Updated international comparison of productivity for manufacturing

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Introduction

The following analyses are based on the updated and partly revised computations from the earlier study by Maliranta et al. (2010) concerning Chart 1 (labour productivity levels in Manufacturing) and Chart 4 (TFP levels in Manufacturing excluding Electronics and Electrical Machinery). The above-mentioned article provides a more detailed description of the methods and data.

Data

The analysis makes use of the following data sources: EU-KLEMS database (see www.euklems.net/), STAN database by OECD (see www.oecd.org/sti/stan/), Bureau of Labor Statistics (see www.bls.gov) and National Accounts by Statistics Finland (www.tilastokeskus.fi)

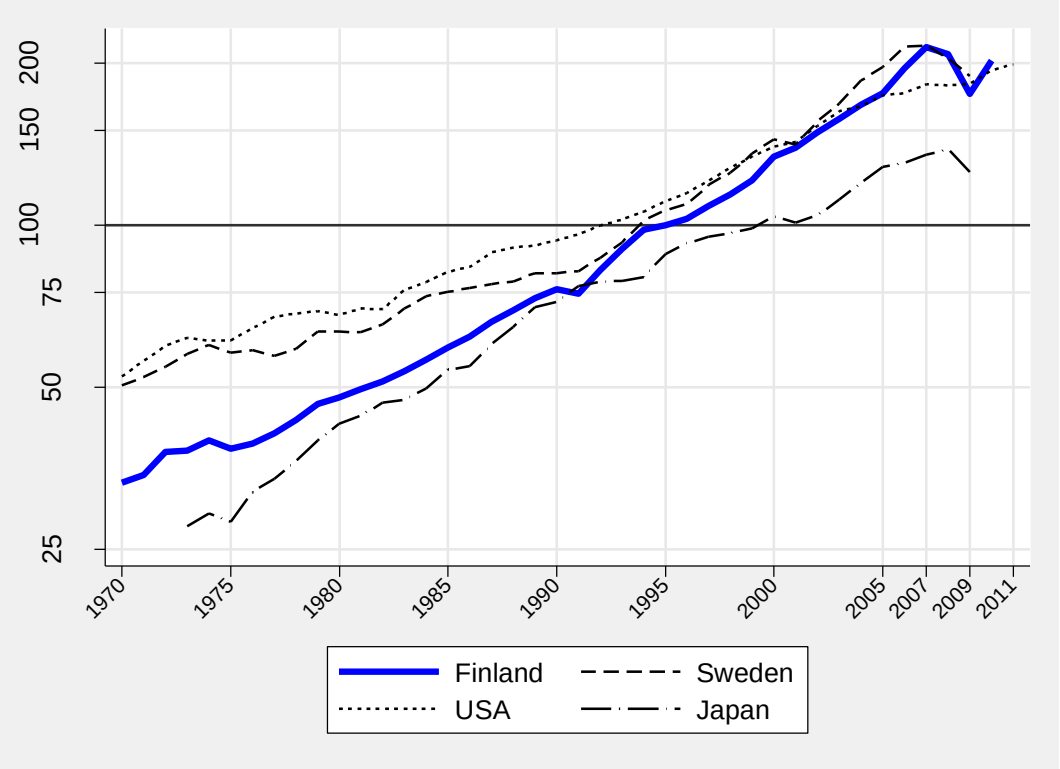
Analyses

The analysis concerns the productivity performance of the Finnish manufacturing sector since the early 1970s to the latest years available. Sweden, USA and Japan are used as benchmarks in the comparisons. The productivity numbers are indexed so that the level of productivity in Finland in year 1995 is set 100. Therefore the productivity numbers allow both cross-sectional (differences in productivity levels between countries in a given year) and intemporal comparisons (difference in productivity levels between different points in time in a given country).

Graph 1 presents the most traditional measure of productivity performance, which is labor productivity (Graph 1 corresponds to Chart 1 in the article). It is a ratio of value added per hours worked. Value added is measured in real terms so that the differences in the price levels between countries as well as the changes over time due to inflation are taken into account. Consequently, productivity as measured here can be regarded as an indicator of “real” competitiveness. It is also closely linked to the standard measure of living standards that it gross domestic product per capital.

Two main conclusions can be drawn from Graph 1. First, the Finnish manufacturing sector has had exceptionally rapid productivity growth over recent decades (i.e. Finland has a steeper line than the other countries). Second, in recent years Finland has belonged to the international productivity frontier (i.e. in Finland’s productivity has been at least as high as in the United States, which has traditionally been one of the leading countries in the productivity level).

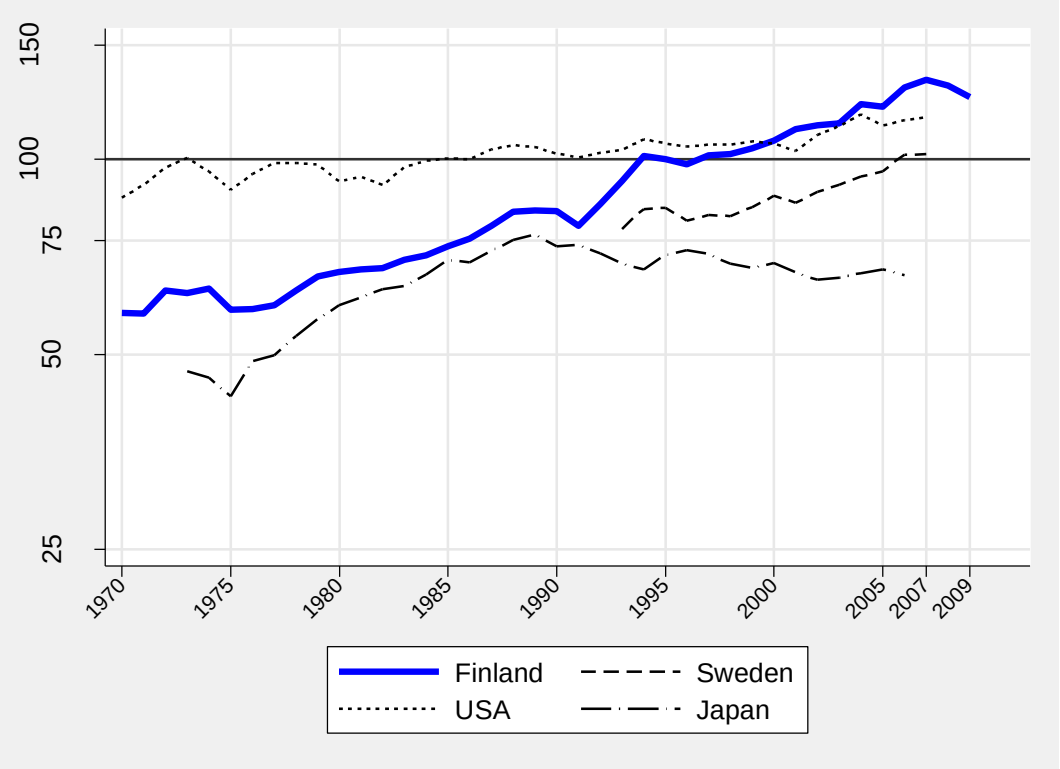
Graph 1. Labour productivity levels in Manufacturing (Finland 1995 = 100)



As a measure of competitiveness of the Finnish manufacturing sector, the above-mentioned indicator has two potential shortcomings. First, it ignores the use of capital input and therefore may render excessively positive picture on the productive efficiency if capital is used more intensively in Finland than in other countries. The so-called total factor productivity measure (TFP) corrects this weakness by including both capital and labor as inputs of production. In so doing it provides us a measure of the joint efficiency in the use of labor and capital. Second, a productivity measure for the total manufacturing also includes the telecommunication sector, which is likely to have an important role to play in the Finnish context because of the great dominance of Nokia Company. To obtain a more representative picture it is thus useful to consider also the productivity performance outside this sector. Therefore Graph 2 represents the levels of total factor productivity where the contribution of Electronics and Electrical Machinery is removed from all countries (Graph 2 corresponds to the Chart 4 in the article).

The graph shows that Finland has had rapid productivity growth and currently its productivity level is high in international comparison. All in all, the analysis shows that the Finnish great productivity performance cannot be solely attributed either to large investments into tangible capital or to the exceptional success in Electronics and Electrical Machinery.

Graph 2. TFP levels in Manufacturing excluding Electronics and Electrical Machinery (Finland 1995 = 100)



References

MALIRANTA, M., ROUVINEN, P. and YLÄ-ANTTILA, P. (2010). 'Finland's path to global productivity frontiers through creative destruction', *International Productivity Monitor,* Vol. **20**, pp. 68-84.