

Ch.4 - Reacting to energy price shocks

Reference CompNet persons: Laura Lehtonen, Sara Azzarito, Alessandro Zona Mattioli and Marcelo Piemonte Ribeiro

Collaborating National Productivity Board: Urska Cede (Institute of Macroeconomic Analysis and Development, Slovenia)

- ❖ Have European firms evolved more or less energy intense over the last few years?



Energy intensity (energy over total costs) generally remained stable over time, although with substantial level differences across countries

Ch.4 - Reacting to energy price shocks

Reference CompNet persons: Laura Lehtonen, Sara Azzarito, Alessandro Zona Mattioli and Marcelo Piemonte Ribeiro

Collaborating National Productivity Board: Urška Cede (Institute of Macroeconomic Analysis and Development, Slovenia)

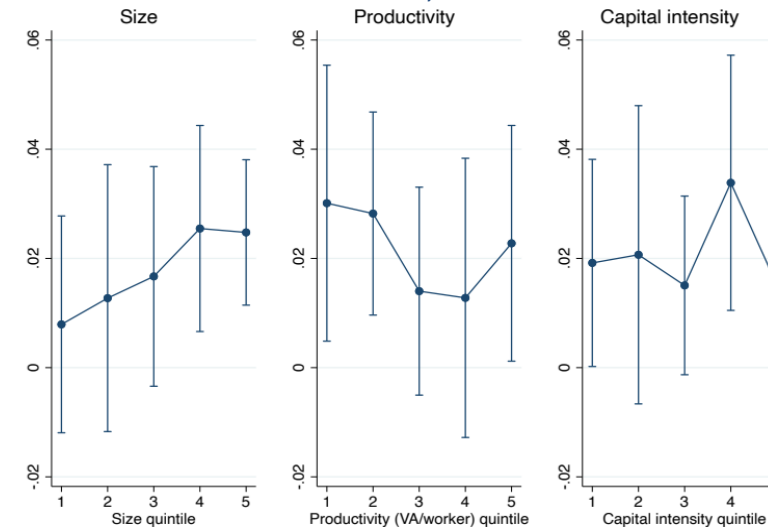
❖ How do heterogeneous firms react to energy price shocks?

Impact of energy price shocks on profitability (1), job destruction rate (2), energy cost share (3), energy / VA (4), export share (5), investment / assets (6), and green share (7), selected European countries, 2007-2016

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
weigh. Δ PC:							
Fossil Fuels	-0.063 (0.049)	-0.009 (0.097)	0.118* (0.070)	-0.152 (0.105)	0.187 (0.221)	5.176 (42.169)	0.000 (0.048)
Electricity	-0.029** (0.014)	-0.039 (0.036)	0.006** (0.003)	0.002 (0.002)	-0.016 (0.018)	-38.845 (38.431)	-0.027 (0.017)
Natural Gas	-0.117*** (0.045)	0.074 (0.048)	-0.018** (0.009)	-0.008 (0.009)	-0.238*** (0.068)	156.338 (153.538)	-0.097** (0.046)
Constant	-0.032*** (0.009)	0.121*** (0.024)	-0.015*** (0.003)	0.000 (0.002)	0.011 (0.024)	10.037 (11.033)	0.000 (0.003)
Observations	1,978	2,054	2,036	2,046	1,170	1,433	2,058
R-squared	0.458	0.345	0.286	0.032	0.134	0.044	0.034
Number of ID	253	254	254	253	142	188	254
Year FE	YES	YES	YES	YES	YES	YES	YES

Energy price shocks compress firm profits, raise energy costs and curb exports (resp. columns 1, 3 and 5, data on energy prices and consumption resp. from the International Energy Agency and the World Input-Output Database Environmental Accounts)

Heterogeneous impact of electricity on energy cost share, selected European countries, 2007-2016



Energy price shocks are more harmful for larger, less productive firms

Ch.5 - Constrained SMEs

Reference CompNet persons: Marcelo Piemonte Ribeiro

Collaborating National Productivity Board: Jan Sebo (Úrad vlády Slovenskej republiky, Slovakia)

- ❖ How are small and medium-sized enterprises (SMEs) affected by tighter credit constraints?



While young micro and small firms became more credit constrained after the GFC, this was not the case during the COVID-19 pandemic, when larger firms were more affected

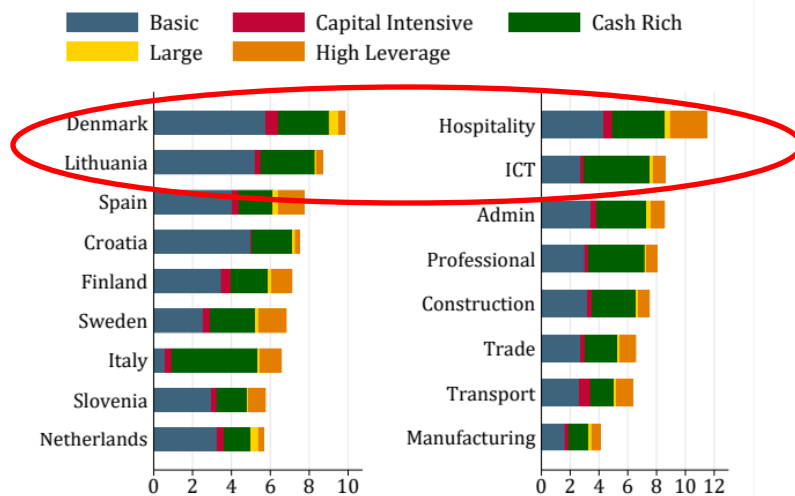
Box: Macro-sectoral drivers of startup types

Reference CompNet persons: Marco Matani

Contributors: Ralph De Haas (European Bank for Reconstruction and Development), Vincent Sterk (University College London), Neeltje van Horen (Bank of England)

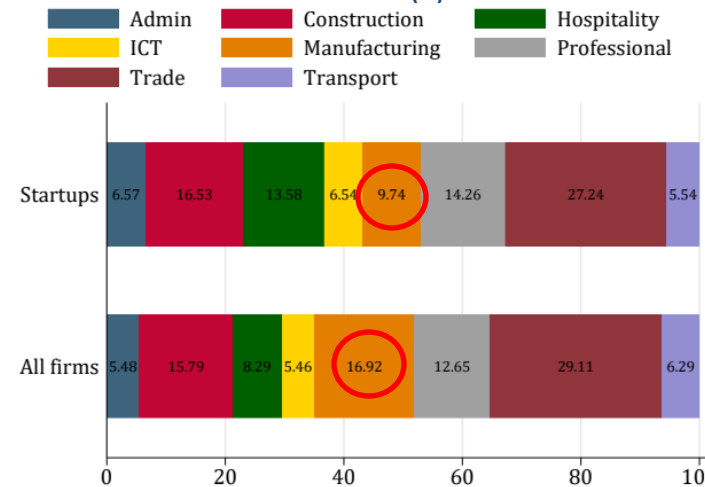
❖ How are startups distributed across countries and macro-sectors?

Startups in Europe. European countries, 2010-2019. Startups on all firms (%)



Highest startup shares in Denmark, Lithuania, Hospitality, and ICT

Startups in Europe. European countries, 2010-2019. Share on startups and on all firms (%)



Manufacturing is under-represented among startups

Ch.6 - Concentration and productivity: Lessons for a high inflation environment

Reference CompNet persons: Marco Matani and Sara Azzarito

- ❖ How does concentration associate with productivity, allocative efficiency, and market power?

Value added concentration and productivity at the two-digit-industry level. European countries, 1999-2020

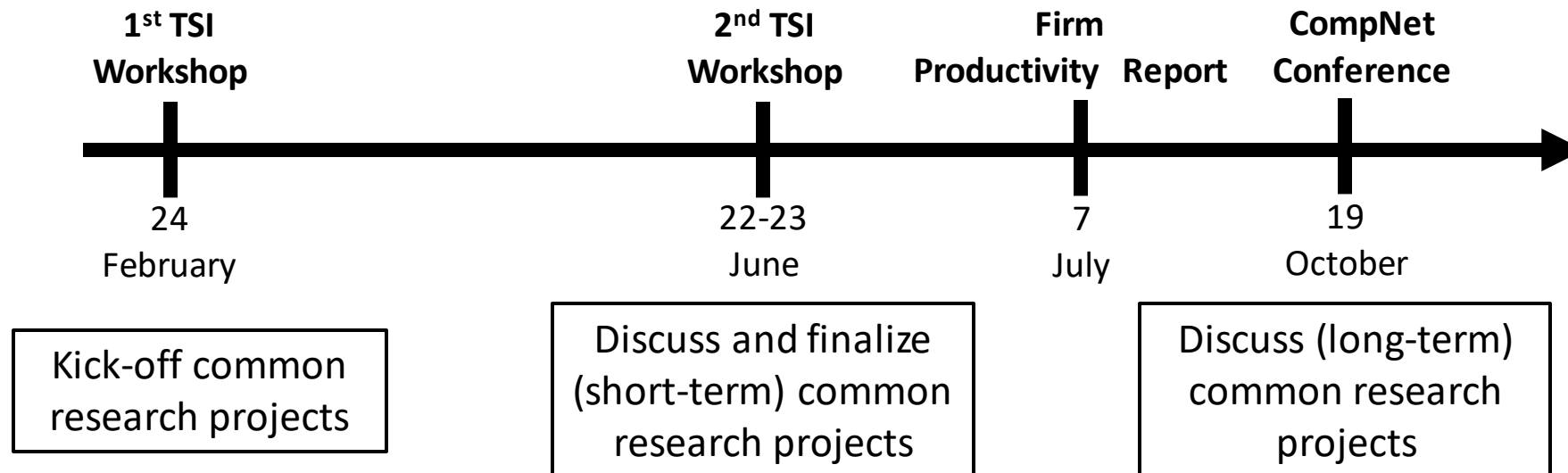
	(1) HHI	(2) HHI	(3) HHI	(4) HHI	(5) HHI	(6) HHI	(7) HHI	(8) HHI	(9) HHI	(10) HHI
Agg. prod.	0.01*** (0.00)	0.01*** (0.00)	0.02*** (0.00)							
Unweighted avg. prod.				0.00 (0.00)	0.00 (0.00)	0.00 (0.00)				
Allocative efficiency							0.03*** (0.01)	0.03*** (0.01)	0.03*** (0.01)	0.02** (0.01)
Capital intensity	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00* (0.00)	0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
L(avg firm size)			5.44*** (0.94)			5.34*** (0.93)			5.49*** (0.91)	3.83** (1.66)
L(agg. markup)		-1.12 (1.45)	0.58 (2.65)		1.63 (1.31)	3.41 (2.77)		-2.54 (1.54)	-0.86 (2.21)	6.88** (2.92)

Concentration of Value Added (similarly to revenues) correlates positively with industry productivity and allocative efficiency, but not with markups

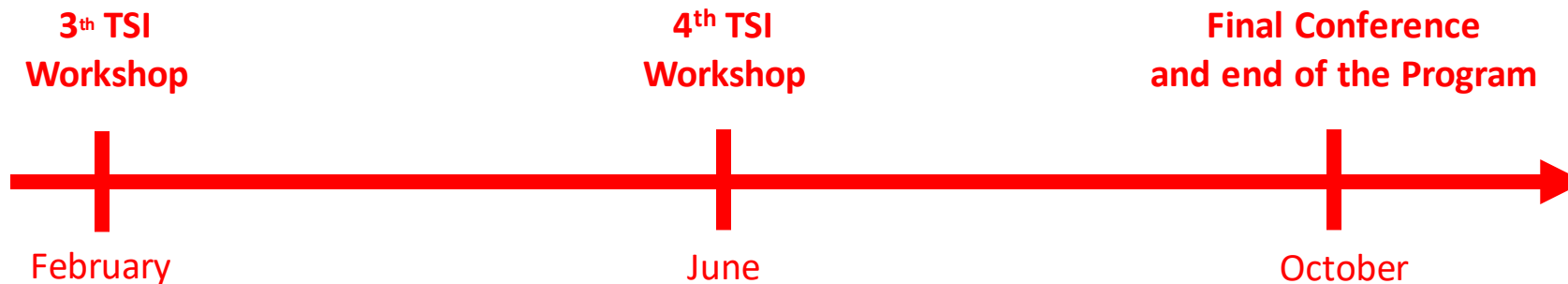
Welfare benefits might not be linear though (concentration associates with markups in the most concentrated industries, column 10)

Technical Support Instrument: Timeline

2023



2024



CompNet Training

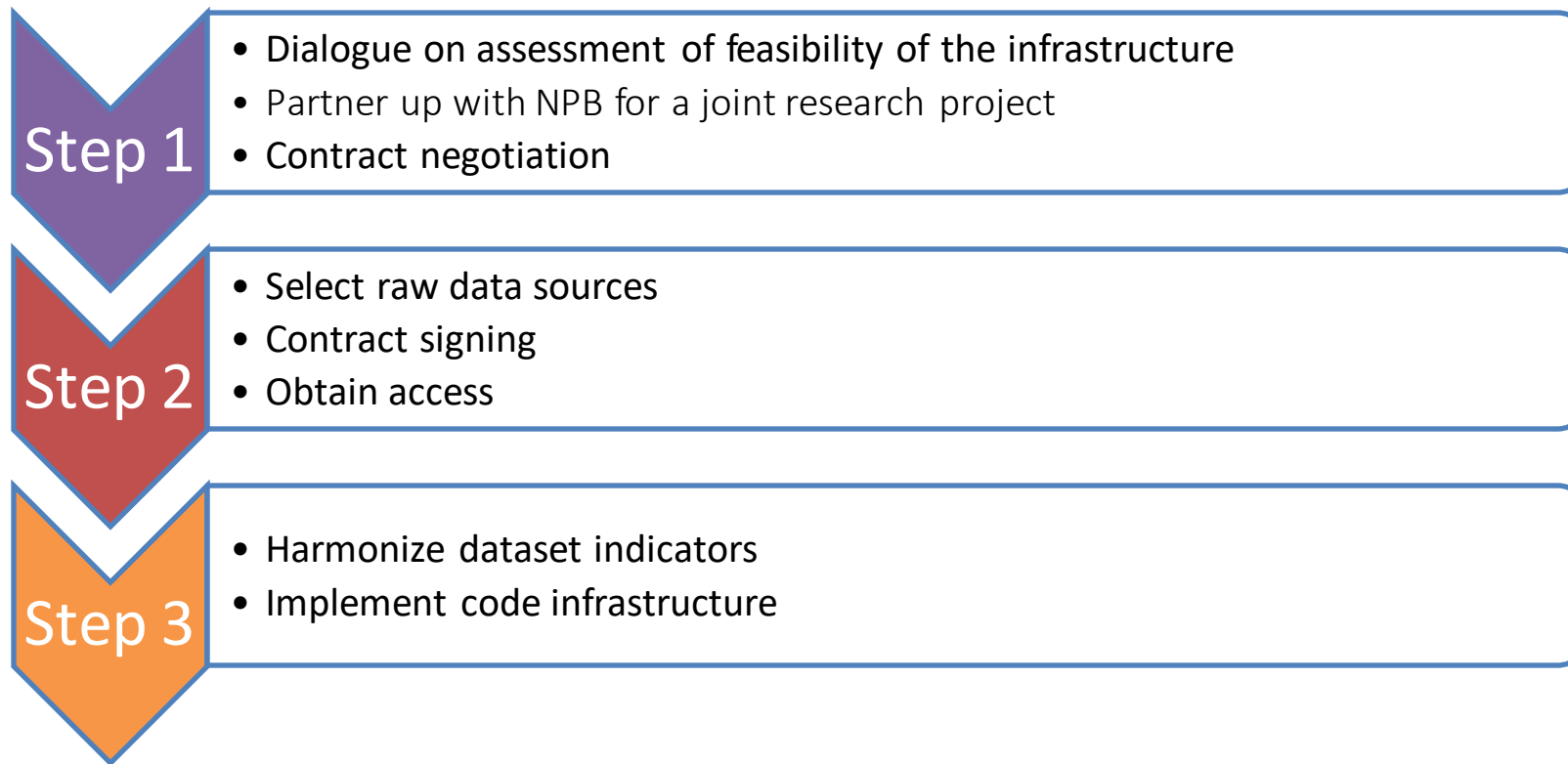
- ❑ So far, we provide a self-guided program:
 - Available online for the 8th and 9th vintages of data
 - Divided into 3 modules: *Beginners*, *Intermediate*, *Advanced*
- ❑ TSI countries involvement:

Beginners	Intermediate	Advanced
All countries completed it	France and Portugal worked on it; Slovenia completed it	France and Portugal worked on it; Slovenia completed it

- ❑ Evaluation from our side: with the exception of Slovenia, we did not receive any feedbacks. Does it mean that everything was alright? Were there any difficulties?
- ❑ **What are your thoughts?**

The Micro Data Infrastructure (MDI)

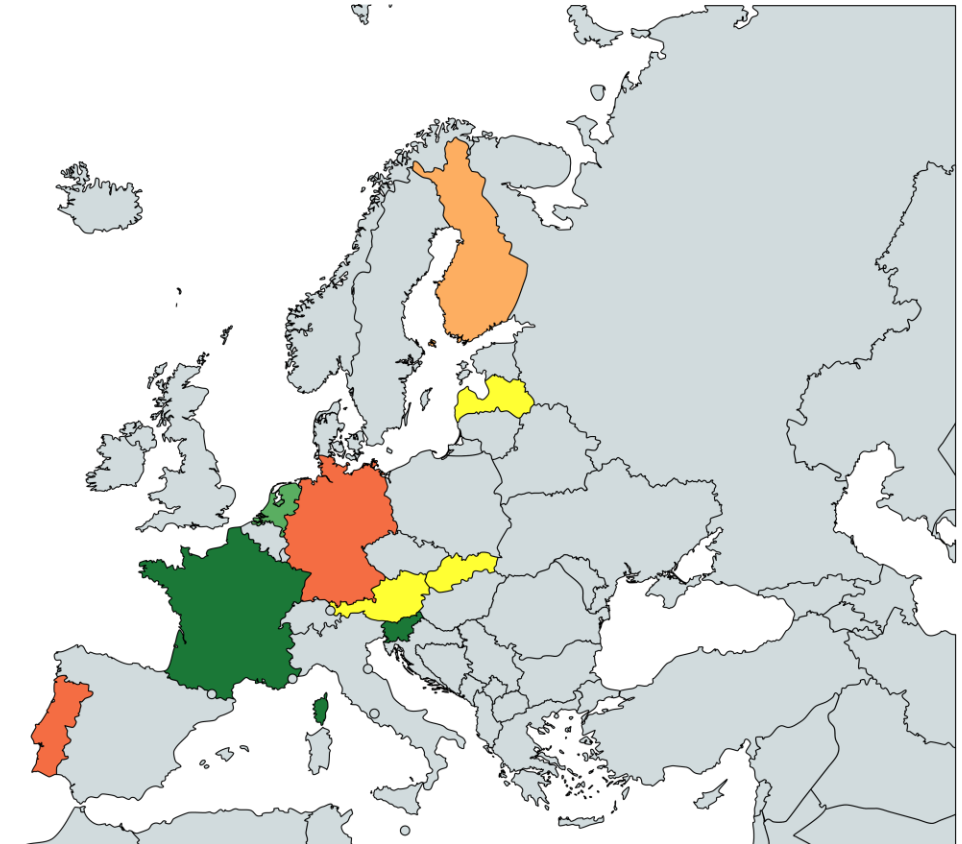
- MDI implementation is undergoing 3 major steps:



The MDI – Current status

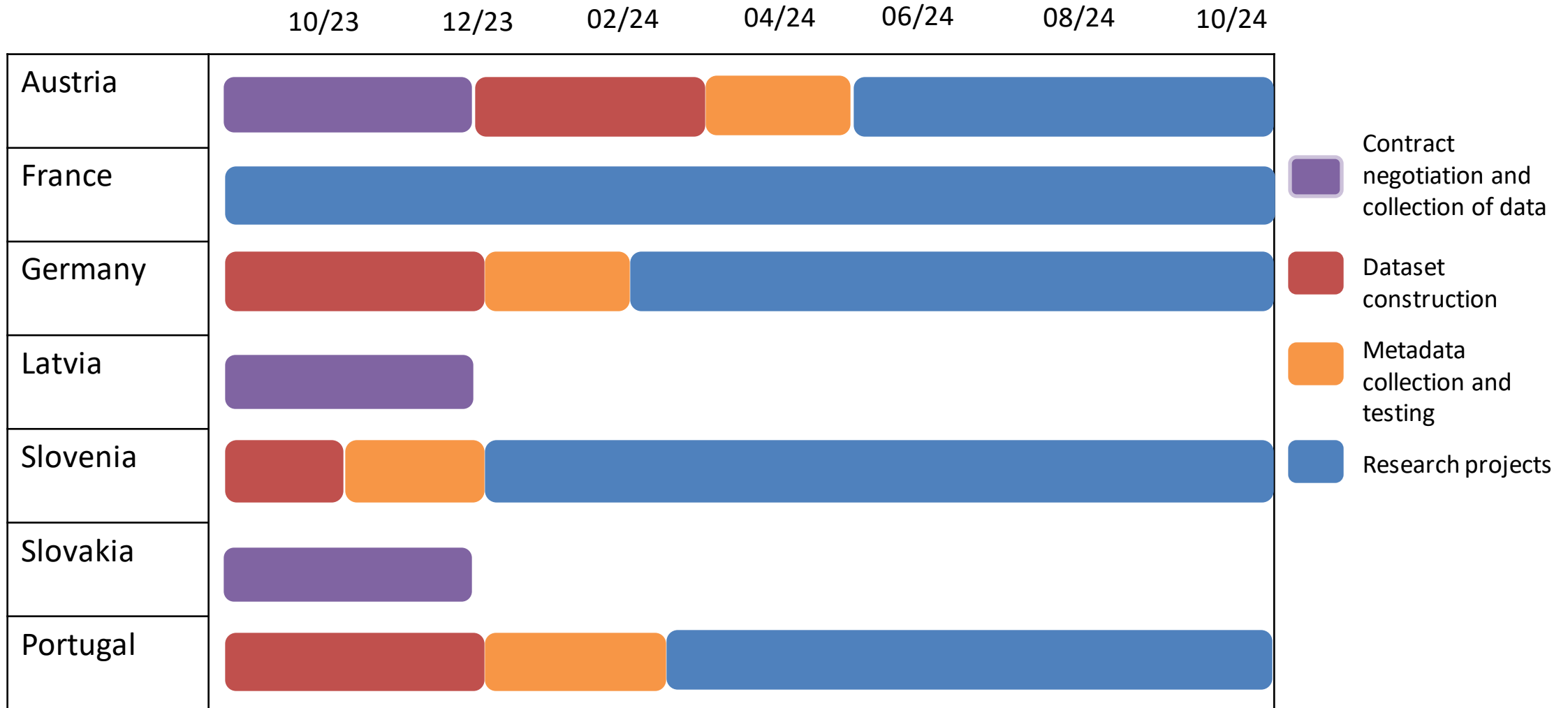
- **Step 1:**
 - **LV,SK:** negotiations with statistical office
 - **AT:** contract negotiations
- **Step 2:**
 - **DE:** construction of dataset, contract to be signed
 - **PT:** construction of dataset & testing of the codes
- **Step 3:**
 - **SI:** harmonization of data and indicators
 - **FR,NL:** MDI is established
- **Note on non-TSI countries**
 - The MDI is currently established in NL, data construction for FI in cooperation with ETLA ongoing.

■ Step 3
■ Step 3 (non-TSI)
■ Step 2
■ Step 2 (non-TSI)
■ Step 1



Created with mapchart.net

The MDI – Milestone



The MDI – Milestone

■ Training

- Special training module on MDI usage (documentation, tools, test data) to be provided (self-contained) this year.
 - Based on direct coding on 'mock dataset' and application of code infrastructure
- Possible to expand to online or on-site training

■ Projects

- With French and German NPB
 - By mid November: first results on descriptive patterns of energy intensity of the two economies and CO2 emissions.
- With Slovakia NPB
 - Small Business Financing
- With Slovenia NPB
 - Productivity Benchmarking and Business Dynamism
- With Portuguese and Austrian NPB
 - TBD
- With EC
 - Determinants and effects of firms' export behaviour.
 - By end of October: first Pilot with descriptives on correlations between selection into export vs outsourcing and link to firm level technologies

The CompNet Dataset – Confidentiality Guarantee

- The CompNet code includes a **specific routine** that checks the eventual output cells to guarantee that no individual firm can be identified
- The specific routine bases on two different thresholds:
 - **Minimum Number of Observations**: If a cell is based on a limited amount of underlying micro-observations, the cell will be dropped;
 - **Statistical Dominance**: The largest permissible size share a single observation can attain for a given cell. If it is overcome, the cell will be dropped.
- The data providers freely set both thresholds a priori to satisfy their country or institution-specific requirements. The thresholds apply to each single cell.
- The **comparability** of all data points actually published is **not affected**.

Common TSI Research Agenda: Output

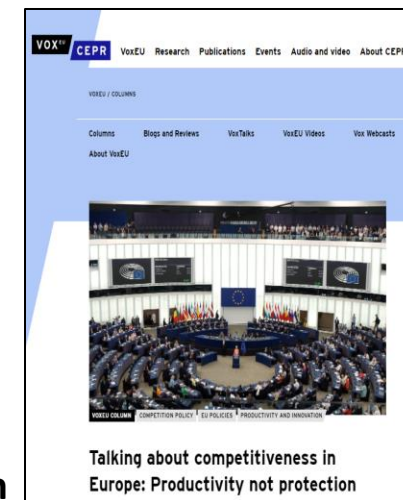
■ The 2023 CompNet Productivity Report

“European firms navigating multiple crises”

- Highlighted the **stylized facts from the 9th Vintage** in collaboration with contributing TSI participants/NPBs
- 6 chapters on **Productivity, Competitiveness, Reallocation, Energy, SMEs, and Concentration** plus **one ad-hoc box**

■ Further research projects (in parallel and on top of Report)

- **Longer gestation** using CompNet and/or MDI data (+ potential additional sources)
- Examples: **Monetary Policy, Competitiveness, Energy, Firm Dynamics**
- Publications delivered in the **medium/long run (for instance, next workshops)**

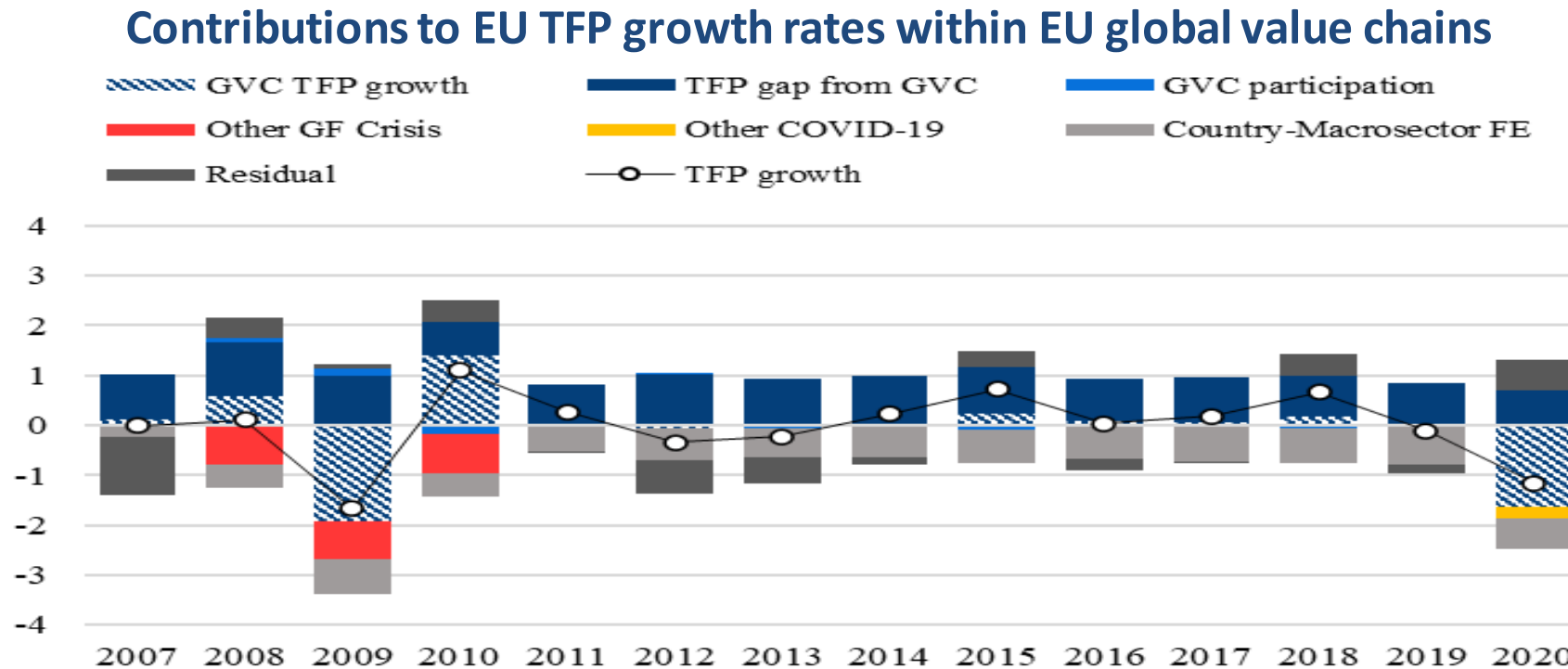


VoxEU Column

"Talking about competitiveness in Europe: Productivity not protection"

Are you already collaborating? If not, are you interested in any of our topics?

CompNet going forward: Focus on Competitiveness



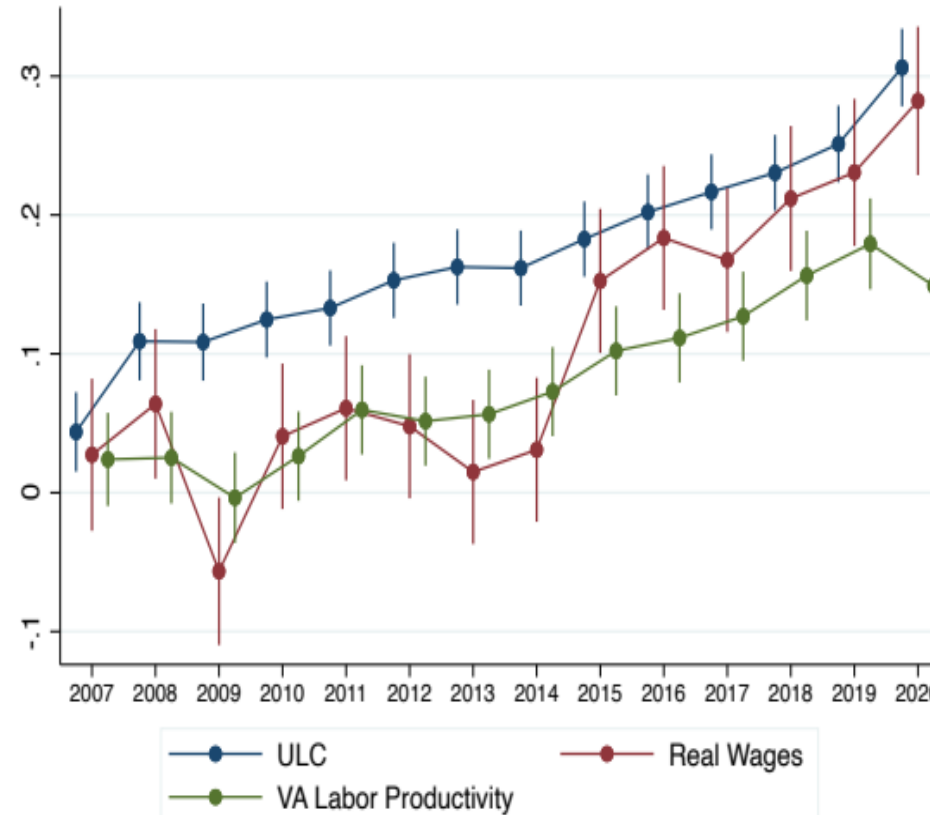
- VoxEU Column "*Talking about competitiveness in Europe: Productivity not protection*"
- The TFP contribution of EU GVC counterparts (dashed blue) is strongly negative during crises
- Strong contribution of productivity gap: Balassa-Samuelson "catching-up effect"

CompNet going forward: Complete the TSI

- Emphasis on **operationalising the MDI**
- **Convert CompNet projects into the MDI** whenever possible to enhance granularity
- **4 meta directions:**
 - ❖ **Trade and Competitiveness:** Productivity transmission within GVCs and drivers of EU firms' comparative advantages
 - ❖ **Phillips Curve and Monetary Policy:** Micro-founded Phillips Curve and the effects of firm heterogeneity on inflation
 - ❖ **Energy:** Firms' heterogeneity in reacting to energy shocks and the relevance of firm characteristics for optimal policy desing
 - ❖ **Firm Dynamics:** Firms' heterogeneity in responsiveness to the business cycle and the relation between firm dynamism and reallocation-driven productivity growth

The 2023 CompNet Firm Productivity Report

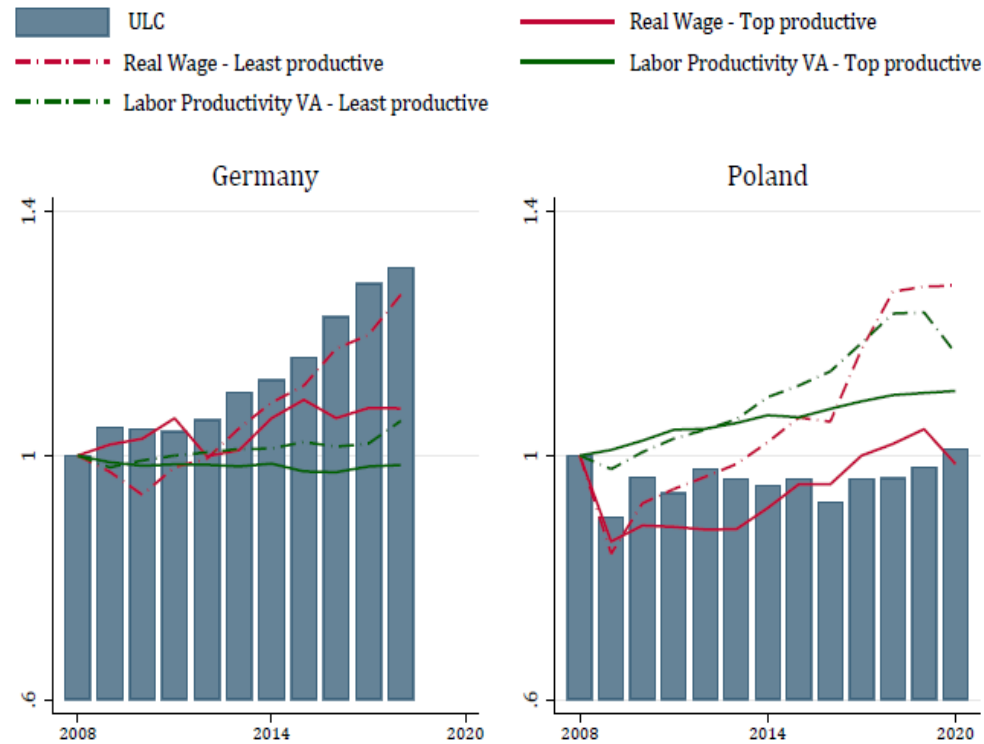
Growth in Value-Added Labour Productivity, Real Wages and ULC.
European Countries, 2007-2020 (y-on-y changes)



The ULC outlook deteriorated...

The 2023 CompNet Firm Productivity Report

Growth in Value-Added Labour Productivity, Real Wages and ULC by productivity deciles.
Germany and Poland, 2008-2020 (index with base year = 2008)



...heterogeneously across and within countries

Roadmap

- CompNet 10th Vintage
 - Data
 - Productivity report
- TA to NPBs (TSI): where do we stand?
 - Training
 - MDI
- Publications and Events
- Budget
- CompNet going forward
 - Complete TSI
 - Focus on Competitiveness (supporting Draghi)
 - New initiative: InfoMicro (with CEPR)

Research Agenda and CompNet Data

- What did you think?
 - What is valuable
 - What is less valuable
 - Do you want to continue working with CompNet
- Research group experience
 - More/less?
 - Limitations with other work priorities?
- Austria

CompNet going forward: Micro data initiative with CEPR

- June 2023, Paris: Workshop "**Microdata in Europe: The Way Forward**" jointly organized **with CEPR** (more than 2.000 top-notch economists)
- Consensus that **Micro-data access is unsatisfactory**. CEPR members ready to put pressure on Statistical Institutes and policy makers
- **We are proposing to Build on the** IWH/CompNet experience on business related data
- ...but with much larger ambitions, i.e., expanding to other fields of economics as well
- After an initial set up cost, the initiative could become **self-financed** via user fee arrangement