

## CompNet-based analysis: An e-learning course to research on competitiveness

### *Introduction*

This e-learning course gives an overview of some of the most useful research tools offered by the CompNet database.

Micro-based data provide crucial information to understand the drivers of competitiveness, whereas aggregate indicators alone, if interpreted as the representative's firm outcomes, may often be misleading. This issue arises because a high degree of heterogeneity persists even in narrowly defined industries and size classes. Thus, cross-country information on the underlying distribution of firms is essential to assess the drivers of a variety of economic indicators, such as aggregate productivity, export performance and competitiveness.

The richness of the CompNet database allows to go beyond the standard representation of average quantities, taking into consideration the full heterogeneity of firms' economic performances. In fact, data include variables' percentiles, outcomes of firm level-based parametric indicators, joint distributions of several economic variables, production function's estimations at different levels of aggregation and other useful information. This is meant to help data users to investigate the economic dynamics with a sophisticated research toolbox.

### *Structure*

This course is made for autonomous online learning. It is structured in three modules: *Beginners*, *Intermediate* and *Advanced*. Each of them requires a different level of background knowledge with regards to economic theory and Stata software. It is advisable to follow all three modules. Finally, it is also provided an extra session to learn how to employ the reduced dataset in Excel and Stata.

The e-learning material of each module includes:

- A set of scripts in Stata format (.do files), one for each step of analysis;
- A detailed (.ppt) presentation explaining how to execute and how to interpret all the tasks included in the do-files;
- Exercises and solution .do files;
- Data .dta files needed for the exercise implementation.

Despite the course is meant for autonomous learning, the CompNet staff will be available to answer technical questions and to receive feedback or suggestions, in order to help the data users to exploit this learning opportunity at their best.

### *Contents*

The aim of the course is to learn how to use CompNet data to analyse competitiveness, by looking at different economic dynamics including productivity, financial conditions, international trade, labor, misallocation, market power, and other economic factors. The three modules touch upon the same topics going at a deeper level of analysis, by growing in analytical complexity from *Beginners* to *Advanced*.

Before the three modules start, an introductory presentation explains the structure of the CompNet database:

- Data collection process, data release and methodology
- Coverage: countries, years and sectors
- Samples: all and 20e
- Data files: unconditional statistics, productivity decompositions, joint distributions, transition matrices, production function estimations, and reduced dataset
- Categories and types of variables
- Statistics: percentiles, moments (mean, variance, skewness, kurtosis), weights

The *Beginners* module is thought for CompNet first users, Bachelor's students and professionals with a limited knowledge of Stata, micro-data analysis and/or economic theory. The goal is to show how to download and open data using Stata, to make the user able to understand the basic structure of the database and to carry out some initial analysis. The final output includes tables and line charts at country, macrosectoral and industry level. Do-files are prepared using the simplest commands of Stata, therefore a basic knowledge of Stata would be useful but is not required in this first session.

Tasks for *Beginners*:

- Data preparation: how to download the data from the website, open and merge data files, and tailor the sample of interest (*Task 1*)
- Data mining: how to summarize data and represent them in simple tables, and aggregate data (*Task 2*)
- Data visualisation: standard line charts, bar charts and scatter plots at different levels of aggregation (*Task 3*)