

THE MACROECONOMIC ADVANTAGES OF HIGH-QUALITY EDUCATION⁴⁴

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Abstract: In today's globalized society, countries invest great efforts and significant funds in improving the education system, aware that only an educated and professional workforce, especially in areas such as technology and science, can ensure the success of the economy. Developing countries can especially prosper by investing in education and training that will create a highly skilled workforce, and in the difficult economic conditions of underdeveloped regions, quality education can reduce social isolation and poverty, as it increases GDP (gross domestic product) as well as individual earnings. When it is taken into account that the increase in the level of education in poor countries contributes to the improvement of critical thinking and orientation towards sustainable development, then such a phenomenon can have global positive effects. Therefore, quality education is undeniably an important lever that contributes beneficially to the macroeconomics. In order to achieve competitiveness in today's demanding market, a competent workforce must be possessed, and the role of the state in this process must be to provide tax incentives for training, adequate facilities for educational purposes, but also materials and necessary technological means, which will enable students to have better quality learning and significant academic results. In general, it can be concluded that the more resources a country allocates to its educational infrastructure, the more successful its economy will be as a whole. New technologies improve education, because they enable distance learning, better communication and cooperation, and quick access to information. However, especially in underdeveloped regions, technological progress is still very slow, teachers are not very proactive in using modern technologies and very rarely use them for teaching purposes. The main reason is certainly the lack of financial resources for the modernization of educational technology, and low level of digital literacy.

Keywords: Macroeconomics, Education, Economic growth, Technology.

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INTRODUCTION

An extensive body of research from the early days of cross-country growth regressions has generally found a strong positive correlation between quantitative indicators of education and economic growth (Sianesi & Van Reenen, 2003). Education is crucial as an investment in human capital and as a means of promoting technological dissemination and research and development, according to a number of recent studies. Empirical growth research over the past few years has shown that the appraisal of education's function in the process of economic development is significantly altered when the quality of education is taken into account (Hanushek & Woessmann, 2007).

Competition between nations' economies is a necessary consequence of globalization and international trade. Competitive and comparative advantages over other economies are held by economically successful nations, however individual nations rarely specialize on a single industry. A lot of nations are putting more effort into creating educational programs that can turn out professionals who can work in emerging fields like science and technology. This is partially due to the fact that older, less competitive industries in rich economies are less likely to dominate the industrial landscape going forward. With the growing conviction that everyone has the right to an education, a push to raise the general public's level of basic education also arose (Radcliffe, 2023). Additionally, education and training may guarantee that civic and human values are upheld, combat discrimination in all its manifestations, and assist prevent poverty and social isolation (European Council, 2019).

The dissemination of knowledge is facilitated by modern technologies. We are able to convey knowledge without any hindrance thanks to the Internet (Baltezarević et al., 2015a). Incorporating digital tools with computers and other devices empowers students to take charge of the learning process and take a more proactive approach (Kovács et al., 2015). However, the main obstacle to the introduction of new technologies in underdeveloped countries, as the main lever for enabling quality education, which will accelerate economic growth, is the insufficient digital literacy of educators and students, as well as the currently high price of technological devices.

THE IMPACT OF EDUCATION ON MACROECONOMICS

Increasing workforce skill levels promotes growth (Timmer et al., 2010). According to Barrell et al. (2011), between 1978 and 2007, the increase of labor productivity and production in ten European countries (as well as USA and Japan) was positively correlated with the rise of measured skills (Barell et al., 2011). By estimating cross-country growth regressions, which express a country's average annual GDP per capita growth over several decades as a function of schooling and a number of other variables thought to be significant for economic growth, it is possible to estimate the impact of education on economic growth (Hanushek & Woessmann, 2007). However, the measurement of skills and appropriate modeling techniques for the potential channels of influence of skills on economic performance are methodological issues that Sianesi and van Reenen (2003) point out make it sometimes difficult to identify indirect links between skills and economic performance.

The quantitative measure of years of schooling, now averaged throughout the labor force, is used by most macroeconomic studies on economic growth that attempts to test these predictions in the literature on microeconomic returns to education. Using a combination of census or survey data on educational attainment, when possible, together with enrollment and literacy data to fill in the gaps in the census data, Barro and Lee (2001) presented internationally comparable data on the average number of years of schooling for a large sample of nations and years. This metric also makes the assumption that differences in the quality of nonschool elements have no bearing on educational results and that formal schooling is the main source of education. The primary flaw in using such a quantitative measure of education is likely its disregard for variations in educational quality between nations (Ibid).

By controlling for country-specific and industry-specific effects using cross-country industry-level data, Ciccone and Papaioannou (2005) found substantial evidence for both the human capital accumulation and level effects in their investigation. Several studies have discovered that clarifying the positive linkages between human capital and growth is made easier when distinguishing between different levels of education or capturing the quality of education instead of using the traditional average years of schooling metrics. Nonetheless, a significant critique of macro analyses is that they demonstrate correlations between human capital and growth but not necessarily causation, even with more sophisticated measurements of human capital (Valero, 2021). Economic growth and education are inextricably intertwined, as education affects GDP (gross domestic product) as well as individual earnings. It supports the health of the labor market, and overall national employment trends generally follow the level of investment in education. Education is often seen as an investment in human capital. The more money a nation spends on its educational infrastructure, the more successful its economy will be overall. Additionally, studies reveal those nations with greater rates of education experience faster rates of economic growth than nations with lower rates of worker education (Brooks, 2023). Reverse causality, in which increased growth results in more education, may be at least as significant in these interactions as the causal relationship between education and growth, according to Bils and Klenow (2000). The results of the linear analysis conducted in Spain indicate that there is a positive link between economic growth and education. Specifically, the higher the degree of education, both secondary and tertiary, the greater the growth in the economy (Marquez-Ramos & Mourelle, 2019).

A number of publications by Hanushek and Woessmann (2015) are summarized, and they highlight the beneficial impact of high-quality education on growth. The underlying relationship between education and growth, they contend, has been hidden by measurement concerns in the prior literature that used quantity measures of human capital, such as years of education or even attainment of different levels of education (Ibid). Investing in education to enhance one's human capital yields both financial and non-financial benefits. Parenting and leisure time are examples of non-monetary benefits (Jorgenson & Fraumeni, 1992). In emerging nations particularly, education must to be given top priority if strong economic growth is to be realized. Two areas are where the effects of education are most apparent in developing nations. Since education empowers people to make their own decisions, obtaining an education is the first step in achieving gender parity. Secondly, we may all gain from

teaching people in poor countries how to think critically and behave sustainably (Khan et al., 2023).

A workforce that can manage industries at a level that gives the economy of a successful country a competitive edge over the economies of other countries. To create a workforce that is more competent, countries can experiment with providing tax incentives for training, providing training facilities, or a variety of other strategies (Vedantu, 2024). An economy can concentrate on a few areas where skilled workers are easier to train, even though it is unlikely to have a competitive advantage in other firms. One key distinction between developed and developing nations is their levels of training. Comparable businesses may therefore concentrate in the same area as a result of those skilled workers (Ibid). Opportunities for employment and educational attainment are closely related. Better educational possibilities are surely linked to increased economic growth. It is commonly known that no country has been able to sustain economic growth without making significant investments in the field of education. The examples of the former Philippines, the Soviet Union, Kerala and West Bengal in India, and Sri Lanka show that education is not a guarantee of affluent prosperity on its own (Khan et al., 2023).

A new era of educational access has been made possible by technology, giving students everywhere the chance to increase their knowledge and skill set. Students can access lectures, study materials, and other resources from any location with an internet connection by using online learning systems. Those who live in rural places or don't have access to actual classrooms would particularly benefit from this (GGI Insights, 2023). Even though information and communication technologies are being used more and more in everyday life, the main issue is that most users lack the digital skills needed to safely fulfill their needs for business, education, entertainment, and communication in virtual environments (Baltezarević, 2022). Scholars have examined the state of affairs and use of educational technology in ethnic schools and have found that teachers are not proactive in utilizing and learning about contemporary educational technology, and that the associated teaching facilities are artificially idle and infrequently used for instructional purposes (Li et al., 2017). Lack of funding makes it difficult to buy and replace contemporary teaching tools and keeps up with the advancement of educational technology. Simultaneously, there are features missing and insufficient software resources to support modern teaching and education (Ibid). Many companies are now aware that the only way to win and maintain a competitive advantage is to learn faster than the competition. Only organizations that prioritize information as their most valuable resource may hope to outperform the competition (Baltezarević et al., 2015b).

CONCLUSION

In the literature, there is a large number of studies that deal with the study of the impact of education on economic growth, but, when assessing whether and how much education has an impact on economic growth, initially the average number of years of education was used as the most available information from national statistics and censuses. However, it is clear that this is not a perfect metric because it implies that one year of schooling in different countries has the same impact on the creation of human capital. In any case, quality education contributes to the creation of a competent workforce, better

competitiveness, higher GDP, and thus economic development. This is perhaps most clearly reflected in the case of underdeveloped countries, where education can help to escape poverty and social isolation. However, in order to raise the quality of education to a higher level, it is necessary to improve the technological infrastructure and educational organizations. Technology increases student motivation and engagement, provides access to necessary materials, facilitates cooperation and communication, and above all has a positive effect on achieving better academic results. Unfortunately, on the way to creating a quality workforce, obstacles often appear in the form of insufficient budgets for the technological modernization of educational institutions, but also insufficient digital literacy and the initiative of lecturers to incorporate technological means into learning processes. Perhaps the first step of a developing country towards achieving quality education should be to remove obstacles to technological development, primarily by organizing trainings aimed at improving digital literacy and providing additional financial resources for investing in technological innovation in the education sector.

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