Impact of Health and Education on Economic Growth and Development of Pakistan in the Long Run and Short Run: (Evidence from Time Series Data)

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Abstract:
This study is undertaken to determine the causal and dynamic linkage of per capita GDP with educational and health related factors, particularly in case of Pakistan in the long run and in the short run. Unit root tests, ADF, Phillip Perron test and ARDL approaches are applied to model on time series data from 1972 to 2013 of 42 years. Secondary data collected from official websites of WDI, WBG, IMF, MOF and SBP mainly. Health is measured by health expenditures, life expectancy and infant mortality rate. Education on the other side is represented by taking educational expenditure, primary enrollment and secondary enrollment. All of the independent variables showed a positive relationship with per capita GDP, but educational expenditures and primary enrollment showed an inverse relationship with the economic health of Pakistan in the short run. It is strongly recommended that government should increase expenditures on education sector to more than 5% of GNP instead of just 2% as stated in PES (2014), especially to make a positive impact on enrollment at

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the primary level and to increase research publications. The findings of this study are very important and helpful for policy makers in formulating various development policies, for managerial decision makings and forward planning. Finally, the government should allocate more than 5% of GDP instead of just 0.4%, according to the PES (2014), for health sector to decrease the death rate, to increase the health level of the population, especially of women.

Key words: GDP, Economic Growth, Health and Education, ARDL and WALD Test.

1. Introduction

Numerous empirical readings are available in economic literature dealing with the estimations of economic growth and development. Because economic growth and development, in fact, has received very much consideration due to its significance to researchers and policymakers while making various managerial decisions about the economy. Approving to Pakistan Economic Survey (PES), Wasti (2013-14), growth rate of real GDP (at constant factor cost) is 4.14 %. The major objective of this study is to re-estimate GDP function for Pakistan. This study empirically analysis the long run and short run impact of some important socioeconomic macroeconomic variables on the economic growth of Pakistan. Economic health, economic growth, economic development or economic advancement of a county (GDP) is affected by a number of variables. This study includes the value of GDP per capita as a dependent variable and selected some more important and socioeconomic independent variables like health expenditures, life expectancy, infant mortality rate, education expenditures, primary enrollment and secondary enrollment. The findings of this research like many other research studies like Barro R. J. (2013), Vogl T. S. (2012), Akram et al. (2009), Lee J. and Kim H. (2008), Weil D. N. (2007) showed positive

2. Literature Review

Particular studies are available in the literature which has re-estimated the economic growth and development, using different time series econometric techniques. Selected studies are reviewed as a representative of all this type of studies because it is impossible to review all in this study.

Recently, Akhmat et al. (2014) founded the direction of connection between education and economic growth. They used data from 1980 to 2011 by a panel of the top twenty countries.
The researchers analyzed the long run association of education with research productivity, which leads to economic growth and development by using a panel co-integration technique. Their results showed that GDP increased by 0.898 % as a result of the increase in research publications by 1.425 %. They further showed that 1.128 % increase in educational expenditures had increased number of citations by 0.968 % and patents by 0.714 %. They also stated that if there is increase in school life expectancy then there will increase of 0.41% in research and development. Finally, educational research support the students and researchers to face the toughest competitions in the world, it established new ideas, theories, and businesses which leads to economic growth and development.

Recently, Agasisti T. (2014) measured the efficiency of public spending on education for European Union countries by considering data from 2006 to 2009 of 20 European countries. A researcher based his work on a current policy as suggested by the European Community about the provision of efficiency and equity of education by allocating minimum public funds to the education sector. Here expenditure per student were used as input and on the other side OECD-PISA test scores were used as output. Research applied bootstrap Data Envelopment Analysis (DEA) to assess the efficiency scores.

Recently, Maria R. T. (2014) quantified a positive correlation between level of education and fertility at individual (micro) and country (macro) level in Europe. She had taken the date of 27 European Union countries from 2006 to 2011 of two Euro-barometer surveys. Researcher discussed that the number of women is increasing in the economic activities in Europe, which leads to more investment in human capital formation. She tried to remove the conflict of reproductive behaviour and fertility level of women. Results showed a positive impact on the education level of women on lifetime fertility of women.

Jin L. and Jin J. C. (2014) tried to make an efficient research about the relationship between internet education and
economic growth by using the cross sectional data of thirty six rich nations. Internet education was represented by interment usage rates. Regression is applied to the data of average annual percentage of internet users of 36 countries over the period from 1995 to 2004.

Bucci A. (2014) conducted a comparative study on influence of innovation, population and product market competition on economic growth in the presence of human capital investment and in the absence of human capital investment. The findings were calculated by applying the aggregate production function. Bucci stated that Lucas (J. Monet Econ 22(1):3-42, 1988) growth model with human capital formation and link between population and economic growth rate showed unclear results in accordance with their availability of empirical evidences.

Munda S. W. and Odebero S. (2014) conducted a research about the interrelationship between cost of education and academic performance of a student near about the study of Barro R. J. (2013). Researchers had divided the schools into two categories that is County schools which are of boarding type and District's schools of Kenya. Data was collected from open and closed ended questionnaires through class teachers about the specific thirteen District's schools and seven County schools.


The overview of the literature shows that although a number of studies had re-estimated the influence of health and
education on economic growth and development. But in case of Pakistan there are various studies related to health and economic growth only and several are related to education and economic growth only. But there is acute shortage of such study that can explore the impact of health and education on economic growth and development of Pakistan in combining form by using ARDL approach. The present study will fill this gap by using annual data from 1972 to 2013.

3. Methodology and Data Sources

3.1. Data
Secondary data of various, given below, dependent variable and independent variables were taken from World Development Indicators 2014, International Monetary Fund, World Bank Group, United Nations, Pakistan Economic Survey, Federal Bureau of Statistics and Handbook of Statistics of State Bank of Pakistan ranging from 1972 to 2013 for 42 years. It is cause and effect relationship based study where GDP per capita is a dependent variable and on the other hand, health expenditures, life expectancy, infant mortality rate, education expenditures, primary enrollment and secondary enrollment are independent variables.

ARDL approach is applied on time series data to estimate the direction and strength of the short run and long relationship of GDP per capita with specified independent variables of health and education sector.

3.2. Method
GDP = f (Health Expenditures, Life Expectancy, Infant Mortality Rate, Education Expenditures, Primary Enrolment and Secondary Enrollment)
3.2.1. Estimation Command:
LS D(GDP) GDP(-1) EE(-1) HE(-1) IMR(-1) LE(-1) PE(-1) SE(-1) D(EE(-1)) D(HE(-1)) D(IMR(-1)) D(LE(-1)) D(PE(-1)) D(SE(-1)) C

3.2.2. Estimation Equation:
D(GDP) = C(1)*GDP(-1) + C(2)*EE(-1) + C(3)*HE(-1) + C(4)*IMR(-1) + C(5)*LE(-1) + C(6)*PE(-1) + C(7)*SE(-1) + C(8)*D(EE(-1)) + C(9)*D(HE(-1)) + C(10)*D(IMR(-1)) + C(11)*D(LE(-1)) + C(12)*D(PE(-1)) + C(13)*D(SE(-1)) + C(14)

3.2.3. Substituted Coefficients:
D(GDP) = -0.48425*GDP(-1) + 0.5786*EE(-1) + 0.1089*HE(-1) + 2.17476*IMR(-1) + 2.77860*LE(-1) + 0.132*PE(-1) + 0.2876*SE(-1) - 0.00373*D(EE(-1)) + 0.00411*D(HE(-1)) + 2.48604*D(IMR(-1)) + 4.18371*D(LE(-1)) - 0.00170*D(PE(-1)) + 0.03349*D(SE(-1)) - 3751.71813

4. Findings

Econometric techniques have been applied to test the affiliation between various series of data. First of all descriptive statistics are applied in order to examine the statistical behaviour of the data. Descriptive statistics are used to examine the distribution of data to estimate the arithmetic mean, median, standard deviation, minimum and maximum range, variance, skewness and kurtosis. All above discussion will be helpful to state an opinion about the behaviour of time series.

Various empirically investigated results about the GDP per capita and other independent variables related to health and education sector will be discussed in this section. A short summary of estimated results is given below in Table A for the period of 1972 to 2013 for 42 years.

Results of dependent variable and six independent variables are given in below Table A. Mean value of GDP, primary enrollment and secondary enrollment showed a high fluctuation as compared to health expenditures, life expectancy,
infant mortality rate and education expenditures. Round about the same is the situation with all variables in case of median values. There is a huge difference between the maximum and minimum value of GDP, health expenditures, infant mortality rate, education expenditures, primary enrollment and secondary enrollment while there is less difference between the values of life expectancy. Life expectancy, GDP and secondary enrollment showed less value of standard deviation from their mean value as compared to the standard deviation of the other variables. As we know that the symmetry of distribution is shown by Skewness, calculated results of these variables show the more symmetrical distribution in the case of GDP, IMR and PE on the other hand Skewness showed the comparatively high value in case of HE, LE, EE and SE. Kurtosis indicates the distribution analysis as a sign of flattening or peakedness of a distribution. All the included variables show the value of Kurtosis less than 3 which indicates platykurtic distribution, flatter than a normal distribution with a wider peak. Here, the probability for extreme values is less than for a normal distribution and the values are wider spread around the mean. The Jarque-Bera (1982, 1987) test in econometrics and statistics is a goodness of fit test for whether sample data have the skewness and kurtosis matching a normal distribution. According to Giles, D. (2014) this test was introduced by Carlos Jarque and Anil K. Bera. Jarque-Bera (J-B) test also used to test the errors in your normally distributed regression model. The basic idea behind the J-B test is that the normal distribution (with any mean or variance) has a skewness coefficient of zero and a kurtosis coefficient of three. (That is, it has zero "excess kurtosis".) So, if we can test if these two conditions hold, against a suitable (family of) alternative(s), then we are ready to operate.
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Table A. Descriptive statistics

<table>
<thead>
<tr>
<th>Statistics</th>
<th>GDP</th>
<th>HE</th>
<th>LE</th>
<th>IMR</th>
<th>EE</th>
<th>PE</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>553.2328</td>
<td>5242.658</td>
<td>61.8833</td>
<td>99.2236</td>
<td>4882.026</td>
<td>11822.34</td>
<td>1399.342</td>
</tr>
<tr>
<td>Median</td>
<td>563.4175</td>
<td>4045.000</td>
<td>62.1636</td>
<td>99.7000</td>
<td>4432.000</td>
<td>11277.50</td>
<td>1381.000</td>
</tr>
<tr>
<td>Maximum</td>
<td>772.8952</td>
<td>14160.00</td>
<td>66.2838</td>
<td>83.1288</td>
<td>128.8000</td>
<td>18748.00</td>
<td>2824.000</td>
</tr>
<tr>
<td>Minimum</td>
<td>344.4407</td>
<td>492.0000</td>
<td>56.0366</td>
<td>69.3000</td>
<td>527.0000</td>
<td>5015.00</td>
<td>711.0000</td>
</tr>
<tr>
<td>Std. Dev</td>
<td>128.3717</td>
<td>3997.895</td>
<td>3.091949</td>
<td>18.4562</td>
<td>3493.993</td>
<td>4919.257</td>
<td>747.0000</td>
</tr>
</tbody>
</table>

4.1. Correlation analysis
Correlation analysis is required to observe the correlation between GDP per capita and other independent variables. However, correlation analysis is not a strong measure to identify the relationship; it is not a complete measure to verify the cause and effect relationship. All the independent variables showed a positive relationship with GDP per capita instead of infant mortality rate.

Table B. Correlation matrix of GDP to health and education sector

<table>
<thead>
<tr>
<th></th>
<th>GDP</th>
<th>HE</th>
<th>LE</th>
<th>IMR</th>
<th>EE</th>
<th>PE</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>1.000000</td>
<td>0.961504</td>
<td>0.980604</td>
<td>-0.983643</td>
<td>0.974843</td>
<td>0.970065</td>
<td>0.977543</td>
</tr>
<tr>
<td>HE</td>
<td>0.961504</td>
<td>1.000000</td>
<td>0.924471</td>
<td>-0.955475</td>
<td>0.992793</td>
<td>0.938525</td>
<td>0.979848</td>
</tr>
<tr>
<td>LE</td>
<td>0.980604</td>
<td>0.924471</td>
<td>1.000000</td>
<td>-0.992669</td>
<td>0.943208</td>
<td>0.979057</td>
<td>0.949573</td>
</tr>
<tr>
<td>IMR</td>
<td>-0.983643</td>
<td>-0.955475</td>
<td>-0.992669</td>
<td>1.000000</td>
<td>-0.966633</td>
<td>-0.988077</td>
<td>-0.973409</td>
</tr>
<tr>
<td>EE</td>
<td>0.974843</td>
<td>0.992793</td>
<td>0.943208</td>
<td>-0.966633</td>
<td>1.000000</td>
<td>0.953363</td>
<td>0.983628</td>
</tr>
<tr>
<td>PE</td>
<td>0.970065</td>
<td>0.938525</td>
<td>0.979057</td>
<td>-0.988077</td>
<td>0.953363</td>
<td>1.000000</td>
<td>0.970184</td>
</tr>
<tr>
<td>SE</td>
<td>0.977543</td>
<td>0.979848</td>
<td>0.949573</td>
<td>-0.973409</td>
<td>0.983628</td>
<td>0.970184</td>
<td>1.000000</td>
</tr>
</tbody>
</table>

4.2. Unit root analysis
As discussed that correlation is a weak technique to judge the cause and effect relationship which will invite to apply ARDL analysis to show the better relationship among all the variables. This may not be the same case to deal with data in all time, so as a compliment, Phillips- Perron (PP) test is employed. The tests can apply to the original series of data at level and also by taking first difference. A feature of a process which changes with time that can cause problems in statistical
inference involving time series models is called a unit root in Econometrics.

4.3. Augmented dickey fuller (ADF)
An augmented Dickey-Fuller test (ADF) is a type of test in statistics and Econometrics to test the unit root in a time series sample. For the larger and more complicated set of time series models, it is an augmented version of the Dickey-Fuller test. The ADF is a negative number which is used in the test. There will be stronger rejection of the hypothesis as the more negative, it is that there is a unit root at some level of confidence. Methodology equation (Akash et. al, 2011) under Augmented Dickey Fuller (ADF) for the unit root in the Auto regressive Model (AR) model is as given:

\[ y_t = \alpha y_{t-1} + \mu_t \]
\[ y_t \] is variable under study for the given time period of ‘t’, \( \alpha \) is coefficient, \( \mu_t \) is the error term.

\[ \Delta y_t = (\alpha - 1) y_{t-1} + \mu_t \quad \text{and} \quad \Delta y_t = \delta y_{t-1} + \mu_t \]
\[ \Delta y_t \] = First difference operator for the underlying variable.

Estimation and testability of this model for unit root is equal to \( \delta = 0 \)

4.4. Phillip Perron (PP) test
The Phillips-Parron (PP) test was introduced by Peter C. B. Phillips and Pierre Perron. It is a unit root test in statistics. The Phillips-Perron test, as stated by Davison and MacKinnon (2004), report that it performs worse in finite samples than the augmented Dickey-Fuller test.

Phillip Perron (PP) test equation (Akash et. al, 2011) is as given further to present the unit root in Autoregressive (AR) model. Augmented Dickey Fuller (ADF) test and Phillips-Perron (PP) test confirms the results to proceed further with ARDL analysis:
\[ W_t = \beta_0 + \beta_1 w_{t-1} + \beta_2 t \left( t - T/2 \right) + \mu_t \]

Unit root tests, Augmented Dickey Fuller and Phillip Perron tests are applied to test the non-stationarity.

**Table C. Unit root analysis**

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF (ρ) value (at level)</th>
<th>ADF (ρ) value (1st difference)</th>
<th>PP (ρ) value (level)</th>
<th>PP (ρ) value (1st difference)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>0.9252</td>
<td>0.0039</td>
<td>0.9450</td>
<td>0.0037</td>
</tr>
<tr>
<td>HE</td>
<td>0.9938</td>
<td>0.0457</td>
<td>1.000</td>
<td>0.0118</td>
</tr>
<tr>
<td>LE</td>
<td>0.9796</td>
<td>0.2994</td>
<td>0.0024</td>
<td>0.3994</td>
</tr>
<tr>
<td>IMR</td>
<td>0.8539</td>
<td>0.1129</td>
<td>0.9675</td>
<td>0.1622</td>
</tr>
<tr>
<td>EE</td>
<td>0.9963</td>
<td>0.0000</td>
<td>0.9990</td>
<td>0.0000</td>
</tr>
<tr>
<td>PE</td>
<td>0.8556</td>
<td>0.0070</td>
<td>0.9492</td>
<td>0.0000</td>
</tr>
<tr>
<td>SE</td>
<td>0.9989</td>
<td>0.0010</td>
<td>0.9989</td>
<td>0.0010</td>
</tr>
</tbody>
</table>

(At 5% level of significance)

**4.5. Autoregressive Distributed Lag Model (ARDL)**

As stated by Giles D. (2013), ARDL is an abbreviation for Autoregressive Distributed Lag. ARDL model approach is used to test the existence of long run relationships between economic time series data. ARDL model can be used to estimate the Cointegration and to test the long run and short run connections, even when the variables may include a mixture of stationary and non-stationary time series.

**Table D: ARDL**

<table>
<thead>
<tr>
<th>The estimation sample is: 1972 - 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>GDP(-1)</td>
</tr>
<tr>
<td>EE(-1)</td>
</tr>
<tr>
<td>HE(-1)</td>
</tr>
<tr>
<td>IMR(-1)</td>
</tr>
<tr>
<td>LE(-1)</td>
</tr>
<tr>
<td>PE(-1)</td>
</tr>
<tr>
<td>SE(-1)</td>
</tr>
<tr>
<td>D(EE(-1))</td>
</tr>
<tr>
<td>D(HE(-1))</td>
</tr>
<tr>
<td>D(IMR(-1))</td>
</tr>
<tr>
<td>D(LE(-1))</td>
</tr>
<tr>
<td>D(PE(-1))</td>
</tr>
<tr>
<td>D(SE(-1))</td>
</tr>
<tr>
<td>C</td>
</tr>
</tbody>
</table>
The results of the model in table D show a positive relationship of GDP per capita with most of the independent variables but education expenditures and primary enrollment. Accordingly, value of GDP per capita will be 3751.718 if all the independent variables set equal to zero. In the long run findings showed that a 1 unit increase in education expenditures, which is the input type of expenditures will push up GDP per capita by 0.579%. Health expenditures as input expenditures will increase per capita GDP by 0.109% with one unit increase. Per capita GDP will increase by 2.17% with one unit increase in infant mortality rate. Life expectancy will increase GDP by 2.778% due to one unit increase. One unit change in primary enrollment will affect positively GDP by 0.132%. Similarly, secondary enrollment also showed positive impact of 0.288% on GDP with one unit change. In the long run, we will reject null hypothesis (H₀) in case of education expenditures, infant mortality rate and life expectancy. H₀ will be accepted or on the other hand, we can say that the alternative hypothesis (H₁) will be rejected in case of health expenditures, primary enrollment and secondary enrollment in the long run. One the other hand, the short run relationship showed a negative relationship of educational expenditures and primary enrollment by 0.0037% and 0.0017% respectively, with one unit change. According to calculate results health expenditure will change positively GDP by 0.0041% due to a one unit change. The Infant mortality rate will change in GDP per capita positively and significantly by 2.49% with one unit change. Life expectancy will increase GDP by 4.184% with one unit change. The null hypothesis (H₀) will
be rejected in the short run in the case of infant mortality rate, life expectancy and secondary enrollment. On the other hand alternative hypothesis (H₁) will be rejected in case of education expenditures, health expenditures and primary enrollment.

As above results of Table E show that the impressive value of R Square (R²) is 0.5964, it means that 59.64 % of the dependent variable that is GDP per capita depends mainly upon or explained by all considered independent variables. It is a high dependency ratio, no doubt, because independent variables include various socio-economic factors which have significant impact on economic growth and economic development of a country, just 40.36 % of GDP per capita is explained by the variables outside of this model. R square (R²) and S.E. of regression are two most important numbers Startz, R. (2009). Our regression accounts for 59.64 percent of the variance in the dependent variable and the estimated standard deviation of the error term is 8.48. Five other elements, “Sum squared residuals,” “Log likelihood,” “Akaike info criterion,” “Schwarz criterion,” and “Hannan-Quinn criter.” are used for making statistical comparisons between two different regressions. This means that they don’t really help us learn anything about the regression, we are working on; rather, these statistics are useful for deciding if one model is better than another. For the record, the sum of squared residuals is used in computing F-tests, the log likelihood is used for computing likelihood ratio tests, and the Akaike and Schwarz criteria are used in Bayesian model (Inductive logic) comparison.

The next two numbers, “Mean dependent var” and “S.D. dependent var,” report the sample mean and standard deviation of the left hand side variable. These are the same numbers you would get by asking for descriptive statistics on the left hand side variables, so long as you were using the sample used in the regression. The standard deviation of the dependent variable is larger than the standard error of the regression, so our regression has explained most of the variance
in log(volume) - which is exactly the story we got from looking at the R-squared. “Adjusted R-squared” makes an adjustment to the plain-old R square to take account of the number of right hand side variables in the regression. R square measures what fraction of the variation in the left hand side variable is explained by the regression. When you add another right hand side variable to a regression, R square always rises as it is a numerical property of least squares. The adjusted R square, subtracts a small penalty for each additional variable added.

“F-statistic” and “Prob(F-statistic)” come as a pair and are used to test the hypothesis that none of the explanatory variables actually explain anything. Put more formally, the “F-statistic” computes the standard F-test of the joint hypothesis that all the coefficients, except the intercept, equal zero. “Prob(F-statistic)” displays the p-value corresponding to the reported F-statistic. In this example, there is essentially no chance at all that the coefficients of the right-hand side variables all equal zero. Our final summary statistic is the “Durbin-Watson,” the classic test statistic for serial correlation.

A Durbin-Watson close to 2.0 is consistent with no serial correlation, while a number closer to 0 means there probably is serial correlation. The “D-W,” as the statistic is known, of 2.11 in this example is a very strong indicator of the absence of serial correlation. Summery result shows that the value of Prob(F-statistic) is 0.028 which is less than 0.05 it means that this model is overall good fit.

4.6. Wald Test
Wald test is compared to the $\chi^2_{1}$ critical value which is equal to 3.84. If the test statistic is greater than the $\chi^2_{1}$ value, it refers as the explanatory variable is significant for use in the model. The Wald test is used whenever a connection within or between data item can be expressed as a statistical model with parameters to be estimated from a sample. Wald test is used to test the true value of the parameter based on a sample
estimate. A Wald test can be used for dichotomous variables and models for continuous variables in a great variety of different models. The maximum estimate of a parameter of interest is compared with the proposed value with the assumption that the difference between the two will be approximately normally distributed, under the Wald statistical test.

Table F: Wald Test

<table>
<thead>
<tr>
<th>Test Statistic</th>
<th>Value</th>
<th>Df</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
<td>3.349482</td>
<td>(6, 22)</td>
<td>0.0169</td>
</tr>
<tr>
<td>Chi-square</td>
<td>20.09689</td>
<td>6</td>
<td>0.0027</td>
</tr>
</tbody>
</table>

According to Wald Test, F-statistic value is within the critical value band at 0.05 (5 %) level of significance. But it is less than the upper bound value and greater than lower band value. Upper band value is 3.646 and lower band value is 2.476. In considering the case intercept and no trend the value of ‘k’ is 6. ‘k’ is the number of forcing variables. Table F shows the results of Wald test. The F-statistic in Wald test is 3.349 which are within the critical value band. It shows that there is a long run relationship between GDP and independent variables. Estimated value of Chi-square is 20.07 which is greater than tabulated value. It shows an association between GDP per capita and independent variables of health and education. So, the null hypothesis will be rejected.

5. Conclusion and Policy Implications

5.1. Conclusion
This research study aimed to show the ideas and experiences of various economists concerning to manage the reform program in health and education sector of Pakistan on large scale. This is an evident study under the used data of 38 years about the economy of Pakistan from 1972 to 2013 which tried to apply the health and education reform in the health and educational
institutions for the sake of economic growth and development in addition to a lot of structural changes specifically in health and education sector. By gaining a lot of information from this study one can get ideas, philosophies and experiences to implement the reform program to the health sector and the education sector. Policies about health sector are applicable to various public and private sector hospitals and policies regarding education sectors can apply to all types of educational institutions so that measures to improve both the sectors must be translated into practice. This study explored the change process that can apply to health and education sector to make advancements in Pakistan. It is a point of precaution that this study is limited to the considered data set only that can make improvements in health and education sector for the rise in the GDP per capita. There is a strong reflection of health and education related particular variables with economic growth and development of Pakistan, as evident from the data. Model and results developed in this research are comparatively more effective to apply in public sector health and educational institutions as compare to health and educational institutions in the private sector. More managerial efforts are required in public health and educational sectors in case of Pakistan. The concluding area of this study will serve and highlight the importance of the generalization the role of health and education sectors in the economic growth and development of Pakistan.

5.2. Policy implications
Afzal et. al. (2010), suggested that to increase literacy rates in order to achieve various economic growth and development targets. This study strongly recommended that there is an urgent need to remove the backwardness, dualism and all other problems of education and health sector.

Government should increase the literacy rate up to 100 % by allocating more than 5 % of GNP to the education sector
for the rapid and sustainable economic growth. Literacy rates of Islamabad, Punjab and Sindh are desirable up to a specific level, but more focus is needed in case of Baluchistan, KPK and FATA. Rs. 20 billion has been allocated for 188 projects of HEC in Federal Budget of 2014-15. In case of health, which is very important for per capita GDP growth, it is enough to say that the government has allocated just 0.4 % (about Rs. 80 billion) of its GDP; it should also to be increased to 5 %. The level of public expenditures on health and education sectors is not up to a satisfactory level, which induces to make a comparative study about the role of private and public facilities to improve the education level and health status.

Health and education sectors of Pakistan are also facing a problem of old, less trained and inefficient staff. Government of Pakistan has allocated huge funds to develop the health sector and it is successful up to a particular level. Government is needed to develop the confidence of public on government health facilities by developing the caring attitude of its staff in the health sector. A strong coordination between young and old staff is also strongly required in order to develop the health sector of Pakistan. Provision of all contracted facilities to entire new or young staff of the health sector is compulsory in order to establish a progressive and prosperous health sector in the absence of strikes etc.

No doubt, the government of Pakistan has improved infrastructure and syllabuses of schools, but unfortunately, without improving staff qualifications. The government should improve the infrastructure and syllabus of schools, especially at primary level, but also improve and appoint the more efficient staff in order to get desired objectives of the education sector. There is need to remove the careless attitude of teaching and non-teaching staff member to manage a developed education sector in Pakistan. It is required to develop the education sector of Pakistan that the government must provide all facilities to staff in the education sector as provided in advanced countries.
Provision of rewards, pay, status and best authorities will promote our education sector and on the other side will check the process of brain drain. In reality, a policy enables one to reach the targets by "trial and error" (Tang, 2006).

Acknowledgments
First and foremost, I would like to express my sincere gratitude to my research supervisors Prof. Dr. Muhammad Ilyas and Prof. Farooq Anwar Bajwa for the continuous support of my research work, for his excellent supervision, caring, patience, motivation, enthusiasm, immense knowledge and providing me with an excellent atmosphere for doing and completing my work. His guidance helped me in all the time of research and writing of this paper. I could not have imagined having a better advisor and mentor for my MS research study. One simply could not wish for a better or friendlier supervisor.

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