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MICROPROD

Raising EU Productivity: Lessons from Improved Micro Data

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Supply and demand-oriented economic policies to boost robust growth in Europe –
Addressing the social and economic challenges in Europe

D1.8

Data dissemination via CompNet II

WP 1 – Firm-level data and productivity measurement

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PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	



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History of the changes

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1.1	28-04-2021	Mirja Hälbig	First draft
1.2	30-04-2021	Filippo di Mauro	Additions and refinements

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Key word list

Intangibles, Global Integration, Micro-Aggregated Data

Definitions and acronyms

Acronyms	Definitions
HHI	Herfindahl-Hirschmann-Index
MDI	Micro Data Infrastructure
MMD	Micro Moments Database
NCB	National Central Bank
NSI	National Statistical Institute

1. Introduction

1.1. General context

The surge of global production networks, innovation in production technologies and new modes of generating economic output are receiving increasing attention by researchers, policy makers and the public. Heterogeneity in firms' ability to take advantage of the new production possibilities raises the demand for reliable and cross-country harmonized microdata. Using newly combined firm-level data, MICROPROD aims to understand the micro- and macro-level determinants of observed production and productivity patterns and improve productivity measurement.

1.2. Deliverable objectives

Insights resulting from the MICROPROD project are shared and disseminated via the existing CompNet infrastructure in the course of the project to achieve high reach and ensure their availability to research and policy. In particular, the new data and productivity concepts generated by MICROPROD are progressively implemented in the data collection process for the annual update of CompNet's micro-based dataset. While the underlying source datasets used in MICROPROD cannot be made available due to data confidentiality, key data will be disseminated via the CompNet Micro Moments Database (MMD), which is an internationally harmonized research database of statistical moments at various levels of aggregation collected from firm-level data in a large selection of EU countries.

The collaboration between MICROPROD and CompNet ensures longevity of the results generated within MICROPROD and external quality control, since the new data and productivity concepts can be utilized and tested by users of the freely available CompNet database.

The data dissemination is split in three deliverables due in month 10, month 22 and month 34 of the project duration, respectively. This deliverable 1.8 ("Data dissemination via CompNet II") represents the second round of data dissemination.

2. Methodological approach

The CompNet database comprises a broad set of micro-aggregated measures based on firm level data, nationally available in each of the institutes participating in the network as data provider, i.e. national statistical institutes (NSI), national central banks (NCB) and research institutes.

To address confidentiality the construction of indicators follows the so called "distributed micro-data approach" (Bartelsman et al. 2004). In this approach, a common code is used to extract relevant information from existing firm-level datasets available within each national central bank or national statistical institute. The protocol computes indicators at the firm-level and then collapses the information to a given level of aggregation.

The data encompass various characteristics of the respective indicator's distribution at different levels of aggregation, namely the sectoral level, macro-sector level, size-class level and at the country level, as well as parameters of joint distributions.

3. Summary of activities and research findings

The data gathering process for the 8th CompNet Vintage includes various conceptual and substantial code revisions to enhance the quality of the provided statistics as well technical improvements such as code runtime. The latter improvements are of critical importance for the sustainability of the Network, which relies on voluntary staff contributions by data providers: making sure that such limited resources are used in the most effective fashion and encourages the continuous participation of member institutions. Other code innovations include an update of the automatic disclosure routine and changes in the sample definition and content of the conditional (joint) distributions and transition matrices¹. Besides refining these concepts, the dataset includes new variables related to productivity, intangibles and global integration.

Among the most notable innovations, the dataset incorporates various new measures of total factor productivity, for example calculated using the method proposed in Akerberg et al. (2015) as well as using time-variant production functions. The latter allow to study changes in firms' production modes over time. In addition, the new vintage features information on the production factors' marginal revenue products and on the concentration of inputs and output within the respective level of aggregation.

The new vintage extends the set of measures related to intangible inputs. Motivated by the high concentration of intangible assets within a few sectors and firms (Kaus et al. 2020), the dataset includes concentration measures of intangible fixed assets such as the share of the top 10 firms and the Herfindahl-Hirschmann-Index (HHI) for the respective level of aggregation. Moreover, the new vintage includes information on investments in intangibles which have shown to also be concentrated within a firm in a few years (Kaus et al. 2020).

Finally, the new vintage includes information on the import and export history of firms, allowing to study selection in and out of the global market, as well as new categorical variables related to export destinations of firms.

The 8th CompNet Vintage extends the existing database up to year 2019, features improved year and sector coverage for multiple countries, and comprises one additional country (Malta) for a total of 19 countries, confirming its top standard in the field.

4. Conclusions and future steps

The CompNet dataset is built to generate a minimum common denominator of firm-level based variables which are available for the most number of European countries as possible: this creates a limit to the depth of the dataset given the uneven availability of such data across countries. To push further the overall frontier of comparable micro based indicators in Europe we have set up in MICROPROD a prototype Micro Data-Infrastructure (MDI). The MDI is based on pilot studies with selected National Statistical Institutes (NSIs) who have an advanced technical and data infrastructure. This allows us to dig deeper into topics such as technology use, innovation inputs and outputs and

¹ The CompNet transition matrices track the evolution of firms over a three-year windows and thereby allowing researchers to study firm size dynamics as well as the characteristics, of firms with different growth performances over the respective period.

integration into global value chains (see MICROPROD deliverable 1.2). This infrastructure is aimed at providing researchers with (i) tools to run common code at multiple sites, even if the details of the data, the technical infrastructure and confidentiality practices differ across NSIs, and (ii) a set of analytical tools that simplify research design to study productivity dynamics. Ultimately, the objective is to extend such pilot to the whole of the EU, pushing further the frontier of micro data availability in the Continent for research

5. Publications resulting from the work described

A subset of the 8th CompNet vintage is already available to members of the CompNet network. The full dataset will be completed in about two months and made available to external researchers as well upon request: URL: <https://www.comp-net.org/data/>

6. Bibliographical references

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