

Role of University Education in Poverty Alleviation in Pakistan

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Abstract

The role of university education, a central part of most development strategies, has become controversial because expansion of PhD's by the Higher Education Commissions (HEC) attainment has guaranteed improved economic conditions. HEC promoted the higher education by providing different indigenous and international scholarships, which ultimately improved the standard of living of the students and attainment of well reputed jobs in different institutions of Pakistan, leads to alleviate the poverty relatively. This paper reviews the role of education in promoting economic well-being focusing on the role of educational quality. Much evidence from developing countries suggests that education has strong influence in reducing poverty. The main purpose of this study was to examine the effects of some of the key macroeconomic variables on Pakistan's economic growth during 1980-2007 taking four different education levels including students enrollment at the university level as a ratio to total employed labour force. It concludes that there is strong evidence that the cognitive skills of the population-rather than mere school attainment-are

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powerfully related to individual earnings, to the distribution of income, and to economic growth. University education does not play a significant role in poverty alleviation. The magnitude of change needed makes it clear that closing the economic gap with industrial countries will require major structural changes in schooling institutions.

Keywords: HEC, University Education, Poverty Alleviation.

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Introduction

Higher education does play an important role in an economy to grow, flourish and expands career opportunities. Many economists and researchers suggested that education plays central role in development strategy because of two reasons. First, the quantity and quality of education affects highly the labor force, governance and the working conditions of most the institutions. Thus it is not denying act that education is the major determinant for developing the climate for investment in human capital stock. Second, universal access to basic education is mandatory to ensure that all sectors of the economy will be benefited from macroeconomic growth.

The Role of higher education is considered to be one of the important tools for poverty alleviation and many efforts (national as well as international) have been made to broaden such access especially in developing countries. Despite the inherent difficulties in quantifying the actual contribution of higher education to Gross Domestic Product (GDP), GNP or other national income aggregates, it has always been considered to be an influential tool for reducing poverty and inequality through increase in productivity which is, of course, a key ingredient for the maintenance of economic growth. The relationship between education and poverty is quite clear; educated people have higher earning potential and are better able to improve the quality of their lives, which means they are less likely to be marginalized within society at large. Education empowers a person and it helps them to become more proactive, secure firm control over their lives, and widens the range of available options (UNESCO 1997).

Education is considered to a basic human right and it is closely related all segments of development including economic, social, and human development. It is also a main factor in improving the quality of governance that has a significant impact on national income. While the provision of basic education up to primary level is still considered vital for the reduction of poverty, but this concept has been change now in the second of the eight Millennium Development Goals (MDGs) “universal primary education” is the term most commonly used which cannot be achieved without higher education. Until now, the conventional approach highlighted the role of higher education as a driver of economic growth in developed countries, new emerging view about education is that higher education is mandatory for poverty reduction; the argument relying on the complementary roles of primary, secondary, and tertiary education where the negligence of higher education means providing primary education without training teachers, without

developing required locally relevant curriculum, and without equipping the principals and ministry of education officials with solid management and governance skills. Higher education provides basically experts to all sectors of the economy and this is really the requirement for any economy for poverty reduction strategy.

Furthermore, higher education affects economic well-being in three different ways. One, the direct expenditures by the institutions on the students and their employees, showing the impact of their spending students and the employees on local economy. This spending multiplies because of the multiplier effect through the local economy until the circulation of money from outside the local area is used to purchase goods and services. Two, higher education provides financial and non-financial benefits to the individual who pursues an advanced education and to society. Three, institutions/universities in particular of higher education are mainly focused on knowledge creation. Thus, universities and also post graduate colleges are sources of research and development innovations that simultaneously would be beneficial to society and also contributing to economic growth. Economic development is possible only if we put human capital at the top priority and do invest a lot in human capital. Education does play role to study the reasons of deficiency in achieving the aims of Economic Development, reconsidering the educational systems to improve the quality and efficiency of Education to comply to the development needs, and study the mislaid in education, considering that Education is a continuous process of investment in Human Capital that generates revenues for the individuals and for the economy as a whole. The strategies that ask for major roles of universities and all higher educational institutions in the development economics started to appear, as technological development and Economic prosperity are taking place, that is Higher Education should start at least to work on studying the conditions of the society, mentioning its needs, working on meeting these further requirements, the hurdles and problems in its way, the ways to divulge these hurdles and solve these problems. These approaches and strategies have large influence on the Higher Education curriculum that emphasizing more on the needs of the society and workable for the betterment of the economy.

Many students at university level cannot afford to pay their high dues, though they are very competent, deprived of many opportunities in future. For example, access to better jobs, productive members of society, and contributing in a knowledgeable economy in an intellectual way. Here also the Higher education commission plays the role, and provides different scholarships at undergraduate and graduate levels and also loans to different students under different loan schemes at low interest rate or zero interest rate.

Therefore, we can say that higher educational institutions including universities and postgraduate colleges befitted the main source to prepare qualified human resources; engineers, physicians, technicians, agriculturists and factories workers, and others who can participate fully in an economy for its betterment carrying the burden will do the efforts for uplifting the economy. Nowadays universities have the following assignments under consideration at their main targets to guarantee graduating qualified individuals to play their vital role.

1. Enrich knowledge and expand education among the society.

2. Prepare competent graduate students.
3. Promote the society economically and socially and ethically.

Therefore, there is high correlation between the Higher Education programs and development of an economy because there is no comprehensive program of development that can take place without human resources, and there are no human resources without education and well-studied plans that really train them and prepare them according to the needs of the society. Many studies proved that the more the level of education of an individual is, higher the productivity level is captured i.e. productivity can be enhanced through more and more education. On the one hand, it is the duty of the government of any country to provide funding to the higher educational institutions / universities for the education of the students, graduate them and prepare them to work in any specialized sector of an economy.

On the other hand, it is an obligation of the graduate students to fulfill its responsibilities including work for the betterment of the family, society and the economy as a whole, try to solve/ at least lessen the rising issues/problems in any sector of the economy and provide different strategies to solve these problems.

It is an uphill task to highlight all issues and problems and also impossible for a person to solve all problems parallel, and difficult for the researcher to mention in a brief study in detail. Here we will discuss that how the graduate students will help to reduce poverty and is there any role of the poverty reduction with higher level of education or education at all levels primary, secondary, tertiary and higher are all very important for the poverty reduction.

Role of Higher Education in Economic Development

What are the major roles of higher education, and how it would be useful to reduce poverty ultimately? We cannot mention all but briefly few are as follows:

1. Creating a quality students by educating, training, and motivating the topper through scholarships.
2. Supportive in current business environment and accommodative.
3. Improve learning and teaching from primary school through graduate school.
4. Take strong and valuable roles in regional and national initiatives.
5. Disseminate research and innovation and promote technology transfer culture.
6. Enhancing the technology infrastructure throughout the whole country.
7. Uplift the conformable communities
8. Diversified fields for the graduated students for jobs.

The role of universities is not restricted to graduate students and prepare them educationally only, but also make accommodative and ready them mentally and physically how they can be part of their society, Basically there are direct and indirect roles of the universities upon the students; the direct role is played by presenting educational, social, ethical, political, economic and scientific consultations, and examine available natural resources, and conduct various training courses for individuals of the society, the indirect role is played by providing the society with qualified, intellectual and experienced people by erring the nation and uplifting the economy to the target level.

Table 1: Number of Institutions and Enrollments in the Higher Education Sector (2005/06)

	<i>Number of Institutions</i>	<i>Enrollments</i>
Universities/DAIs		
Public (2006/07)	64	242,879
Private (2006/07)	56	78,934
Total	120	321,813
Degree Colleges (Year 11-14)		
Public (2005/06)	777	296,832
Private (2005/06)	358	29,161
Total	1,135	325,993
Distance Education		
AIOU (2006/07)	1	190,447
Virtual University (2006/07)	1	9,213
Total	2	199,660

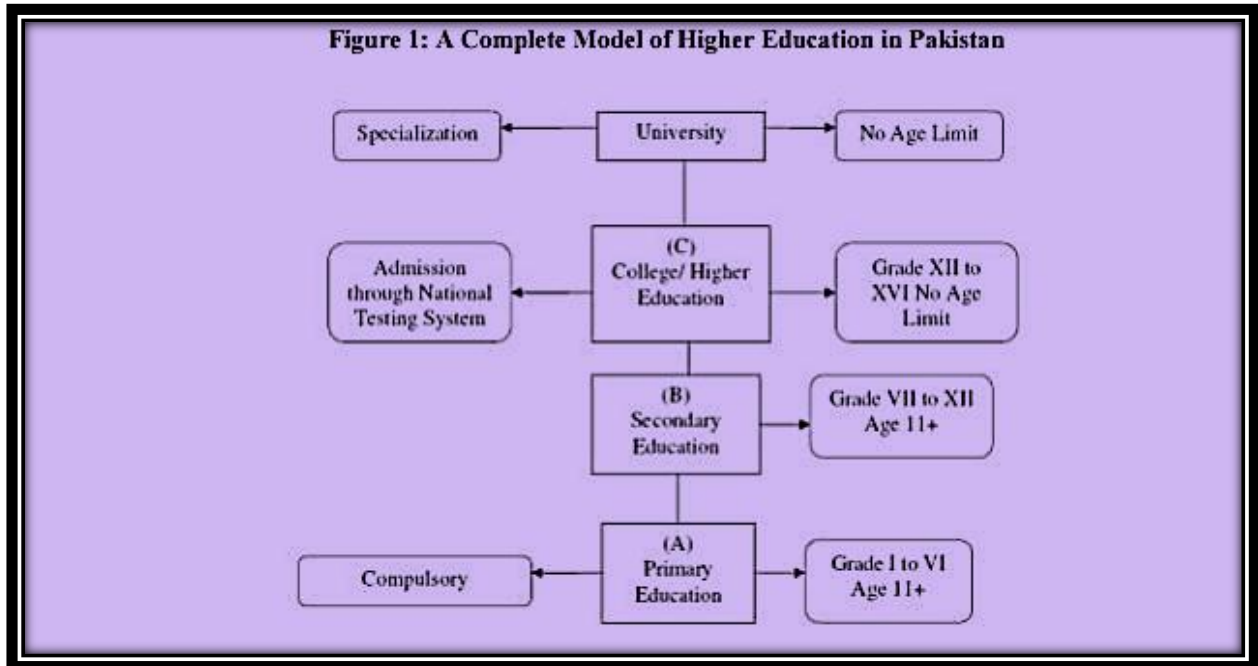
Source: HEC Pakistan

Table 2: Education Sector Spending in Pakistan (2005/06)

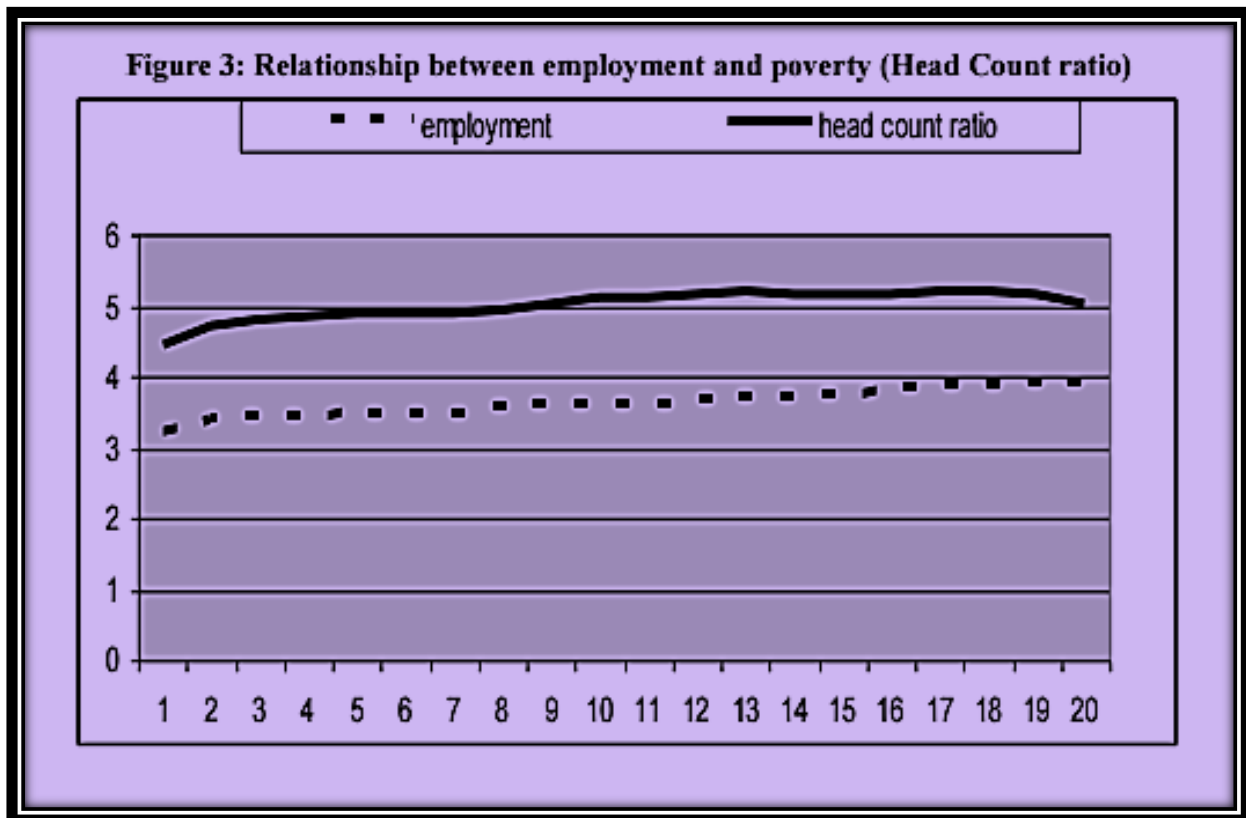
	GDP (US\$, bn.)	Education Expend. as a Share of GDP	Tertiary Edu. Expend as a Share of GDP	Edu. as a Share of Total Public Expenditure	Tertiary Edu. as a Share of Total Ed. Expenditure
2001-02	71.5	1.51	0.09	8.1	5.9
2002-03	82.3	1.63	0.17	8.8	10.6
2003-04	98.1	1.73	0.18	10.3	10.6
2004-05	111.5	1.78	0.24	10.5	13.6
2005-06	128.8	1.84	0.29	10.1	15.7

Standard of education in Pakistan varies from public to private from primary through university education and one of the reasons of low education standard may be that system of education in Pakistan is highly segmented and fragmented. Therefore, it has created some problems in order to utilize optimum human resources within the given labor market conditions. In Pakistan, higher education means education above grade 12, which generally corresponds to the age limits of 17 to 26 years. The higher education system in Pakistan consists of two main sectors: the university/Degree Awarding Institutes (DAI) and the other sector affiliated with universities. The Pakistan Higher Education Commission predominantly public in nature, with public Higher Education Institutions (HEIs) including both the universities and College sectors. There are many large distance learning programs. Public HEIs generally offer a wide range of courses under different programs, while private HEIs predominantly offer limited courses and programs of

technical and vocational type such as business and IT. Most of the research is conducted in many public sector universities. However, the private sector also shares in doing research. In 2006/07, the private sector enrollment represents 23% of HEI enrolments and 9% of College enrolments at degree level (table 1).



In Figure 1, shows the complete model of education from grade one to university level and it also indicates that in school level there is age limit, but after once the schooling has been finished, there is no age limit and it would be very beneficial for those particularly who cannot complete their education because of any reason and after a long time, as time needs they may start their higher education and even can do PhD and all post graduate education from colleges and universities in Pakistan.



In order to see that which type of the relationship exist between the poverty and the employment status, we draw the graph below and observe in Figure 3 that still the poverty rate is very high comparing with the employment levels. Though the education sector particularly primary education and lease participating higher education university education to enhance GDP growth rate and helpful to lessen the poverty reduction through better jobs and employment opportunities, but still the poverty is very high and university education in isolation cannot do any regarding poverty alleviation.

Figure 3, we must say that, as the education level rises, gap between the corresponding education level and GDP growth rate is widening, which also indicates two important points. Education level other than primary are not improving overtime and government investment to higher level is not very promising.

Secondly, even education level is not very increasing overtime but growth rate with same fluctuation are getting improve which means that variables other than education are also very important which may not be the time of discussion in this study.

Literature review

Wolff and Gittleman (1993) examined the higher education level and run regression on labor productivity index. They showed that university enrollment ratio is highly correlated with labor productivity growth i.e. more the students graduated from the university higher the labor productivity growth is. Also they examined the specialized field including the science and technology and concluded that more the scientists and

engineers produced by the university, more will be the economic growth, and less the poverty level is. Higher education provides more incentive and better jobs, which indirectly lessened the poverty as almost 75 percent young people graduated from the universities normally get the job.

Meulemeester and Rochat (1995) analyzed impact of higher education on economic growth taking six developed countries France, Japan, Sweden, United Kingdom, Australia and Italy. They showed that four out of six countries does effect and proved that higher education had a strong causal impact on economic growth in France, Japan, Sweden, and the United Kingdom, but no impact has been shown in Australia and Italy. The authors concluded that higher education is necessary for an economic growth and for lessening the poverty but this high education alone is not sufficient for the overall poverty reduction. Further, they argued that, the graduated students can be useful for the economic development and innovation of any country and also can change the political, scientific, social and economic structures of the economy. Therefore, higher education plays vital role for the development of the economy.

Barro and Sala-i-Martin (1995) took data only for male educated people and analyzed gender discrimination. They found that more the male person get education, particularly secondary and tertiary education, showing significant positive effect on economic growth. Also the findings of the study shows that an increase in average male secondary schooling of 0.68 percent raises annual GDP growth by 1.1 percentages, while an increase in tertiary education of 0.09 percent raises annual growth by 0.5 percentage. They found that there is positive correlation between initial GDP and human capital (including health and education). They suggested that for any country to grow faster high levels of investment in human capital is required.

Jenkins (1995) estimated total factor productivity (TFP) index and tried to develop relationship among different levels of education. Using data for the different levels of higher education's namely undergraduate, postgraduate and others as explanatory variables and output growth as dependent variable and concluded that annual output growth rates increased between 0.42 and 0.63 percent with an increase of higher education qualifications (including undergraduate, postgraduate, and others) by 1 percent.

Psacharopoulos and Patrinos (2002) reviewed 98 countries during the period of 1960–1997 and found that the rates of return estimated from primary schooling were substantially higher than those obtained from advanced levels of schooling. The average rates of return for the primary schooling was estimated to be 18.9 percent, while for tertiary education it was lower than primary level and just 10.8 percent. Such results provide many decisions for the policy makers for making different strategies to promote culture of higher education and their roles make workable in the given environment.

Lin (2004) viewed that higher education played a vital role in the country's economic growth taking into account only two sectors the agricultural and industrial sectors. He found that a 1 percent rise in higher education defining higher education those who has completed junior college, college, university, or graduate school led to a 0.35 percent increase in industrial output, and that a 1 percent increase in the number of graduates from

engineering or natural sciences led to a 0.15 per cent increase in agricultural output. This study examined the effects of specialization in different disciplines and concluded that ho it would be useful the study of the natural sciences and engineering and their impact on economic growth.

Bloom, Hartley, and Rosovsky (2006) emphasized on the financial returns generated through tax and paid by individuals. They ignored the major benefits of advanced education obtained through entrepreneurship, job creation, good economic and political governance, and the effect of a highly educated individuals on economy’s different sectors though they estimated positive impacts of research and innovation through higher education on economic activity, but ignoring this impact and emphasized more on financial returns and less on educational returns..

Bloom, Hartley, and Rosovsky (2006) analyzed the graduate students of different States of US and suggested that graduated students employed in US States where the proportion of college graduates earn significantly more than those in States with few graduates, no matter they received a tertiary education themselves or not. They concluded that in any country; where we have more educated individuals have more earnings and less poverty than those they have less educated. Unfortunately, no such research or study has been under taken too analyzed for the poor or developing countries.

Abbas and Peck (2007) also estimated correlation between human capital and economic growth for Pakistan using OLS technique. They have used time series data for Pakistan during 1960 to 2003. They viewed that human capital has been accounted for about 40 percent increase in GDP with an increase of one percent human capital. Moreover, they expected that there must be large value of elasticity of education endowment in Pakistan. Therefore, they suggested that only low/no investment in education may be one of the reasons of low economic growth stemming from low investment in human capital may erect smaller impact than those they expected.

Methodology and data

This section provides the model for estimation in order to analyze some major macroeconomic variables on economic growth and how really the higher education would be helpful to reduce poverty. The Cobb-Douglas production function is given below:

$$Z = \gamma_0 \cdot W_i^{\beta_1} \cdot \varepsilon_i \dots\dots\dots (1)$$

Taking ln of equation (1) on both sides, we obtain

$$\ln Z = \ln \gamma_0 + \beta_1 \ln W_1 + \beta_2 \ln W_2 \dots\dots\dots \beta_n \ln W_n + \ln \varepsilon_i$$

Here, we have taken only five explanatory variables including X1 through X5 Z is real gross domestic product W1 is primary school enrollment/ total employed labour force W2 is of middle school enrolment/ total employed labour force W3 is of high school enrollment/ total employed labour force W4 is of high education enrollment/ total employed labour force W5 is labour force participation ϵ_i is error term.

All the variables are in natural log form for estimation purpose. Many educationists and researchers argued that the quality of education is more important than the quantity measured The most commonly used indicators for education are school enrollment as ratio to total employed labour force, adult literacy rate, real GDP, labour force participation. In this study, we have used enrolments in primary schools (W1), middle schools (W2), high schools (W3), and other educational institutions (W4) as ratios of total employed labour. W5 overall labour force participation rate is used in the model to for decision making that which variable has strong impact on the GDP growth rate in Pakistan. The main dependent variable GDP is normalized by dividing it to consumer price index (CPI) as a proxy of inflation, the main reason of normalizing this GDP by CPI is to eliminate certain econometric problems.

Findings and discussion

This section explains the main findings using real GDP growth rate and all four educational enrollment variables as a ratio to labor force in order to analyze that which factors that really influenced economic growth in Pakistan really helpful in reducing poverty during the period 1980-2007. Simple regression model is estimated by taking the natural log and the coefficients termed as elasticity's of the corresponding variables and results are reported in Table 3. The overall results showed satisfactory that implies the estimated coefficient's signs are as expected and they are statistically significant at the five percent levels of confidence. A summary and more detail of the results of the explanatory variables are given below.

Table 3: Regression Results for Pakistan: 1980-2007
Dependent Variable: Real GDP Growth Rate

Explanatory Variables	Estimated Coefficients	t-statistics
Constant	-4.09**	-1.73
W ₁ (Lagged 2 Years)	3.67**	3.32
W ₂ (Lagged 2 Years)	-3.15**	-2.39
W ₃ (Lagged 2 Years)	2.80**	2.86
W ₄ (Lagged 2 Years)	0.26	1.11
W ₅	0.04	0.06

** denotes statistical significance at 5 percent.

We have taken the two years lag as the education takes time to really practically implement to change any policy or strategy and take at least one to two minimum years to get employed. For this reason, we have taken two years lag, which is so called implementation time period. Table 3 also show that while regressing the primary education and other three education on the GDP growth rate, primary, middle and high schooling are all showing the significant impact on GDP growth, and the university

education does not significant though positive, which indicates that Higher education alone cannot do in enhancing growth rate and reducing poverty and employment, but other educational levels are also very important to enhance GDP growth and provide different employments.

$$R^2 = 0.87, \text{ Adjusted } R^2 = 0.92, \text{ F-statistics} = 120.76, \text{ Durbin-Watson (DW)} = 2.015$$

Table 4: Absolute and Relative Contributions of Explanatory Variables to Growth Rate of Real GDP

Independent Variables (xi)	Real GDP Growth Rate (%)	
	Absolute Contribution to Growth	Relative Contribution to Economic Growth
Primary school enrollment/ total employed labour force	0.21	0.43
Middle school enrolment/ total employed labour force	-0.32	-0.65
High school enrollment/ total employed labour force	0.36	0.73
Higher Education enrollment/ total employed labour force	0.04	0.78
Labour force participation	0.05	0.1

Table 4 (column 2) shows the absolute contributions of each explanatory variable to growth rates of real GDP. The results of column (2) show that the absolute contribution of five explanatory variables, in which four explanatory variables have significant and positive impact on real GDP while one explanatory variable is statistically significant but having a negative sign. Education indicators (defined as primary, middle, high, schools and university education enrollment as a ratio to total employed labour force). The largest positive absolute impact (HSE/LF) is W3 (0.36), (PSE/LF) W1 (0.21), labour force participation W5 (0.05), (Univ Edu/LF) W4 is (0.78), On the other hand, the one explanatory variable which is (MSE/LF), W2 is (-0.32) has negative impact on real GDP.

The calculated relative contributions of the same five explanatory variables on real GDP growth, based on regression are also shown in column (3). It is interesting to note that the sequence of relative effects of explanatory variables on real GDP growth shows that at it is double for almost all variables as compare to absolute contribution. Relative share of university education is higher in terms of returns as compared to other educational level.

Conclusion and policy implication

In this study, we tried to develop the relation among educational levels from primary to university level education and how far a helpful in reducing poverty. For this reason, we use all four levels of education along with the gross domestic product and also poverty for the period of 30 years in Pakistan. The findings of the study have led us to the following major conclusions. The quantitative evidence shows that real GDP growths are positively related to the primary school enrolment-labour force ratio. It implies that

primary education is an important prerequisite for accelerating growth. Therefore, primary education must be considered as the foundation-stone upon which the economic development in Pakistan can be set upright. The Government must provide primary education to all school-age children to improve the literacy rate within a minimum time-span. It is noted that the average annual share of primary school enrolment in total enrollment has been about 90 percent during the period under consideration. Higher and other school enrollments –labour force ratio have shown a greater contribution in the economic growth but higher education does not play independently to enhance economics growth and poverty reduction. Similarly, our study shows that labour force participation variable is a significant predictor of economic growth and it would helped to contribute to real GDP growth of the economy. Thus, the Government must ensure the provision of labour force participation through giving the employment opportunities, in order to sustain economic growth. The policy makers suggest that the measures should be adopted to improve the primary education system along with the higher education in Pakistan, so that a universal enrolment rate in primary education may be achieved in near future. Also employment opportunities to graduate students from the universities must be there for the students. In addition to it measure may also be taken to enhance the literacy rate in the country to give boost to economic growth in Pakistan. The high investment in education is not only the requirement for human capital stock to increase but also necessary to achieve higher standard of living.

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Some important other tables & Figure(s)

Table1: Trends of Major Economic Indicators

Economic Activities	1960	2000	Change over the period
Life Expectancy at birth (years)	43.0	61.0	42%
Infant mortality rate	163.0	80.0	-51%
Adult literacy rate	21.0	51.6	146%
Female literacy rate	11.6	39.2	238%
Gross enrollment ratio for all levels	19.0	33.0	74%
Gross enrollment ratio for primary	36.0	83.0	131%
Net primary enrollment ratio	-	58.0	0
Net secondary enrollment ratio	-	38.0	0
Mean years of schooling	1.40	03.0	114%
Population growth rate	3.20	02.0	-38%
Human Development Index	0.35	0.50	43%

Source: Government of Pakistan, UNDP World Bank (Various Publications).

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