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Returns to schooling: Facts from the macro-analyses

The link between the quality of education and economic performance of a country always rises interest. The governments are interested in saving the financial resources that could possibly be spent on education. Yet, high returns to schooling on the country level naturally would stimulate investment in education. In this paper we use advanced econometric tools to prove that the such returns exist.

Hanushek and Woessmann [3] used the 1960-2010 data to explain GDP growth as a function of selected educational indicators. While they did not find evidence of the importance of years of schooling, they claim to have showed the relevance of cognitive skills and basic literacy ratio for the economic growth. However, some doubts may arise. Firstly, Hanushek and Woessmann used the contemporary measurement of cognitive skills based on the results of PISA tests to explain the GDP change over the recent 40 years, while in reality one would expect the quality education to reveal its influence on

growth with certain delay. This due to the fact that PISA tests are carried out on teenagers who enter the labor market 5-10 years later and do not influent it at the time of filling in the test questionnaires. Thus there is a risk of reversed causality of educational and economic performances. Secondly, their regression was based on cross-sectional data on a group of countries, which provided only 23 observations. Finally, their model could be extended by inclusion of other regressors. This would convert it into the augmented Solow's growth model: a commonly recognized GDP growth model.

Our research based on the panel of countries in which PISA tests were performed suggests the significance of mathematical skills for the GDP growth, which might be treated as a confirmation of the importance of high quality education for the economic development. However, relatively short history of the PISA tests allows to check only the contemporary relation between the two (at most the educational achievements could be lagged by a few years), which raises similar doubts as Hanushek and Woessmann [3] We then use additional sets of educational and macroeconomic data (Lee-Lee [5]), GDP and other macroeconomic data (Jorda, Schularick and Taylor [4], Bolts and van Zenden [2]), whose coverage reaches even the nineteenth century. The above quoted panel allows us to (1) confirm the significance of education (measured by both expenditures and shares of primary/secondary schools graduates), (2) estimate the delay after which good education contributes to better economic performance, (3) confirm the existence of causal relationship between the educational expenditures and economic performance of a country. In analyses, dynamic panel data estimation techniques are applied to estimate the equation known as "Barro regression" (Barro [1]), which allows to capture significant growth factors together with the effect of GDP convergence.

References

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