Economic Impact of Spending on Health and Education in Pakistan

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Abstract: *This study is an effort to examine impact of expenditure incurred on two social sector health and education on economic performance of Pakistan. This category of spending, both by the private and public sector, leads to human capital formation, which is considered an important ingredient of economic growth. It is a matter of common wisdom that improvement in the health status and education level of masses will bring about prosperity in the society. Modern growth theory has empirically confirmed this viewpoint and has emphasized investment in human capital besides physical capital. The technically advanced countries of the world had recognized this fact of life or 'open secret' centuries earlier but developing countries, including Pakistan, are still lagging behind in this area. For the purpose of analysis, we consider the time series data on relevant variables from 1980 to 2014 collected from appropriate sources. The time duration, although fairly long, still seems to be limited due to constraints in data availability. The study employs the ARDL model for examining the long run relationship among the variables concerned and resorts to the usual tests before formal estimation. The results confirm a positive relationship between investment in human capital and economic performance. The study provides an opportunity for further research and extensions to probe the problem of lower spending on health and education as compared to other developing countries. The findings may be helpful for the general masses as well as for the policy makers to adopt proactive measures for development of human capital.*

Key words: *Economic Growth, Human Capital, Education, Health.*

1. INTRODUCTION:

Economic growth refers to sustained increase in the National Income or Gross Domestic Product of the country overtime. In contrast, economic development refers to the uplift of the standards of living of masses over time along with changes in the style of life, outlook and behaviors, equity in distribution, and elimination of the worst forms of poverty etc.

Health and Education are the most important areas of social sector development which can guaranty prosperity and valuable future. In addition to physical capital and labor force, the stock of human capital is now considered as the essential component of economic growth. Human capital is a composite term that includes many things, particularly sound health of workers, professional training, well developed skills and access to modern technology besides formal education. The concept of social capital is also gaining weight in development literature. It includes straight forward behavior, honesty and fairness in dealings, stickiness to words and pledges, mutual trust and cooperation, denial of corruption and fraudulent practices etc.

Education as an important ingredient of human capital is crucial for effective utilization of physical capital (machinery and equipment), effective planning and better organization of the business. The human resource development is a broader concept, which is not only concerned with formal and technical education of the youth but also to provide them with all the facilities they need during service to enhance their capabilities. The objective is to enhance labor efficiency and productivity. People equipped with modern know-how and appropriate skills can efficiently perform their jobs/duties.

Health is an equally important component of human resource development. It is considered as an engine of economic growth that raises productivity of labor (Barro- 1996). The World Bank report (1993) also shows a direct effect of health on productivity. The economic value of a healthy person is naturally higher than a weak person so far as employment opportunities are concerned. According to WHO (1999) report, better health increases economic growth of a country and can get rid of poverty. During the 20th century, economic growth in many countries increased due to decline in the mortality rate. When a person is healthy, his life expectancy will increase (Masson-1998).
Investment in human capital is sometimes considered to be more important for economic growth than physical capital formation. While using the data of some developed countries, the study by Hanushek and Kimko (2000) confirms a positive relationship between the level of education and economic growth. However, there is a two-way causality between education and growth. The literature indicates that higher education is determined by the real per capita income (Briscoe & Wilson, 1998). Nonaka and Takeuchi (1995) however, differentiate between formal education and intellectual capital. Wage differential are clearly linked with differences in quality and level of education (Morettie - 1999).

The socio-economic evils like unemployment, poverty, income inequality and corruption can be reduced through advancement in mass education and improvement in public health. The household income can increase due to higher education and better health and the living standards of concerned individuals can improve over time. Educated and skilled individuals can easily get employment and better jobs within the homeland as well as abroad and they can earn more. Provision of higher education along with technical knowhow and skill development is essential for both sexes, male and female, particularly for the working age population.

Women constitute roughly 50% of the population and the practice of keeping this large segment of the society illiterate and outside the active labor force (in less developed countries) is nothing but social and economic injustice. They can participate in the economic development of the country if provided with education and necessary skills. They can have better opportunities of formal employment in the areas of health and education services as well as self-employment in small scale businesses. Consequently they can add positively to the household income and elevate the living standards of their families (Nazli & Nasir, 2000). Studies have found that education in females has more return as compared to males. It not only reduces fertility rate but also child mortality rate (Lagerlof, 1999). Studies have shown that fertility rate is likely to decrease up to 1.8 children per women and the infant mortality rate is also reduced due to increase in female literacy rate (Nayyab-2006).

1.1   Problem Area

As discussed above, investment in human capital formation (specifically education and health) is crucial for sustainable economic growth. However, the situation in less developed countries is not encouraging. The conditions of health and education in these countries are poor as compared to developed countries of the world. In case of Pakistan, the average literacy rate is hardly between 45%-70% of the population, which is very low even when compared with other developing countries. The literacy rate varies widely across age groups, sexes and regions. For instance, the literacy rate is 38% for the age group of 55-64 years, 46% for the age group 45-54 years, 57% for the age group 25-34 years, and 72% for the youth in the age group 15-24 years. It ranges from 96% in Islamabad to 28% in the Kohlu District (Sind). By latest figures, the adult literacy rate for Pakistan is 65%, with males at 69% and females at 40%. In tribal areas, the female literacy is hardly 9.5%. Pakistan stands at the position of second largest out of school children (5.1 million) after Nigeria. An important agenda of the Millennium Development Goals (MDGs) is to reduce child mortality rate and improve maternal health by 2015. This is possible only by investing more in education, health care and overall betterment of living conditions. Infant mortality rate in Pakistan is 73% per 1000 live births, which is very high.

In Pakistan, government investment in mass education is very low; i.e. only 2.50% and 2.47% of GDP was allocated for education in 2006-07 and 2007-08 respectively. Likewise, the Federal Government spent only 0.5 percent of its revenues on health during 2007-08 (Economic Survey of Pakistan). Public spending in the two important areas of the social sector has been transferred to provinces in the 18th Amendment Bill to Constitution (2010). In fact, the government is trying to shed the burden and gradually leave the ground to private sector in the areas of health and education.

The labor force in Pakistan is abundant and also talented, however not well educated and trained due to scarcity of facilities, particularly for the poor segments of the society residing mainly in the rural areas. In educational sector, there is low capacity of skills and knowledge in using of available resources and technology efficiently to overcome the problems. In addition to financial constraints, there are gaps in implementation of public policies due to poor administration. Despite some valuable efforts, there is wide scope for further improvement.

1.2   Objectives and Significance of the Study

As the title suggests, the present study is intended to see the impact of investment in education and health sectors on the economic uplift of Pakistan. The study would also try to segregate the impact of human and physical capital to pinpoint their relative importance for economic growth and development.

The study may be helpful with respect to the following avenues:
- It may provide helpful suggestions to policy makers and the concerned departments to formulate adequate policies for improvement of education and health facilities to meet the international standards and to implement them in letter and spirit.
- It may prove helpful by pinpointing the opportunities for further research to tackle the issue through extended quantitative data and model building.
- It may be helpful for the policy makers to adopt proactive measures before implementation of intellectual property rights.

2. LITERATURE REVIEW:

A large quantum of literature exists to evaluate the economic significance of investment in human capital. Here we briefly review some important studies.

2.1   International Panel Studies

Bassanini and Scarpetta (2001-02) studied the key determinants of economic growth by focusing on the panel data of twenty one OECD countries over the period 1971 to 1998. The main focus of the research was to explore how physical capital, human capital, financial development, trade openness and research affected economic growth in the long-run. The study concluded that investment in human capital enhanced the total productivity of the individuals. The study also highlighted the importance of financial development and trade openness, by explaining that sound financial structures in the countries concerned will help completing the development projects within the time frame.

Biswas (2002) pointed out that economic development is a very vast concept and its measurement merely through per capita income growth is not sufficient. It is primarily associated with enhancement in the productive capacity of human beings. High productivity is based upon good health, good education, relief from poverty and other social evils. The study was intended to assess the impact of these factors on economic growth by using panel data of developing countries: 29 cross sections for the period 1990–2000. The main variables included GDP, expenditure on health and education besides other, measured in per capita terms. The study found that per capita income and quality of life were positively correlated to each other. It was concluded that poverty is reduced and good quality of life is attained through accumulation of human capital. The results clearly showed expenditure on health and education to be more important than investment in physical capital formation.

Alguacil et al. (2011) conducted their study to see the role of institutions and good policies by the government in promoting FDI, which further resulted into economic growth. The study used panel data of 26 developing economies from 1996-2010 and found that internal and external macroeconomic stability as well as the quality of institutions are necessary for rapid economic growth through FDI. Secondly the effect of HDI on economic growth is significantly positive in low income countries. The study also recommended that only policies made for promotion of FDI are not sufficient, there is need to provide sound macroeconomic environment with better institution quality.

2.2   Studies on Individual Countries

Li and Huang (2009) explored the relationship between health, education and economic growth in China. The study used panel data for the period 1978-2005 with specific variables of interest. Solow Growth Model was used as the basis of analysis, which divided human capital into education and health. In addition, the study also highlighted the importance of physical capital. Fixed effect model was used to analyze 28 provinces of China. The study concluded that health and education were positively related to economic growth and both the variables were significant. The interaction term of education and health was also positive and significant so far its effect on growth was concerned.

Pereira and Aubyn (2009) estimated the relationship among education, physical capital and economic growth in Portugal. The study used time series data for the period 1960-2001. The study used the average years of schooling as proxy to measure education. Education was further categorized into three levels; primary, secondary and tertiary. Vector auto-regressive model was used for assessing the causality among education and economic growth. Having confirmed the existence of a positive and significant relationship between education and growth, the study calculated elasticities of growth with respect to different education levels to assess their relative importance. The study concluded that primary and secondary level of education caused more economic growth as compared to tertiary level of education.

Ganegodage and Rambaldi (2011) tried to see the impact of investment in education sector on economic growth in Sri Lanka. The long-run time series data was used for the period 1959-2008 and both the neo-classical and endogenous growth models were employed for the purpose of analysis. To construct the human capital stock, secondary and university level education was used as proxy variables. They noted that total education expenditure in Sri Lanka was 3% of total GDP, and this ratio was less than other low and lower middle countries.

Gemmell (1996) studied the impact of human resource development on economic growth in Nigeria for the period 1981 to 2013 by using OLS method. He used two methods to test the significance of human resource for economic growth. In the first method human resource was used as an independent factor of production, while in the second method, human capital affected economic growth through the channel of technology. The study suggested that a highly qualified labor force affected economic growth through both channels.

Babatunde (2014) investigated the relationship between health & education and economic growth in Nigeria. The variables concerned are inter-related and there is a two-way causality. Time series data were used over the period 1970-2010 and a simple multiple regression model was employed to access the significance of gross fixed capital formation and productivity of labor force for economic growth. The later was measured through the secondary school enrollments and total health expenditures. The results indicated that all the three variables had positive and significant impact on economic growth. The study recommended appropriate health policy for Nigeria since the health expenditure created more growth than the secondary school enrollment and basic education. The study also concluded that investment in physical capital was the most significant variable for economic growth, so proper policy incentives were required to accelerate investment in physical capital.

Beraldo et al. (2009) examined the relationship between public and private expenditures on health and education and economic growth 19 OECD countries. Panel data was used for the period 1971-1998. The study considered two methodologies for estimating the model. First was to use the growth accounting framework to see whether growth is

affected by such expenditures. Second was to employ a double log model for measuring the percentage change in different variables. The study also analyzed the impact of public expenditure on growth as compared to private expenditure. The study concluded that health expenditure caused more economic growth than education expenditure.

2.3   Studies on Pakistan

Aurangzeb (2003) examined the inter-dependence of health expenditure and gross domestic product. The study used Solow growth model as the starting point for analysis. Time series data were employed for the period 1973-2001 and co-integration technique as well as the error correction modeling (ECM) was used for the purpose. Other important explanatory variables included human and physical capital, population, expenditure on health, gross enrollment rates at all levels of education. Physical capital was calculated from investment and fixed capital formation with the help of perpetual inventory method. The results reveal the existence of a positive and significant relationship between health capital and economic growth. Human capital and physical capital also worked efficiently in the presence of health capital.

Idrees and Jalil (2013) studied the relationship between economic growth and education in Pakistan. The time series data were used for this research from 1960 to 2010. A nonlinear, two stage least square model is used for analysis. The main variables of the study were real GDP, and enrollment in various levels of education. The results revealed a positive and significant relationship between education and economic growth. The study highlighted the need for more public sector investment in education so that the goal of sustainable growth could be achieved.

Asghar and Zahra (2012) observed in their study that education is one of the most important determinants of economic growth. If the government gives priority to schools, it will create better opportunities for economic development and also improve the socio-economic well-being of masses at large. This is because a skilled and educated person possesses the ability to produce more as compared to unskilled and uneducated worker. The study highlighted the importance of investment at pro-poor level since it gives more benefits as compared to pro-rich level investment. The study is conducted at national and provincial levels. Government provides subsidies at all levels of education. When distributed at primary level, the poorest ten percent receives 12.18 percent and the richest ten percent receives 4.14 percent from total population. On the other hand, the lower community received more benefit as compared to top upper. The study recommended that the government should focus on primary and grass-root level and also try to eliminate gender biasness from education.

Afzel et al. (2013) examined the relationship among education, health and food inflation and economic growth in Pakistan. Educated and healthy work force is essential for economic growth of a country. The study is based upon time series data from 1971-72 to 2010-11. Autoregressive distributed lag approach (ARDL) and Toda Yamamoto causality technique are used for econometric analysis. Empirical results show that food inflation has negative impact on economic growth, while education has a positive impact on economic growth both in the short-run and the long-run. Government has to develop such policies that help reduce the food-price inflation in Pakistan. This will help in creating education opportunities and ultimately help in enhancing economic growth.

3. THEORETICAL MODEL AND EMPIRICAL SPECIFICATION:

The study is based on the neo-classical growth model due to Solow (1956) and Swan (1956). The production function depends formally on capital and labor as under:

$$Y_{(t)} = A_{(t)}. f (K_{(t)}, L_{(t)}),\qquad\qquad\qquad (1)$$

In the above equation, the symbol 'Y' stands for the level of output, 'K' for capital stock and 'L' for labor force, where 'A' is a scale variable representing the impact of other factors (for instance technical progress, political stability and peace/tranquility etc.) on economic growth. Taking total derivatives and dividing through 'Y', we get the aggregate growth rate of output expressed as the weighted sum of the growth rates of its arguments (capital and labor), where the weights are partial elasticities of output with respect to factors:

$$Y^{\wedge} = A^{\wedge} + \varepsilon_{Y,K}.K^{\wedge} + \varepsilon_{Y,L}.L^{\wedge} \ \ \dots (2)$$

If the production function is assumed to be Cobb-Douglas with constant returns to scales: $Y = A K^{\alpha} L^{(1-\alpha)}$, the growth equation assumes the shape: $Y^{\wedge} = A^{\wedge} + \alpha.K^{\wedge} + (1-\alpha).L^{\wedge}$. However, two problems were noted with this model. First, empirical analysis revealed that about 60% share in aggregate growth remained unexplained, and it was the impact of other factors. Second, the per capita income in the Western industrial countries showed continuous growth overtime, whereas it should have remained constant according to the steady state equilibrium concept.

Later on, the model was improved and human capital was explicitly incorporated, which could resolve the twin issues successfully. According to Mankiw, Romer and Weil (1992), the production function may be written in the modified format as:

$$Y = A K^{\alpha} H^{\beta} L^{(1-\alpha)},\qquad\qquad\qquad \dots (1A)$$

Here, 'H' stands for human capital and $\beta > 0$. The model now exhibits increasing returns to scales. The aggregate growth rate is then given by the relation:

$$Y^{\hat{}} = A^{\hat{}} + \alpha K^{\hat{}} + \beta H^{\hat{}} + (1-\alpha)L^{\hat{}} = A^{\hat{}} + (\alpha+\beta)K^{\hat{}} + (1-\alpha)L^{\hat{}} \qquad \dots (2A)$$

In the above relation, the physical and human capitals have been merged together (only for the purpose of illustration). At the steady state equilibrium, capital stock and output are growing at the same exponential rate 'g' and the labor force growing with natural rate 'n'. Now the growth rate of per capita income is given by:

$$y^{\hat{}} = Y^{\hat{}} - L^{\hat{}} = g - n \qquad \dots (3)$$

In presence of the spill-over effects of human capital, the final result is different:

$$g = (\alpha+\beta)g + (1-\alpha)n \Rightarrow [1-(\alpha+\beta)]g = (1-\alpha)n, \text{ given that } Y^{\hat{}} = K^{\hat{}} = g$$

$$g = \left[\frac{(1-\alpha)n}{1-(\alpha+\beta)}\right] \Rightarrow g - n = \frac{\beta n}{1-(\alpha+\beta)} > 0 \quad \text{since } \beta > 0 \qquad \dots (4)$$

The interesting result of endogenous growth model is that with investment in human capital, there are increasing returns to scales and per capita income will continue to grow indefinitely.

3.1   The Empirical Specification

This study intends to assess the role of health and education (embedded in the concept of human capital) on economic uplift of the society. The Gross Domestic Product (GDP) may be used as proxy for economic uplift. Expenditure on health and education may be used as proxies for human capital formation, whereas the normal investment for gross capital formation (physical capital) may be included. The empirical model may be written as under:
GDP = f (Physical Capital, Human Capital, Labor Force), the linear format will be
$$GDP_t = \beta_0 + \beta_1 GFC_t + \beta_2 EDEXP_t + \beta_3 HLEXP_t + \beta_4 EMP_t + u_t \qquad \dots (5)$$

As explained above, the human capital formation may be divided into two parts, i.e. the expenditure on education and expenditure on health, both public and private. The above equation may be divided through the labor force or employment (EMP), for which population may be used as proxy. Thus we get all the variables in per capita terms:
$$GDPPC_t = \alpha_0 + \alpha_1 GFCPC_t + \alpha_2 EDEXPC_t + \alpha_3 HLEXPC_t + u_t \qquad \dots (5A)$$

The dependent variable is now the GDP per capita and the explanatory variables include the gross fixed capital formation, the expenditure on education and health as well as normal investment leading to fixed capital formation, all expressed in per capita terms. A brief explanation of the variables involved is given below.

3.2   Data Considerations

Time series data has been used in the analysis for the period 1980 to 2017 taken on annual basis. The main sources of both public and private sector data are given below:
Economic Survey of Pakistan (various issues)
Hand Book of Statistics 2015 – (State Bank of Pakistan Publication)
Household Integrated Economic Survey (HIES) & Pakistan Social Living Standard Measurement (PSLM) – For Private Expenditure on Health and Education.

The data on GDP per capita and that on public expenditure on health and education is readily available from official sources like the Economic Survey and Hand Book of Statistics. However, the data on private expenditure on health and education is not readily available. For this purpose, we have to resort to various issues of HIES, now called PSLM. The data is collected by Pakistan Bureau of Statistics (often published after three years, with some irregularity). The data covers different socio-economic indicators like literacy rate, primary enrollment, household expenditure on food, clothing, health, education, transportation, entertainment etc. The household spending on education and health (as fractions of average household monthly expenditure) was estimated and then transformed as yearly fractions of the gross Consumption Expenditure available in the Economic Survey. Since year-wise data from HIES is not available over the data period, some approximation through extrapolation was inevitable. Finally the private and public expenditures on both categories (health care and education) were added up and divided through the population to reach the requisite data in per capita terms.

4. RESULTS AND ANALYSIS:

There are various techniques to check the problem of Non-stationary of the data. But this study uses the two methods graphical analysis (Given in Appendix) and Augmented Dickey Fuller (ADF) test to check the problem of unit root.

4.1   Augmented Dickey-Fuller (ADF) Test:

To check the problem of unit root in the variables like Gross Domestic Product (GDP), Health (H), Education (E), Investment (I),the Augmented Dickey Fuller (ADF) test is used. Through this test it is confirmed that GDP is stationary at level and other three variables are stationary at first difference which is also a condition for using ARDL Test for calculating the long run estimates of the coefficients of variables of the model. The results of ADF test are given in table No 4.1 and the rule of thumb for the decision is that the absolute test value should be greater than the critical value which is found accordingly at 1 percent level of significance.

Table 4.2 Augmented Dickey-Fuller Test

S.NO	Variable	Level			1st Difference			Decision
		t-Statistics	Critical Values	Prob	t-Statistics	Critical Values	Prob	
1	Per Capita GDP	-5.851230	-3.6210	0.0000	----	----	----	Stationary at level
2	Education Expenditure	3.285737	-3.6210	1.0000	-3.98072	-3.62102	0.0040	Stationary at 1st difference
3	Investment	-1.157748	-3.6210	1.0000	-5.53579	-3.62102	0.0001	Stationary at 1st difference
4	Health Expenditure	3.200300	-3.6210	1.0000	-2.92032	-3.62102	0.0058	Stationary at 1st difference

Table 4.1 PP Test

S.NO	Variable	Level			1st Difference			Decision
		t-Statistics	Critical Values	Prob	t-Statistics	Critical Values	Prob	
1	Per Capita GDP	-5.848025	-3.6210	0.0046	----	----	----	Stationary at level
2	Education Expenditure	3.175047	-3.6210	1.0000	-4.033823	-3.62102	0.0035	Stationary at 1st difference
3	Investment	-1.243493	-3.6210	0.6658	-5.537162	-3.62102	0.00022	Stationary at 1st difference
4	Health Expenditure	2.703522	-3.6210	1.0000	3.01126	-3.62102	0.0433	Stationary at 1st difference

4.2   Auto Regressive Distributed Lag Model (ARDL)

ARDL is used for long run as well as short run relationship. For the purpose, first step is to investigating about long run relationship. ARDL Bounding test tells about existing of long run relationship. The result of Bounds test is given in table 4.2.

Table 4.2   ARDL Bounds Test

Test Statistic	Value	K
F-Statistics	6.46432	3
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.01	3.1
5%	2.45	3.63
2.5%	2.87	4.16
1%	3.42	4.84

In the above table, F value is 6.46432 which is greater than tabulated values. (10%,5% and 1%). This indicate that a long run relationship exist in the model.

4.3   Long Run Coefficients Estimates

After knowing the existence of long run relationship, next step is calculating long run coefficient of the variables. Long run coefficient is given in the table 4.3.

Table 4.3 Long Run Estimates   Dependent Variable GDP per capita

Variables	Coefficients	Standard Error	t-statistic	Prob.
EDU	1.734952	0.598771	2.89752	0.0217
INVESTMENT	0.351357	0.0291352	12.05953	0.0000
HEALTH	1.813201	0.692153	2.619653	0.0251

The upper tables show the positive relationship between the variables and shows the impact that the education health and human capital are the basic component of economic growth.

The results indicate that, education health and human capital are positively influences the possibility of their involvement in economic activity. In Pakistan, education likely to participate in economic activities These three factor plays an important role in economic growth in Pakistan. The theory states that socio economic factor is very important for developing countries. Our study support the theory empirical results are significant.

The developing country like Pakistan cannot make economic growth without education, health and human capital. In short, we can conclude that with the increasing level of education will increase the economic growth and national income.

Similarly health and human is also playing a significant role on the prosperity of people. The above result shows that health has a positive and significant impact on economic growth.

4.4   *Short Run Coefficient*
The short run estimates are given below.
Table 4.4   Short Run Estimates
Explanation:

Variables	Coefficients	Standard Error	T-statistic	Prob.
D(Per Capita GDP)	0.392421	0.115560	3.395820	0.0085
D(HEALTH(-1))	3.103158	1.143669	2.713335	0.0090
D(HEALTH(-2))	1.307047	1.231326	1.061495	0.3160
D(HEALTH(-3))	2.039721	1.106175	1.598516	0.0355
D(EDUCATION(-1)	1.123492	0.702834	2.206261	0.0434
D(EDUCATION(-2)	3.27466	0.711301	4.603761	0.0007
D(EDUCATION(-3)	3.64544	0.926659	3.933960	0.0005
D(INVESTMENT (-1)	16.63720	3.15432	5.277441	0.0000
D(INVESTMENT (-2)	0.272480	0.235009	1.159444	0.1062
D(INVESTMENT (-3)	0.453355	0.173794	2.608576	0.0656
CointEq(-1)	-0.580646	0.099513	-5.655771	0.0000

Error Correction term is equal to -0.580646. Its T-Value is zero which is significant and showing the speed of adjustment to equilibrium. The speed of adjustment is 55% which is good. The adjustment is completed to the long run equilibrium with two lags.

5. CONCLUSIONS AND SUGGESTIONS:
It is concluded that high level of education and health have positive impact on economic growth. Therefore, null hypothesis have rejected according to which education and health have negative relationship with economic growth. Education play very important role to raise level of human capital in Pakistan therefore high level of education is very important for development of an economy hence we have come to know that alternative hypothesis are accepted that there is positive relationship between education, health, and economic growth,

6. SUGGESTION:
The suggestions have to improve the level of health and education in Pakistan.
- ➢ By improving the quality of education, the government spent more on education and health.
- ➢ Government may focus in giving scholarships to enhance the level of education and to improve health in the less developed areas of a country.
- ➢ Merit and appropriate allocation of teaching staff may be first priority in educational institutions.
- ➢ Research, professional education training and experience may be given incentives in terms of advance increments, promotion and performance based awards.

7. LIMITATION:

This study consists on secondary data from 1980 to 2014 collected from Economic survey of Pakistan. This study is limited on this time duration due to lack of availability of the data.

The second limitation in this study is that there are many other variables that can evaluate economic growth but in this study we only include the health education and human capital because we want to test only the role of these variables on economic growth of Pakistan.

8. FUTURE GAP:

Sustainable Economic growth is important for improvement in life standard of the society. Education and health play vital role in development and researcher may further highlight role of these two social indicators by using latest proxies and geopolitical situation of the economy.

REFERENCES:

1. Alguacil, M.,A. Cuadros. & Orts. V.(2011).Inward FDI and growth.: The role of macroeconomic and institutional environment. J. of policy Modeling., 33 (1): 481-496
2. Asghar, Z & Zahra. M. (2012) . A benefit incidence analysis of public spending on education in Pakistan using PSLM data. The Lahore j. Eco, 17(2):111-136..
3. Afzel,M.,Malik,M.E.,Begum,I.,Sarwar, K., & Fatimah (2013). Relationship among Education Health and Economic growth in Pakistan. An Econometric Analysis, *Journal of Elementary Education* Vol.22, No.1, pp.24-40.
4. Aurangzeb. (2003). Relationship between health expenditure and GDP in an augmented Solow Growth Model for Pakistan. An Application CO-Integration and Error correction modeling .The Lahore J.Eco.,8 (2);1-16.
5. Barro, R.J.,& Lee .j (1996). International measures of schooling years and schooling quality. American Economics Review, vol. 86, No 2, P. 218-233 (papers and proceedings).
6. Biswas , B. (2002) . Effect of economic growth and public support of health service on longevity-A panel data analysis. Eco. Research institute study. (243) :1-12.
7. Bassanini, A. & Scarpetta. S. (2001-02) . The driving force of economic growth: Panel data evidence for the OECD countries. OECD Eco. Studies.,(33) : 1-53.
8. Beraldo, S. Montolio., D & Truti. G. (2009). Healthy and Wealthy: A primer on the impact of public and private welfare expenditure on economic growth. The j. Soc. Eco., 38 (2): 946-956.
9. Babatunde,L.O.(2014).Analysis of the growth impact of health expenditure in Nigeria.International.J.of Eco. and Fin., 3(1) : 77-84.
10. Briscoe, G.; Wilsom, R.(1998).The demand for higher education: A study of the size and nature of the flow of entrants into higher education in the UK. Coventry : IER-Institute for Employment Research , (Research paper).
11. Ganegodage, R.K.& Rambaldi. A.N.(2011). The impact of education investment on Sri-Lankan economic growth. Eco of education Rev., (30) : 1491-1502.
12. Geemell, N. (1996). Evaluating the impact of human capital stocks and accumulation on economic growth: some new evidence, Oxford Bulletin of Economic and Statistics, 58, pp. 9-28.
13. Hanushek, E.A.(2000). Labor force quality and the growth of nation. American Economic Review , vol.90 , No 5, p. 1184-1208.
14. Idrees ,M. & Jalil .A. (2013)..Modeling the impact of education on economic growth : Evidence from aggregated time series data of Pak.Eco.Modelling ,(31) : 383-388.
15. Lagerlof ,N.(1999).Gender Inequality, Fertility, and growth ,Mimeographed , department of economic , university of Sydney.
16. LI,H.& Huang.L.(2009).Health, Education, and Economic growth in china: empirical findings and implications. China Eco.Rev.,20(-):374-387.   .
17. Mankiw, N. Gregory, David Romer, and David N. Well (1992) A Contribution to the Empirics of Economic Growth. *Quarterly Journal of Economics*, vol. (1) 407–437.
18. Masson, W.(1998).Education and Growth in East Asia. Economics of Education Review, Volume17 (2), pp.159-172.
19. Moretti,E.(1999).Estimating the external return to education: evidence from repeated cross sectional and longitudinal data .Berkeley : *University of Californica*,(Research Paper).
20. Nazli , Hina & Nasir, Z.M (2000).Education and Earning in Pakistan, *Pakistan Institute of Development Economics, Islamabad*. Research Report, No. 177.
21. Nayyab,A.(2006).Effect of human resource on productivity in Pakistan. Education, Volume 22(4),pp.57-84.
22. Nonaka,I;Takeuchi,H.(1995).The knowledge creating company: how Japanese companies create the dynamics of innovation. *New York :Oxford University Press*.

23. Pereira.J.& Aubyn. M.S. (2009). What level of education matters most for growth? *Evidence from Portugal. Eco of education* Rev.,(28):67-73.
24. Solow, R. M. (1956) A Contribution to the Theory of Economic Growth. *Quarterly Journal of Economics*, vol. (70): 65–94.
25. World Bank. (1993).World Development Report, 1993: Investing in Health .*New York: Oxford University Press.*
26. World Health Organization. (1999) .WHO on Health and economic productivity population and development.