



# CONTRIBUTION OF EDUCATION IN ECONOMIC GROWTH

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## ABSTRACT

Education has to be a top priority if we want to keep the economy growing at a healthy rate. This is why scholars and lawmakers should pay close attention to public spending on education. There are a number of potential channels via which education might affect economic growth, and they vary from nation to country. What it really means to "grow" is for people's capacities to develop, and a nation's educational system must be sound for that to happen. The simple explanation is that it improves both individual and group cognition. Effect on Economic Development Their standard of living improves, and society as a whole benefit in a number of ways. It's essential for motivating the launch of brand-new enterprises and the creation of ground-breaking innovations. It's crucial for promoting a fair distribution of income and guaranteeing economic and social progress.

**Keywords:** Education, Economic Development, Productivity, Human Capital, Entrepreneurship.

## INTRODUCTION

All aspects of society benefit from education, making it a crucial cornerstone. The effects of public spending on elementary, secondary, and tertiary education on the economy are analyzed here. Expectation is the driving force for progress in all areas of life, not just the economy. Educator expectations came after financial incentives. The desire to educate will rise if the educated believe that furthering their education would enhance their standard of living, which in turn will raise productivity and fuel the country's economic expansion.

Investing in children's education is crucial for any country hoping to foster sustained economic development. cognitive abilities and a basic literacy ratio were more important for economic development than the number of years people spent in school Not only does a kid and his or her family profit from a good education, but so do the rest of us. Thus, by fostering a peaceful and democratic society, the education of my kid indirectly benefits you. There is widespread agreement that investing in one's education is crucial to personal and national success because of the value of human capital. Individually, research based on has shown the importance of education in raising income and productivity.

Micro estimates have revealed that the returns to education are high for each individual student. The average worldwide return on an additional year of education is roughly 9%, and this has remained pretty steady over the decades, but these assessments do not take into account the broader economic externalities and advantages to society that result from more educated citizens. In particular, they fail to account for the multiplier effects that an individual's education may have on others in the same organization, field, or even nation. the first to understand how teamwork among employees might increase both learning and output. Since then, many have emphasized human capital externalities as the major driver of economic growth The socially desired and expected future beneficial consequences on productivity generated by human capital include less crime and better health outcomes.

As a matter of fact, these kinds of positive externalities provide governments a sound economic reason to invest in education. Understanding the indirect or spillover impacts of expenditures in human capital requires a macro-level examination of the links between human capital and growth. The returns to human capital seem to be bigger for enterprises than for people, according to recent sector or firm-level productivity regressions. In addition, including a measure of the human capital that people or companies are exposed to in their geographic context has allowed for the estimation of spillovers in either wages or productivity.

## LITERATURE REVIEW

**Laura Marquez-Ramos, et.al (2019)** Could a country's human capital development affect its economic growth rate? The focus of this article is on education's potential to foster development in both human capital and the economy as a whole. The authors postulate that once a certain level of knowledge is reached, the dynamics of economic development shift. Conceptualization, Methodology, and Strategy - In order to answer this topic, the authors move away from a linear framework and towards a nonlinear one, using smooth transition requirements. This empirical examination of Spain's data suggests that there are nonlinearities in the connection between secondary and higher education and national GDP growth. Next, the authors give a regional study for a selection of sample Spanish areas, noting that distinct regional trends do emerge. Based on the findings, it is clear that higher education is important for economic development and that the nonlinearities in this connection must be taken into consideration. Using Smooth Transition Regression models for the education-economic development relationship, researchers have discovered that a country's average level of education may be interpreted as a source of nonlinearities in its economic activity (and of a region).

**Kotásková, Sylvie et.al (2018)**. The link between schooling and economic development is a topic of intense inquiry. Economists have been studying the link between education and economic development for the last 30 years. There is substantial evidence in support of a connection between the two, as shown in a number of scholarly papers. By focusing on elementary, secondary, and higher education, this research hopes to add to the existing literature on the topic of the correlation between education and economic development in India from 1975 to 2016. We use econometric estimates from the Granger Causality Method and the Cointegration Method to look into the connections. To better understand the assertion that education is crucial to India's economic progress and to provide an example for other developing nations in Asia and beyond, these techniques are utilized to develop models. The results of this study provide substantial evidence supporting the hypothesis that higher levels of education are associated with higher rates of economic development in India, which might have far-reaching implications for policymaking and India's economic future.

**Anna Valero (2021)** This study provides a review of the research that establishes a connection between schooling and increased prosperity. It starts with a review of the fundamental ideas behind neoclassical and endogenous growth models, followed by a discussion of how these hypotheses have been put to the test using actual economic data. Studies that have attempted to address problems with specification, human capital assessment, and causation are reviewed. An expanding body of research detailing the connections between human capital at the business level and productivity is then described. In addition to studies that have shown a direct correlation between human capital and economic performance, many others have investigated the connections between human capital and other growth drivers such as investment, technological innovation, and technological adoption. We summarize the research that has shown a connection between the activities of universities (important generators of both human capital and innovation) and the economy in their surrounding areas, and we extract major conclusions from this research.

**Mabrouka Bouhajeb et.al (2018)** As a result of its positive effects on research, knowledge, and technological innovation, higher education is seen as a driving force in the progress and expansion of the knowledge society. This article compares and contrasts the experiences of industrialized and developing nations throughout the period 1996-2014 in terms of innovation, higher education, and economic development. Using the panel cointegration test of Pedroni (1999, 2004) and Kao (2001), we analyzed the cointegration between series (1999). The empirical study concluded that the series were cointegrated with one another. The findings also show that new approaches to higher education contribute to economic growth.

**Dr. Reena (2018)** Learning never stops. It's about an expanding human population and a rapidly expanding culture. The Latin root of the English word "education" means "to raise up." Acquiring more knowledge is essential. Relationships with other humans, with the cosmos, and with the divine. Education is crucial to modern society because it fosters the acquisition of new information and the maturation of one's brain, but it also contributes to the efficient expansion and improvement of the Indian economy. Students need to be empowered as innovators, scholars, researchers, and educators via the educational system. Since the turn of the last century, the Indian economic system has relied more on the incorporation of scientific findings into industrial methods. Because it raises the level of productive human capital, education has been identified as a key driver of productivity development in the post-war period.

## **METHODOLOGY:**

The study takes a descriptive approach, drawing its material mostly from secondary sources. Secondary sources, such as Economic Development, Competition Success review, etc., have been combed for the necessary facts and information.

## **DATA ANALYSIS:**

**Role of Education in Economic Development:** No nation, industrialized or developing, can expect to improve its economy without investing heavily in its population's education. Human capital, or the population of a nation, is one of the most crucial factors in an economy's growth and development. When combined with other factors, a skilled and productive labour force may propel an economy to greater heights of development and wealth. Education is a key component in cultivating this asset, often known as human capital. Consequently, education is crucial to a country's ability to maintain economic growth. Therefore, education has developed into an integral part of government programmers. Many poor nations have made great strides in the field of education. The government should invest similarly in elementary and higher education if it is serious about addressing the issue of inequality. It is now widely accepted among economists that spending money on people's schooling—also known as "human capital"—is essential to a flourishing economy. Evidence from a wide range of research shows unequivocally that workers with greater levels of education are more productive and compensated for their efforts.

In general, a higher primary school enrolment to labour force ratio is associated with higher rates of GDP growth and per capita income. So, it's safe to say that getting a good education in the early years is crucial for building a prosperous future. When the government makes every effort to ensure that every one of school age who needs it receives it, then and only then can it set out on the road to economic prosperity.

In 2004, researchers Van Der Sluis, Mirjam Van Praag, and Wim Vijverber performed a meta-analysis of the influence of education on entrepreneurial selection in low- and middle-income countries (LDCs). It also shows that even a little increase in education levels (one year) increases business earnings by 5.5%. Incomes are different in the city compared to those in the country.

According to research conducted by the OECD and the United States Department of Education, the benefits of female education in industrialized nations are greater than in rural regions. This indicates that women with lower levels of education tend to work in service industries like food preparation and cleaning, or in the textile and apparel industries where pay is lower. The implication is that women who invest in their education tend to find careers that pay more. Our educational strategy prioritizes secondary education above elementary schooling. The government should priorities expanding access to high-quality educational opportunities in order to meet the growing need for highly trained labour.

**Education in Economic Development:** Up until recently, economists have seen physical capital as the most crucial component in determining economic growth and development, urging that the rate of physical capital creation in developing nations be raised to speed up economic development and improve people's living standards. Recent studies have shown, however, that education is a major contributor to economic growth. Education is the means through which the skills and knowledge of a population or labour force are enhanced.

Educating the workforce, both in terms of quantity and quality, is a crucial factor in driving economic growth. Human capital has also been called education, and the money spent on it is also called an investment in one's human capital. The time and money spent on a person's education has been called an

investment in manpower or human capital.

Education's impact on the growth of human capital has been demonstrated by social empirical studies conducted in developing countries, especially the United States, into the sources of growth or development, or the contributions made by various factors such as physical capital, labour, education, etc.

As one of the first economists to do so, Prof. Solow estimated that, for the United States between 1909 and 1949, 57.5% of the growth in output per man hour could be attributed to the residual factor, which represents the effect of technological change and of the improvement in the quality of labour, primarily as a consequence of education.

**Historical Background:** Human capital investment programmers were not given much attention until the eighteenth century. In general, investment in formal education, on-the-job training, and similar avenues was rather modest. Science's application to the creation of novel products and improved methods of production started to radically change this situation in the course of the twentieth century, first in the United Kingdom and then, inevitably, elsewhere. In the twenty-first century, a person's and a nation's ability to produce depends more on their level of education, their level of expertise, and their level of knowledge.

The success of a nation in the 20th century may be measured in large part by how successfully it has improved the health and education of the majority of its people and in developing and using its citizens' skills and knowledge.

None of the world's most prosperous nations got that way without first investing heavily on their human capital. Several forms of human capital accumulation have been proved to have positive results in the past. These include formal education, scientific investigation, formal and informal training, on-the-job experience, and the cultivation of innate talents. Broadening access to education is crucial. Inequality in education is correlated with lower per capita income in most countries.

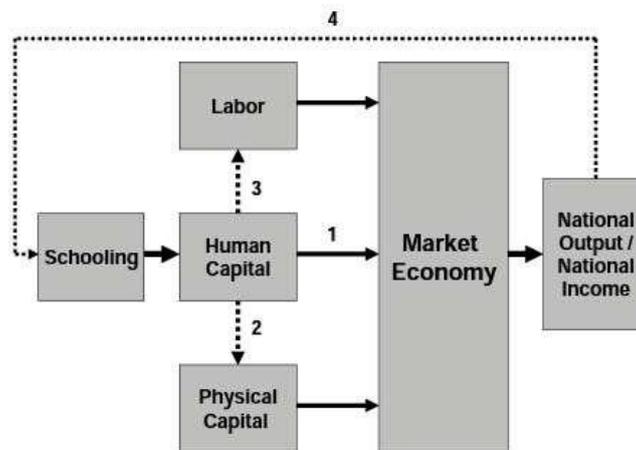
Average education's impact on GDP varies by location and educational system. To counteract these effects, an asset allocation model-consistent set of functional form requirements is used, as is a control over the distribution of human capital. Unless people can put what they learn to use in free and open markets, the money put into human capital won't lead to economic expansion. The larger and more competitive these markets are, the more chances there are to put one's training and knowledge to use.

### **Contribution of Education to Economic Development:**

- **Education and Productivity:** The quality of a country's educational system is a major determinant of the diversity and expansion of its exports, as well as an important element in any system's capacity to effectively appropriate foreign technology. To provide just a few examples, worker productivity in both rural and urban areas increases when employees have access to better healthcare, nutrition, and basic and secondary education. Vocational education, skill development, and leadership development are all integral parts of a well-rounded secondary education. Tertiary education, such as colleges, universities, vocational programmers, etc., also plays a crucial role in a country's progress. The rate of return on investment improves with higher levels of education, suggesting that higher levels of education are connected with higher incomes at the micro level. Higher returns may be expected from elementary education than from secondary or higher levels of education.
- **Education and Income:** Raising educational standards leads to greater income equality, which in turn encourages higher rates of economic expansion. The importance of education in economic growth should be evaluated not only in terms of its effect on GDP growth, but also in terms of its influence on the distribution of income and the prevalence of poverty. If education is more widely available, people from low-income backgrounds will be better prepared to pursue economic opportunities. For instance, one study conducted in the 1980s examining the connection between schooling, economic inequality, and poverty in 18 Latin American countries concluded that educational attainment is the single most important factor in determining income distribution.
- **Education and Trade:** No nation can possibly achieve commercial success. In order to boost a country's export industry, money should be put into improving its citizens' education and knowledge. A nation's trade performance and competitiveness may be affected by its level of knowledge accumulation,

and conversely, trade can boost knowledge accumulation, especially via imports. In a sample of 60 developing countries between 1965 and 1987, the World Bank found that economic development rates were unusually high when there was a combination of high education and openness.

- **Effect of schooling on National income in a Market Economy:** Human capital influences both the direct and indirect productivity of physical capital and labor.



**Figure:1 Effect of Schooling on National Income in a Market Economy**

The graph illustrates how an increase in educational attainment contributes to a nation's human capital. As a result, the solid line represents the impact of human capital on national income, while the dotted line represents the impact of human capital on the productivity of the other two elements. There is a third unintended consequence shown by the graph, and that is the multiplicative impact of increased money on people's desire to further their education. In terms of both physical capital and projected return on investment, it is stimulative. In response, private investors raise their outlays for physical capital and the projected return on investment, which boosts national revenue and, by extension, the productivity of human capital or labour. As the multiplicative impacts of these factors spread across the economy, GDP and thus national income grow.

**Comparative Analysis of Investment on Education and literacy rate (in %):**

**Table 1: Developed Countries**

Countries	Literacy Rate (in %)	Expenditure on Education (% of GDP)	
	2012	2012	2018
Switzerland	99	4.858	4.861
Denmark	99	7.238	7.752
Norway	100	7.375	7.644
Netherland	99	5.41	5.358

**Table 2: Developed Countries**

Country	Literacy Rate(%)		GDP Per Capita		Expectancy at Birth		Human Development Index (HDI)	
	1995	2020	1965	2020	1995	2020	1995	2020
Netherlands	99	99	1708.10	52304.06	77.5	82.42	0.868	0.944
Norway	99	99	2164.47	67294.48	77.6	82.18	0.881	0.957
Denmark	99	99	2235	60908.84	75.3	81.03	0.837	0.940
Switzerland	99	99	2620.48	86601.56	78.2	83.92	0.856	0.955

Although the aforementioned nations have achieved a very high level of literacy, they continue to devote a large amount of their GDP in Education. This is not the instant effect of a massive expenditure. Such a high literacy rate is not usually achieved in a short amount of time, but rather over a longer length of time, since the return on investment in education is delayed until the present. A more educated and competent workforce is one factor in a country's economic growth and development.

**Table 3: Under-Developed Countries**

Countries	Literacy Rate (in %)		Expenditure on Education (% of GDP)	
	2015	2018	2012	2018
Bangladesh	61.54	73.91	2.2	1.99
India	71.2	74.4	3.3	3
Nepal	64.66	67.9	4.7	4.4
Pakistan	56.44	60	2.4	2.4

**Table 4: Under-Developed Countries**

Country	Adult Literacy Rate (%)			GDP Per Capita(USD)		Life Expectancy at Birth (Years)		Human Development Index (HDI) (1995)	
	1970	1995	2018	1965	2020	1995	2020	1995	2020
Bangladesh	25	38	73.91	106.65	1968.79	62	72.87	0.434	0.632
India	34	52	74.4	119.32	1900.71	60.32	69.66(2019)	0.461	0.645
Nepal	14	28	67.9	67.01	1155.14	58.14	70.88	0.419	0.602
Pakistan	20	38	60	116.45	1193.73	61.50	67.43	0.426	0.557

The lower literacy rates in these developing nations are indicative of a workforce that is both less educated and less competent. As a result, compared to industrialized nations, whose workforces are highly skilled and educated, these countries' productivity is poor. Many of these less developed nations with low literacy rates spend a disproportionately small percentage of their GDP on education.

Investments in basic education reaped the greatest social return in low-income countries, those in secondary education in middle-income countries, and those in higher education in high-income countries, according to research by Alain Mingat of IREDU, France, and GEE-PENG Tan of the World Bank.

**Trends in enrolment (In India):** The student population enrolled in schools (not including distance learning) increased from 0.17 million in 1950–1951 to 10.48 million in 2004–2005. Total enrollment in higher education has expanded at an average annual pace of 8.04 percent between 1950–51 and 2004–05, while the total number of instructors has increased at an average annual rate of 5.78 percent. Roughly 87% of all college freshmen enroll at one of the affiliated schools. At reality, almost 90% of all graduate students and 65% of all postgraduate students are enrolled in affiliated institutions. It's also worth noting that just 0.65% of college students really do original research. It is common practice to evaluate a country's commitment to education by looking at how much of its gross national product (GNP) is allocated to funding education. It's worth noting that India promised a long time ago to devote 6% of its GDP on education. For the advantages of globalizing universities to be fully realized, attention must be given to improving programmed quality.

**Results:** Direct and indirect links between education and national production and economic growth are shown. Workers whose education has increased their marginal productivity contribute instantly to GDP growth. They boost GDP by enhancing the marginal productivity of machines and labour. The impact of higher education levels on other employees is less in nations with higher levels of education than in countries with lower levels of education.

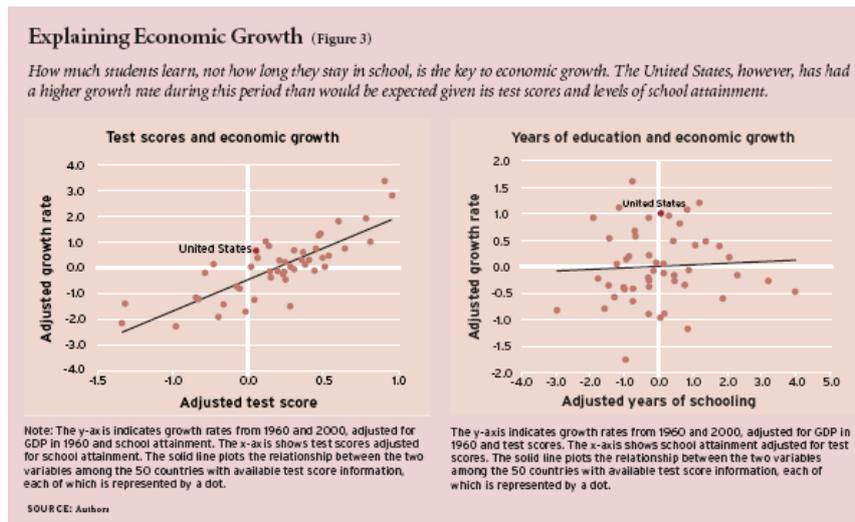
- **Policy Measures and Suggestions:** The following policy initiatives and recommendations are included in the study's results and discussion:
- **Increase in the Public Expenditure:** Government funding for education growth should be increased to improve economic and social conditions.
- **Awareness for Education:** Awareness on the part of the populace of the value of education is crucial to a nation's progress. When more people care about getting an education, the nation as a whole advance.
- **Basic Education for all:** Every nation ought to make its best effort to ensure that its citizens, young and old alike, have access to basic education. A nation may guarantee education for its citizens by instituting policies like "Education for all" and "right to education."
- **Primary Education as compulsion:** For the sake of a nation's progress, particularly in less developed and emerging nations, universal, compulsory elementary education should be pursued. When a nation invests in its primary school system, it lays the groundwork for future educational successes. Consequently, it's crucial that you priorities this.
- **Incentive for Education:** Poor families in underdeveloped and emerging nations often put their children to work instead of sending them to school. Since there are both out-of-pocket expenses and lost opportunities associated with not going to school, it is imperative that the government provide incentives, such as free primary education, free textbooks, and free, healthy meals, to encourage the less fortunate to enrol in school.

### Impact on Economic Growth

In comparison, the effect of enhanced cognitive abilities on children's performance on standardized examinations in mathematics and science is much bigger. We repeated the study, this time factoring in a country's average test-score performance, and found that those nations with the highest test scores also had the greatest economic expansion. In the 1960s, if a country's test-score performance was half a standard deviation higher than another country, that country's growth rate was, on average, one full percentage point

higher annually than the second country's growth rate for the following 40 years. This is a little less than the current difference in scores between such top-performing countries as Finland and Hong Kong and the United States. The importance of school attainment, i.e., extra years of education for economic development, diminishes to zero if the influence of greater levels of cognitive abilities is taken into consideration (see Figure 3). If children are really gaining knowledge by staying in school longer, then the nation as a whole benefit.

Our capacity to account for regional differences in GDP growth is more evidence that high-quality education is crucial to economic development. Merely a fifth of the variance in GDP was explained by only using educational attainment and a country's GDP in 1960 when attempting to account for economic development. Adding cognitive abilities to our statistical models of economic development helped us explain approximately three-quarters of the variation we saw across nations. Therefore, it seems that disparities in cognitive capacity play a significant role in explaining inequalities in economic development among countries.



**Fig: 2 Economic Growth**

There are, of course, other elements than the beginning level of economic development, educational attainment, and cognitive abilities that influence economic growth. Is there a chance that we have failed to account for a component that may be contributing to the correlation between test results and economic expansion?

In addition to political stability and natural resources, several studies have shown that the protection of property rights and access to global markets have significant impacts on a nation's economic development. The beneficial impact of cognitive skills on yearly economic growth remains around 0.63 percentage points per half a standard deviation of test scores, albeit being considerably less when these two variables are included. The magnitude of the effect of cognitive abilities on GDP growth has been calculated to the best of our current knowledge.

## CONCLUSION

We may conclude from this that developing nations still need to spend more in education in order to create a highly educated and competent work force, which would boost the productivity of these countries and contribute to their overall growth and development. Developed nations' greater literacy rates mean they can generate more wealth for their citizens. More money in people's pockets and the government's coffers means more money to invest in training and infrastructure. When it comes to building up a country's workforce, education is essential. Societal and economic shifts are propelled by highly educated and skilled individuals. It is thus important to make sure that the impoverished and the weaker members of society have access to higher-quality education. When you put money into your education now, it may pay dividends for the rest of your life. Human capital creation relies heavily on the input of education to turn undeveloped people into valuable assets. Economic growth, a result of investments in education, is a measure of both societal and economic development.

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