The Impact of Education on Macroeconomic Performance: Is There Truth in Numbers

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Outline
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Research Background
- International ranking e.g. PISA test score.
- Millions of dollars are set aside to invest in score improvement while every country is facing budget constraint.
  - Education budget is among top three of government budget.
- The wrong impression of impact of test score on long-term economic growth might lead to economically unwise policy resulting in deadweight loss where resources are not utilised at its optimal point.

Problem Statement
- Is regression model from recent work of Hanushek and Woessmann (2008) robust from time to time, and robust to different data set?
  - If not, What can be possible causes of non-robust model?
  - Is the existing econometric model appropriate to illustrate the relationship between cognitive skills and economic development?
  - Are test score or cognitive skills actually a suitable proxy of human capital?

Purpose of Research
- Answer the preset research questions regarding the robustness and validity of recent proposed model by Hanushek and Woessmann (2008), and the issues of human capital proxy and relationship between education and long-term economic growth.
- Review classic and contemporary literatures regarding cognitive skills and economic development.
- Discuss a future direction of research in this field and propose some thoughts and critiques on existing research.

Research Methodology
- Quantitative analysis
  - OLS multiple regression analysis with country cross-sectional data
  - Dependent variable: GDP growth
  - Independent variable: years of schooling and test score
  - Control variables: initial GDP (HW’s model), but physical capital and labour force (Solow model)
- Thought experiment
Research Methodology

- Hypotheses
  - H1: given model specification is correct, using same model with different time period data set would yield similar results, especially the direction and effect of independent variable of interest.
  - H2: Assumed correct model specification, different models with same data set should yield similar results.

Research Key Findings

- Both HW’s model and Solow growth model cannot show that neither school attainment nor test score are growth determinants.
- However, there is consistency in classic Solow growth model where only physical capital and labour force are specified in the model.
  - Both variables are growth determinants.
- It is suspected that HW’s model is sensitive or having technical problems.

Research Key Findings

- It is likely that HW’s regression model suffers from inconsistency and biases in regression results due to
  - Measurement errors
  - Omitted variable bias
  - Multicollinearity
- These problems are constituted from issues of data and human capital proxy, model misspecification, and endogeneity.

Conclusion

- Neither argue that education does not have a positive impact on long-term economic growth, nor is able to solve problems in growth regression analysis.
- Aim to show that there might be no truth lies behind the numbers produced from regression analysis.
- Rely on test score may give wrong impression and can lead policymaker to a wrong direction.
- Urge that while the linkage among education, human capital, and economic growth is still ambiguous, there are other aspects, problems and issues in education which are in need.

References


Thank you for your consideration.