CompNet The Competitiveness Research Network

Strengthening Policy Research via firm-level information:

The CompNet Project

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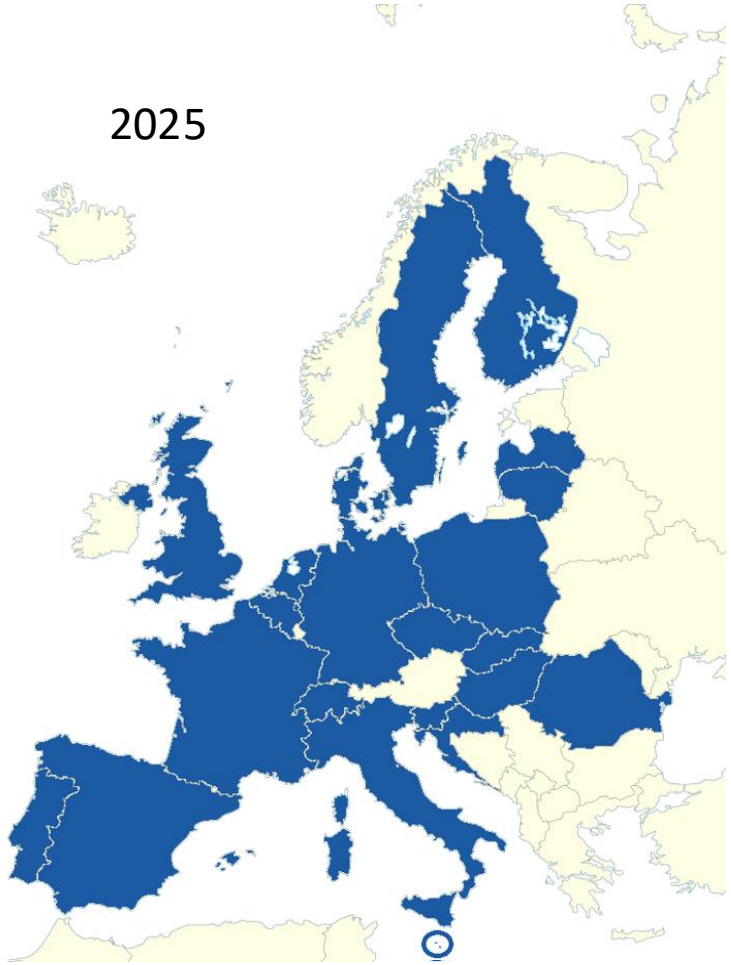
CompNet

- The Competitiveness Research Network (CompNet) is a research network originally founded by the European System of Central Banks in 2012 and hosted at IWH-Halle (Germany) since 2016 to foster the debate on competitiveness issues among policy institutions and researchers.
- Www.comp-net.org
- The Network is the producer of a top standard micro-founded dataset covering productivity indicators for some 20 European countries and is financed by major European institutions

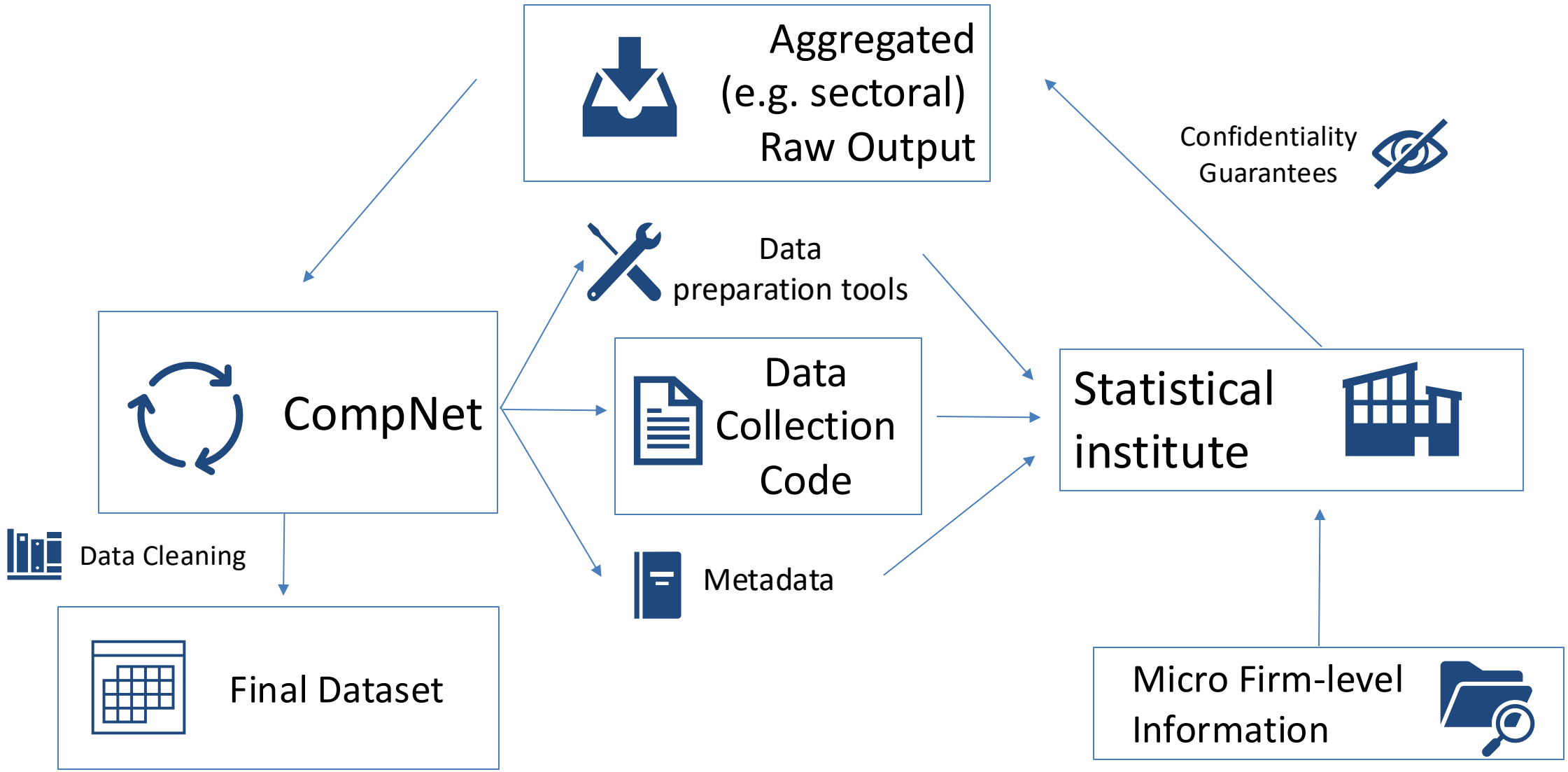
The CompNet Dataset in Europe



- Unbalanced panel of **productivity and competitiveness indicators**
- **Started in 2012** from research departments of the ECB/Eurosystem, hosted at the Halle Institute of Economic research since 2017
- Our data providers are **national statistical institutes, national central banks** and **governmental research institutions**
- **They** run our codes on the best existing national datasets (**business registers and tax returns**, with 2-3 years lag)
- **We** provide **cross-country harmonization**
- **No need** to undertake **new** and costly data collection **efforts**
- **10th Vintage**: out in April 2025 for **22 European countries, 1999-2022/23**

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

CompNet – The Mechanics



The CompNet Dataset – 10th Vintage

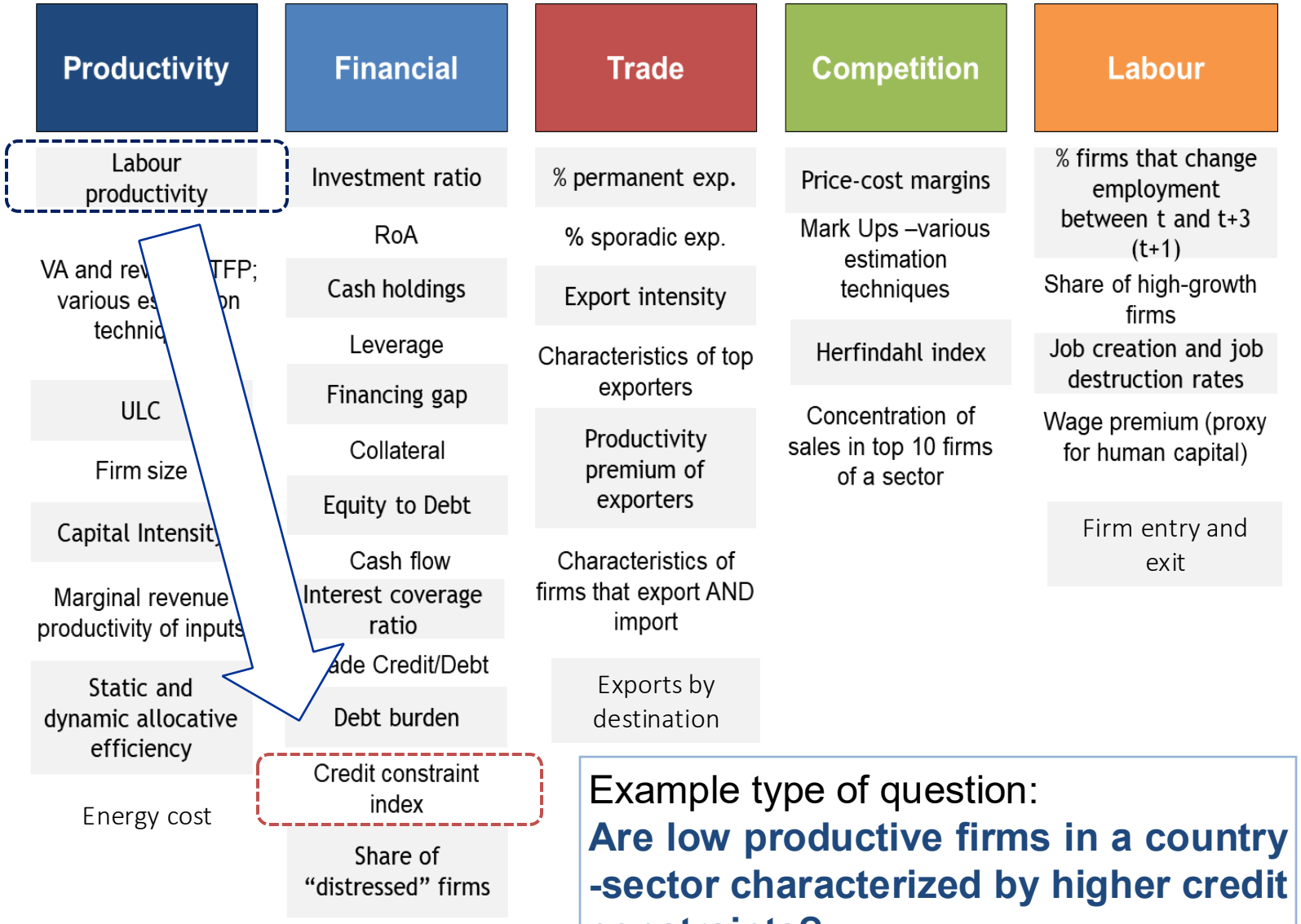
Productivity	Financial	Trade	Competition	Labour
Labour productivity	Investment ratio	% permanent exp.	Price-cost margins	% firms that change employment between t and t+3 (t+1)
VA and revenue TFP; various estimation techniques	RoA	% sporadic exp.	Mark Ups –various estimation techniques	Share of high-growth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

Example type of question: **What is the effect of more and less stringent EPL rules in different locations of the size distribution?**

Previously we had added

- Zombie firms
- Regional dimension within countries
- Intangibles proxies

The CompNet Dataset – Joint Distributions



Example type of question:

Are low productive firms in a country -sector characterized by higher credit constraints?

The CompNet Dataset in Asia-Pacific

Countries	Aggregation levels
Japan New Zealand S. Korea Plus Canada	Age, Country, Macro-Sector, Macro-Sector-Size-Class, 2-digits NACE Industry, NUTS Region, Technology

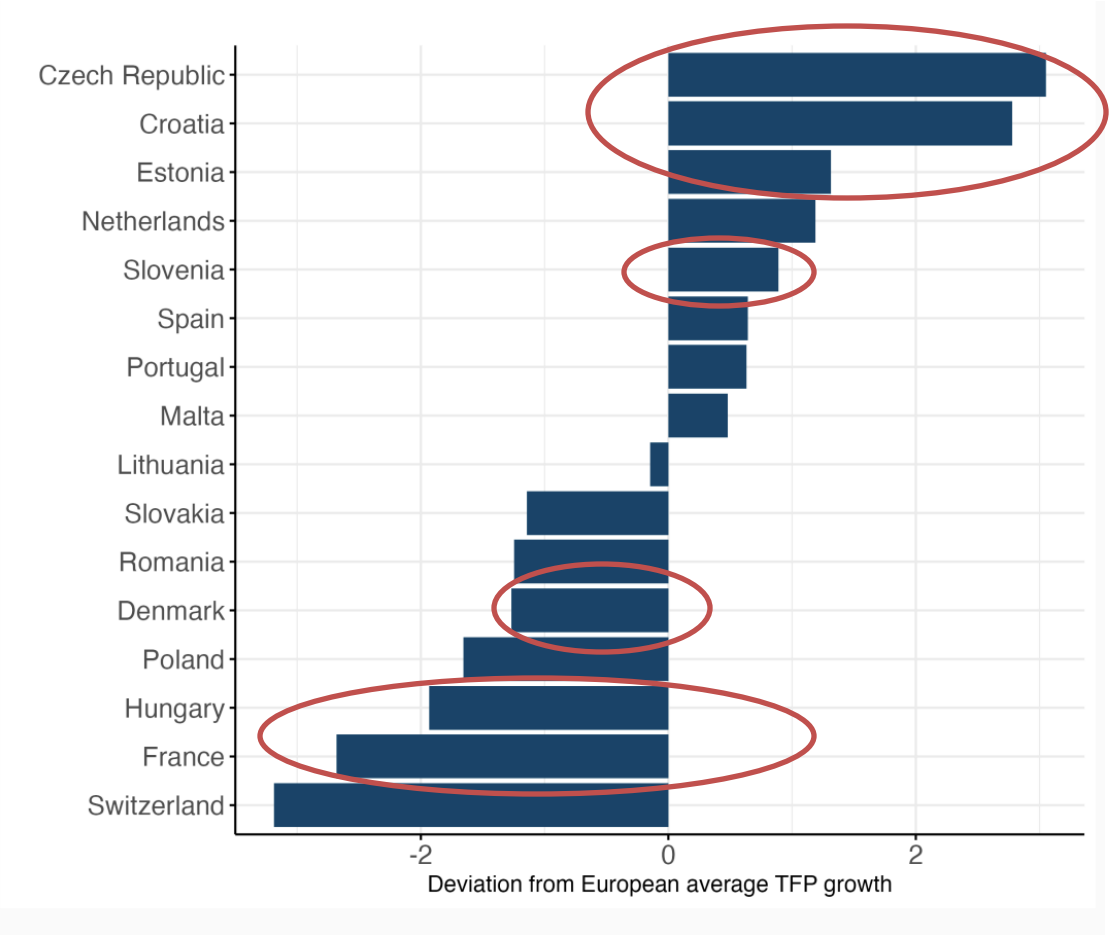
Productivity Developments

TFP Growth Trend Across Europe

- **Strong Recovery:** Strong recovery since the sharp drop of the pandemic; significant rebound from gains from restructuring
- **Digital Shift:** Accelerated adoption of technology and remote work boosted productivity and efficiency
- **Supply Adjustments:** Post-COVID restructuring improved resilience, reduced costs, and optimized supply chains

The most recent CompNet Dataset

Productivity Developments

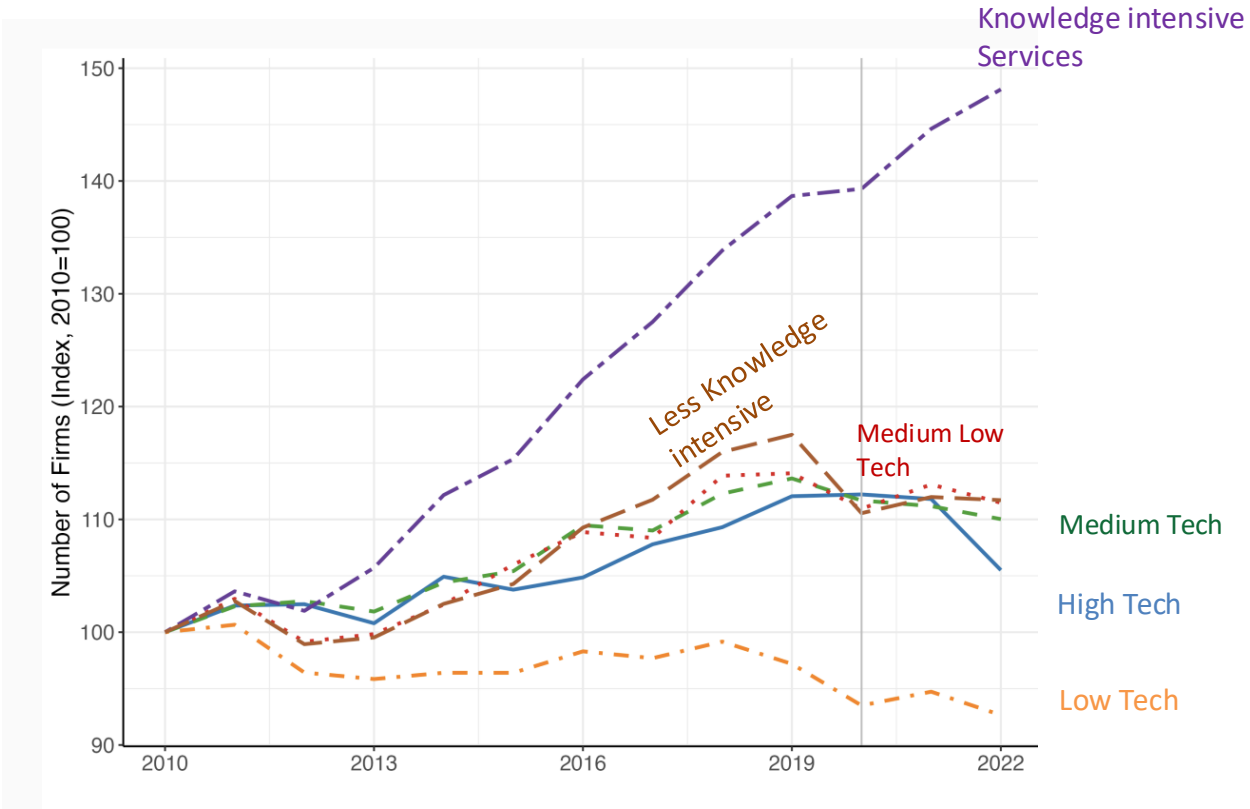


Deviation from 2021 average

- **Recovery Dynamics**: Economic recovery unfolding at two distinct speeds; the 2021 European average growth rate was ~2.15%
- **Front Runners:** Czech Republic, Croatia, Estonia, and Slovenia – and tourism-dependent Malta and Spain exhibiting steady recoveries
- **Trailing Group:** France, Hungary, and Denmark experienced sluggish TFP growth – sectoral concentration, varying government intervention, and pre-existing economic vulnerabilities

The most recent CompNet Dataset

The Role of Technology



- **Historical & Recent Trends**: Traditionally, tech advancements boosted labour productivity in manufacturing, rapid digital innovations now drive growth in knowledge-intensive services
- **Firm Number Growth**: Substantial growth in high-knowledge service sectors versus moderate growth in high-technology manufacturing sectors.
- **Industry Implications:** Reflects shifting industry dynamics, indicating that the digital revolution will continue to reshape productivity patterns

<u>Number</u> of Firmy by Technology Intensity

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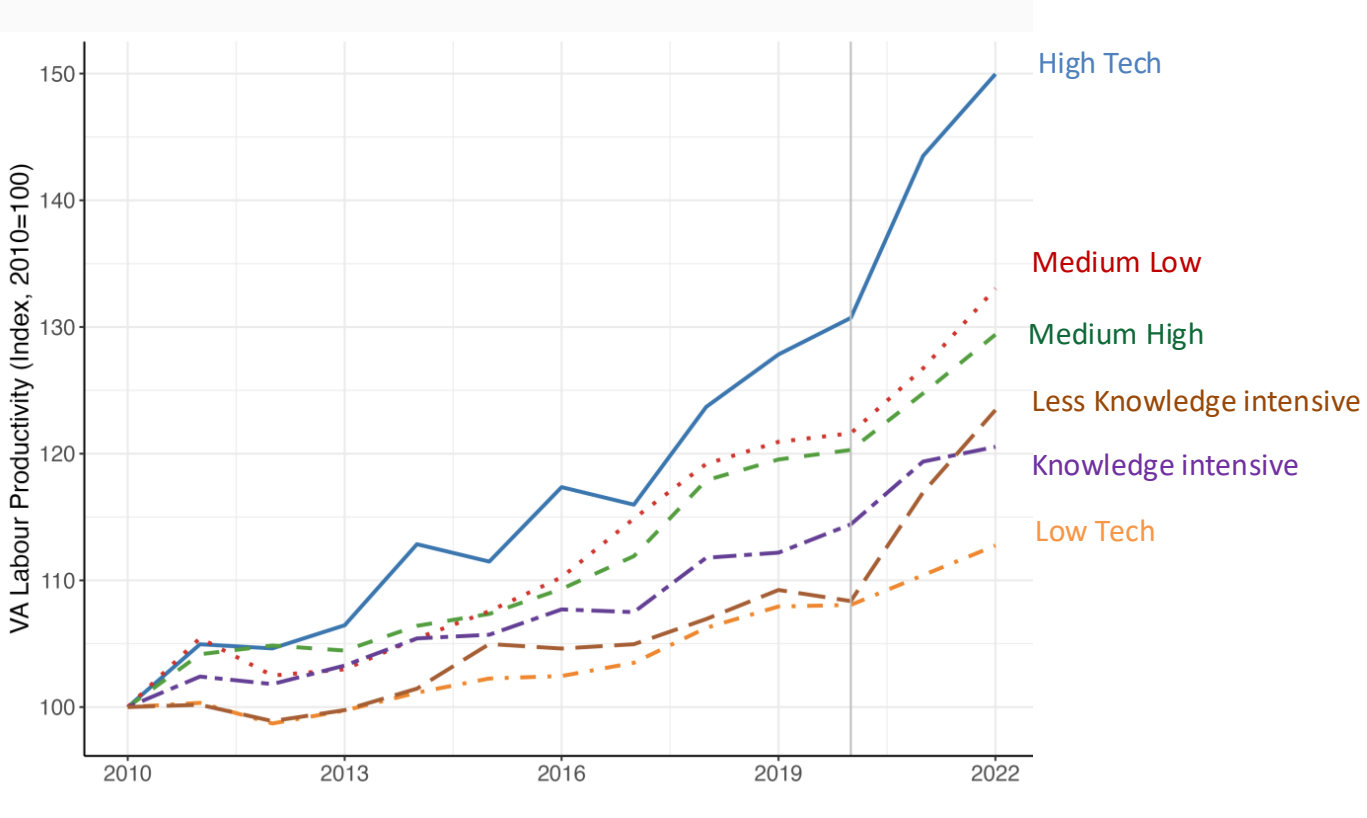
High Technology Industries · Medium Low Tech. Industries · Knowledge Intensive Services
Medium High Tech. Industries · Low Technology Industries · Less Knowledge Intensive Services

The Role of Technology



- **Skewed Gains**: High tech and knowledge intensity industry drive productivity gains, widening gap since pandemic
- **Digitalization of Services:** Less knowledge-intensive services notably enhanced labour productivity through digital tools and automation
- **Policy Implications**: May lead to concentrated resources and opportunities, technology diffusion and strengthening resilience crucial

Value added Labour Productivity by Technology Intensity

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High Technology Industries · Medium Low Tech. Industries · Knowledge Intensive Services
Medium High Tech. Industries · Low Technology Industries · Less Knowledge Intensive Services

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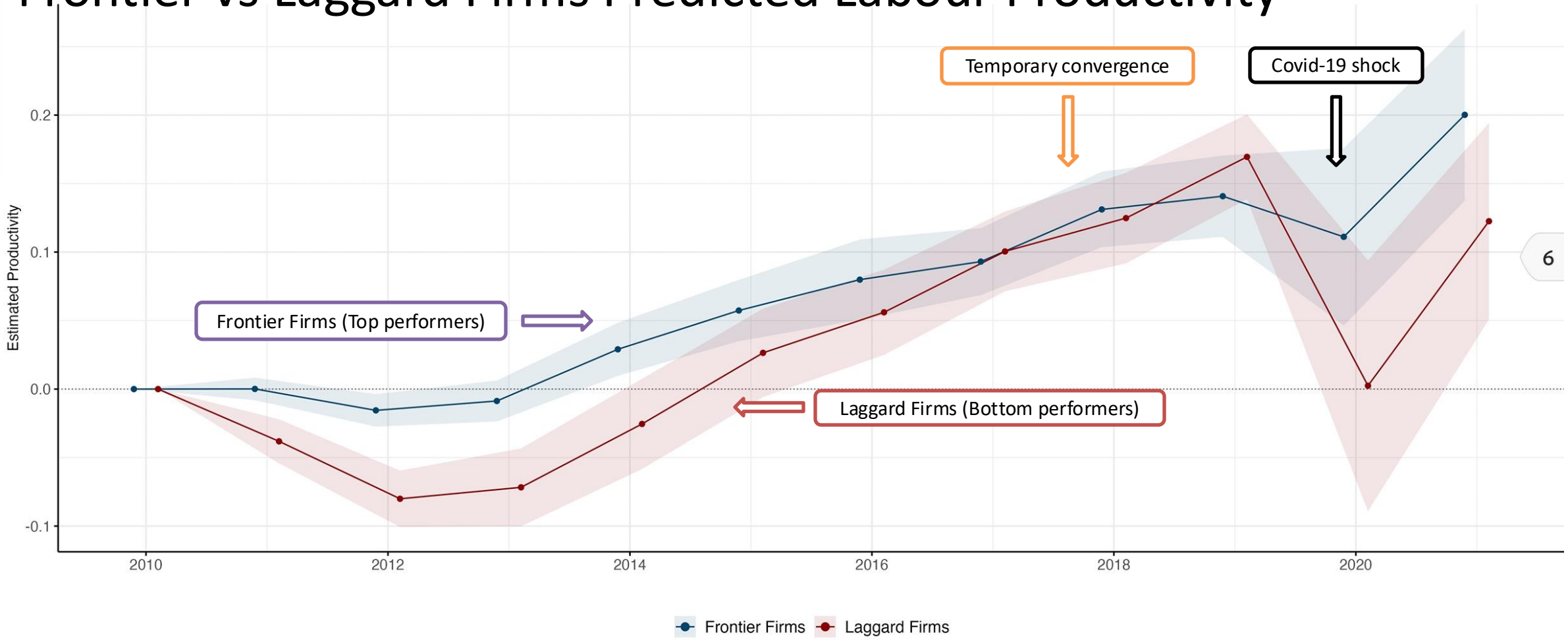
Frontier vs Laggard Firms Predicted Labour Productivity



- **The lag between the BEST and the REST is opening up again in the EU**

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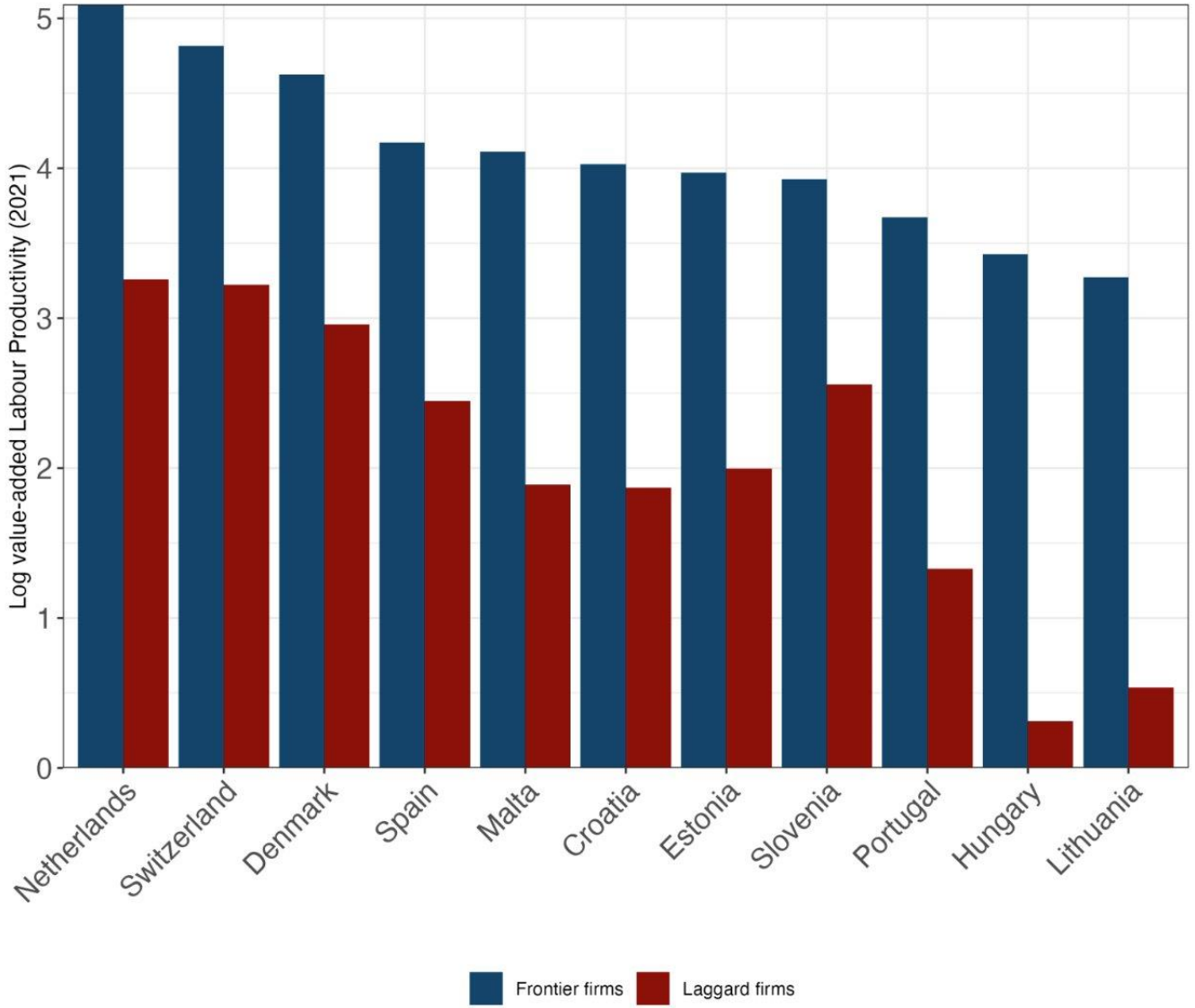

Productivity Convergence at country level

- Discrepancy is still high

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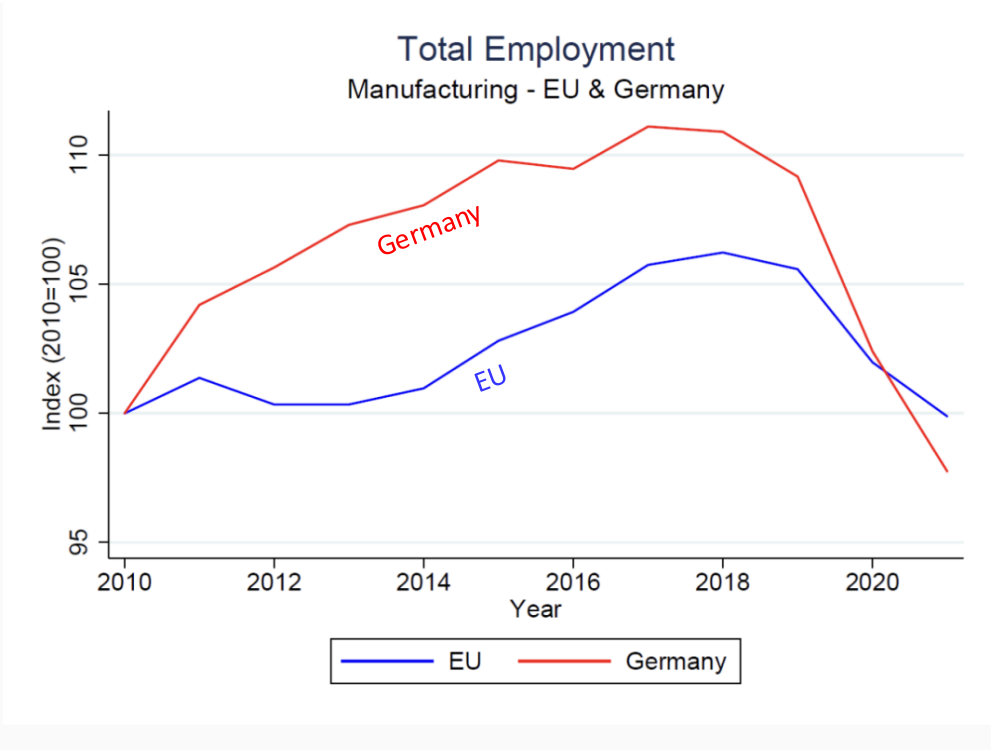
Productivity Convergence

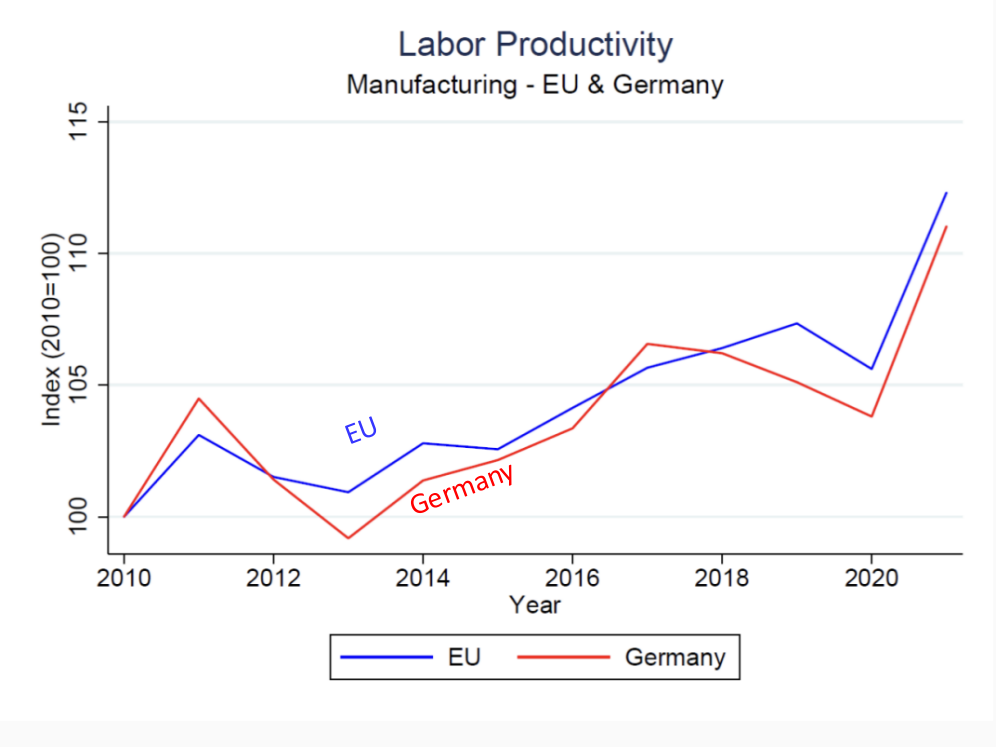
Country	Labour Productivity	Value-added	Real Wage	Size
Croatia	3.29	79.60	2.44	3.79
Denmark	2.17	41.31	3.83	2.56
Estonia	3.14	12.55	3.15	0.97
Hungary	-39	155.17	4.53	3.60
Lithuania	8.20	16.81	1.94	0.80
Malta	4.60	56.91	3.86	1.80
Netherlands	2.25	14.64	4.98	0.50
Portugal	6.67	88.48	3.42	3.46
Slovenia	2.26	42.45	1.95	4.97
Spain	2.64	89.46	3.09	3.00
Switzerland	1.93	40.90	3.78	2.45
Total	3.21	33.44	3.56	1.69

- **Definitions**: Frontier firms=top 10% of productivity distribution, laggard firms bottom 10%
- **Cell Values**: ratio of mean firm characteristics of frontier firms compared to laggard firms for 2021
- **Data Note**: Labour productivity refers to log value-added labour productivity.

The most recent CompNet Dataset: deindustrialisation

Examining the Manufacturing Sector in Europe

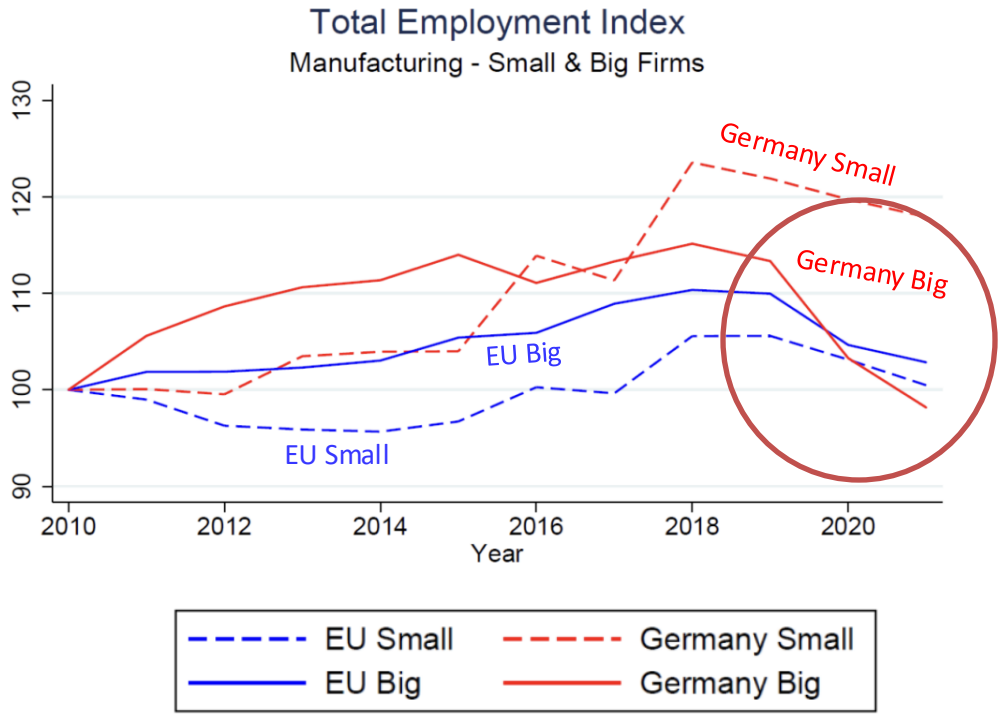


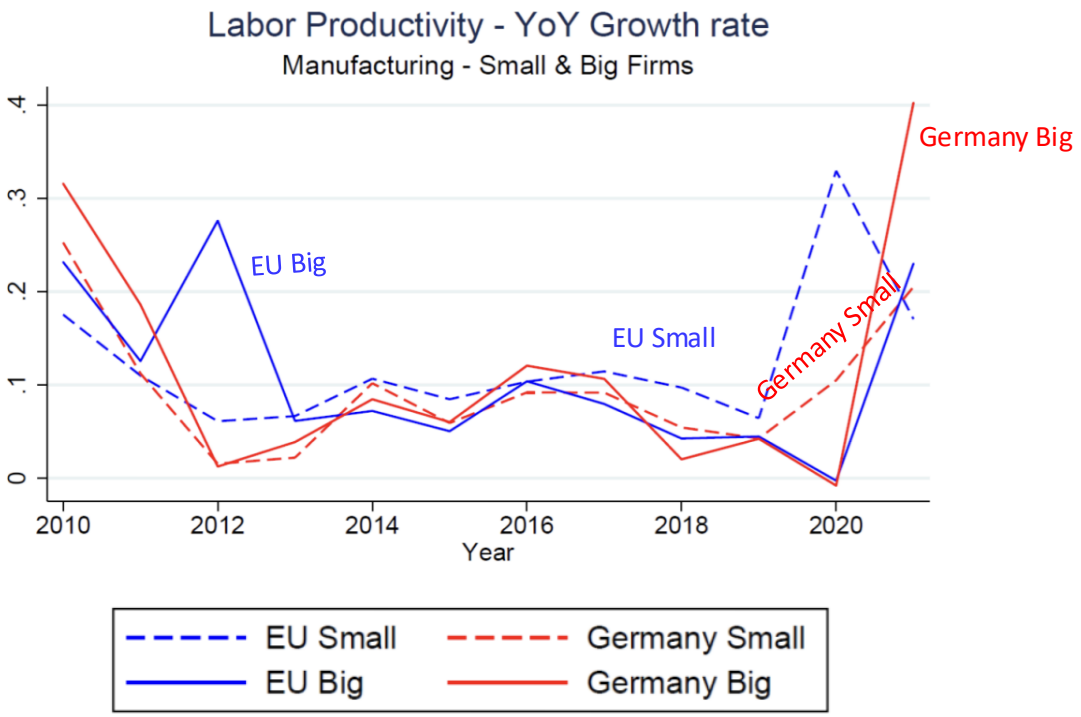


- **De-Industrialization:** Employment in Europe slowed from 2018; in Germany, 2021 employment fell below 2010 levels.
- **Productivity Recovery:** Labour productivity rebounded in 2021, with strong growth observed in both Germany and the EU.

The most recent CompNet Dataset

Examining the Manufacturing Sector in Europe





- **Firm-Size Trends**: Employment declined in both big and small firms from 2018, with most returning to 2010 levels by 2021 (small German firms remained stable).
- **Post-Covid Rebound**: Big firms, especially in Germany, rebounded in 2021 with high growth (up to 40%), driving overall productivity recovery.

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Japan 10th Vintage

Comparison with EU 20e sample

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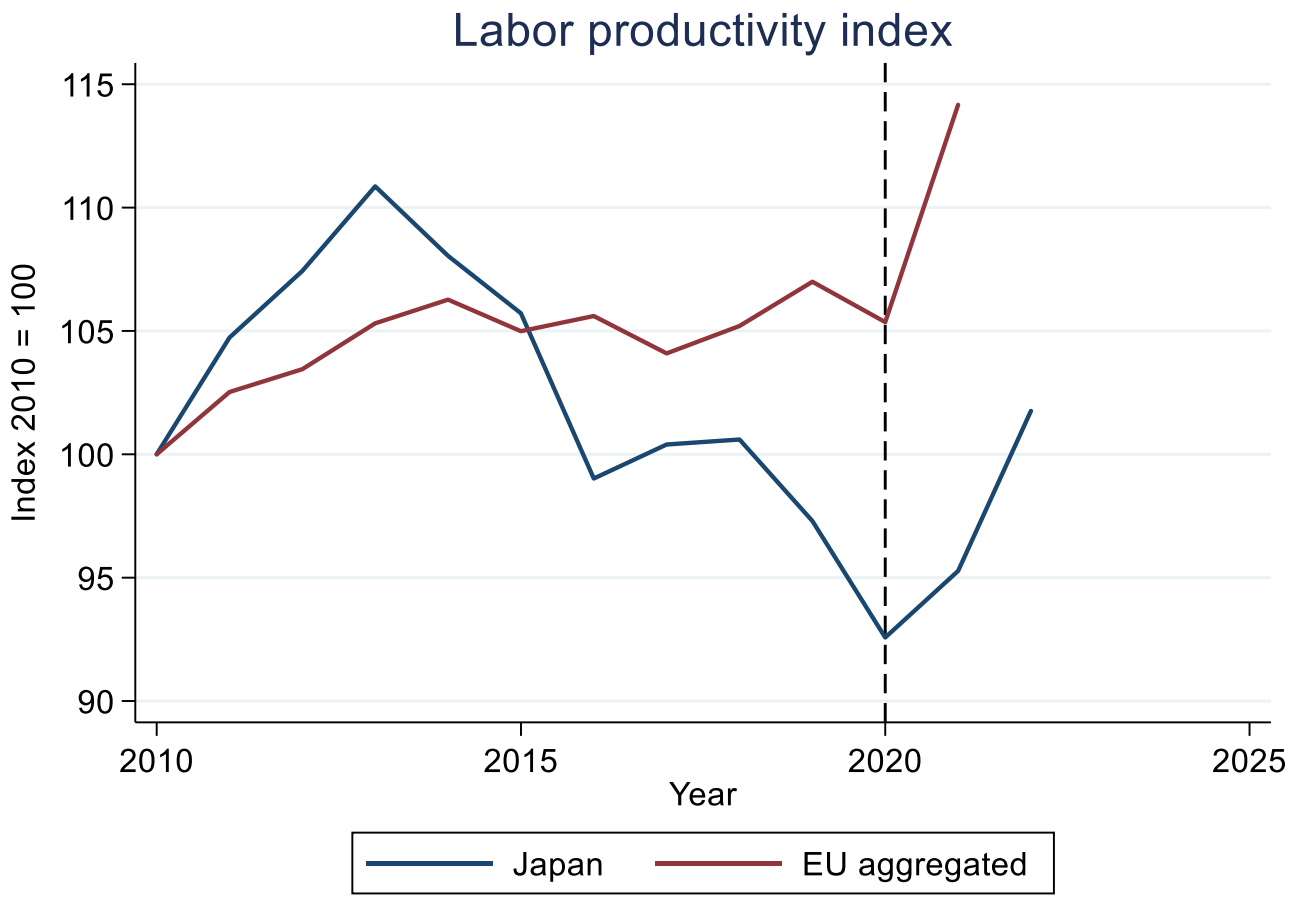
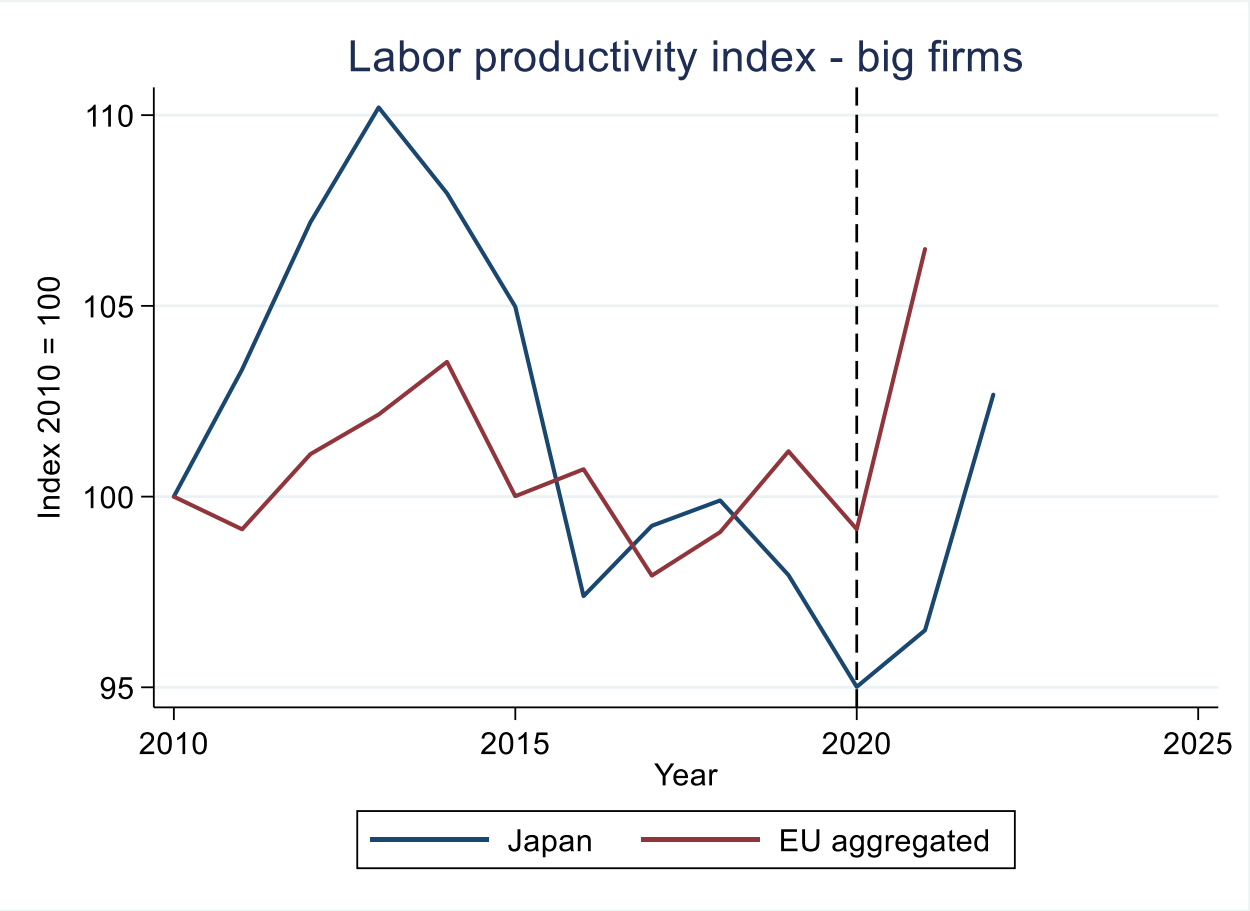
Productivity



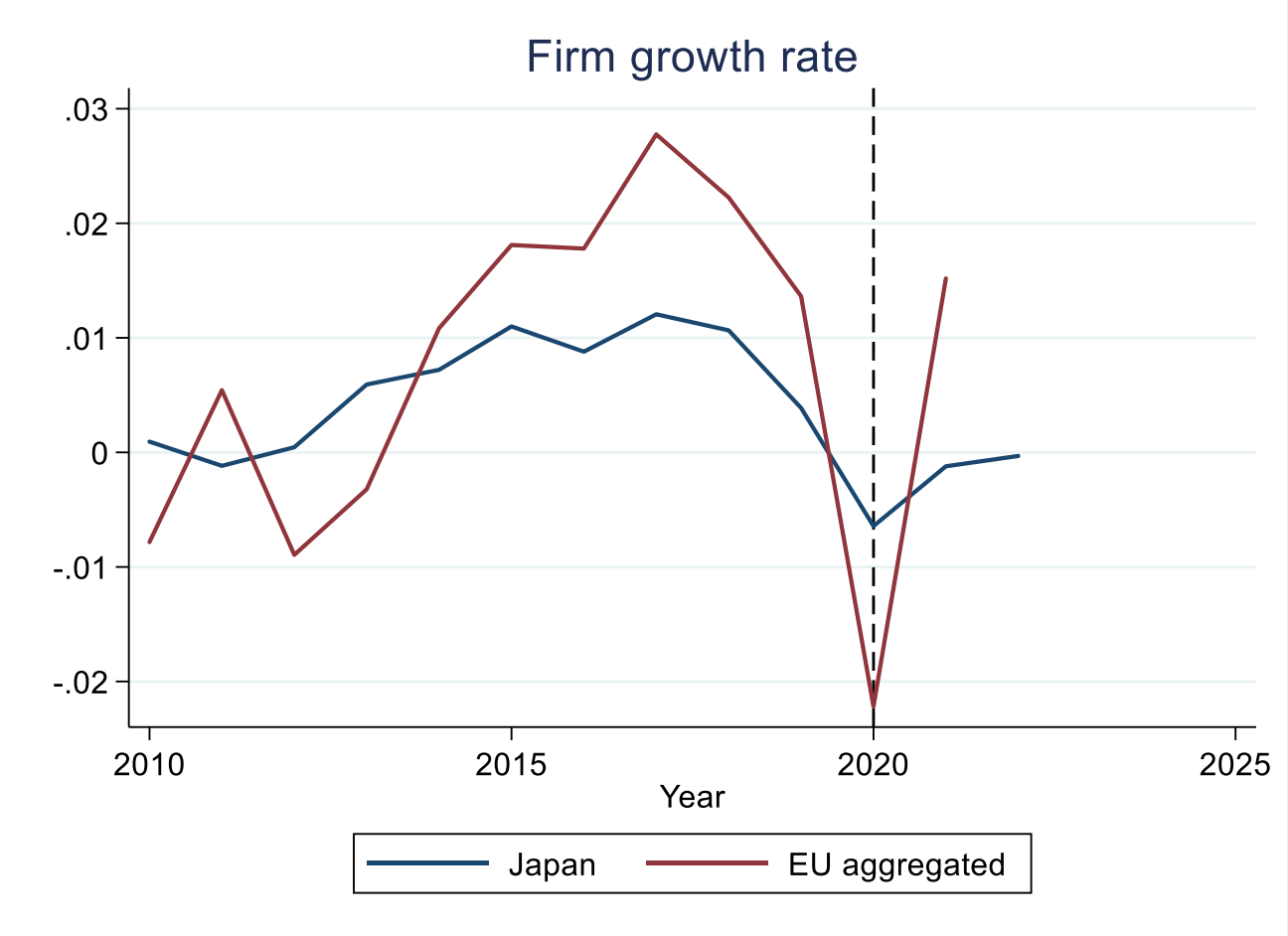
- Japan showed a secular more sluggish productivity trend.
- Both EU and Japan showed strong recovery post-Covid, Japan went back stronger in 2022.

Productivity – big firms (>=250 employees)



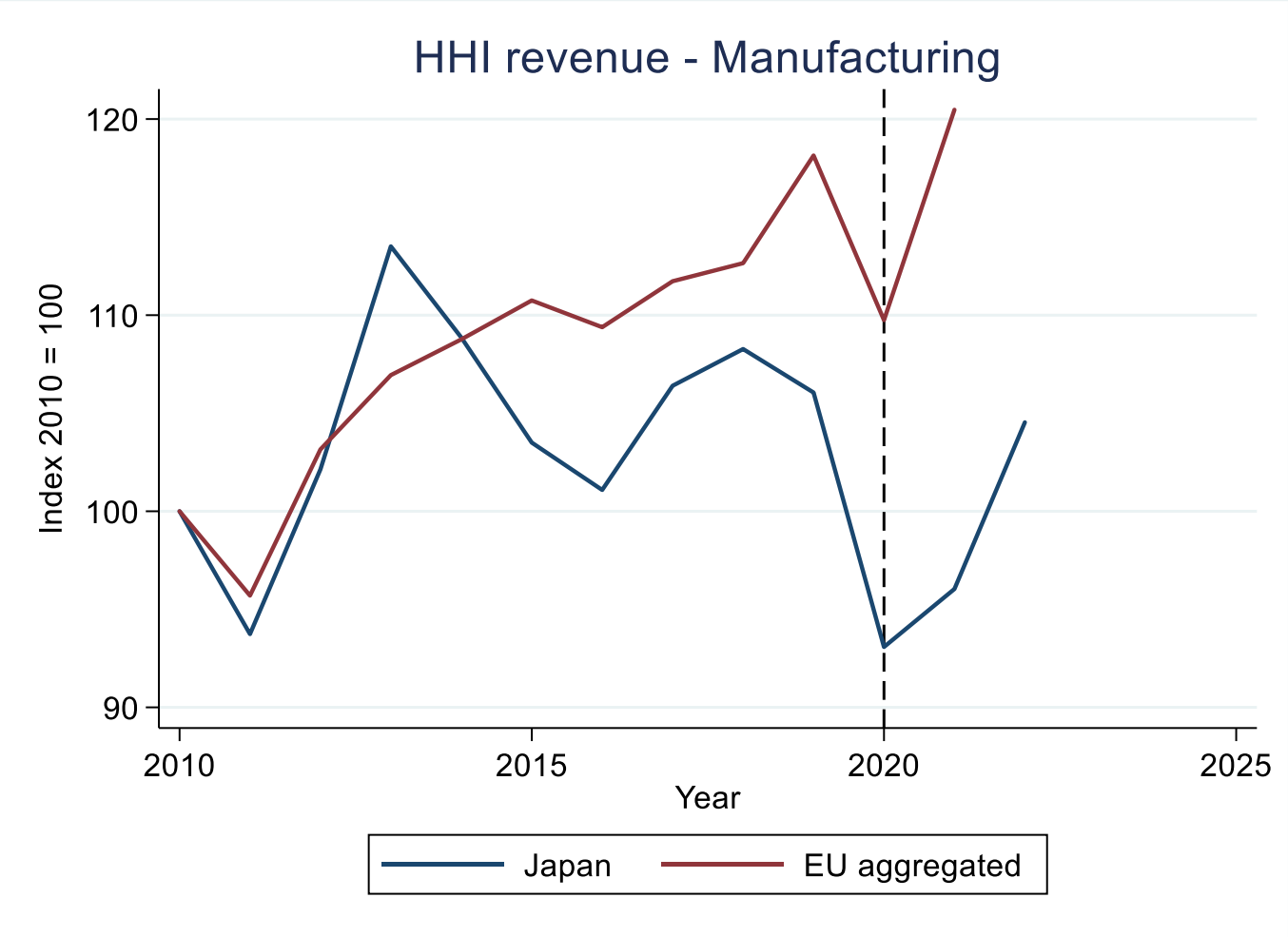
- Big firms in both EU and Japan also showed same pattern.

Firm Employment growth



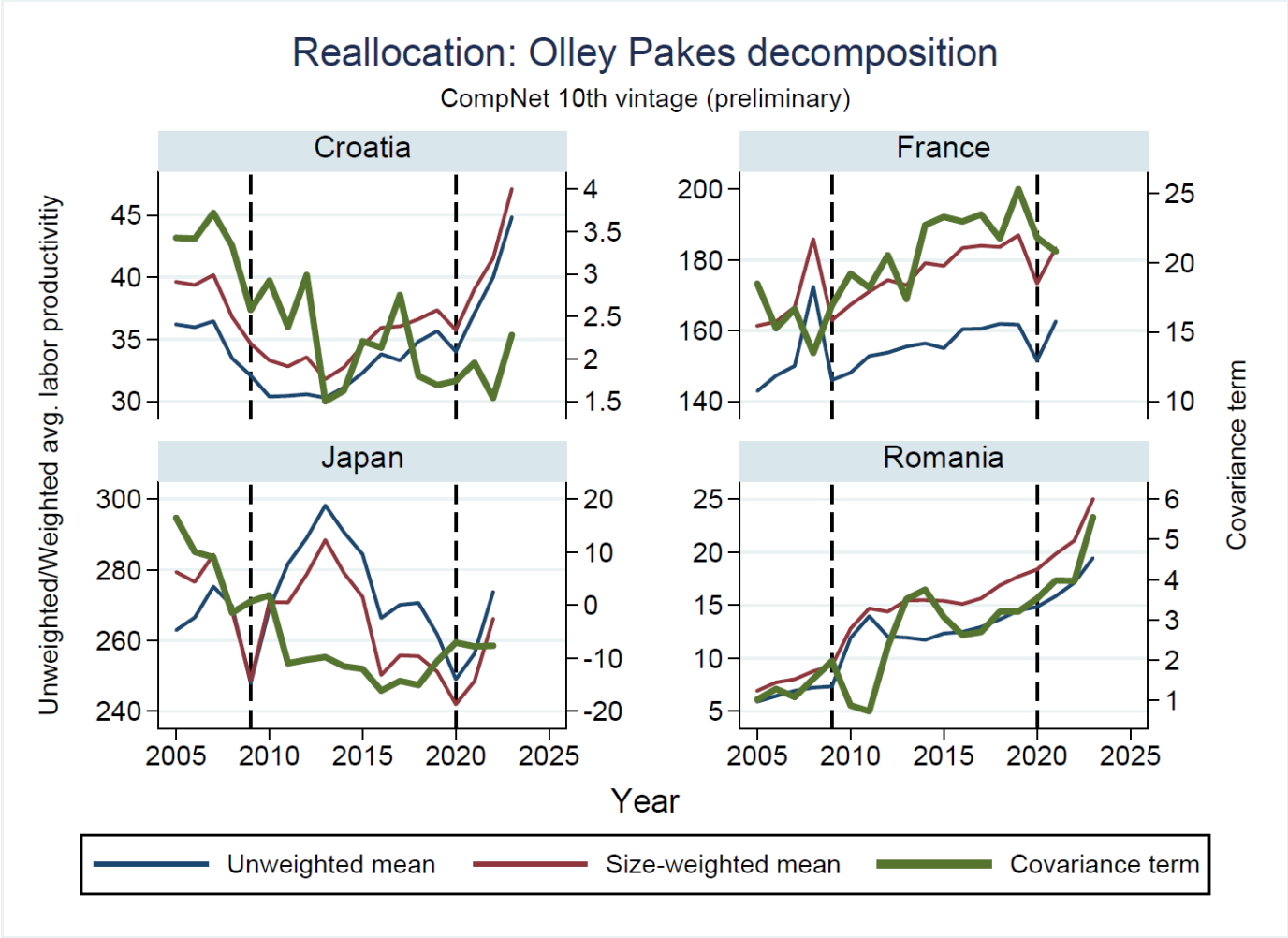
- Rebound after COVID is more significant in EU.

Firm concentration – manufacturing sector



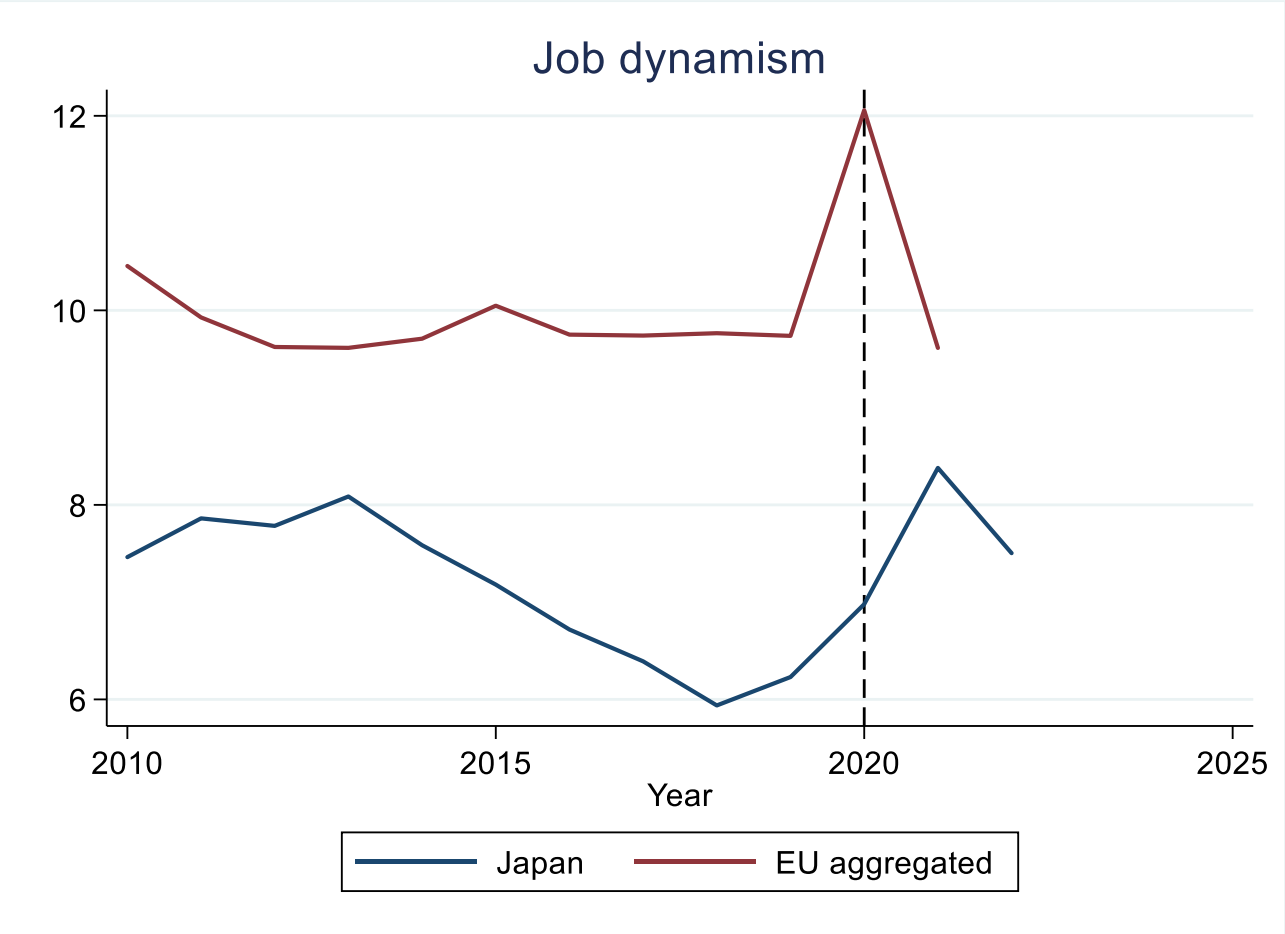
- Declining firm concentration in Japan from early 2010
- Higher in both EU and Japan after 2020.
- Japan still shows stronger increase in 2022.

Reallocation



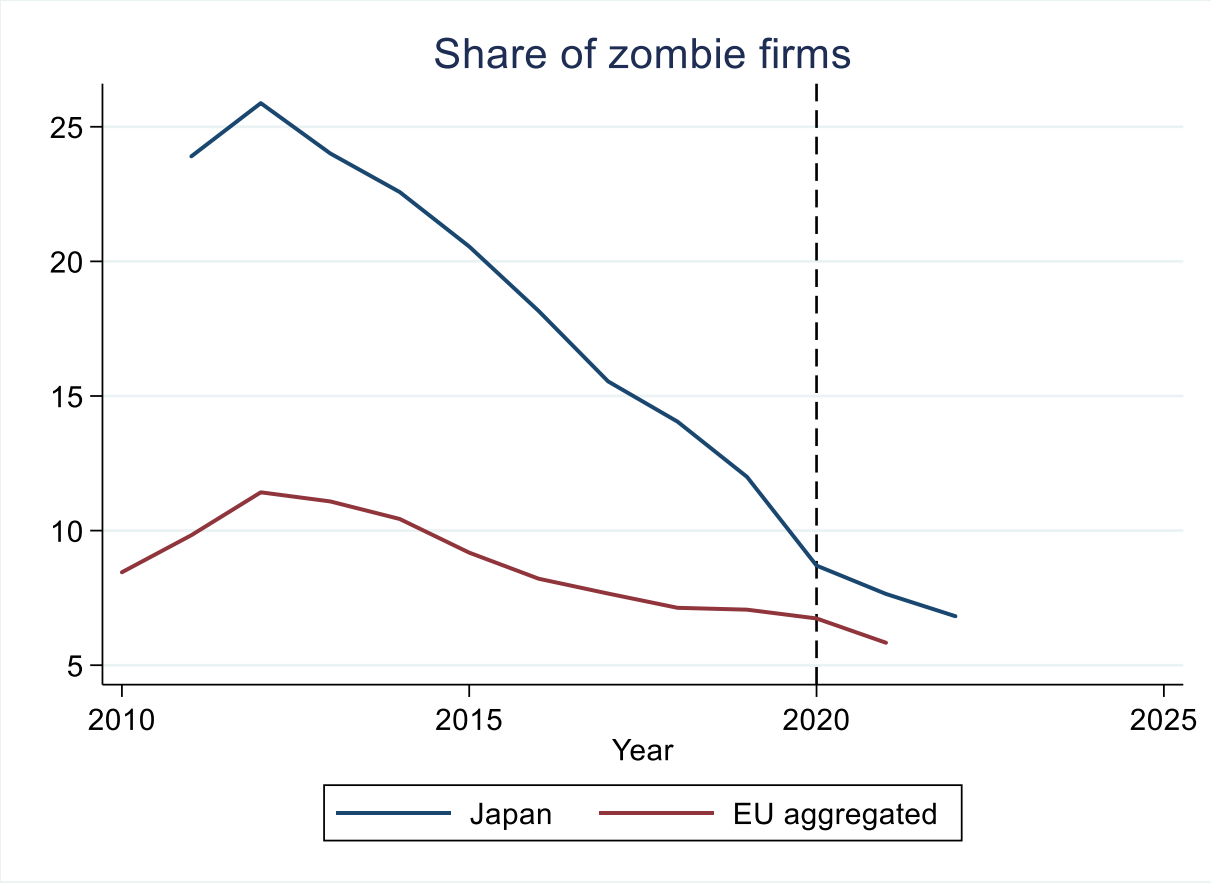
- Compared to selected EU countries overall, there was almost no reallocation in Japan.

Job dynamism (Job Creation Rate + Job Destruction Rate)



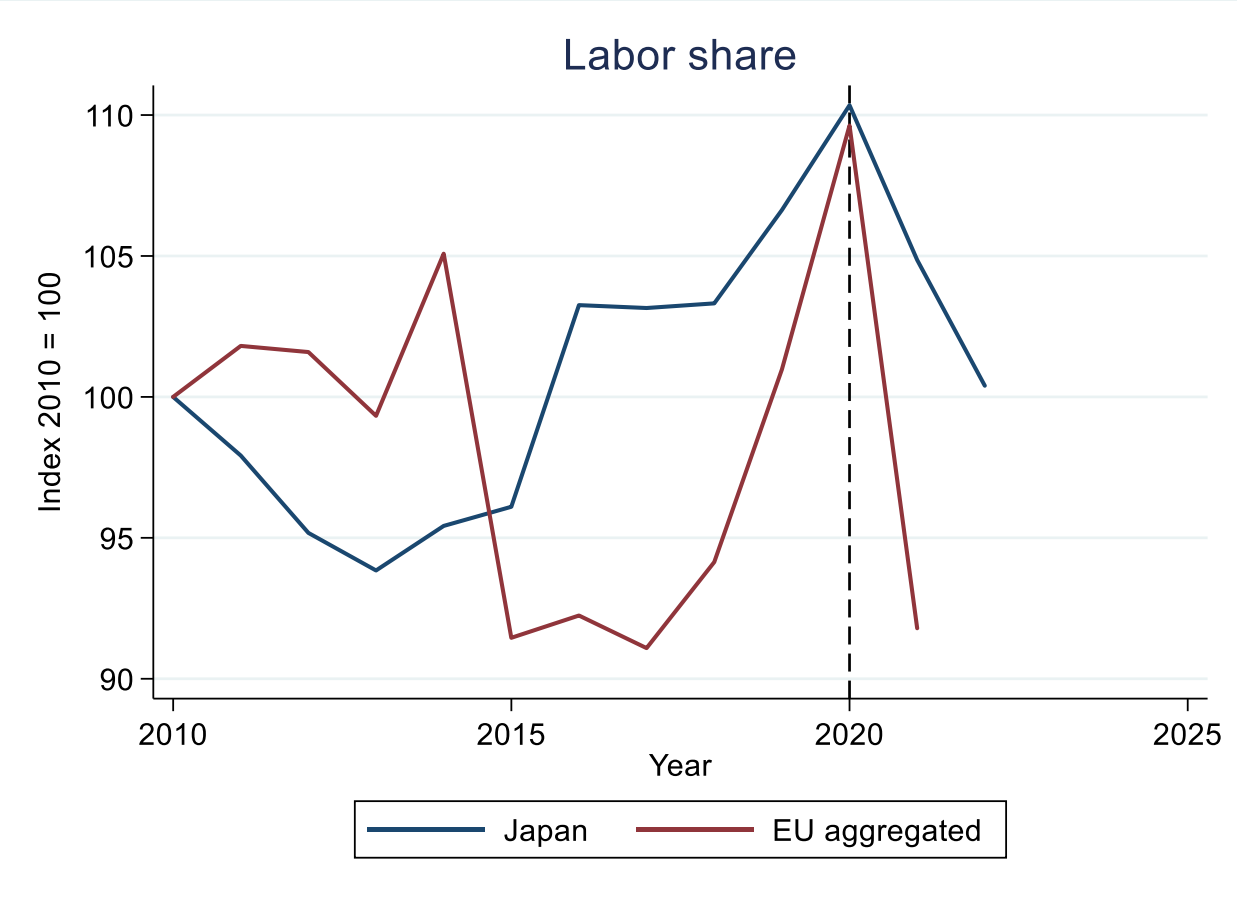
- EU showed an increase in job dynamism in 2020, then dropped back down to pre-COVID level.
- Japan was unaffected by COVID.

Financial distressed (zombie) firms



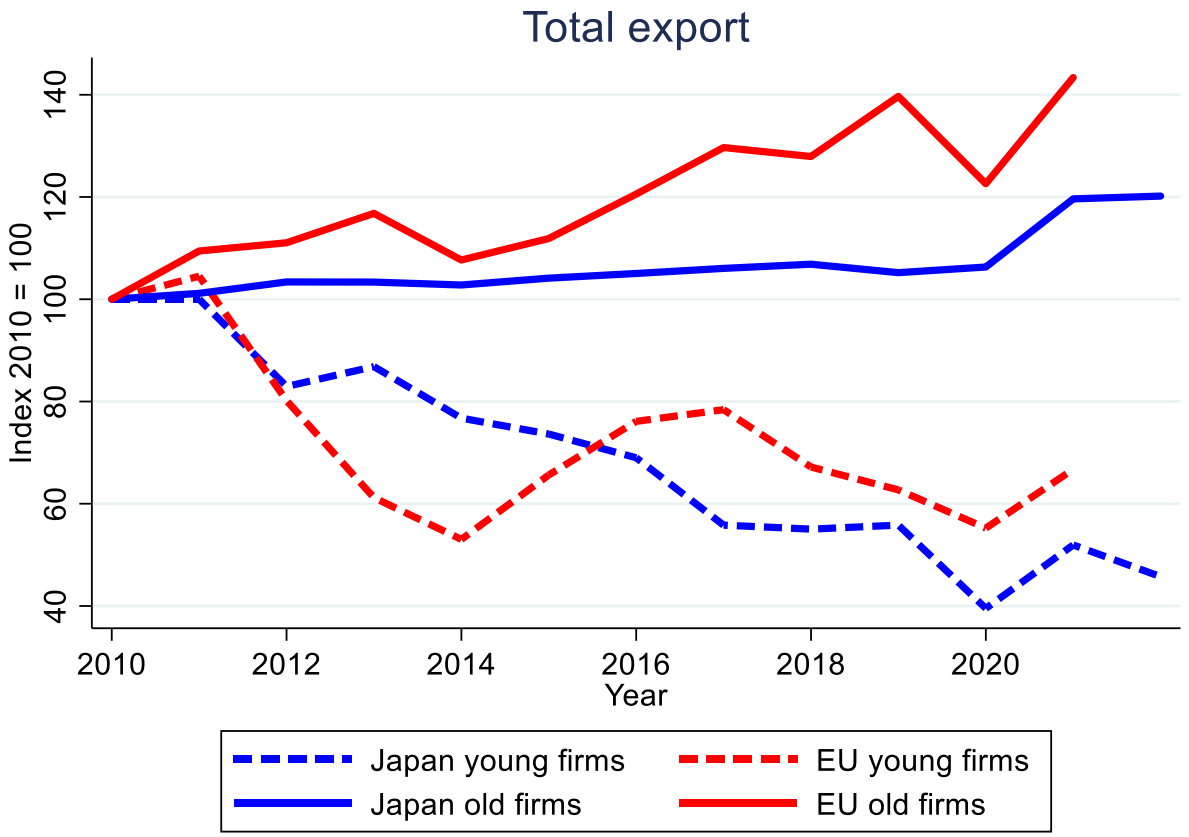
- Zombie firms are companies that are unable to generate enough profit to cover their debt servicing costs.
- Japan had initially much higher share of zombie firms compared to EU, but its share decreased over time and nearly reach EU level by 2021.

Labor share (labor cost over VA)



- Labor share followed a countercyclical pattern.
- It increased for both Japan and EU during the pandemic year, then dropped down during recovery period.

Export by firm age



- Export value of young firms (<= 5 y.o) declined over time in both regions.
- Old firms (>5 y.o) in EU showed stronger export growth compared to the stagnant trend of Japan's old firms.

Conclusion

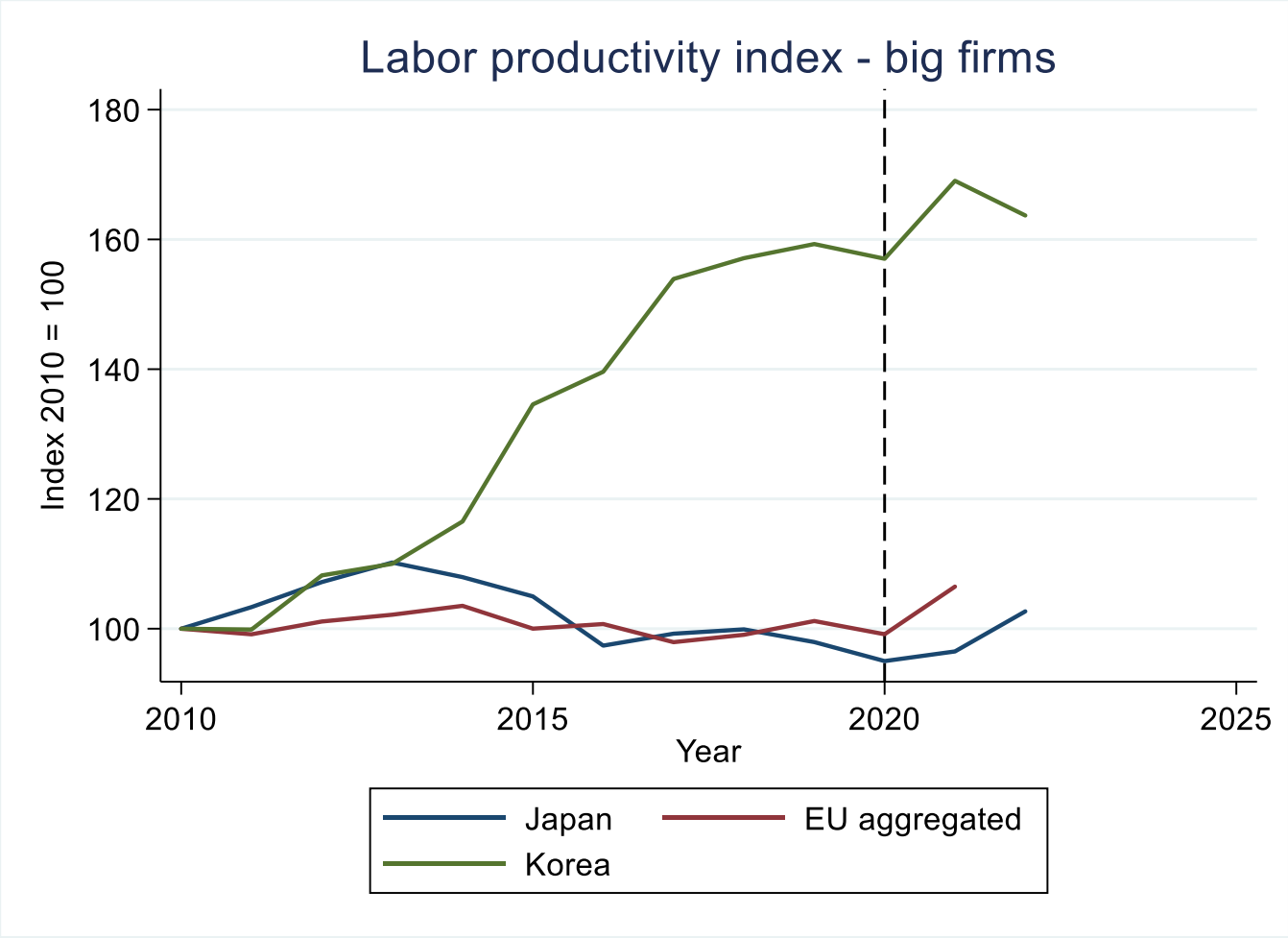
- We are excited to have Japan and Korea in our dataset.
- Results are still preliminary (we need some checks before publication).
- We look forward to applications on firm dynamism during this workshop.

Appendix

Productivity

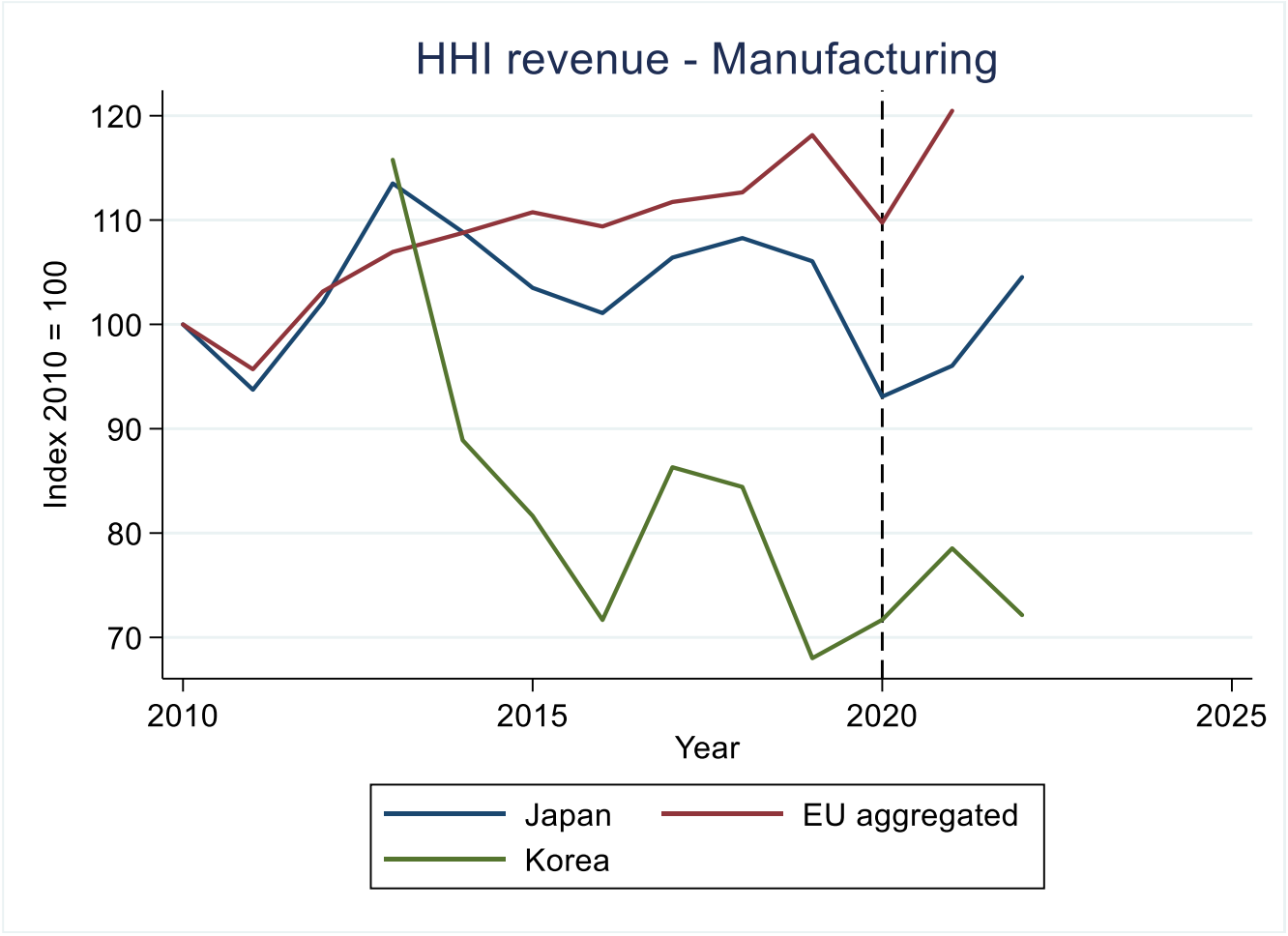
- Japan showed a more sluggish productivity trend.
- Korea showed very strong growth in the past decade.
- All regions showed sign of recovery post-Covid, Japan went back stronger in 2022.

Productivity – big firms (>=250 employees)



- Labor productivity of big firms showed similar patterns.

Firm concentration – manufacturing sector



- Higher concentration in both EU and Japan after 2020.
- Concentration in Korea decreased over time.
- Japan still showed stronger increase in 2022.