Human capital and economic growth
Time series evidence from Greece

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Abstract

This article, examines the relationship between human capital and economic development in Greece. Assuming that the principal institutional mechanism for developing human skills is the formal education, we examine the long-run relationship between educational variables and gross domestic product (GDP), as well as the causal direction between them. Our main result suggests that there exists a cointegrating relationship between education as measured by enrollments rates in primary, secondary, and higher education and the GDP per capita while causality runs through educational variables to economic growth, with the exception of higher education where there exists reverse causality. © 2001 Society for Policy Modeling. Published by Elsevier Science Inc.

JEL classification: J24; O40

Keywords: Human capital; Growth; Cointegration

1. Introduction

The aim of this article is to examine the role of education in Greek economic development. Our motivation stems from two considerations: first, in an era of

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increasing globalisation and accelerating worldwide technological advances, shortages in human skills may result in an effective constraint to the economic growth of a modern economy. Second, Greece has recently committed itself to the goal of an expansion of educational opportunities in the higher education.[1] Until now, Greece has an equal opportunity system available free to all residents: public financed primary, secondary, and higher education, while entry examinations exist for higher education. This system normally results in an exclusion of a great number of candidates from higher education, each year. Nowadays, however, Greek educational policymakers plan the abolition of the entry examination system that allows free higher education virtually to every candidate.

The existing literature on the role of education on economic growth usually employs standard sources-of-growth equations based on a dynamic Cobb–Douglas aggregate production function, which can easily be extended to include human capital as a determinant of the economy's growth rate. One strand of models includes those by Barro (1991), Barro and Lee (1993), and Baumol (1986), which argue that human capital plays an important role as a facilitating factor on the international transfer of technology from innovating countries to "imitating" ones, helping them to "catch-up" with the developed countries. Also, Mankiw, Romer, and Weil (1992) show that an extended Solow-type growth model, when solved for the steady-state per capita income level, ends up in an equation that includes physical and human capital as the basic growth determinants. Alternatively, on the endogenous growth side of models, human capital accumulation has been recognised as one of the most important engines of economic growth. Romer (1990) develops a growth model, assuming that the creation of new ideas/designs is a direct function of the human capital (which has the form of scientific knowledge). Therefore, investment in human capital, by improving research and development, entails a growth in physical capital investment, which in turn results in higher real growth rates. Persistent accumulation of knowledge by human beings, either with intentional efforts (Lucas, 1988) or with learning by doing (Azariades & Drazen, 1990), promotes the productivity of labour and capital, and is the driving force of economic growth (see Kim, 1998). Investment in human capital is generally proxied by educational variables. Indeed, it is widely accepted that the principal institutional mechanism for developing human skills and knowledge is the formal educational system. Most developing countries have been led to believe that the rapid expansion of educational opportunities is the key to their economic and national development.

The focus of this article is on the potential impact of an enlarged number of highly educated people to Greek economic growth. More specifically, the hypothesis that we want to test is whether or not this educational expansion

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[1] This increase in the number of higher education students is either due to the establishment of new universities or due to an increase in the number of enrollments in the existing ones. Characteristically, one could say that in the last 10 years at least three universities have opened: Ioannina, Aegean, and Open University.