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***Research Article***

# The Impact of Education System on Economic Growth: An Empirical Evidence from Developing Economy

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## ABSTRACT

The role of education in economic growth levies a massive impact on the economic growth of developing countries. This study has investigated the outcome of the education system on economic growth in the context of Pakistan. This study has also considered the literacy rate, labour force, consumer price index and unemployment for analyzing their shade on the growth of our country. The gross domestic products of the country have shown dependency in our model. In the light of regression analysis, results are helpful for a literature review that illustrates that role of education positively affects the growth of a country and freedom of economy is a sophisticated way to check the prominence of the growth of the economy.

## KEYWORDS

Education System, Economic Growth, Developing Countries, Literacy Rate

## 1 | INTRODUCTION

Most economists agree that education is both a consumer and a capital good. The rationale for this trend is that education is valued both as an end in itself and as a means to an end in the development of other goods and services. Education can be utilized to build human resources, which can then be invested in as a capital good for the aim of reviving the economy and society. Human capital, which Olaniyan and Okemakinde (2008) first identified in 2008, was linked to academic achievement as a financial asset. Economic growth has been brisk in places like Hong Kong, Korea, Singapore, and Taiwan because of the country's dedication to and success in funding its educational system. Human capital is developed in part through formal education. The enrollment rate is extremely low, the value and regulation of education are subpar, and the educational sector receives an inadequate share of the total budget in rapidly developing countries. Education has been shown to positively correlate with economic growth by several researchers, including Kakkar, Khilji, and Jawad (2011), Mark and

Klenow (2000), and Barro (1991). According to Hanushek, Eric, Dennis, and Kimko (2000), educational standards have a direct bearing on economic growth and productivity. Split educational system is coupled with issues of access, quality, and governance, as mentioned by Hussain (2019), which considerably affects the situations of a country.

Investment in education has been shown to have a positive correlation with economic growth, supporting Olaniyan's and Okemakinde (2008) notion that education is an engine of progress that is dependent on the quality and quantity of education in any country. Human capital is seen as the driving force behind economic expansion in modern growth theories, which acknowledge the role of non-traditional elements in growth. Workers' abilities, population health, educational attainment, work experience, and formal education are all indicators of human capital. Persons embody human capital, which boosts overall labor efficiency. It has a stimulatory effect on the economy (Lucas, 1988). The best indicator of the value of human capital is a person's level of education. High levels of human capital, measured by students enrolled in school, correlate positively with high levels of Per person real GDP (Barro, 1991). Investing in one's human capital through education has both monetary and non-monetary returns. Non-economic rewards include time spent parenting and relaxing (Jorgenson & Fraumeni, 1992). Children who receive more financial support in their development tend to do better emotionally, physically, and academically, and go on to have greater success in the workforce (Romer, 1994).

The extent to which people participate in their children's education varies with their developmental level. Previous research suggests that basic and secondary schooling have a greater impact on GDP growth in developing nations than they do in the OECD. The relevance of education to national development has prompted numerous researches to focus on this topic at length. The level of savings, the quality of education, and the rate of population increase all contribute to the disparity in per capita income between countries (Mankiw et al, 1992). According to Pritchett (1996)'s analysis of cross-sectional data on economic growth, higher levels of worker education had no discernible effect on the rate of growth in production per employee. Human capital expansion has a sizable, discernible, and negative effect on total factor yield. While education may not directly generate HCM, it does increase private sector pay. When people have more opportunities to further their education, the economy as a whole benefits. Abbas (2001) revealed that higher rates of attendance in primary school were associated with slower economic growth in Pakistan and Sri Lanka. The impact is more favorable for both nations when human capital is measured by the percentage of their populations that have completed secondary school. The findings as a whole demonstrate the importance of human capital to Pakistan's economic expansion. The total factor productivity of an economy can be boosted by investing in its workforce's education and health (Khan, 2005). Akintoye and Adidu (2008) came to a similar conclusion, finding an inverse correlation between spending on human capital and GDP growth.

Regarded as a country with a robust human resource system, Pakistan is in the group. As reported by the Economic Survey of Pakistan, the country's population is growing at a pace of 2.05 percent annually (2009-10). In order to fully tap into Pakistan's vast reservoir of human talent, education is the single most effective tool. Not only does this raise men's consciousness and help them work more efficiently, but it also enhances their overall quality of life. In 1947, only 16 percent of Pakistani adults could read and write; today, that number has risen to 58 percent. It only allocates two percent of its budget on education (Economic Survey of Pakistan 2009-10). In this research, we investigate the role of education in Pakistan's GDP growth from 1980 to 2013. If the report is useful, it will help Pakistani policymakers figure out how to make the most of their human capital.

Human capital as well as physical capitals with low levels, instable political conditions, undesirable conditions of weather, and a waning circumstance of law and order are all contributing causes to Pakistan's unsustainable economic growth. The importance of education in creating a prosperous economy cannot be overstated. Education should be prioritized highly, especially in emerging countries, if robust growth is to be achieved. In underdeveloped countries, the effects of education are particularly noticeable in two areas. Getting an education is the first step in achieving gender parity because it gives individuals the ability to make their own choices. And secondly, if individuals in developing nations are taught to think critically and act sustainably, we may all benefit. First and foremost, the connections amid educational advancement and economic development, income equality, and poverty reduction were widely acknowledged. The ability to raise one's earning potential and the number of available jobs can both be attributed to the education one receives. This holds true both for individual households and for national economies as a whole. The status of education and the distribution of educational

opportunities are directly tied to levels for production, economic growth, and designs of income distribution. Both the value placed on education and the price tag attached to education gaps have risen as the world's economies have become more intertwined and knowledge-based procedures have become more crucial to economic progress.

Employment opportunities and educational attainment go hand in hand. Increased economic growth can undoubtedly be attributed to better educational opportunities. In conclusion, it is widely acknowledged that no nation has maintained economic growth without investing heavily in the education sector. The experiences of the formerly Philippines, Soviet bloc, the Indian states of Kerala and West Bengal, and Sri Lanka illustrate that education alone is no guarantee of prosperous growth. Most nations' per capita incomes suffer when education isn't evenly distributed. Education directly contributes to a more prosperous economy. Investments in education may help reduce poverty and help pay for themselves preceding in long run with enhanced educational level lead to increased economic growth. When it comes to stimulating economic development, education is crucial. Education is seen as a powerful predictor of economic growth by some of the world's most renowned economists, according to studies examining the correlation between the two. To that end, we will examine Pakistan's educational system and its impact on the country's GDP over the course of the past 33 years (1980-2013).The research aims to determine a connection among higher education and economic expansion in Pakistan between the years of (1980-2013). Education has been shown to significantly affect economic growth in a meta-analysis of studies from throughout the globe. Education is a key driver of economic growth, as demonstrated by the success of initiatives implemented in emerging countries to improve educational opportunities. An additional objective is to supply a thorough as well as rigorous assessment relationship amid educational level and economic growth in Pakistan, which may serve as a foundation for future decision-making.

Social media is more than just a means of searching for information and entertainment where people create content, share it, bookmark it, and use it for communication, because of its easy use, speed, and access. Social media is rapidly changing the public behaviors in society and setting trends and agendas ranging from the environment and politics to technology and the entertainment industry (Asur & Huberman, 2010). In the last ten years, the online world has been changed dramatically. Thanks to the invention of social media, young men and women now exchange ideas, feelings, personal information, pictures, and videos at a truly astonishing rate. It is hard to imagine a young man who at least once a day did not check for updates on social networks and did not aware through the news lines. Social media such as Facebook, YouTube, and Twitter appeared, divided the world into online and offline. Social media are online technology platforms that help to link people far and near. Social media is one of the fast medium and platform to share and receive information and content. This is more popular user friendly and broad. It is highly effective. Social media was first initiated in 1990 the first web site was 6 degree. After that other social media website came into being and brings different communities together such as Migente, Black Planet etc. (Boyd & Ellison, 2007; Dearborn, 2014; Kaplan and Shankar, 2010). Using social media students can increase their academic performance (Khan, 2010).Social media changes behavior of societies rapidly following are the benefits given by several authors to enhance students' performance which includes one student teacher relationship and second enhances motivation and learning (Asur & Huberman, 2010; Rifkin, & Leach, 2009).

The research concluded that if students give sixty minutes daily to their physical activity then several health benefits increased. Unfortunately, most of the institutes do not follow the defined level of physical activity. Many universities and schools around the world limit access to social networks within their buildings. They justify this by helping students concentrate on their studies. On the other hand, they deny students the opportunity to use the numerous materials available on these resources, such as scientific videos on YouTube (Kolan & Dzandza, 2018). Yet some studies found negative effect of social media on academic performance of management science students. These studies were not encouraging. Yet the existing study tried to fill the gaps and offer novel contributions by investigating factors of social media effecting students' performance. The rest of the paper is organized as follows. Section 1, describes the problem statement and research hypothesis. Are view of the literature is presented in section 2.Section 3, based on research methodology. In section 4, we present the data analysis based on the formulation of hypotheses in section 1 and, discuss the results. Finally, section 5, provides the conclusion of the study. Throughout our discussion in this paper, we shall write Social network sites as SNS, District Dera Ismail Khan as DIK as short.

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## 2 | LITERATURE REVIEW

Knowledge, etiquette, and competence in technical areas are all aspects of education that students and teachers work together to acquire and master. As a result, it places an emphasis on the cultivation of intellectual, moral, and visual faculties in addition to the cultivation of specific talents, vocations, or professions. In a nutshell, a country's educational system is directly proportional to the rate at which its economy and population grow. The educational system of a country is responsible for producing its best and brightest young people. India, China, Australia, New Zealand, Singapore, and many other emerging economies have all begun to open their doors to a larger number of overseas students in recent years because their fee structure, living costs, and other day-to-day expenditures will be different from those of the host country and because they will bring new ideas and cultures. Countries like the United Kingdom, the United States of America, Canada, and other developed European countries welcome overseas students and place a premium on education, expanding access to higher education in rural areas and keeping the curriculum current. As a result, several distinct kinds of degree programs have emerged at India's many educational institutions. Indian education has made great strides in recent decades, with the introduction of a grading system in middle school and a wide range of other initiatives that provide middle schoolers with much-needed relief and inspire them to work hard so that they can compete successfully in the globalised, interdependent world of the 21st century. The history of Indian schools is fraught with contradictions. If you want to know why India has become the world's back office, consider that just 20% of Indians obtain a good education, but this is still a big number in a country of 1.2 billion. Because of the government schools' poor performance, one-third of Indian students choose to attend private institutions. There is an implicit admission of failure on the part of the government, which mandates that impoverished students make up one-fourth of all private school enrollment and receive free tuition through government aid. There are numerous lot of different justifications for why one might analyze investments in human capital and the supply of human capital that comes out of those efforts. The accumulation of human capital is an essential component of contemporary conceptions of economic expansion (for example, Lucas 1988; Romer 1990; Barro and Sala-i-Martin 1995). In order to have a better understanding as to how variations in institutional activity over the years and between regions of the world are caused by investments in the skills and capabilities of the population, it is necessary to have precise measurement of the human capital that is produced as well as the services that it offers. If net additions to the capital stock in the form of investments in human capital are not taken into account, it is possible that incorrect conclusions would be drawn on the development of a nation's capacity for production. There is a significant amount of interest among government officials in monitoring the resources that have been dedicated to the pursuits of healthcare and education as well as the relevance that these activities generate due to the fact that spending on these areas accounts for a significant portion of the budgets of many governments.

Investment in human capital, which refers to the knowledge, abilities, and experiences that are held by an individual or population and are evaluated in terms of their contribution to the economy, can come in a variety of forms (Abraham and Mackie 2005). It is possible to think of the time that parents spend with their children during the early years of childhood as an investment in the cognition, psychological, and intellectual development of those youngsters. The formal schooling that students get, beginning in elementary school and continuing through college and postgraduate programs is an additional investment in the development of their capabilities. Following finishing their formal education, some people choose to participate in formal training, while others choose to study in a less structured environment while working. Taking care of one's health, maintaining a healthy diet, and staying active are all examples of types of investment in one's human capital. Despite the fact that there have been attempts to quantify investments in human capital in its broadest sense, there has been a heightened focus on quantifying investments in formal education. Although the establishment of more holistic and inclusive capital measures will indeed be discussed, our central emphasis will additionally be on the assessment of human capital due to formal education. However, we will also touch on other types of human capital measurements. The indication method has proven to be beneficial. Not only are data on school enrollments and educational attainment valuable in and of itself, but they are also necessary inputs for the full development of the other two methods for measuring education capital, namely the cost method and the income method. Several empirical studies that have been conducted on economic growth have made use of measures that are centered on educational achievement levels. Several of these papers only incorporate the average number of years spent in school in cross-country growth regressions, treating the productive value of more years spent in school as if it were a constant. Others make use of data on the number of years spent in school, but they permit the returns to education to fluctuate according to the educational level of the population or over the

course of history (Botev et al. 2019).

### 2.1 | Education and Economic Growth

Education is crucial for development of any economy everywhere. This impact is witnessed more specifically in underdeveloped nations. There is a favorable and generally stable correlation between education and economic development. In a later part of my study, researcher has explored the evolution of economic theory, the contribution that education may make to fostering economic growth, and the recommendations that are expected to be put forward in this area. Upon studying the performance of Pakistan in terms of economic development in past decades, it may be stated that the economic development of Pakistan is not up to the par when compared to other countries because of certain predicted variables like shortcomings, unmanageable debt, the macroeconomic variability, and the unjustifiable law and order conditions. In addition to labor and physical capital, Lucas (1988) argues that education is also a factor of production that must be preserved for the sake of future expansion in the form of human capital. Improvements in economic performance can be attributed, at least in part, to the higher educational levels of the working population. Panel data of one decade since 1980 till 1990 gender was overlooked (Sawada 1997). Using regression equations such as "participants," "failures," "etc." to suggest that rural Pakistani families may have credit limitations. Due to cultural norms and individual personalities, investing in the education of a girl may not pay off for her family financially. According to Temple (2000), an educated workforce is essential to a flourishing economy. He saw that the favorable effect of education on economic growth was reflected in the high output that resulted from it. In addition, he emphasized the importance of education in driving growth across the economy. According to Kerr's (2001) research report, the role of education in stimulating economic growth is made clear. Different perspectives on proposed changes to education policy can be brought together through this dialogue. The question in formulating education policy is not how it will be implemented, but rather what policies will best serve to promote the societal and economic objectives of the nation.

Lattimore (2002) uncovered a robust connection between New Zealand's educational system and economic expansion during (1952-2002). When "Knowledge Wave" was first introduced to New Zealand, economic growth slowed and living standards plummeted. New Zealand's GDP growth rate was boosted by six percent after the government assumed responsibility for education programs and increased investment in the education sector. Investment in public basic education has been linked to economic growth (Teles, Andrade, & Joaqium 2004). This group of researchers employed five different theoretical models in their paper. It was evident that decisions made by agents are influenced when they got exposure to the education. There is significant change in pattern of expenses in primary and higher education (HE) and association found between economic growth and local education. Babtunde and Adefabi (2005) investigated the association between economic growth and education.

Vector error correction and the Johansen co-integration method were used. Registrations at the primary and secondary levels, as well as the average number of years spent in school, were found to have a positive long-run association with output per worker, as suggested by the co integrating approach. In addition, they discovered long-term connections between the various model sequences. Trained and experienced labour force is one the critical factors of economic growth. Afza and Nazir (2007) reported significance of human resources in economic development. in order to compete in global market and get competitive advantage well trained, talented , hardworking and experienced labour is crucial. The primary demand in Pakistan is to ensure the long-term cheapness of human resources and to maintain sustainable growth, both of which depend on universal access to quality basic education in both rural and urban areas. Education, according to Papademos (2007), was a key factor in the expansion of the monetarist market in Europe. He thought education could make a bigger difference if necessary; efforts were taken to boost both the quantity and quality of schooling across Europe. Human capital was analyzed by Abbas and foreman (2008) to see how it affected GDP growth. They used a time series covering the years 1960-2003 in Pakistan. The researchers found that the rise in GDP per person can be attributed, in part, to improvements in human capital. In addition, they predicted a substantial flexibility of the Pakistani government's educational funding. As a result, they conjectured that low levels of investment in education would have less of an effect than originally thought. According to Obradovic's (2009) research, there is a connection between schooling, human capital, and a thriving economy. Human capital, of which education is a key component, is a key component in economic growth models. Educating individuals is important, but so is helping them develop their inventive potential, which is what will really help the economy expand. Education

income means wage of single individual worker rises, proportional to one year of schooling. Based on the literature discussed above, the authors have developed and investigated the following research hypothesis as the basis of this study;

Hypothesis: There is positive and significant impact of education on economic growth

## 3 | METHODOLOGY AND DATA SOURCES

Using time series data from 1980–2013, the OLS (Ordinary Least Squares) method was utilized to draw conclusions. There is only one dependent variable in this model and four independent ones. Data for such indicators has been compiled from legitimate resources like the Federal Bureau of Statistics, the World Bank, and the Economic Survey of Pakistan. Our model's purpose is :

$$GDP = f (LR, LF, CPI, UN)$$

Where GDP is Gross Domestic Product, LR is Literacy Rate, LF is Labor Force, CPI is Inflation, and UN is Unemployment. The GDP value has been taken from WDI. The GDP of Pakistan is used for showing the growth of country and it has been taken as dependent variable which showing the growth of our country. These variables also use to put a light on living standard in various models. It shows fiscal and macro-economic standard of our society. Same as it is, our next independent variables is Literacy Rate ,the literacy rate data is taken from Economic Survey of Pakistan, Labor force and Inflation data is extracted from WDI and Unemployment data is taken from Federal Bureau of Statistics.

### 3.1 | Variables Description

In this model, the rate of literacy is the first independent variable. An individual's level of literacy has long been viewed as a crucial factor in unlocking doors to better economic and social opportunities. Human resource is an important aspect of a country's economic resource, which is why it is crucial for a country's economic growth. Increasing a population's literacy rate improves not only its human resource but also its growth rate, skills, standard of life, and working ability. As a result, a country's economic development is strongly influenced by its literacy rate. Labor force is the second independent variable. Pakistan, with the world's sixth-largest population, is a major supplier of labor and manpower. With a population of 155.8 million, Pakistan has the ninth-largest working force in the world. Approximately 43 percent of this workforce is employed in agriculture, 20.3 percent in manufacturing, and 36.6 percent in other service industries. Thus, the workforce also contributes positively to Pakistan's economic development. When these criteria are taken into account, our estimates will be adequate. Employment levels and GDP have been shown to be positively correlated.

Inflation rates are a third independent variable used in this study. Since the country's inception, Pakistan's inflation rate has influenced the country's monetary policy. Inflation can be caused by both political unrest (Khan & Omar 2009) and monetary variables including the money supply, interest rates, and import prices, as found by several academics (Khan & Schimmelpfenning, 2006). The purpose of this research is to employ statistical methods to examine the connection between these inflationary elements and economic expansion in Pakistan throughout the aforementioned time frame. The unemployment rate is our model's fourth independent variable. The Economic Survey of Pakistan (2010-2011) defines unemployment as the state of being unable to obtain work at the going rate of pay while being available to do so. The rate of unemployment is often used as an indicator of an economy's overall health; after all, a truly efficient market would have no unemployed people and would pay everyone a living salary. A jobless person does not contribute to society and can be seen as a burden on its resources (Rothiem, 2007).The underdeveloped agricultural industry is a major contributor to Pakistan's high unemployment rate, along with other factors like the country's deteriorating security, rapid population increase, power outages, subpar schools, weak government, and pervasive corruption.

## 4 | RESULTS AND DISCUSSIONS

We have used one dependent and four independent variables in our models. The results have been derived by using the method of Ordinary Least Squares (OLS). There are significant results at 5pc level of significance and positive results between labor force and GDP. If one % increases in labor force due to this GDP increase by 0.47 %. There are significant results at 5pc and positive relationship between literacy rate and GDP. If one % changes in literacy rate it leads to change 0.15 % in GDP.

**Table 1**
*Regression results for Economic Growth Model*

| I.V | Coefficient | T value | P Value |
|---|---|---|---|
| D.V= GDP | | | |
| Labor Force | 0.47 | 7.09 | 0.000 |
| CPI | 0.041 | 0.94 | 0.357 |
| Literacy Rate | 0.15 | 5.35 | 0.000 |
| Unemployment | -0.29 | -1.94 | 0.067 |
| Observation=34 | | | |
| F(4, 30)=87.81<br>R-square=0.90 | | | |

There is insignificant result at 5pc and significant result at 10%. There is a negative relationship between unemployment and GDP. If unemployment increases by one % it leads to decrease in GDP by 0.29%. There are insignificant results between CPI and GDP. The value of R-Square shows highly significant relationship between dependent variable and independent variables.

## 5 | CONCLUSIONS AND POLICY RECOMMENDATIONS

The goal of education should be to foster an inventive and productive mindset in students so that they can effectively support the economic development processes. In order to raise the level of living, it is essential to invest in education. This study's findings corroborate previous studies showing a link between schooling and increased prosperity in Pakistan's economy over time. The Gross Domestic Product (GDP) is the single most important indicator of economic expansion. Low interest capacity, a lack of trained employees, brain drain, and lousy supremacy are only some of the difficulties that could limit the volume of improvement in education in Pakistan, which could in turn limit the country's growth and development. As a result, we need to take action in the area of policy development. Financial assistance must be given to needy scholars; HE must get more budget for every year, adequate health financing to increase life expectancy,

**Conflict of Interest:** There is no competing interest

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