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Income convergence prospects in Europe: Assessing the role of human capital dynamics



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ABSTRACT

We employ income projection models based on human capital dynamics in order to assess quantitatively the role that educational improvements are expected to play as a driver of future income convergence in Europe. We concentrate on income convergence dynamics between emerging economies in Central and Eastern Europe and Western European countries during the next 50 years. Our results indicate that improvements in human capital contribute significantly to the income convergence potential of European emerging economies. Using realistic scenarios, we quantify the effect that future human capital investment paths are expected to have in terms of speeding up the income convergence process in the region. The income projection exercise shows that the returns to education in terms of income convergence in Europe could be sizeable, although it may take relatively long for the poorer economies of the region to rip the growth benefits.

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1. Introduction

The heterogeneity across countries in the European Union (EU) has increased significantly after the last rounds of enlargements. Differences in living standards across the countries that currently compose the EU are considerably large and the income growth experience over the last decades also differs strongly. In 1995, average GDP per capita in Romania (the country with the lowest income per capita in the EU) was only 20% of that in the Netherlands. Until 2009, the differences in per capita income between the richest and the poorest countries of the EU decreased, but they are still remarkably large. After adjusting for purchasing power, GDP per capita was four times higher in the Netherlands with respect to Romania in 2009.

The recent global financial crisis has had a sizeable and asymmetric effect on income per capita growth in the EU and in particular in Central and Eastern Europe (CEE). While the Baltic countries experienced average GDP growth rates of around –15.5% in 2009, Poland had a GDP growth rate of 1.8%. Such developments have contributed to creating a discussion both at the academic level and in policy-making circles about the potential danger of income divergence in Europe. The results of [Archibugi and Filippetti \(2011\)](#) indicate that the crisis has affected innovation capabilities, one of the engines of economic growth, in European economies and in particular in Eastern Europe. Such developments take place after income convergence between emerging economies in Eastern Europe and the rest of the EU has been the rule in the last decades. Against this background, the question of whether further income convergence is a likely scenario in the future and which policies are efficient at fostering growth in emerging Europe are at the centre of the policy discussion at the moment.

In this paper we contribute to the discussion of the long-run economic growth prospects of Eastern Europe using scenario-based income projection models. We concentrate on building income per capita scenarios for European countries based on an estimated econometric model with a detailed human capital component. Using new projections of population by educational attainment and simple scenarios for the development of physical capital investment and total factor productivity growth, we construct distributions of income per capita in EU countries up to the year 2070. We pay particular attention to quantitatively assessing the role played by human capital developments as a determinant of income convergence dynamics in Europe in the future. The importance of human capital as a driver of economic growth and convergence in the region has recently been emphasized by, for instance, [Kutan and Yigit \(2009\)](#). We use econometric models that explicitly account for the effects of education as a catalyst of innovation and technology adoption in the spirit of [Benhabib and Spiegel \(1994\)](#).

Improvements in educational investments speed up the path towards full convergence with the rest of the EU for the whole group of Eastern European economies, but the timing of reaping such benefits differs among the countries of the region. Our results indicate that the richer economies in Eastern Europe can obtain important benefits from improving their educational attainment levels in terms of accelerating their income convergence process with respect to the rest of the EU. Furthermore, these convergence benefits would realize in the forthcoming decades, while the horizon for such effects in the poorer economies of Eastern Europe is significantly longer.

In spite of the obvious importance of the question tackled in our paper, few other studies assess the convergence prospects of the CEE region quantitatively using income projection methods. Our analysis is related to the contribution by [Hlouskova and Wagner \(2005\)](#), which presents income projections for economies in CEE but does not concentrate explicitly on the role of human capital dynamics as a determinant of income growth in the region, as we do here. As in [Hlouskova and Wagner \(2005\)](#), we also put particular effort into quantitatively assessing the uncertainty surrounding income predictions and convergence paths. In this vein, we construct our conclusions based on the distribution of future income levels implied by our projection models, thus taking a probabilistic approach to the issue of future economic growth instead of concentrating on average, median or modal values in such distributions. Other studies take this arguably simpler approach, offering only point estimates of projected economic growth or time to convergence (see for example [European Economic Advisory Group, 2004](#)).

The study is organized as follows. Section 2 summarizes the income convergence experience in Europe over the last fifteen years. Section 3 presents the econometric model which is estimated and

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