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Evaluation of Competitiveness in the European Union: Alternative Perspectives

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Abstract

The paper deals with different approaches to evaluation of competitiveness of the EU countries. Alternative measures of competitiveness indicators are applied and compared in the paper. The traditional approach of cost-based productivity measures is applied in the analysis. In addition, the set of infrastructure and human capital quality indices reflecting the country's potential to attract firms to establish and conduct competitive high-tech business is suggested to examine competitiveness from the firm-level perspective. Internally homogenous clusters of EU countries with similar competitiveness characteristics are identified using the Ward agglomerative method in the analysis. Also, the dynamics and convergence processes of the EU core, periphery and CEE countries are examined using the measure of average distances within clusters. The results of countries' competitiveness evaluation show differences using both alternative approaches. Whereas the division between core, periphery and CEE countries is obvious using traditional cost-base productivity measures, unstable disparate clustering structures were identified using the firm-level approach. The results also show slow and steady convergence of CEE towards the core countries from the perspective of infrastructure and human capital quality dimension.

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1. Introduction

New definitions and new approaches to assess competitiveness of the EU countries have been discussed in economic literature recently. The traditional approach of countries' competitiveness evaluation is oriented on cost-based measures such as unit labor costs, REER or unit labor productivity indices. Today's Europe seeks for sustainable, smart, inclusive and environmentally friendly economic growth. From that perspective the traditional cost-based approach of productivity assessing provide a limited picture. For instance the indices of knowledge-based economy potential or firm-level perspective are not captured by the traditional approach. Aiginger et al. (2013) redefine the term competitiveness to make it more useful also for evaluation of country performance and for policy conclusions. They aim to set a definition that is adequate if economic policy strives for a new growth path that is more dynamic, socially inclusive and ecologically sustainable. Huemer et al. (2013) criticize the traditional concepts of competitiveness measuring since these concepts ignore the fact that competitiveness can change not only due to market processes but also because of political decision making. They propose a new competitiveness index that captures the dimensions in which politics can influence competitiveness beyond factor price adjustment. Thus the index is considered as a measure of institutional competitiveness.

Various approaches to measuring competitiveness are also applied by institutions and organizations such as the World Bank, European Commission, OECD, etc. Scoreboards and scorecards capturing knowledge economy and innovative activity indicators are used by those bodies. A summary of competitiveness measuring methods used by multinational organizations is summarized e.g. by Karahan (2012).

In the paper we introduce an approach to measure countries' competitiveness from the firm-level perspective. The selected competitiveness indicators capture the countries' potential to attract firms to establish and conduct competitive high-tech business demanding high-skilled labor. Using the indicators of infrastructure and human capital quality we ask: What conditions (non-cost) do the EU countries offer to establish and conduct competitive enterprise? Contrary to traditional approach, the selected competitiveness indicators are not cost-based oriented and do not capture the price-cost competitiveness of countries. Examining the country-clusters with similar competitiveness characteristics we also ask whether the traditional division among the EU core, periphery and CEE countries also apply for our new approach. In addition to that we aim to provide some evidence on convergence processes among those country-groups over time.

The paper is structured as follows: The introductory part explains the aim and motivation of the research. The methodology and data are described in the second section. Descriptive statistics of traditional indicators of competitiveness are presented in the third section. The cluster analysis based on competitiveness indicators capturing the infrastructure and human capital quality measures is included in the fourth section. The fifth section concludes.

2. Methodology

Descriptive comparative analysis is used when comparing the cost-based competitiveness measures of the EU countries. The indices of labor productivity, nominal unit labor costs and real effective exchange rate (REER) were applied to assess the competitiveness from a traditional perspective. Measures of infrastructure and human capital quality were selected to establish the alternative dimension of competitiveness evaluation. The final selection of the indices results from multicollinearity testing. The measures with high level of cross correlation were excluded from the dataset.

The quality of human capital is approximated with the indices of educational attainment. In particular the shares of Tertiary students (ISCED 5-6) by field of education; Science, mathematics and computing (%) and Tertiary students (ISCED 5-6) by field of education; Engineering, manufacturing, construction (%) and share of Pupils learning English at ISCED level 3 (GEN) as a percentage of the total pupils at this level were applied in the dimension. The measures of internet penetration estimated as a percentage of households with the internet access and also the measures of transport infrastructure capturing airport, railway and motorway coverage were used to check the infrastructure quality. Let's remind that the measures were selected to capture the potential and conditions of countries to attract firms to establish and conduct competitive high-tech enterprise.

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