SIMULTANEOUS DETERMINATION OF ECONOMIC GROWTH, HUMAN CAPITAL INVESTMENT AND INSTITUTIONS IN PAKISTAN: ECONOMETRIC EVIDENCE

by

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ABSTRACT

This research aimed to investigate the role of three key macro-economic variables i.e. investment in physical capital, human capital and institutions in explaining growth performance of Pakistan during 1980-2013, covering period of 33 years. The analysis aimed to pay special attention to the process of the accumulation of these variables and their interrelationships over the time period. This study uses 3SLS estimation technique to estimate the proposed simultaneous model. The present study concluded that quality of Education positively contribute towards human capital and economic growth. Furthermore human capital has positive and two way relation with quality of institutions. Policy prescription is suggested in the light of empirical findings.
Key words: Eco Growth, Human Capital, Institution, Simultaneous Model.

JEL Classifications: F43, J24, E22

Introduction

To attain an advanced stage of growth and higher level of future income, investment in human capital in terms of creating a more productive work force

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through investment in education (technical and non-technical) and health services are required. Furthermore, higher expenditure on health and education can benefit the poor by improving their living standards and their future prospects. A hypothetical prop up for the enclosure of the institutions is extensive as it with better shaped human capital exerts magnified impact on economic growth. North (1990) recognize impact of institutions strongly claimed that the country institutions and the developmental procedure they experience resolute the working of their economies. Good institutional system sanction the optimization of the reimbursement of asset, assisting the expansion of new proposal, given that judicial protection and solidity, keep away from the illegitimate, minimizing the cost of defending beside uneven performances, propagating laws that help the economy to run smoothly and convinced that these laws are act in accordance with it.

An oldest and important research in economics is to find determinants of economic growth. Common objective of every country is to attain persistent economic growth come with social development where human capital formation is supposed as an indispensable element.

Mincer (1958), Schultz (1961) and Becker (1962) firstly explain the theory of human capital, which considered human capital, as physical capital and can be invested in it by resources of education, health and training as a result, output will raise and it will remarkably add to economic growth. Barrow (1991) found a positive relationship between real per capita GDP growth and human capital. It means higher economic growth is associated with higher human capital of countries, by keeping other things equal. It determines a state efficiency that is measured as an essential cause of economic growth in addition to extension of various quantitative learning. Best considered human capital is as a major foundation of an economic expansion (Todaro, 1985). In current years Pakistan's growth presentation is an enigma. Investment rate of Pakistan, instructive level, health quality and institutional quality are all near to the ground in comparison with other high growth developing countries. The economy of Pakistan is grown relatively fast yet she is unsuccessful to obtain the utmost reimbursement from human capital owing to low budget share to

social segment regardless of the enlarge expenditures of community since 2001, Govt. expenditure on health and education stayed low infect expenses on health as a percentage of GDP even turn down from 0.60% of GDP in 2005 to 0.35% in year 2013. Education spending in Pakistan in 2005 is 2.54% and in 2013 it is 2% of the GDP which is relatively low. Pakistan education spending is very low in South Asia in conditions to human development index most recent grading of 2013, Pakistan graded at 146th position. After highlighting Pakistan social sector performance in context to South Asia, it is felt that Pakistan has not utilized its human capital potential. More research is required to find factors that can raise economic growth and proved sound production for better institutions and human capital equipped with skilled labor force.

Present Literature shows optimistic and important influence of Human capital, investment and institution on the economic growth of the country but it is also empirically proved that some time in less developed countries due to some other factors it has significant but negative relation to growth. The influential papers of Benhabib and Spiegel (1994), Islam (1995) and Pritchett (2001) claimed a depressing role of human capital. The purpose of this study is to contribute to the existing literature through joint determination of health growth dynamics within the framework of simultaneous model in Pakistan and to recommend policy options in the light of empirical findings. This study differs from other studies as it uses simultaneous model consisting of four stochastic equations and 3SLS estimation technique.

Literature Review

Theoretical and empirical literature is replete with number of studies that has investigated part of human capital formation in progression of economic growth and came up with diversifying findings depending on different methodologies, time span and cross sections is as follows.

Gregorio et al. (2009) focused not only on three types of variables physical capital, human capital and institutions but pay particular concentration towards addition and their interrelationships. Imran et al. (2012) investigate the affiliation amid human capital and economic growth through single equation model for Pakistan during (1973-2002).

Nabila et al. (2012) explored the relation of human capital in provisions of education and health for economic growth of Pakistan during (1974-2009). Khan (2005) explore influence of human capital on economic growth in a panel of 72 developing nation's well as Pakistan during (1980-2002) his imperial analysis based on Cob Douglas production function augmented with quality of labor, level of output, capital input and quality of human capital. Ghulam et.al.,(2004), integrated the interdependence of trade openness, economic growth and human development in Asia by using 3SLS approach. They contribute that openness has strong positive influence on economic growth and human escalation. Human capital and FDI have strong activist effect on both economic growth and human development. It is also reviewed in literature that for the most part of the studies about human capital and economic growth, failed to find a significant relationship between years of schooling and changes in economic growth counting those by Bils and Klenow(2000), Pritchett (2001), Easterly and Levine (2001), and Temple (2001) after analyzing the relationship. Most of the studies rely on use of single equation to gauge influence of human capital on economic growth we have made efforts to develop simultaneous model in order to have deep understanding of bi-directional association between growth and human development which will be a contribution to existing literature.

Theoretical framework

Pakistan formally recognized as Islamic Republic of Pakistan is a supreme state in South Asian state. Pakistan is 27th largest economy by obtaining power and 45th largest country in supreme dollars and second largest economy stands for 15 percent of South Asia's GDP. Even though the country is facing many problems like hasty population growth, low GDP, unemployment, energy crisis, law and order situation, terrorism and long-term divergence issue with India. Pakistan's economy face rapid growth in the period of Musharaf government in middle of 2000's and it was the period of restructuring and increased GDP by 3% which compact poverty by 10%. But the start of 2008 proved to be dormant towards economic growth. The GDP growth is 2.4 percent in economic Year 2011-12 as measure up to 3.8 percent in previous fiscal year. Government is dedicated to assign 7 percent of GDP to education and offer free common

primary education by 2015 according to the policy. In the 18th legal adjustment, all the provinces of Pakistan must develop the education sector. Now they are dedicated to put into practice National Education Policy by every mean.

Figure 1(a) Adult Literacy Rate in Pakistan
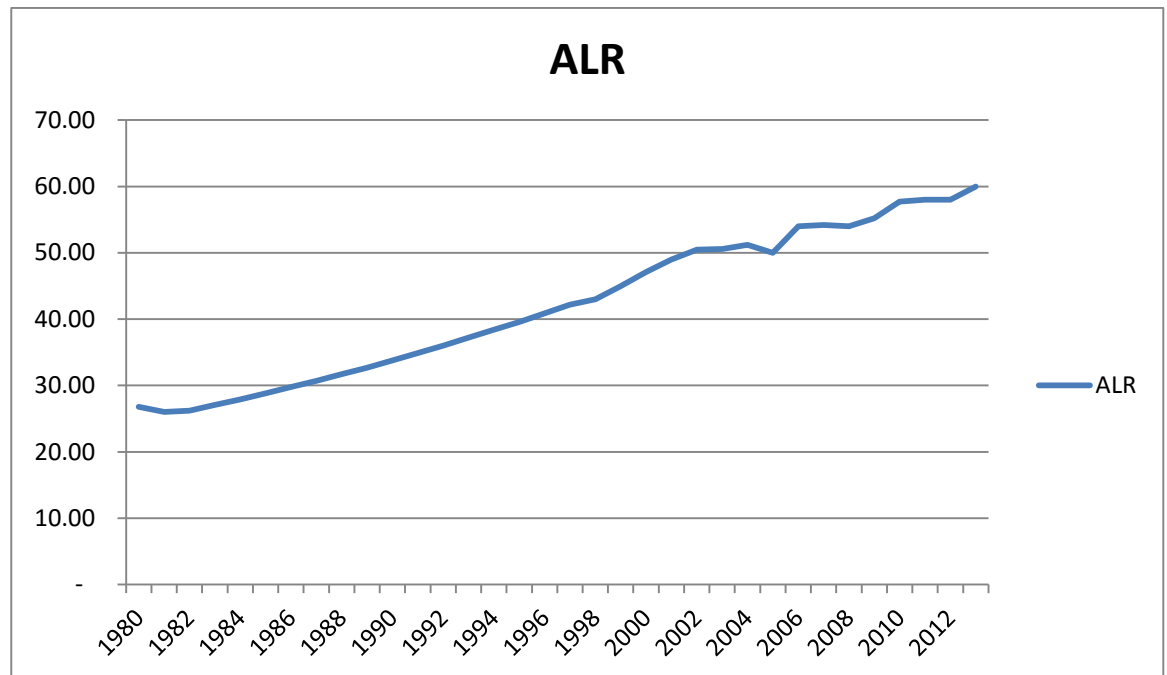
Note: Author's own contribution

Graph shows increasing trend in literacy rate for last 32 years. It increased almost 50% during last 30 years. Private sector is the major contributor. Despite of low percentage share of education sector government expenditures that increased in literacy rate is majorly contributed by private sector and different national and international NGO's.As the above graph stated that Pakistan has increasing trend in Literacy but Government of Pakistan do not perform its duties properly as an amount shows allocating in budget to this important sector.

Figure 1(b)

**Education as a percentage of GDP**

Edexp
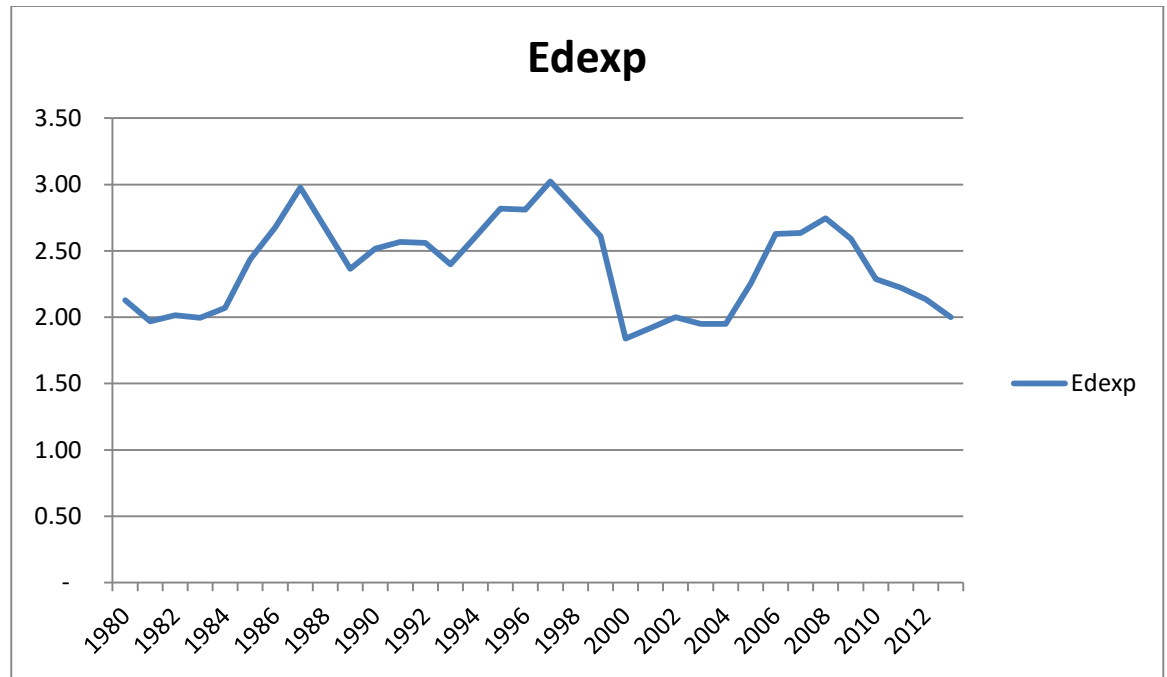
Note: Author's own contribution

Unfortunately the share of education sector in these 32 years lies between 2 to 3 percent of GDP. This is lowest in South Asia.In Pakistan Military day by day expenditure by the government go outside 50 percent of combine government expenditure, decrease the comparative extent of public segment expansion payments, and giving only inadequate resources to state-funded education, health and infrastructure. Outside equilibrium reduces drastically and foreign assets fell to hazardously low levels (World Bank, 2002). This graph shows institutional quality of Pakistan in different years and shows an increasing trend in Pakistan's institutional quality. As mentioned above institutional quality is measured by three variables corruption, law and order and bureaucracy quality. Graph shows stability of institutions after 2002.

Figure 1(c)

Institutional Quality in Pakistan
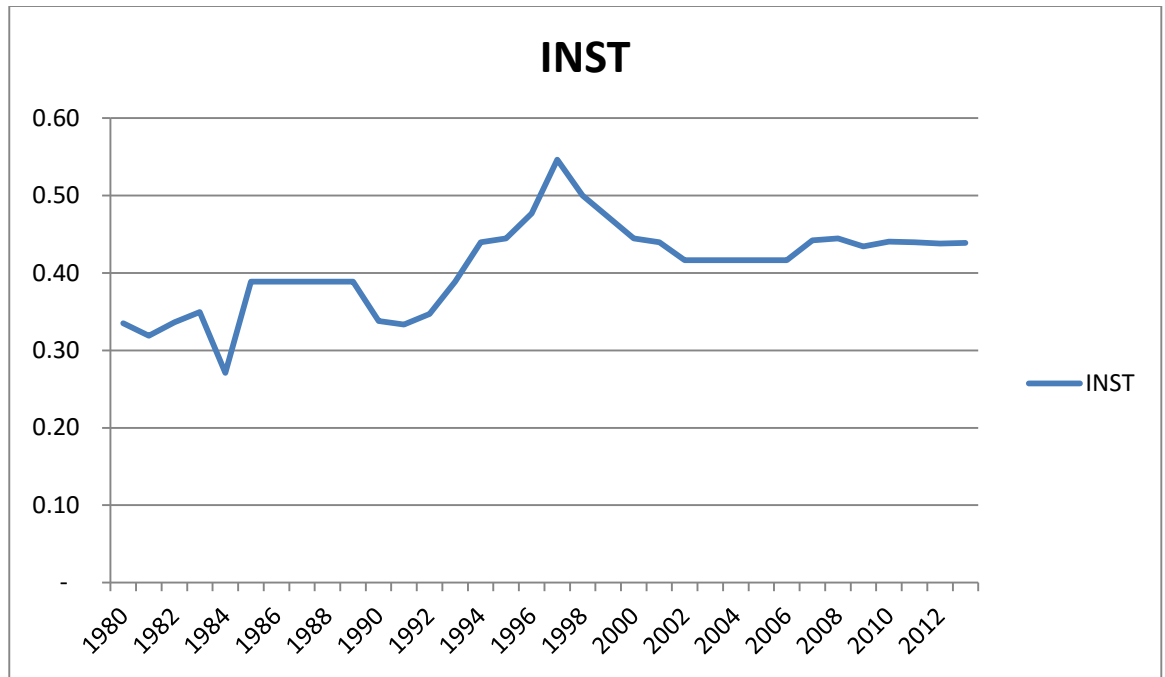
INST

Data shows that there is no improvement in the quality of institutions after the year 1996 due to political conditions influence of government on bureaucracy, continuous economic policies etc.

Any country cannot attain sustainable economic growth without investing in health and education when we want to improve the living standards of the people, their productivities in institutional sector investment in human issue by Government of Pakistan. The data of GDP was available in nominal form that was then deflated with GDP capital is inevitable. Good institutions develop economic growth of a country.

Data source:

Before model specification it seems to be essential to state the source of this time series data from 1980-2014. The time series data was obtained from a statistical review published by the state bank of Pakistan, WDI (World development Indicator) and Pakistan Economic survey deflator to convert all the variables in real values.

Research Method

Simultaneous equation models are best in case of two-way coordination among variables. However, in presence of simultaneity or endogenity, basic technique of Ordinary Least Square cannot be used as it gives inconsistent parameters. Instead of this economists utilized different alternative techniques like Indirect Least Square (ILS),Two stage Least Square (2SLS), and Three Stage Least Square (3SLS). Because among all these techniques 3SLS provides best estimates by taking the relation among all equations within a system so this research will use this technique.

In this system of equations, there are a total of 14 variables. There are four endogenous variable, namely, Real Gross Domestic Product (RGDP), Human capital measured by (ALR) ,Institution (INST) investment (GFC) current US $ and 10 predetermined variables, viz., lag of dependent variable (RGDP(-1), total population (POP), lag of Human capital (ALR(-1), Health expenditure as a percentage of GDP (HEXPGDP), Education expenditure as percentage of GDP (EDEXP), lag of Institution(INST(-1), Gini Co-efficient (GINI), Trade openness (TOP), lag of Investment (INV(-1), Interest rate (INT).

Econometric model:

The equations of the current model for the research on Pakistan economy are as following:

REAL GDP = F1,(HUMAN CAPITAL, INVESTMENT, INSTITUTIONS, POPULATION).

HUMAN CAPITAL = F2 (REAL GDP, QUALITY OF HEALTH, QUALITY OFEDUCATION, INSTITUTIONS).

INSTITUTIONS = F3 (HUMAN CAPITAL, REAL GDP, DISTRIBUTION OF INCOME, INVESTMENT, TRADE OPPENNESS, REAL GDP)

INVESTMENT = F4 (INTEREST RATE, INSTITUTIONS REAL GDP, TRADE OPPENNESS)

This Model has four equations comprising of real GDP (Economic Growth) the Human Capital, institution and physical capital. The proposed technique is simultaneous equation model is to find out the inter relationship among the variables.

In the first equation real GDP is associated to the investment made during the period, the human capital and institutional infrastructure by the addition of investment we will check the association among the piece of income proposed to gross fixed capital formation and economic growth. The higher the fraction of income given to investment the greater the physical capital per worker and the output and greater will be the real GDP. So it is predictable that the co efficient of this variable will be positively and significantly related. The justification of including the investment in the model can be proved empirically, the renowned AK model details that the growth of the per capita income is a purpose of the contribution of investment in the GDP1. Another proves of the enclosure of investment in development models can be seen in Delong and Summers (1991) or in Temple (1998).

Second variable of the first equation is human capital. Lucas (1988) considers it the pillar of economy's growth. Distraction in the growth rate of countries is basically the difference of their human capital accumulation. Gradstein et al., (2005) also considers it an important variable. Aghionet. al state that due to the difference in human capital there is a difference in the countries capacity to innovate or adjust the new technologies. It is probable that the co-efficient of variable is also positive and considerable.

Third variable of the equation is institutions. North (1990) institution determined the basic functioning of the economy. In this model it is proposed whether institution effect the growth of the country condition the benefit that investment in physical capital and human capital gives it is thought that the good institutional system allow the optimization of the benefit of investment facilitate the latestproposal by giving judicial protection and constancy, evading the unlawful stealing, minimizing the cost of defending against irregular practices. Spreading the law that is useful for the smooth running of the economy. More advance institutions

will mean greater investment in physical capital that will lead to increase in human capital and more growth so; coefficient of this variable is also expected positive and significant. Second equation explains human capital depends on real GDP, health quality, education quality and good institutions. Our basic aim is to explore weather human capital increases as GDP increases because all basics that formulate human capital rely on physical assets for example countries with more GDP can be dedicated more resources to education and health. So it must be positive and significant. With the introduction of education quality which is measured by pupil-teacher ratio have as an explanatory variable confirm as human capital is superior as the education system is well planned Aghion and Howitt (2005). With the inclusion of health quality that is considered as health expenditure as percentage of GDP verifies that better health increases the productivity. Bloom and Caning (2005) believed that the health is a form of human capital results increased economic growth. Health positively affects economic growth through human capital formation (Nabila et. Al, 2012).

Finally institutional quality verifies that an organized institutional infrastructure increased the human capital by training equally the benefit produced by investment in this aspect and its appropriation The third equation explain institutional infrastructure by human capital, distribution of income (GINI Coefficient) investment made in the country and trade openness as a control variable. It is assumed that the coefficient of all these variables be positive and significant. The best element that shape the institution of a country is human capital because the highly educated and healthy people can best participate in public life for example respect for the law, the dishonesty, the fight adjacent to the illegitimate activities, the income allocation and the excellence of the ceremonial system and secondly the more even income distribution lead towards economic growth because uneven income distribution creates social evil in the society like corruption destabilization of the market and imposition of decision by some sectors etc. various article support this like Perotti (1996) explain the relationship between income division and institutional solidity, concluded the civilization with different classes always

remain unstable politically and communally which is responsible for low investment and low rate of growth. Higher level of investment also increase the level of institutions trade openness also strengthen the quality of institutions other economies affect our economy through trade. The last equation explicates investment in physical capital on the base of rate of interest human capital, institutions and trade openness as explanatory variable. The relationship of investment and interest rate is oldest Keynes in his book "Journal Theory of

Employment, interest and money" discussed it with negative coefficient. Alesina and Perotti (1996) linked between quality of institutional infrastructure and investment. If the economy is socially or politically stable then there will be large capital accumulation. Quality of institutions indirectly affect the economic growth through different variables one of them is investment human capital also increase the level of investmentthat is an Independent variable.

Model Specification:

$$\ln RGDP_{1T} = \alpha_0 + \alpha_1 \ln RGDP(-1) + \alpha_2 \ln ALR_T + \alpha_3 \ln INST_T + \alpha_4 \ln GFCCU_T + \alpha_5 \ln POP_T + \varepsilon_{1T}$$
……………(1)

$$\ln ALR_{2T} = \beta_0 + \beta_1 \ln ALR(-1) + \beta_2 \ln HEXPGDP_T + \beta_3 \ln EDEXP_T + \beta_4 \ln INST_T + \beta_5 \ln RGDP_T + \varepsilon$$
…(2)

$$\ln INST_{3T} = \delta_0 + \delta_1 \ln INST(-1) + \delta_2 \ln GINI_T + \delta_3 \ln ALR_T + \delta_4 \ln GFCCU_T + \delta_5 \ln RGDP_T + \delta_6 \ln TO$$
...........(3)

$$\ln GFCCU_{4T} = \gamma_0 + \gamma_1 \ln GFCCU(-1)_T + \gamma_2 nRGDP_T + \gamma_3 INT_T + \gamma_4 \ln TOP_T + \gamma_5 \ln INST_T + \varepsilon_{4T}$$
…........(4)

Where,

ln= Natural logarithm

(-1)= lag value

ln RGDP = Real Gross domestic product in Current US $.

ln ALR = Adult Literacy Rate 15 years and above.

ln INST= Average of three ICRG variables (Corruption, Law and order and Bureaucracy quality).

ln GFCCU = Gross fixed Capital Formation in Current US $.

Ln HEXPGDP = health expenditure as percentage of GDP.

Ln EDEXP = Education Expenditure as percentage of GDP.

Ln GINI = Gini Coefficient

Ln INT =   interest rate.

Ln TOP = Trade openness Imports + Exports/GDP

Ln POP = Population

All the F test of the model is greater than 5 so by using the rule of thumb it is concluded that the model is overall significant and we reject the null hypothesis of no simultaneity in favour of alternative hypothesis. Thus there is presence of a simultaneity problem. Note that all the equations are identified. They all satisfy the ORDER condition (the necessary condition) of identification. Indeed, each of the 4 equations is over-identified. They also satisfy the RANK condition (the necessary and sufficient condition) of identification. A System of 3SLS was used to observe the affiliation among human capital and economic growth in Pakistan. Since all the equations are over-identified, they can be suitably estimated by the following estimators: Three-stage least squares (3SLS). The variables used and the results obtained are existing in table: The P values of the variables and there co efficient is reported. All results of t-ratios, p values, R^2 and adjusted R^2 are available in given table.

Presentation of result:

 Result Discussion of Equation 1

In real GDP equation three out of five variables are statistical significant that is lagged of dependant variable, human capital, investment and institutions. All variables have positive impact on growth except human capital. The values of the co-coefficient are (0.403), (-1.44), (0.40), (0.20). First independent variable of the

equation is lagged of dependent variable. It shows that one percent change in lagged of dependent variable brings 40 percent change in economic growth of a country. The result indicates that last year real GDP significantly affect current years real GDP as a coefficient has T ratios of 3.92 which is significant at 5% level. Second dependent variable is human capital the results tell that its effect on economic growth is significant but the coefficient has negative sign. It shows that a percent increase in human capital decreases economic growth of a country by 1.4 percent. The adult literacy rate is used as proxy of human capital. Its coefficient is statistically significant having negative sign. It shows that there is considerable affiliation stuck between Human capital and growth. However the extent to which human capital effects Economic growth is very little. Many other studies related to growth empirically found that it is difficult to show a positive association of human capital on economic growth. There are many unresolved methodological issues to find a relation connecting human capital and economic growth, inclusion of skills into the capacity of human capital and identification of channels through which effects of economic growth (Sianesi and Reenan, 2003). Development of the society depends on its human capital. In Pakistan the situation is very critical in spite of noteworthy growth rate the indicator of human capital is not suitable. Literacy rate, enrolment at school level health facilities etc. are all economic indicators shows almost very low condition of human development in Pakistan. This is due to the reason that in past decade Government of Pakistan gives attention to investment in physical capital by ignoring the human capital sectors so the low investment in human capital leads towards unemployment, poverty and illiteracy means low human capital development. The Research produced results similar to the findings of following studies as Samimi, (2012) explains that Human capital has an insignificant effect on the growth of Iran. Adeolu (2007) compare Nigeria with the sub Saharan African countries indicating that mean level of human capital for Nigeria is comparatively low.

Variable	Economic Growth		Human Capital		Institutions		Investments	
	Coefficient	P>Z	Coefficient	P>Z	Coefficient	P>Z	Coefficient	P>Z
LRGDP(-1)	0.4032	0.0002						
LALR(-1)			0.8852	0.0000				
LINST(-1)					0.2155	0.1681		
LGFCCU(-1)							0.8686	.0001
LRGDP			-0.1244	0.0028	0.5807	0.0409	-0.4361	0.0036
LALR	-1.4441	0.0000			1.9355	0.0003		
LINST	0.2016	0.0520	-0.0237	0.5692			-0.4299	0.0067
LGFCCU	0.4012	0.0000			-0.4947	0.0001		
LEDEXP			0.0719	0.0213				
LHEXPGDP			-0.0003	0.9861				
GINI					-0.0003	0.948		

						5		
INT							-0.0087	0.1669
LTOP					0.0795	0.7540	0.7080	0.0848
LPOP	0.1949	-.5476						
Summary Measures								
R2	0.96		0.99		0.65		0.97	
Adjusted R2	0.95		0.99		0.57		0.97	
SE of regression	0.05		0.01		0.09		0.09	
Durban Watson	1.93		2.18		1.89		1.93	

Number   of   observations   =   33

Bhinda et al, (1999) also prove the shortage of skilled worker so role of human capital is also very low in Africa.The negative coefficient of human capital may also be justified that the Adult literacy rate is not an appropriate proxy to measure human capital for Pakistan. Human capital is condemned at different time period from different point of view. One of the criticisms is that it is difficult to measure it through quality of education. Those who take investment resolution cannot calculate its probable rates of return. Another point of criticism is the problem of skilled education. Some observed growth studies have established

it difficult to demonstrate a best positive influence of human capital on economic growth projected by hypothetical models. Third dependent variable is institutions the result tells that its effect on economic growth is significant and positive. It shows that one percent increase in institutional quality brings 0.20 percent change in economic growth. Khan, (2005) report the similar results that by improving the quality of institutions Pakistan can move on to the way of economic development. Quality of countries institutions has a great importance to make it sure that increased human capital direct to raise economic growth. Fourth independent variable is investment. The result of this variable is also positive and significant. The results report that one percent increase in investment brings 0.40 percent boost in real GDP of a country. The result is similar to that the result of Sajid et al, (2012) where gross fixed capital formation describe positive and significant influence on LGDP. The result is also similar to the study of Khan, (2005) investment has largest effect on economic growth. Morfrad, (2012) finds positive association between investment and growth rate. Result showed direct impact of investment on real GDP.

Investment confirms positive and significant impacts on Income, i.e., greater investment direct to high rate of GDP. Sandarajan and Thakur (1980) demonstrate that higher rate of extensive capital guide togreater economic growth. These results indicate that Investment has positive and momentous effect on economic growth. Ghali and Alshamsi (1997) have reported that Investment and Growth vary in same direction whenever investment increases growth also increases. This is due to the fact that increased investment pushes up aggregate demand that increases national income, produce employment and employment brings improvement in the economy. Last variable is population that is used as a control variable in the model its effects on real GDP is insignificant and positive. Our results are similar to the Khilji (2011) population expansion and labour force contribution has positive impact on economic growth. Khan, (2005) reports that the relationship connecting growth and education show low relation other than among growth and investment or institutional quality. Summary statistics shows that the equation is well specified. The value of R^2 is (0.96) and the value of adjusted R^2

is (0.95) which is very high that satisfy the condition of goodness of fit.

Result Discussion of Equation 2

First variable of the equation is lag of dependent variable. The result indicate that last year human capital significantly affect current year human capital as coefficient has T ratios of 22.29 which is significant at 5% level of significance, 1% increase in last year human capital brings 88% increase in current years human capital. Second variable of the equation is Real GDP. It shows that one percent change in real GDP decreases human capital of a country by 0.12 percent. This variable is significant having inverse relation with human capital. It depicts that due to low increase in real GDP annually Government of Pakistan is not spending enough amount from Budget on Education and health sectors. Third variable is Institutions that is negatively related with the human capital and its relation is also insignificant. Fourth variable of the equation is education expenditure as percentage of GDP which has positive and significant effect on human capital according to the theory one percent change in education expenditure brings seven percent change in human capital.

Khilji(2011) used this variable and report positive and significant effect of education expenditure. Zaheeret, al (2011) also proved positive and significant relationship between educations spending as percentage of GDP with real GDP. Statistics confirm that better education progress the competence and efficiency of Labor force and enhances the economic growth. Last variable of the equation is health expenses as proportion ot GDP. Health expenditure has no effect on economic growth. Our results are similar to the results of the Khilji (2011). This is due to the fact that like physical capital, health capital also depreciates over time but individuals can invest to improve their health status. Its negative impact on Real GDP may be revealed as a kind of resource efficiency related to the progress made in the health sector. The association between education and health has been revealed by numerous authors (Cutler and Lleras-Muney, 2006; Albert and Davia, 2007; Silles, 2009) usually exploring three channels: productive efficiency, allocation efficiency and time preference .Another significant and negative association to the expenses on health is discussed by (Abdel-Ghany& Foster, 1982). Khilji (2011) signify

impact of health and educational spending as proportion to GDP, and check its influence on economic growth. Study explore Education outflow, as percentage of GDP, positively related to economic growth while, health expenditures, as fraction of GDP have negatively related to economic growth of Pakistan. It is clear fact that Pakistan's health budget is minimum and insufficient to manage for key diseases and there for condensed labor efficiency. This may be the cause of low contribution of health expenditures as a percentage of GDP to economic growth of Pakistan. The summary statistics shows that the equation is also well specified. The value of R^2 is (0.99) and the value of adjusted R^2 is (0.99) which is very high that satisfy the condition of goodness of fit.

Result Discussion of Equation 3

In a Third Equation dependence of Institution is checked on its Lagged values, Gini co efficient, Human Capital, Investment, Real GDP and Trade openness. Lag of dependent variable has positive and insignificant effect on Institution. LRGDP has important and positive influence on institutions result report that one percentage increase in

economic growth brings 58 percent change in institutional quality. Gini has insignificant and negative effect on institutions. LALR has positive and significant effect on institutions consequences shows that one percent change in human capital brings 1.94 percent change in the level of quality of institutions. An institutional vibrant effectiveness reveal that highly educated population needs more facilities and changes in institutions and allow growing them. The positive relationship between highly improved institutions sequentially formed better development results. Formal schooling developed Human capital , opposite to the widespread proof that ancestors, neighborhood peers, and health also put in to the progress of human capital. (Acemoğlu, Simon Johnson and James Robinson)Educational feature are measured as a determinant of institutional quality. It is a variable associated to institutions vibrant competence. This variable is rarely measured in observed examination. As exclusion, the effort of Alesina and Perotti (1996), which authenticate the positive effect of education on institutional quality, must take into consideration. In addition, the text on

corruption, the education outcome has been eminent in mechanism as the work of Glaser and Sacks (2006) or Evans and Rauch (2000).Education might be an endogenous variable related to institutional quality. It is considered to be dependent on real GDP and institutional quality etc. It is estimated the probable figure and is significant also. In our study institutional quality is insignificant and has a negative indication obstinately. Lastly, education advance institutional quality. It establishes the advance aptitude and the vibrant competence of institutions. Investment has significant but negative impact on institutions. Results focused concentration towards institutional reforms as the solution to economic advancement so that additional boost in physical and human capital will produce encouraging shared return. Trade openness has insignificant but positive effect on institutions. For the growth of Institutions Trade openness do not play any significant role. Islam and Montenegro (2002) said that, when scheming for progress stage, openness influence some insignificant quality variables but not the whole. Rigobon and Rodrik (2004) get weak but positive relationship, linking trade openness to the rule of law, but this relationship turn into negative in case of democratic system Rodrik et al. (2002) corroborate openness positively related to institutional quality, but their approximation do not manage developmental level. Openness has an inverse coefficient but a significant association with economic growth, although some preceding statistics similar to Asiedu (2001) account positive link of trade with economic growth. Result here reports a very minimum considerable affiliation mid trade and Real GDP of a country. The reason for this can be explained if we take into account the Import factor Pakistan's exports are normally comprised of low value added goods and Imports have always been in deficit each year from 1973 to 2013. Low foreign exchange earned through economic growth has to be used for Import payments. So the benefit that are incurred as foreign exchange earnings do not fully affect growth as more has to be spent on Imports payment. The summary statistics shows that the equation is well specified. The value of R^2 is (0.65) and the value of adjusted R^2 is (0.57) which seems good and satisfy the condition of goodness of fit.

Result Discussion of Equation 4

Last equation checked the relationship between Investment and lag of Investment Real GDP, INT rate, Trade openness and Institutions. Lag of dependent variable has significant and positive effect on Investment.1% increase in last year's investment brings 86% increase in current year's investment. The coefficient has T ratios 16.02 which are significant at 5%. Study reports that real GDP has significant and negative effect on investment in Pakistan. This is because insufficient investment facilities in Pakistan and non-availability of financial institutions in rural areas. The population of Pakistan has larger income but lesser savings institutions in Pakistan. Government spend money on transaction they are non-productive for the economy. Significance shows its importance but negative sign tells that we are not getting benefits from it. Ramey and Ramey, (1995) find a statistical significant and a strong relationship between strength in real GDP and average rate of economic growth. Interest rate has insignificant and negative effect on investment. Our results are similar to the results of Khan and Khatak, (2008). In an analysis of short term effect of budget deficit on macro-economic variables evidence from Pakistan (1960-2005).Interest rate as a policy instrument is not playing an efficient role in enhancing investment in Pakistan. This Research confirms that there is inverse relationship between Investment and Interest rate. Our findings are consistent with available literature on this issue. But in Pakistan many other factors are responsible to bring changes in Investment such as political instability, exchange rate depreciation, low income, low saving, lack of independent saving institution so only some investors generally invested and a small number of employment chances are there, to raise the investment share in GDP. Negative sign of interest rate shows that as interest rate amplify, this causes a decrease in investment and it negatively related to economic growth. Trade openness has significant and positive effect on Investment when growth rate increases income and savings of the people also increases, trade openness is a source for further investment. The results also preserves the study of Kormendi & Meguire (1985), Barro (1991), and Levine&Renalt (1992) according to them trade openness report significant negative, effect on the

economic growth. This result disagrees with our conjectural positive related hypothesis. By International openness Investment can be encouraged. It is linked with the vibrant competence of financial institutions. It generates further vibrant, complicated and challenging surroundings, which increase a more demand for highly productive things. Openness can help learning procedure and good performances simulation from other nation's knowledge However, there is no guarantee that gains from trade will be equally distributed between developing and developed countries. While the standard trade theories neglect the balance of payment implications of trade for developing countries, developing countries need to fully understand the effect of their pattern and terms of trade with the advanced economies (Thirlwall, 2000). Openness is also exerting a positive impact on TFP growth in Openness paves the way for different countries to learn the advanced technology from other countries which can then be adapted to be suitable for the local conditions. Openness thus encourages the spread of knowledge and facilitates the adoption of latest technological techniques, thereby accelerating the TFP growth. Institutional quality is significant but negatively related to investment better institutions encourages investment but in Pakistan institutional quality do not play its role properly. Institutions are not properly organized. The summary statistics shows that the equation is well specified. The value of R^2 is (0.97) and the value of adjusted R^2 is (0.97) which is very high that satisfy the condition of goodness of fit.

Conclusion

The current literature analyze the relationship among human capital, investment and institutions that is a difficult phenomenon by using a multi educational approach rather than single equation model for Pakistan by using time series data during the time of 1980-2013.The results are reliable with assumption over and above the precedent empirical research way on issue with reference to Pakistan. The proposed model draws four main conclusions having four equations. The proposed model draws four main conclusions having four equations. Firstly, that the changes in real GDP are maintaining a negative and statistical significant relationship with the growth of human capital. It developed statistically

significant and positive relationship between the institutional quality and investment. Secondly, human capital not only depends on real GDP but on the education system also. Public spending on education has a statistically major effect on human capital. Thirdly, that economic growth and human capital positively influence the quality of institutions. Lastly, higher investment increases the privileged trade liberalization and lower investment risk. The study proves evidently that human capital in Pakistan remains low during the selected time period the reason behind this was the low public investment in social sectors like education and health. The empirical findings support that increased investment and better institutions are a means to achieve advanced economic growth. The study has proved bi-directional relationship between investment and institutions. Higher level of education increase factors productivity, skills and developed attitudes. Pakistan may achieve higher growth rates by spending more on education to create a center of attention added to domestic and distant investment through trade liberalization and by improving the on the whole excellence of the countries institutional structure and enter into the circle of sustained economic growth.

Policy Implications:

The study suggests that attention must be paid towards institutional reforms as these reforms are keys to economic progress. It also suggests that spending should be focused on well-organized Institutions and investment in physical as well as in human capital in the appearance of education. Organization, capability as well as culture building is essential for institutionalization of man power excellence, which must be made by Government Education in elementary and secondary schools should be in a system that the students be taught all subjects hypothetically and practically Education Department should present a method based on which the students as human capitals, would be skillful in basic concepts of computer and they must be familiar with foreign languages, especially English, before university admission, Government should augment employment chances for the inhabitants so increase in population may be creative for economic growth and development of a country rather than obstruction in the way of growth (Asghar, Awan and

Rehman, 2012).Technology must be better so that the competence and skill may progress for the development of human capital for this investment is predictable on physical capital. Government of Pakistan should not transact the revenue but the amount must be invested on human capital and to increase institutional quality. Enrolment should increase at all levels of education and the education will bring changes in knowledge and skills it will improve quality of life and encourage democracy. If we draw a conclusion on these policy proposals it would be cleared that the policies must design an appropriate institutional framework that guarantees the human rights, political rights, political solidity and respect for the regulation and it will increase government effectiveness on the other side the enlargement of physical and human capital have to encourage these two are interlinked to the improvement of the economic growth and development of the country

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