Role of Public Social Services Expenditures in Economic Wellbeing and Economic Growth: Empirical Evidence from Developing Countries

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This Thesis is submitted to International Islamic University, Islamabad (IIUI) in partial fulfillment for the degree of Masters of Science in Economics

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Economic growth.

Public Social services expenditures.

Government expenditure on education.

" " on health.

Dedication

I would like to devote my work to my Professors and my Baba for their support and love

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ALHUMDULILLAH, first and foremost I would like to thank ALLAH, for giving me the opportunity to complete my thesis in February, 2017 entitle as "Role of Public Social Services Expenditures in Economic Wellbeing and Economic Growth: Empirical Evidence from Developing Countries". My highest gratitude to my Supervisor Dr. Faiz ur Rahimfor his guidance, supervision and caring attitude throughout my thesis. I would also like to thank all my lecturer and Assistant Professors of Economics Department at International Islamic University, Islamabad for supporting me in accomplishing this thesis. Other than that, I would like to thank all my friends for their cooperation and assistances. Last but not least, I would like to thank my family for their endless love and faith on me to complete this thesis.

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Abstract

The study made an attempt to explore the impact of public social services expenditures on economic wellbeing and economic growth. The Panel data on 21 developing countries categorized under head of Asia and Africa has been taken for period 1980-2014.For public social services expenditures, government expenditure on education and health has been taken. Household Final Consumption Expenditure Per Capita has been taken for economic wellbeing while Growth of Real GDP has been taken for economic growth. Panel estimation techniques of Arellano Bond Dynamic Panel Data and Random Effect Model have been applied. For case of economic wellbeing results of study revealed that government expenditure on education positively and significantly contribute towards economic wellbeing. As far as government expenditure on health is concerned they showed negative but insignificant association with economic wellbeing. Further the study reflected that government education expenditure have negative but insignificant association with economic growth. Government health expenditure showed positive and significant linkage with the growth of economy. So according to the results government should take into account all expenditures which are beneficial for education and health sector so they contribute towards progress and prosperity of country.

Keywords: Economic Wellbeing, Economic Growth, Public Social Services Expenditures, Household final Consumption Expenditure per capita, Government Expenditure on Education, Government Expenditure on Health.

Chapter 1

1. Introduction

The main and vibrant element of fiscal policy is public expenditures on different sectors of economy. In general it have been pointed out that effective public spending enables the country to attain higher rates of growth, employment, per capita income and distribute income and wealth on equitable grounds. These spending basically, are finances or expenses made by the government to both social and economic sectors of economy in order to attain development in a society and ensure wellbeing of their locals (Subedi, 2013 and Asghar et al., 2011).

For better and improved economic activities and wellbeing of the individuals, public spending on different sectors has huge importance. In regard to these spending made by government on social sector also has an ultimate importance and help in improving the quality of social services extended to the inhabitants. Along with other social services, education and health has considerable importance towards the economic development. These high value fields enable the person to raise their standard of living by enhancing their abilities and skills and thus increases their productivity and the level of income (Dao, 2008).

In expansion of social services and economic development, a significant role of human capital usually comprises of education and health is long standing theme. In recent years it has been observed that human capital, which generally includes individual attributes and their resources and development of their skills,contributes in a productive way towards human wellbeing andcountry's economic activities (OECD report, 2001)

Further, different national and international agencies like NGOs (Non-Government Organization) and other organizations like UNDP have given much importance to human capital development that is mainly education and health in order to enhance human abilities. They

consider human development as one of the major and helpful element for both economic wellbeing and economic growth (Kayode, 2012).

According to Harbison (1973) human capital development or formation can be regarded as the consistent and considerable process of getting the mandatory knowledge, experience and skills that is necessary to produce the sustainable development in the country. The dynamic and significant contribution of human capital development towards country's sustainable economic growth and development has been enormously discussed in the different studies. Development of human capital leading to sustainable growth of economy would just remain a mere wish in the absence of investment or public spending on it. The socio-economic advancement of any country requires the development of human capital. Most of developed and industrialized countries, according to Adedeji and Bamidele, (2003), World Bank (1995) and Barro (1991), consider formation of human capital as the pivotal factor for remarkable performance of economy's growth and development.

Moreover, Dauda (2010) suggested that across nations the difference in socio-economic development level is more accredited to both the quality and quantity of human capital or resources. Human resources are considered as variable, critical for growth and development by Oladeji and Adebayo (1996). As these resources act as means and ends which are necessary to be served in order to achieve prosperity in the country.

Further, Harbinson (1973) considered human resources as the basis for nation's wealth while summarizing the importance of human capital in economy. The other factor of production such as physical capital and natural resources are not as much active agent towards growth as human and their attributes and skills regarding the accumulation and exploitation of capital and resources. They act as a catalyst towards the production processes. So the countrieswhicharenot

able to give such skills, experience and knowledge to their inhabitants and does not pay any attention towards effective utilization of these human resources, would not be able to contribute towards economy'sprogress (Eigbiremolen and Anaduaka, 2014)

The literature, both theoretical and empirical, on human capital notifies benefits and importance of education and health both at individual level and society level. At individual level, quality education and better health enhances the individual's productivity leading to the improvement in their income levels whereas at societal level educated workers are considered as the building blocks of the knowledge based economy thus showing their significant contribution towards economic wellbeing and economic growth (Grounder and Xing, 2012).

Furthermore, the developing economies face number of challenges which creates numerous hurdles in their progress and prosperity. Apart from low income growth rates, they faces problematic issues of productive inefficiency, resource deficiency and inefficiency, unemployment, inflation, low infrastructure, foreign debt, least focus on human capital followed by higher rates of both fertility and mortality, illiteracy and provision of low quality education. Each of these problems acts as catalyst; that boosts up the other economic and social problem and worseup the development situation in the country (Pearson Education Canada Inc., 2005).

The ignorant behavior of governments of developing economies towards their social sector services will eventually become responsible in curtailing economic growth of country and will limit the economic and social opportunities to its locals. So government of each developing country must pay attention towards their social sector and progressively allocate their budgetary expenditure to them. These budgetary expenditures in turn progressively contribute to human development by increasing their abilities, skills and capacity to better utilize other physical

resources which will add positive value to the growth rates and will improve economic wellbeing of the individuals.

In regard to the knowledge based economy endogenous growth models got popularity. These models highlighted the significant influence of human capital (that explicitly comprises education and health) towards the economic growth and human wellbeing (Khan and Rehman, 2012).

Additionally, the contributive role of human capital put emphasis on investment and returns to investment on human capital. The concept of returns to investment on human capital that incorporated more specifically education in form of improved and enhanced earnings, with the focus on both public and private investment had been visualized by Mincer (1958, 1975), Schultz (1961) and Becker (1962) (Awan et al., 2011; Laroche et al., 1999). Further the endogenous growth models were split into two generations. The first generation theorist put emphasis on accumulation of human capital and showed linkage and closeness with neo-classical but differs from them by considering growth as an internal or endogenous outcome rather than the exogenous outcome. The influential work of Romer (1986) has given start to first generation theorists,which was then followed by Lucus (1988), Becker et al. (1990), Stokey (1991), Barro (1991), Mankiw et al. (1992), Barro and Sala-i-Martin (1995). They highlighted significant contribution of human capital accumulation towards the growth (Turnovsky, 2004). The second generation theorist ideas were closer to Schumpeter Creative Destruction idea and focus on endogenous development of thesector of research and development (R&D). This generation included work byRomer (1990), Aghion and Howitt (1992), Grossman and Helpman (1991), Eicher (1996), Parente and Prescott (1994), Levine (1993), and Goodfriend and McDermott

(1995) in which sustainable endogenous growth was generated by innovations and research spillovers (Capolupo, 2009).

Moreover, the contributive role of public social services expenditures towards economic wellbeing demanded the identification of appropriate element that comprehensively explains the true sole of wellbeing. Considering just simple economic growth is poor estimate for wellbeing as it just incorporates the present value of marketed goods and services but doesn't include the value of the non-marketed goods and services. The concept of economic wellbeing, is concerned with the wellbeing of inhabitants of the society so for the appropriate measures of wellbeing one need to put those variables under consideration that are directly linked to individual and social group and give them direct utility (OECD report, 2001). Further, two suitable measures were suggested by the system of national accounts that highlights the direct effect on individual conditions and their living standards; one measure was related to the income level including householdsreal disposable income and net transfers to households. The second measure was concerned with consumption level of households which included households' real consumption expenditures and consumer confidence. According to National Statistics of UK (United Kingdom) office, the household expenditures or consumption had depicted much stronger relation and influence with the wellbeing than income level of households (OECD, 2015). So the present study uses Household Final Consumption Expenditure Per Capita for economicwellbeing.

The present research analyzes the role of public social services expenditures in economic wellbeing and economic growth for developing countries which include the countries of Asia and Africa. There are two models in the present study, one for the economic wellbeing and other for the economic growth. For estimation of economic wellbeing model, present study uses proxy

for economic wellbeing as Household Final Consumption Expenditure Per Capita. While proxy for public social services expenditures is Government Education Expenditures and Government Health Expenditures. The other control variables in the study include Real GDP per capita, CPI (Consumer Price Index), Unemployment Rate and Trade Openness.

Further for estimation of economic growth model, Growth of Real Gross Domestic Product (GDP) is used as dependent variable while independent variables in this model include five standard variables such as Gross Fixed Capital Formation used as proxy for physical capital whereas for human capital, government expenditure on education and health is used. Further remaining variables include population growth and trade openness.

The two models are presented in the study that take idea from the work of Romer (1986, 1990), Lucas (1988) and Mankiw et al. (1992) and Keynesian Approach that highlights the role of public spending towards accelerating the economic growth which is extended to economic wellbeing of society. The annual data for present study is taken from World Development Indicators (WDI) for the time period 1980-2014. Furthermore, the study uses Arellano Bond Dynamic Panel Data estimation technique and Random Effect Model in order to get meaningful and detail picture of analysis under consideration.

1.2. Literature Gap

Theoretical and empirical studies examined so far have put meaningful and informative light over the concept of public social services expenditures (education and health) and their contribution towards the development of society and improving the economic growth. As per my knowledge the relationship between public social services expenditures (education and health) and economic growth is extensively addressed but there are limited numbers of studies which have examined the role of public social services expenditures in economic wellbeing of the

individuals. The present study will attempt to fill this gap by empirically testing the role public social services expenditures towards economic wellbeing. Moreover the impact of public social services expenditures on economic wellbeing and economic growth will be investigated together in the present study. Furthermore, the relationship of public social services expenditures with economic wellbeing and economic growth were not instigated for the developing countries categorized as Asian and African countries, so the present research will try to fill this gap by incorporating the developing countries as categorize above. The control variables that will be used in present study are also different from variables being previously used.

1.3. Objective of the Study

Present study put light on the contributive role of social services expenditures in economic wellbeing and economic growth for the selected developing countries of Asia and Africa. The main objectives in this regard are directed as follows;

1) To empirically analyze the effect of public social services expenditures (Education and Health) on economic wellbeing.
2) To identify the effect of public social services expenditures (Education and Health) on economic growth.
3) To identify either public social services expenditures contribute more towards economic growth or economic wellbeing.

1.4. Organization of Study

This study is further organized in the following manner, having the review of previous studies in chapter 2, chapter 3 focuses on the theoretical framework and the methodology that is used in research, chapter 4 is about the finding of research and empirical results and finally conclusion and recommendations is part of 5th chapter.

Chapter 2

Literature Review

2.1. Introduction

The ignorant behavior of respective governments of different countries regarding expenditures extended to the economic and social sector of country is most concerned issue of present times. Developing economies while facing acute hurdles in their progress are also victimized by low level of governmental expenditures towards different sectors of economy. Being at low priority of governments this issue of least concerned shown government towards social sector services got the attention of different researchers. Different research work regarding the concerned issue highlights its effect on the overall economy. This section gives an overview of existing literature on the issue.

This chapter is further divided into sub sections which include section 2.1 about introduction, section 2.2 includes the review of empirical studies which is further sub divided into two sub sections and section 2.3 contain concluding remarks about this chapter.

2.2. Review of Empirical Studies

Different empirical studies conducted by different researchers have explored striking contribution of public social services expenditures towards economy.

2.2.1. Time Series Studies

For case study of Turkey,Ozturk (2016) inspected association between different measures of education and economic growth.Time series data for period 1971-2013 was taken whereasToda and Yamamoto Granger Causality test was applied in the analysis. The results of the study highlighted unidirectional causality from secondary school enrollment and higher

school enrollment to GDP per capita. Further study revealed that neither primary school enrollment nor government spending granger cause economic growth in Turkey and vice versa.

In order to analyze the impact of public expenditure on economic growth of Nigeria a study was conducted by Adamu and Hajara (2015). The time period for this study was taken from 1970-2012. The estimation tools used for analysis were ADF unit root test, ordinary least square multiple regression accompanied by pairwise Granger Causality Test. Positive and insignificant relationship existed between capital expenditure and economic growth while recurrent expenditure had illustrated a significant positive impact on economic growth. Also, Granger causality test demonstrated a unidirectional causality running from fiscal variables to economic growth which in validation of Keynesian theory.

A study directed by Bexheti and Mustafi (2015) explored the relationship between public spending on education after decentralization process and economic growth in Macedoina. The time period considered in study was from 2005 to 2015. For estimation purpose Logarithmic Regression Models were used. Results of study prompted that model was found to be significant whereas negative relationship was found between public education expenditure and economic growth. Further results favored the provision of quality education which raise the skills of labor that turnout an edge for improving the productivity and economic growth.

Eigbiremolen andAnaduaka (2014) conducted a study for Nigeria to examine the impact of human capital development on national output by augmenting Solow human capital growth model. Time series quarterly data was taken for period 1999-2012 and Johansen likelihood ratio test statistics was applied in analysis. Regression results showed the presence of positive and significant impact of human capital development on output level and found inelastic relationship among them.

To analyze the effect of public expenditures in education, health and infrastructure on growth, poverty and distribution of income, Baca Campodónico et al. (2014) directed a study on Peruvian economy for period of past 20 years from 1992-2011. Study used the wide economy model that was Dynamic Computable General Equilibrium Model (DCGEM). Results revealed that in case of long run, investment on education and health directed by both public as well as private sector leads to produce more growth and decrease more unemployment and poverty than investment in infrastructure.

For investigating the relationship between public education spending and economic growth Mekdad et al. (2014) conducted a study for Algeria over period 1974-2012. The estimation techniques used in this regard included; Two unit root tests (Philips-Perron Test), Ordinary Least Squares (OLS), Johansen Co-integration test and Causality test. Empirical findings suggested positive connection among public spending on education and growth. Further the effect of education on economic growth was found to be greater than the effect created by other explanatory variables (Capital and Labor).

Study investigated the causality and cointegrating association between public health expenditure and economic growth which was led by Boussalem et al. (2014). Study was undertaken for Algeria over period 1974-2014. Study focused on time series estimation techniques including conitegration test and causality embodied in the VECM framework. Results of study suggested long term association between public health spending and economic growth. Further study instigated the unidirectional causality from GDP to health expenditure while no support was found for causal link from health expenditure to GDP with a positive sign.

A study led by Kaur et al. (2014) inspected the linkage between expenditure on education and growth of economy over period 1970-2005 for case study of China and India. The

econometric tools used were Johansen-Juselius co-integration test, Ordinary Least Square (OLS) method, Dynamic Ordinary Least Square (DOLS), Vector Error Correction Model (VECM) and Variance Decomposition method. Results of study proposed long term positive relationship between education expenditure and economic growth for both China and India. Furthermore causality test revealed that long run unidirectional causal relationship existed for both economies but in case of China income level granger caused the education spending while causality moved from education expenditure to economic growth for India.

For Nigeria, a study conducted by Oyinlola and Akinnibosun (2013) examined the relationship between public expenditure and economic growth during period 1970-2009. A disaggregated public expenditure level was employed using the Gregory-Hansen structural breaks cointegration technique. Study revealed the results that government expenditures especially related to infrastructure and human resources were extremely important for growth and development.

Akonji et al. (2013) investigated the linkage between different components of government expenditure and real GDP for Nigeria over period 1970-2010. For estimation purpose, the techniques of Granger causality, Error Correction Model and Cointegration were used. Results revealed that total capital expenditure and real GDP support Wagner's law through the granger causality test showing a unidirectional causality. Whereas total recurrent expenditure and real GDP were showing two-way causality but stronger linkage had been seen from total recurrent expenditure to real GDP.

For Turkish economy a study was conducted by Mercan (2013) to examine influence of expenditure on education towards growth of economy. Quarterly data were used covering 1980:Q_1-2012:Q_4 period and made use of Bound Testing estimation approach. Results of study

revealed positive relationship between education expenditure and economic growth. Further results showed that short term deviation between two variables would be converged in long term and two way associations hadseen between concerned variables.

A study led by Ageli (2013) investigated the impact of education expenditure in promoting economic growth of Saudi Arabia. Study used the real oil and non-oil GDP for period 1970 to 2012. Estimation techniques used in study were Ordinary Least Square (OLS), Augmented Dickey-Fuller (ADF) unit root test, Cointegration test and Granger causality test conducted together with Error Correlation Model. Results of study configured out that for both oil and nonoil GDP, there exist a long term positive correlation with education expenditure. Further study revealed that in long run for both oil and nonoil GDP granger causality test showed existence of strong causality for all three versions of Keynesian relations.

The effect of human capital on economic growth for period 1972-73 to 2010-11 was explored by Ali et al. (2012) in case of Pakistan. OLS estimation technique and Granger Causality test was applied. Results suggested that index of education enrollment, formation of gross fixed capital and Gini-coefficient found positive significance with GDP while negative relationship was found for head count ratio, infant mortality rate, CPI inflation and growth rate of investment with GDP.

An econometric analysis was conducted by Afzal et al. (2012) to explore the relationship among education, poverty and economic growth for Pakistan. The data was taken for time 1971-72 to 2009-10. Auto-regressive Distributive Lag (ARDL) and Toda-Yamamoto Augmented Granger Causality (TYAGC) Test were applied. Results found long term positive relationship between education and growth whereas long-term negative relationship was found between

poverty and growth. TYAGC Test confirmed two-way causality, between education and growth, growth and poverty and poverty and education.

For Bangladesh a study directed by Muktdair-Al-Mukit (2012) investigated the impact of public education expenditure on economic growth over period 1995-2009. ADF unit root test, OLS and test of Cointegration were applied in analysis. Results of study revealed the existence of positive and significant long term relationship between public education expenditure and economic growth.

A study led by Hussin et al. (2012) explored the long term relationship and causality among the government education expenditure and economic growth for Malaysia. The time series data used in the study covered the period of 1970-2010. The estimation technique used in the analysis stated from ADF unit root test, cointegration test, Vector Auto Regression (VAR) test and lastly granger causality version of Vector Error Correlation Model (VECM). The results of the study showed the positive correlation between education expenditure and economic growth. Furthermore the results revealed the bidirectional causality between expenditure on education and economic growth in short run.

For case of Pakistan a study directed by Chani et al. (2012) explored causal linkage between human capital formation and economic development over the period 1972-2009. Autoregressive distributive lag (ARDL) bound testing approach and pair-wise Granger causality test were used for the estimation purpose. The results showed the existence of stable long term relationship between human capital formation and economic development. Bidirectional causality was found between human capital formation and economic development.

A study led by Asghar and Awan (2012) attempted to investigate the impact of human capital in form of education and health on economic growth of Pakistan. The study used the

annual data from the period 1974-2009. ADF, PP and Ng-Perron tests were used for the unit root test, Johansen and Juseliuscointegration approach, Vector Error Correction Model (VECM), VECM based causality, Toda-Yamamoto Causality, CUSUM and CUSUMSQ stability tests were applied in the study. Results of the study instigated that despite of the less expenditure on education and health sector in case of Pakistan there exist a strong positive long term relationship between human capital and economic growth.

A study conducted to explore the role of public expenditure on education and health in promoting the economic growth was done by Maitra and Mukhopadhyay (2012). The study used the data on 12 countries of Asia and Pacific over the last three decade starting from 1980 to 2010. Estimation techniques used in the analysis were ADF unit root test, JohensanCointegration test, Vector Error Correction Model (VECM) and Vector Auto Regression (VAR) test. Findings of the study vary across the countries. Results revealed that cointegrting relationship exist between public expenditure on education and health and economic growth for Bangladesh, Kiribati, Malaysia, Maldives, Philippines and the Republic of Korea whereas no cointegrating relationship exist for Fiji, Nepal, Singapore, Sri Lanka, Tonga and Vanuatu. Further education expenditure raises GDP in Bangladesh, Fiji, Kiribati, Maldives, Nepal, Singapore, Sri Lanka, Tonga and Vanuatu whereas health spending raises GDP Bangladesh, Nepal, the Philippines, Singapore and Sri Lanka. For Malaysia and Korea neither education nor health had caused any effect on economic growth.

The study conducted to explore the coingration and causality relationship between government expenditure and economic growth was led by Chiawa et al. (2012). The study was directed for Nigeria over the period 1977-2006. Further the study incorporated the government expenditure in form of total recurrent, total capital, defense and health expenditures. The econometric tools

used in the study were Augmented Dickey-Fuller (ADF) unit root test, Kwiatkowski, Philips, Schmidt and Shin (KPSS) test, Johansen based Cointegration and Granger Causality test. Results of the study revealed the existence of long term relationship between government expenditure and economic growth. Further the results showed that economic growth granger caused the government expenditure. Also results showed presence of positive and significant connection between all types of public expenditures and economic growth.

The study conducted by Asghar et al. (2011) to observe empirically the effect of government spending in social sectors on economic growth during the period 1974-2008 in Pakistan. For this purpose the cointegration of Johansen and Juselius and Vector Error Correction Model (VECM) estimation technique was applied. Results of the study revealed long-run positive association between government spending in human capital and economic growth and community services while government expenditure on subsidies and law and order are negatively related to economic growth.

For Nigeria a study has been conducted by Adelakun (2011) which aimed to explore the impact of human capital development on economic growth for the period 1985-2009. OLS estimation technique was applied for regression purpose. The results of the study revealed that human capital development bring socio economic development leading the high standard of living. Further the study suggested human capital development as an important tool for the economic growth and highlighting presences of significant relationship of enrolment rate at different level of education and public expenditures on health and education towards the Nigerian economic growth.

For the Indian economy Tamang (2011) led a study to redefine the relationship between education expenditure and economic growth. Time series for the period 1980-2008 has been

taken in the study. The estimation techniques used in the analysis were unit root test, Jonshencointegration and Error Correlation Model. Findings of the study signaled the existence of long term positive linkage between education expenditure and economic growth. Further study revealed that impact of education expenditure per worker was less on economic growth than the impact created by the physical capital per labor.

A study led by Yildirim et al. (2011) explored the causal effect of public education expenditure on economic growth for Turkey over the period 1973-2009. Study used the causality analysis given by Toda and Yamamoto (1995) for the estimation purpose. Findings of the study instigated the one-way causality from growth to expenditure on education only.

An econometric analysis directed by Chandra (2010) explored the causal relationship between education expenditure and economic growth for India over the period 1951-2009. Study followed the granger causality test embodied in the framework of Error Correction Model (ECM). Findings of the study advocated the strong unidirectional causality from growth to education expenditure whereas weak and moderate causality was observed from expenditure on education to growth.

A study led by Al-Yousif (2008) explored the nature and direction education expenditure used as the proxy of human capital and economic growth. For the analysis purpose the time series has been taken for the 6 GCC countries over period 1977-2004. Unit root test, Jonshencointegration approach and Granger causality test within the framework of error correlation model were used for the estimation purpose. The results of the study suggested the strong support for two-directional causality between expenditure on education and growth. Further results revealed that nature of relationship between expenditure on education and growth

fluctuate through countries but more generally results were in favor of positive long term association between education expenditure and economic growth.

For the investigation of long term relationship between health and the GDP per capita Akram et al. (2008) conducted a study for Pakistan. Time series annual data was used in study from period 1972-2006. The time series econometric estimation technique of cointegration coupled with the Error correction model was applied for the achievement of objectives of the study. The result of analysis under consideration highlighted that all health variables showed significant role towards the long term economic growth expect for the health expenditures. But in the case of short run health variables didn't showed any significant impact on the economic growth.

Musila and Belassi (2004) conducted a study to explore the role of education expenditures towards economic growth of Uganda for period 1965-1999. The estimation techniques used were Jonshencointegration and Error Correction Model. The results of the study highlighted the positive correlation between education expenditure per worker and economic growth. Further results indicated that in long run education expenditures were found to be weakly exogenous in the model, they thus contributed positively towards the economic growth of Uganda.

A comparative study for Pakistan and India had been conducted by Abbas (2000) to empirically explore the role of human capital in economic growth for the period 1970-1994 in two ways. Ordinary Least Square (OLS) estimation technique was used for analysis. In first analysis human capital was taken as the factor of production which used the proxy of enrolment rates at different level of education and analyzed their contribution towards growth. The results revealed that for both economies human capital showed the positive significance towards their

growth levels especially in case of education at secondary level. In second part of the analysis the effect of human capital by using different measures for it was empirically tested on the physical capital which would ultimately effect the growth. For both countries results found the positive correlation between the human capital and physical capital in most cases and thus positively contributing towards their growth levels.

2.2.2. Panel Studies

For scrutinizing the dynamics of educational expenditure and economic growth Mallick et al. (2016) led a panel study for the 14 major Asian economies. The study used the balanced panel data over the period 1973-2012. Panel unit root test, Pedroni panel cointegration approach and Fully Modified Least Square (FMOLS) estimation techniques were used for the analysis. Findings of the study suggested the existence of positive and statistically significant long term relationship between educational expenditure and economic growth for all countries. Further the results revealed that both in long run as well as in short the unidirectional causality exist from growth of economy to educational expenditure but in long run only education expenditure granger causes the economic growth.

The relationship between health expenditure and economic growth was examined by Tuluce et al. (2016). Study used the data for 25 high and 19 low income countries over the period 1995-2012 and 1997-2009 respectively. Generalized Methods of Moments (GMM) econometric estimation technique was used in study. The results revealed that for both high and low income countries private health expenditures negatively influenced the economic growth. Further for both the group of countries public health expenditure showed positive contribution towards the economic growth.

For the 49 African countries Eggoh et al. (2015) directed a study to explore the correlation between human capital (measured by education and health) and economic growth. The panel data for the analysis covered the time period from 1996 to 2010. For cross sectional analysis OLS estimator and for panel analysis Generalized Method of Moment (GMM) estimation technique was used. Results of the study revealed the negative relationship between expenditure on education and health with economic growth whereas positive linkage was found for the human capital stock. Further the investigation instigated that expenditure on education and health were found to be complementary.

A study conducted by Poddar et al. (2014) to analyze the linkage between human capital development and economic growth for six major economies of world which included USA, Australia, Brazil, India, South Africa and UK. Data of this study was taken for time span 2003-2012. For estimation purpose Pearson correlation, student's t-test and multiple regression analysis were used. Results revealed that only economic growth was not sufficient for human development rather education, health and income retained equal importance. Further results also found positive significance for linkage between human capital development and economic growth consequently high growth would lead to high standards of living in the six selected economies.

For the East African economies Gisore et al. (2014) conducted a study to explore the contribution of government expenditures towards the economic growth over the period 1980-2010. The estimation technique used in the analysis was balanced fixed effect model. The results of the study highlighted the positive significance of health and defense expenditures towards the economic growth whereas insignificant impact on economic growth was shown by education and agricultural expenditures.

In the study of Idrees and Siddiqi (2013) the long run relationship has been explored between public education expenditure and economic growth. Panel study was conducted using the data on 14 cross sections which included 7 developed and 7 developing countries over time span 1990-2006. The panel estimation techniques including Panel unit root tests, panel cointegration, Pedroni's Residual-Based Panel Cointegration Test and panel fully modified ordinary least square were applied. The results of the study highlighted that in case of developing countries public education expenditures impact on economic growth was greater than the developed countries which showed that developing countries have "catching up effect".

For the four South Asian economies that included Bangladesh, India, Pakistan and Sri Lanka Afzal et al. (2013) investigated the relationship between education, poverty and economic growth. Panel data used in the study was taken over the period 1995-96 to 2012-2013. The Fixed Effect estimation technique was used in the study. For these four South Asian economies result of the study revealed the presences of positive association between education and economic growth but negative relationship was found between poverty and economic growth.

For the Latin American Countries Narvaez (2012) explored the impact of government spending which was split into capital and current spending on per capita economic growth for the time period 1975-2000. Study used the estimation technique of GMM. Results of the study revealed that unlike theory government expenditures both capital and current have no impact on the economic growth.

The study conducted by Zhang and Zhuang (2011) explored the impact of composition of human capital on economic growth. The data on 31 provinces of China has been explored over the period 1997-2006 whereas GMM technique was applied for estimation. Results revealed that education contribute towards the economic growth of China, in this regard tertiary education

have more significant contribution towards growth than the primary education and secondary education. Further results suggested that the impact of composition of human capital on regional economic growth depend more on the development level of the province. Developed provinces extracted more benefits from the tertiary education while underdeveloped provinces relay more on the primary and secondary level of education.

Hessami (2010) conducted a study to empirically analyze the effect of size and composition of the government spending and its impact on the wellbeing 12 European countries. Annual data was taken from 1990-2000 whereas the estimation technique used in the study was the probit estimation technique. Results revealed that there exists inversely U-shaped connection between public sector size and wellbeing. Further results stated that levels of corruption and decentralization as well as people's ideological preferences and their position in the income distribution have control the size of government spending and its impact on wellbeing.

A panel study conducted by Narayan et al. (2010) explored relationship between health and growth of economy with inclusion of investment, exports, imports and research and development (R&D). The study was undertaken for five Asian countries over the period 1974-2007. For the regression purpose the estimation techniques applied in the study were panel unit root, panel cointegration with structural breaks and panel long-run estimator. The findings indicated the long term cointegration in all four growth models and further suggested the long run positive correlation of health, investment, exports and R&D with economic growth whereas negative long term correlation was found between imports and economic growth. The effect of education on economic growth was found to be insignificant.

2.3. Concluding Remarks

Empirical studies conducted by different researchers have so far put the meaningful and informative light over the concept of social capital or human capital and put their potential efforts in analyzing the contributive role of social sector in the development of the society. Researchers have also emphasized the public expenditure on these two sectors that mainly include education and health and further highlight that how effective the expenditure on these two sectors would be for the growth of the economy. But the impact of public social services expenditures on the economic wellbeing of the individuals of the society has been addressed in few studies. So the present research fills this gap by exploring the role of public social services expenditures towards economic wellbeing of the individuals/society also.

Chapter 3

Data and Research Methodology

3.1. Introduction

In developing economies the development of social sector and government attention towards these sectors are just limited to paper work no action has been taken on practical grounds. Lack of attention by respective governments might intensify other economic problems and become hurdle in development of country. So the present research scrutinizes the role of public social services expenditures in economic wellbeing and economic growth of 21 developing countries categorized as Asia and Africa. In this regard theArellano Bond Panel Dynamic Estimation and Random Effect Modelis applied using annual data from 1980-2014.

The sub sections of this chapter involves the section 3.1 having introduction, 3.2 section is about theoretical framework and model specification in detail while section 3.3 describes data and sources and 3.4 incorporates description and details about methodology which is used in study.

3.2. Theoretical Framework

Endogenous growth has a diverse literature and empirical work which distinguished it from neoclassical growth which consideredgrowth as exogenous outcome of economic system. In traditional neoclassical macroeconomic model, the light on long term growth was first putted by Solow and Swan (1956) who considered population growth and efficient labor force as the prime factors for growth of economy. The consequence of this approach was that they tied up economic growth with exogenously determined factors and failed to provide a framework for endogenously determined factor (human capital) in greasing the engine of economy. Thus, concluding no role of conventional macroeconomic policy towards long run economic growth (Turnovsky, 2004).

The vast literature on endogenous growth emerged out during period of continuous technological changes and up gradation which improved and modified the production procedures. The attitude of globalization of markets along with the technological changes has transformed the industrial economies to knowledge-driven economies. So, human capital became one of the important and leading policy variables due to shifting ofeconomy from resource based to knowledge based. In knowledge based economy, human capital having policy relevance captured as a special element in economic models.

In Endogenous growth models, growth was response to endogenously determined factors. In general these models explicitly comprises of human capital that was taken as the endogenous factor to growth (Khan and Rehman, 2012 and Laroche et al., 1999). The social sector development includes provision of facilities which mostly regarded as basic necessities for its individuals which directly provide utility to them. Social sector services importantly include the education, health, infrastructure etc. services. Human capital more precisely incorporates development of education and health sectors of economy which are the part of social sector services whose contribution will enhance the wellbeing of inhabitants.

The importance of human capital or more precisely education was instigated by different great philosophers. The progressive role of human capital towards the economic growth and the wellbeing of society have been largely encapsulated in economic literature. Initially the concept of human capital was considered by the first classical theorist Adam Smith (1776) in his prescribed definition of capital. He added inhabitant skills and their acquired and valuable talents in stock of capital. These skills and talents of human were considered as the source of progress not only in terms of economic growth but also in terms of wellbeing of society (Laroche et al., 1999).

The important and progressive element of human capital towards economic growth was ignored by economists for the larger period of time. In 1970s the interest of economists was shifted to other economic issues of inflation, unemployment, oil shocks, and construction of different polices. The revival of concept human capital and reaffirming its link to economic growth was done by different theorists in period of early 1960's. In this regard the contribution of different economist which included work of; Arrow (1962) who highlighted usefulness of knowledge from the concept of learning by doing. Further, Uzawa (1965) determined knowledge by the action between final good sector and the research sector. The collective significance of human capital and technological up gradation that contributed towards improved growth was modeled by the Nelson and Phelps (1966).

Human capital being the significant factor, investment and beneficial returns to investment on this factor by both public and private sector cannot be side lined. Therefore, the concept of returns to investment on human capital that incorporated more specifically education in form of enhanced earnings of individuals and improved economic growth, with the focus on both public and private investment had been visualized by Mincer (1958, 1975), Schultz (1961) and Becker (1962) (Awan et al., 2011; Laroche et al., 1999).

There were two versions or two generations of Endogenous Growth Models. First generation theorist views were closer to neoclassical growth models and put stronger emphasis on accumulation of human capital. As this class of models were closer to neo-classicals but differs from them in a fundamental way that it did not require exogenous elements, such as growing population, to generate growth. Rather, the equilibrium growth rate was considered as internally generated outcome. First generation theorists focused on accumulation of knowledge

which started with work of Romer (1986) and was followed by Lucus (1988), Becker et al. (1990), Stokey (1991), Barro (1991), Mankiw et al. (1992), Barro and Sala-i-Martin (1995).

The simple AK model presented by Harrod (1939) and Domar (1946) assumed only one factor of production and constant returns to capital in a single sector economy. AK model implied physical capital to be linearly linked with production function whose functional form was Y=AK. So endogenous process of growth in one sector economy was not new concept rather it dated back to time of AK model. These one sector models assumed a broader interpretation for capital, by including both human, as well as nonhuman capital for production function (Rebelo, 1991). This basic model was extended to growth model that was based on two sector investments in which private capital was disaggregated into human and nonhuman capital. The work of Romer (1986) was considered as revival activity that became the basis for second class or generation of growth models and was encouraged by different issues as follows;

(1) Give more satisfactory explanation of international differences in economic growth rates by drop two central assumptions of neoclassicals which were;
    (a) Exogenous change in technology and
    (b) Same technological opportunities available in all countries around the world;
(2) A more central role for accumulation of knowledge; and
(3) A larger role for instruments of macroeconomic policy in explaining the long-run growth process (Turnovsky, 2004).

Also, Romer (1986) added a sufficient and meaningful influence towards improvement in productivity gained by adding the concept of progress in human capital through its accumulation. He followed Arrow's (1962) idea of learning by doing and favored the increasing returns to endogenous accumulation of capital towards growth. There are many channels through which

societies accumulate knowledge, including formal education, on-job training, basic scientific research, learning by doing, process innovations and product innovations. Another addition to endogenous growth model was done by Lucas (1988) who proposed that greater the ratio of human to physical capital higher would be the growth. As increased human capital would better utilizephysical capital which turned towards higher growth rates. The extended and prolonged growth in country greases the engine of economy and also be helpful in improving the wellbeing of society (Ali and Ahmad, 2013).

Further Mankiw, Romer and Weil (1992) done the cross country analysis and found support for the Human Capital Augmented Model. They had interrogated the impact of human capital over economic growth and found strong positive significance for secondary school enrollment rates (Ali et al., 2012). Additionally the work of Barro (1991) and Barro and Sala-i- Martin (1992, 1995) were important in this regard where they found positive connection between human capital especially education and growth (Fafchamps and Quisumbing, 1999).

Second generation theorists developed different models based on the Schumpeter creative destruction idea and put stronger emphasis on endogenous development of knowledge or the Research and Development (R&D) sector in order to grease the engine of economy. These theorists generally consider knowledge or human capital as the rival good between goods sector and R & D sector. The research and development lead the economy towards technical progress and were naturally linked to imperfect competitive markets following the Schumpeter ideas (Srinivasan, 1995). The research based theories included the contribution of Romer (1990), Aghion and Howitt (1992), Grossman and Helpman (1991), Eicher (1996), Parente and Prescott (1994), Levine (1993), and Goodfriend and McDermott (1995) in which innovations and research spillovers generate sustained endogenous growth (Capolupo, 2009).

In this class of models, the basic contribution was done by Romer (1990) who constructed a two-sector model in which new knowledge produced in one sector was used as an input in the production of final output in the other sector. Indeed, the rigorous treatment of accumulation of knowledge (technology) was viewed by many economists, as being one of the key distinctions between old and new growth theory. In early efforts, knowledge in terms of technology was introduced in the growth models but rate of technological change was exogenous and thus leading the long run per capita growth rate to be exogenously determined (Turnovsky, 2004).

In work of Grossman and Helpman (1991), they formulated models in which firms functioning under imperfectly competitive markets undertook R&D (Srinivasan, 1995). Also they found positive connection between the openness and growth. Further their theoretical model depend not just on trade in goods but on whether or not the forces of comparative advantage pushed the economy resources in the direction of activities that generate long run growth (externalities, quality upgrading, expanding variety of products) (Capolupo, 2009). Whereas Aghion and Howitt (1992) fabricated, model of growth based on Schumpeter's process of creative destruction. Here growth resulted exclusively from technological progress, which in turn resulted from competition among research firms that generate innovations.

Apart from human capital and its accumulation the relationship between governments/public spending that is important element of fiscal policy and economic growth were pointed out by Wagner's law (1883) and Keynesian Approach (1936). The concept of national income causing public expenditures was stated in Wagner's Law whereas Keynesian Approach stresses upon the concept of government spending enhancing economic growth and bringing economic stability in the economy. But very high government expenditures at the same time can crowd out private

investment that may hamper the process of economic growth (Asghar et al., 2011). The present study takes help from the two approaches;

(1) For the human capital or social sector development the models formulated in the work of Romer (1986, 1990), Lucus (1988) and Mankiw et al. (1992)

(2) Keynesian Approach.

These two are extended to the economic wellbeing of society. So the econometric model for present study is suggested as follows;

- **Model (1)**

$$HCEpc_{it} = \beta_0 + \beta_1 EDUEXP_{it} + \beta_2 HEALTHEXP_{it} + \beta_3 RGDPpc_{it} + \beta_4 CPI_{it} + \beta_5 UR_{it} + \beta_6 TO_{it} + \mu_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

- **Model (2)**

$$GRGDP_{it} = \beta_0 + \beta_1 EDUEXP_{it} + \beta_2 HEALTHEXP_{it} + \beta_3 RGFCF_{it} + \beta_4 TO_{it} + \beta_5 POP_{it} + \mu_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

- HCEpc = Household Final Consumption Expenditure Per Capita (constant 2010 US$)
- EDUEXP = Government Expenditure on Education (% of total government expenditure)
- HEALTHEXP = Government Expenditure on Health (% of total government expenditure)
- RGDPpc = Real GDP Per Capita (constant 2010 US$)
- GRGDP = Growth of Real GDP
- RGFCF = Real Gross Fixed Capital Formation (constant 2010 US$)
- CPI = Consumer Price Index
- UR = Unemployment, total (% of total labor force)

- TO = Trade Openness
- POP = Population Growth, total
- μ = Error Term
- i = Countries 1,2,3,4....21; t = time period 1980-2014
- β_0 = Intercept term; $\beta_1, \beta_2, \ldots\ldots, \beta_6$= Slope Coefficients

3.3. Variable Justification

Each variables mentioned in these two models have renowned importance and contribute a lot in answering the objectives of research;

- **Household Final Consumption Expenditure Per Capita**

For the analyzing the impact of social services expenditures on economic wellbeing, the Household Final Consumption Expenditure Per Capita is taken as its proxy. For the appropriate representation of economic wellbeing only those variables will be putted under consideration that explains comprehensively the actual sole of wellbeing. So consideration of country's simple economic growth is poor estimate for wellbeing as it only embodies the present value of marketed goods and services for a specific time period but value of non-marketed goods and services are not part of it. As economic wellbeing is individual's wellbeing in a society so for suitable illustration of wellbeing all those variables are considered that are directly linked to individual and social group and give them direct utility (OECD report, 2001).

Further the GDP a standard measure, is a measure of amount earned by final production of goods and services in a year or the money spends on final goods and services minus imports of goods and services during that particular year. It is more generally used to capture the impact of economic activities and does not provide an appropriate measure for material wellbeing of inhabitants of society. In the system of national accounts the two suitable measures were available that have direct effect on individual conditions and their living standards; one is

concerned with income of people including households'real disposable income and net transfers to households. The second measure was related to the consumption level of households. National statistics of UK office explored in their study that household expenditures or consumption has much stronger relation and influence on wellbeing of inhabitant than income of households. According to report of Stiglitz-Sen-Fitoussi, the permanent and long term income drive consumption rather than the short term income changes. So it is important for the people's wellbeing to know that how much person feels assured enough to make decisions regarding their purchases. Thus second measure included two indicators such as; households'real consumption expenditures and consumer confidence (OECD, 2015).

So, the present study uses Real Household Final Consumption Expenditure Per Capita which tells us about, the living standard of person or family that is based on their financial wellbeing. Household Final Consumption Expenditure is basically the expenditures extended by the household on the purchase of both durable and non-durable goods and services in order to meet their needs and achieve their respective satisfaction level (OECD, 2009). Household Final Consumption Expenditure Per Capita is taken in real form and then its natural log is taken.

Under normal and controlled conditions Household Final Consumption Expenditure Per Capita is expected to increase, as it will show the improving financial condition of the individual and the society.

- **Growth of Real Gross Domestic Product (GDP)**

For the analysis of second model that includes the impact of public social services expenditure on economic growth, the growth of real GDP is taken. Growth of real GDP refer as the changes or the growth in country's GDP from one year to the next year whereas GDP

includes the marketed value of all goods and services produced, in particular time period in a country (The Economic Times, 2016).

In general the growth of real GDP is expected to increase and improve with each passing year under normal and controlled conditions that ultimately lead towards the progress and prosperity of country.

- **Government Expenditure on Education**

In regard to achievement of primary research objective, the public social services expenditures consider the two important social services sectors that are education and health. For the public social services expenditures, the proxy of government expenditure on education is taken in form of percentage of total government expenditure. Expenditure on education is basically the spending or the expenditures which includes current, capital and transfers from both national and international sources are extended to educational institution, educational administration and subsidies for private entities by the locals, regional and national governments (Eurostat, 2016).

In both models of economic wellbeing and economic growth government education expenditure is expected to have a positive linkage as showed in the studies conducted by Mallick et al. (2016), Baldacci et al. (2010), Hessami (2010) and Angelopoulos et al. (2007) who found positive significance between public education expenditure, economic growth and economic wellbeing.

- **Government Expenditure on Health**

For the social services expenditure another proxy of government expenditure on health is taken in form of percentage of total government expenditure. The health expenditure refer as the amount of resources or finances directly allocated for improvement of population's health status

or further the distribution of health facilities and goods and services of medical care among individuals of country. The financing agents refer to as the federal, provincial and local government and different NGOs or different social security schemes. These finances can come from both national that includes the domestic funds and international sources (WHO, 2006).

The government health expenditures expected to have positive association with both economic wellbeing and economic growth. The positive association can be seen in the work Tulùce et al. (2016), Baca Campodónico et al. (2014), Boussalem et al. (2014), Asghar and Awan (2012) and Maitra and Mukhopadhyay (2012).

- **Real Gross Domestic Product (GDP) per capita**

In general Real GDP per capita is taken to illustrate the income level of the individuals in a society. Moreover household consumption levels apart from the other socio-economic determinants are highly influenced by their respective income levels. It is country's economic output per person that is measuring the total output of country and then dividing it to the total population. The price effects are removed in the real GDP per capita (Unicef, 2016).

Real GDP per capita which basically represent the each person's income level is expected to show positive association towards household final consumption expenditure per capita (more generally private consumption). Such positive association can be seen in work of Nicklaus (2015), Ezeji and Ajudua (2015), Adedeji and Adegboye (2013), and Thomas (2013).

- **Gross Fixed Capital Formation**

Being one of the standard and the contributing variable towards the economic growth Gross Fixed Capital Formation has high level of importance in second model where impact of public social services expenditures is seen on economic growth. Capital is considered as the driving force and the element towards the aggregate output of the economy. Gross Fixed Capital

Formation is important variable used for physical capital having huge significance towards economic growth. Gross Fixed Capital Formation refer to as the total value of the acquisitions of producers minus the disposals of fixed asset during the given counting period and value of non-produced assets like purchase of land, improving quality of land or subsoil assets (OECD Glossary, 2001). Gross Fixed Capital Formation is taken in real form and then its natural log is taken.

Gross Fixed Capital formation turned to show positive significance towards the economic growth of country. Many studies in this regard favored theoretically positive significance between Gross Fixed Capital Formation and GDP such as Uneze (2013), Adhikary (2011), Gibescu (2010) and Xiaoqing (2005).

- **Consumer Price Index**

Inflation is considered as one of the major problematic issue in the economy. The persistent upsurge in the general price level highly effect the consumption patterns of the individuals in society. Moreover, inflation is considered as one of the responsible reason for bringing social and economic instability in the economy. Every rise in inflation rate reduces the purchasing power of individuals accordingly because with every rise in inflation rate, the ability of individual to buy goods and services reduces thus affecting the living standards of inhabitant of society (Anafo et al., 2014).

In model 1 a part from the other important variables CPI is also incorporated to show its impact on household consumption expenditure per capita. For inflation the common and most used proxy is the Consumer Price Index (CPI). CPI refers to as change in the price of consumer goods and services. It measures the change in price from consumer point of view (The Time of India, 2016). Further the present study is concerned with changes in consumption expenditures

of the households so in this perspective the use of CPI is appropriate to show the price changes faced by the consumers.

Negative linkage is shown by inflation towards household consumption patterns or household final consumption expenditures per capita. The negative association between CPI and consumption is favored in the studies conducted by Anafo et al. (2014), Burke and Ozdagli (2013), Bălăcescu and Zaharia (2011) andCasadio and Paradiso (2010).

- **Unemployment Rate**

Unemployment significantly affects consumption patterns of individuals in the society as unemployment hit the income levels of individuals. If time span of unemployment increases then this will lead to more loss in consumption of households (Bentolila and Ichino, 2000). Model 1 in order to analyze the effect on household consumption expenditures the inclusion of unemployment is important as unemployment have major and significant contribution towards the household final consumption expenditures per capita. The ILO definition of unemployment referred to as a person will be considered as unemployed if he/she is not working anywhere or is available for work currently or seeking for work.

The expected sign between unemployment and household consumption expenditures is negative and this relationship can be seen in studies as follows; Ganong and Noel (2016), Campos and Reggio (2014), Bentolila and Ichino (2000) and Dynarski and Sheffrin (1987).

- **Trade Openness**

In general trade openness or trade liberalization policies are adopted by any country to have strong and significant influence on improving economy's growth as well as welfare of its households. Trade openness has a positive impact of economy's aggregate welfare level but its impact on different economic agent is different. Some get positive benefits out of it by increasing

their living standards while the other might get hurt by it. Free trade or openness in trade affects the economic wellbeing of its households in different manner depending on the country specific situation. Trade openness globalizes the economy and increases the competitiveness in domestic industries. Free trade flourishes both the importing and exporting industries that affect the individuals in the positive way. Reduction to the barriers on trade makes the imports of the country cheaper and affordable that hampers the purchasing power of its inhabitants. Further the progress in the exporting industries effect the individuals in a positive sense through employment channel. Domestic industries generate sense to compete in the global market in order to make their products the exporting commodity. This effort of domestic industries open up the opportunities of employment for its inhabitants which give a positive edge to the inhabitants by increasing their income level and thus contributes towards their wellbeing (Cho and D´ıaz, 2008; Okodua and Alege, 2014).

Trade openness is generally denoted as the reduction or the removal of barriers and restriction which are imposed on trade in form of tariffs, quotas, duties etc. and thus allowing free trade among different countries (OECD, 2016).

Themost commonly used measure of trade openness is Trade to GDP ratio that is the mean of total trade referred to as the sum of imports and exports of goods and services with respect to GDP.This basically highlights the international transaction importance relative to the domestic transactions (OECD ilibrary, 2016). So the present study has taken the ratio of sum of real imports and exports of goods and services to real GDP.

The expected sign of trade openness towards both the household welfare level and economic growth is positive showing the tendency of trade openness to accelerate individual's wellbeing and economy's growth level. The positive relationship between trade openness, economic

		al. (2014)
RGDPpc	(+)	Nicklaus (2015) and Ezeji and Ajudua (2015)
CPI	(-)	Anafo et al. (2014) and Burke and Ozdagli (2013)
UR	(-)	Ganong and Noel (2016) and Campos and Reggio (2014)
TO	(+)	Okodua and Alege (2014) and Bourdon et al. (2013)

The table 3.3.1 explains the expected relationship of incorporated independent variables with the dependent variable that is Real Household Consumption Expenditures Per Capita. Further table also highlights different studies that favor the expected relationship of independent variables that are Education Expenditures, Health Expenditures, Real GDP Per Capita, Consumer Price Index, Unemployment and Trade Openness with Economic Wellbeing.

Table 3.3.2. Expected Relationship among Variables

Model 2: Dependent variable

Growth of Real Gross Domestic Product (GDP)

Independent Variables	**Expected Relationship**	**Relevant Studies**
EDUEXP	(+)	Mekdad et al. (2014) and Kaur et al. (2014)
HEALTHEXP	(+)	Asghar and Awan (2012) and Maitra and Mukhopadhyay (2012)
RGFCF	(+)	Uneze (2013) and Adhikary (2011)
TO	(+)	Andersen and Babulla (2008) and Dao, '15 (2015).
POP	(+)	Ali et al. (2013) and Thuku et al. (2013)

Expected relationship of incorporated independent variables with the dependent variable that is Real GDP is described in table 3.3.2. Further table also mentioned different studies done by different researchers that favor the expected relationship of independent variables that are Education Expenditures,

Health Expenditures, Real Gross Fixed Capital Formation, Trade Openness and Population Growth with Economic Growth.

3.4. Data and Sources

The type of data used in the present study is of secondary type. Annual data on all variables which includeReal Household Final Consumption Expenditure Per Capita, Growth of Real GDP, Government Expenditure on Education, Government Expenditure on Health, Real GDP Per Capita, Consumer Price Index (CPI), Unemployment Rate, Trade Openness, Real Gross Fixed Capital Formation and Population Growth are gathered from World Development Indicators (WDI) of 2016 published by the World Bank.

The study achieve its objectives by considering two models one for economic wellbeing and other for the economic growth thus study incorporate two dependent variables. For economic wellbeing model, dependent variable used in the study is Household Final Consumption Expenditure Per Capita and for the economic growth model dependent variable is Growth of Real GDP. Additionally independent variables in both models are Government Expenditure on Education, Government Expenditure on Health, Real GDP Per Capita, Consumer Price Index (CPI), Unemployment Rate, Trade Openness, Real Gross Fixed Capital Formation and Population Growth. The data on these variables are gathered for time period 1980-2014for 21 developing countries categorized as Asia and Africa. With subject to availability of data on all incorporated variables are taken for period of 35 years that is 1980-2014 on 21 developing countries of Asia and Africa. So, 735 observations are taken in sample size.

3.5. Methodology

In order to accomplish main aims and objectives of study that are to explore the impact of public social services expenditures on economic wellbeing and economic growth the most

appropriate technique in this regard is the use of Arellano Bond Dynamic Panel Data Estimation and Random Effect approach. So for this purpose there are several tests through which our data is passed in order to make the appropriate basis for the application of the desired estimation technique.

The data used in study is panel data set which contains 21 cross sections and 35 time period. Panel data popularity is among the researchers, from economics to sociology. Panel data allows the researcher to study a given cross sections over the period of time thus leading to the availability of multiple observations.Panel data having multiple observations increases the degree of freedom thus reducing the issue of collinearity among the explanatory variables leading to give efficient and unbiased estimators. Beside element of having rich in information by incorporating multiple observations it enables the researchers to study the dynamic behavior of the parameters and estimate their effects over longer period of time (Hsiao, 2003).

3.5.1. Estimation Technique

Initially on panel data the simple Pool Least Square Technique is applied in order to construct and illustrate the appropriate line for application of fixed effect and random effect approach. In this regard, test applied is named as Breusch and Pagan Lagrangian multiplier test

- **Breusch and Pagan Lagrangian Multiplier Test**

For the variety of models Lagrange Multiplier (LM) test has strengthened certain standards that are used to test the restriction of parameters. LM test has edge over other tests as the statistics of LM test are interpreted on the basis of null hypothesis. So this feature of LM tests make testing and interpretation much simpler and easier. The most common and prominent LM test example is the Breusch and Pagan' (1980) Lagrange Multiplier Test for random effect. It

simply allows linear regression of random effects and is based on the residuals of the pool OLS (Greene and McKenzie, 2012)

For panel data consider simple Linear Regression Model as follows

$$y_{it} = a + x_{it}b + u_{it} + v_i \qquad (1)$$

Where t = 1.....T ;i = 1....N

x_{it} = k*1 vector for the explanatory variables that are non-stochastic

a = Scalar Matrix

b = unknown parameter vector of order k*1

u_{it} = residual that have common properties of residuals having mean zero and variance as constant (δ_u^2) and

For putting the regression in Breusch and Pagan Lagrangian Multiplier Test initially this simple regression model is divided into three standard models

(1) Pool Model or Pool OLS:

Pool model is based on the assumption of having no difference across the agents in parameters of regression. Here $v_i = 0$

(2) Fixed Effect Model

It is one way fixed effect model. In order to differ across the agents this model allows the inclusion of constants in the model of regression. Here v_i are perceived as the constant fixed terms.

(3) Random Effect Model

It is one way random effect model. Here v_i are perceived as the random terms having the classical assumptions of mean zero and variance constant that is (δ_v^2).

Basically the one way random effect model has a particular and specific type of true error term that is $\eta_{it} = u_{it} + v_i$ which have the normal classical assumption of error term. The properties are stated as mean zero that is $E(\eta_{it}\eta_{js}) = 0$ where $i \neq j$ and variance constant that is $E(\eta_{it}\eta_{js}) = \delta_v^2 \neq 0$ where $t \neq s$.

Now, Breusch and Pagan Lagrangian multiplier test given by Breusch and Pagan in 1980 will be applied for testing the null hypothesis of no random effect or stating the presence of pool OLS or mathematically stated as H_0: $\delta_v^2 = 0$ against the random individual effects. LM test asymptotically follows the Chi Square (χ^2)distribution (Mckenzie, 2012). If probability value is less than 0.05, reject the null hypothesis at 5% significance level stated as no random effect or highlight the presence of Pool OLS thus this type of rejection lead to the conclusion that Pool OLS is not appropriate for analysis as it will not infer the meaningful information required in the study. So we move forward to explore either fixed effect is more suitable or we go with the random effect.

- **Fixed Effect Model**

Fixed Effect Model is appropriate while analyzing the impact of variable that doesn't changes with time. It basically controls the biasing effect of time invariant variable in order to achieve the better impact of changing variables. The general equation for the FE model is displayed below.

$$y_{it} = \alpha_i + \beta X_{it} + \mu_{it} \quad (2)$$

Here dependent variable is '*y*' with '*i*' individuals (that is cross section) and '*t*' time period, independent variable that changes over time is denoted by 'X_{it}'. The unknown intercept term for

each individual is referred as 'α' that will absorb the impacts of time-invariant variables in the equation as well as any heterogeneity in the data. Finally, 'u_{it}' is the error term associated with the model (Hatz II, 2011).

Fixed effect model simply work under the phenomena of Chow Test (Baltagi, 2005). Initially model is tested for OLS regression and gets the Restricted Residual Sum of Square (RRSS). While the alternative model is estimated under fixed effects assumption and get the Unrestricted Residual Sum of Square (URSS). Fixed Effect Model follows the F-test distribution.

$$F = \frac{\frac{(RRSS-URSS)}{(N+T-2)}}{\frac{URSS}{(N-1)(T-1)} - K}$$

If the F statistics show significant value that is the probability having value less than 0.05 then one can estimate the model under fixed effect assumption having 5% level of significance (Jha et al., 2001).

- **Random Effect Model**

Random Effect Model (RE) is different from Fixed Effect Model (FE) in a sense that it observes the difference between individuals that are assumed not to be fixed rather to be random and uncorrelated.

$$Y_{it} = \beta X_{it} + \alpha_i + \mu_{it} + v_{it} \quad (3)$$

The difference between equation for RE and FE model is the inclusion of the 'v_{it}' which is the error term associated with the variables within each individual that is for time-invariant variables. The other difference is the inclusion of error term 'u_{it}' which shows the errors associated with variables that occur between the individuals which will change with time and will not be determined by the individual (Hatz, 2011)

For RE model its assumptions will be tested by using Lagrange Multiplier that was developed by Breusch and Pagan (1980) and modified by Baltagi and Li (1990). RE Model follows the Chi Square (χ^2) distribution. If the test statistics is significant that is the probability value of 0.05 then we will infer the results in favor of random effect model at 5% significance level and one can estimate the model under random effect assumption.

Here so far the discussion is proceeding on the grounds that models FE and RE are competing with one another in order to gain their insight full version. Thus the Hausman's (1978) specification test will used in this regard (Jha et al., 2001).

- **Hausman Specification Test**

There will be no systematic difference among two estimates if there is correct specification of the model and if there is no correlation between v_i and included explanatory variables in the model. The Hausman's (1978) specification test give more detail and inside version of the analysis. Basically in panel data analysis Hausman specification test is most common and standard technique which helps the researcher to make distinction between the two models that is the fixed effect model and the random effect model (Brein and Patacchini, 2006). The Hausman Specification Test follows the Chi Square (χ^2) distribution. In this test null hypothesis is stating as the no fixed effect. If the probability value of the Chi Square (χ^2) distribution show significant value that is having the probability value less than 0.05 then the results will be in favor of the fixed effect at 5% level of significance. If the probability value is such that it becomes the basis for the non-rejection of the null hypothesis then it favor the results of random effect suggesting no correlation among the individual effect and other variables (Jha et al., 2001).

- **Wooldridge Test for Autocorrelation in Panel Data**

In case of linear panel model the problem of serial correlation is most popular one. The presences of this problem make the estimators inconsistent and biased and would ultimately lead the researcher towards worse situation. The identification problem of serial correlation or autocorrelation among error terms is important for researchers to get rid of this problem. In this regard different test were proposed which have their own importance but new test is suggested by Wooldridge (2002) that is Wooldridge test for autocorrelation which due to having fewer assumptions and ease in terms of implementation, is considered as attractive method. It works by first difference operator. David Drukker implemented in Stata and it work by Wald test. If the probability value is less than 0.05 we will reject null hypothesis which state no first order autocorrelation. In such situation alternative hypothesis would be accepted which highlight the existence of first order autocorrelation (Drukker, 2003 and Antonie et al., 2010).

- **Arellano-Bond Dynamic Panel-Data Estimation**

Under the certain problem enhancing econometric issues related heterogeneity, endogeneity etc. the application of Arellano and Bond (1991) difference Generalized Method of Moments (GMM) is most popular. When the estimation of dynamic panels is undertaken with the fixed effect and predetermined regressors the estimators of Arellano and Bond (1991) are most commonly used (Benito et al., 2016). It work by taking the lag value of the dependent variable and transform the fixed effect regression equation as;

$$y_{it} = \alpha_i + \beta y_{i,t-1} + \gamma X_{it} + \mu_{it} \qquad (4)$$

Now the regression is run with the incorporation of the lag value of dependent variable which is the regression with the one step estimator (Mileva, 2007). In order to test the validity of the restrictions the Sargan Test will be used.

- **Sargan Test**

The sargan test is used to examine the validity of over identifying restrictions which test that the instrument used in analysis is exogenous or not. The exact identification of the model leads to the possibility of having valid instruments or the restrictions. Moreover, if the model is over identified then the sargan test favor the invalidity of the restrictions. The null hypothesis of the test favor the validity of the over identifying restrictions. It follows the Chi Square (χ^2) distribution (Roodman, 2009). If the probability of Sargan test highlights the significant value that is less than 0.05 then the null hypothesis will be rejected at 5% level of significance. Thus favoring the invalidity of the over identifying restrictions.

Thus in such situation again the researcher will go back to estimation of Arellano-Bond dynamic panel-data and again run the regression but now with two steps estimator. Again problematic issue of autocorrelation will be tested.

- **Arellano-Bond Test for Autocorrelation**

After estimating the dynamic panel model with two step estimators the econometric problem of autocorrelation is tested to make the estimates unbiased and consistent. In this regard the Arellano-Bond test for zero autocorrelation is used. Its null hypothesis is simple stating no autocorrelation. If the probability value usually at order 2 is such that it favor the acceptance of null hypothesis that is it is greater than 0.05 then the problem of autocorrelation is removed from the model whereas the order 1 it usually turned out to be in favor of rejection of null hypothesis. Now the estimates of two step estimators of Arellano-Bond dynamic panel-data estimation are unbiased and consistent (Mileva, 2007).

Chapter 4

Results and Discussion

4.1. Introduction

Chapter 4 of the study deals with interpretation and detail discussion of results and possible justification of computed results. Study investigated the impact of public social services expenditures on economic wellbeing and the economic growth for the developing countries categorized into Asia and Africa over period 1980-2014 and for this purpose the estimation techniques used are Arellano Bond Dynamic Panel Data Estimation and Random Effect Model. The software used in this regard is Stata 12.0.

The organization of Chapter 4 is as follows; section 4.1 is about introduction of chapter, section 4.2 computes descriptive analysis, whereas section 4.3 shows result of model 1 which is further subdivided into eight sub-sections and 4.4 section reflect the results of the model 2 and this is also further divided into three sub-sections

4.2. Descriptive Analysis

Before detail and in depth analysis of actual results drawn from the application of above suggested estimation techniques, the brief and comprehensive descriptive analysis would be demonstrated by the table 4.2. It report average mean, Standard Deviation, Minimum and Maximum values for variables incorporated in both models of economic wellbeing and economic growth.

Table 4.2: Descriptive Analysis

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
HCEpc	735	1191.612	850.4356	200.2986	5450.525
EDUEXP	735	16.4994	4.911716	4.65	32.40492
HEALTHEXP	735	7.214895	3.88593	0.7	23.24722
RGDPpc	735	1983.869	1784.962	289.1217	10512.18
CPI	735	56.63297	35.84887	0.0145439	250.8293
UR	735	9.070776	6.69953	0.7	39.3
TO	735	0.695997	0.4531945	0.0843774	2.168763
GRGDP	735	4.516743	4.412677	-21.59965	26.26858
RGFCF	735	3.27e+10	7.26e+10	-3.74e+07	6.74e+11
POP	735	2.16093	0.8994942	-0.9115117	5.639063

As reported in the table 4.2 the value of average mean of Real Household Final Consumption Expenditure Per Capita (HCEpc) taken as proxy to show economic wellbeing is 1191.612, whereas its standard deviation showed the value 850.4356. The minimum and the maximum value of dependent variable for economic wellbeing model is 200.2986 and 5450.525 respectively. Further in second model dependent variable is Growth of Real GDP whose mean show value 4.516742 having standard deviation 4.412677 with minimum value -21.59965 and maximum value 26.26858.

According to descriptive analysis average mean of Government Expenditure on Education (EDUEXP) and Government Expenditure on Health (HEALTHEXP) taken as the variables to show the public social services expenditures is 16.4994 and 7.214895 respectively. Moreover the standard deviation for the Government Expenditure on Education is 4.911716 and

for Government Expenditure on Health is 3.88593. The minimum value for the education and health variable is 4.65 and 0.7 correspondingly whereas the maximum value is 32.40492 for the Government Expenditure on Education and 23.24722 for the Government Expenditure on Health.

The other explanatory variable included in the model of economic wellbeing is Real GDP per capita (RGDPpc) having the value of average mean 1983.869, standard deviation 1784.962, minimum 289.1217 and maximum 10512.18. The descriptive statistics of Consumer Price Index (CPI) used to show inflation in economy has average mean value 56.63297, standard deviation 35.84887, minimum value 0.0145439 and maximum value 250.8293. Further incorporated explanatory variables in economic wellbeing model are Unemployment Rate (UR) and Trade Openness (TO) having the mean value 9.070776 and 0.695997 respectively. Additionally the standard deviation for Unemployment Rate is 6.69953 and Trade Openness is 0.4531945. Minimum value 0.7 is for Unemployment Rate and 0.0843774 is for Trade Openness whereas the maximum value for Unemployment Rate and Trade Openness is taken as 39.3 and 2.168763 correspondingly.

Moreover other explanatory variables taken in economic growth model as control variables are Real Gross Fixed Capital Formation (RGFCF) and Population Growth (POP) having the average mean value 3.27e+10 and 2.16093 respectively. Likewise the standard deviation for Real GFCF is 7.26e+10 and for Population Growth is 0.8994942. The minimum and the maximum value for real GFCF is -3.74e+07 and 6.74e+11 respectively whereas for Population Growth the minimum value is -0.9115117 and the maximum value is 5.639063.

Now after the combined descriptive analysis of both economic wellbeing and economic growth models detail analysis of each model is done separately.

4.3. Results of Model 1

4.3.1. Problem of Endogenity

By closely observing the economic wellbeing model it has been highlighted that there exist problem of endogenity or the feedback effect which can proliferate the problems and would give inconsistent and biased estimates. Problem of two way causality between Households Consumption Expenditures per capita and Real GDP per capita has been highlighted by macroeconomic theory. Keynes contribution towards the consumption theory has utmost importance in economic world. He considered consumption as the positive function of income which suggests that increase in income leads to an increase in consumption expenditure of households (Amin, 2011). Further according to the macroeconomic theory the components of GDP were consumption expenditures of households, investment, government expenditures and net exports. Here consumption expenditures of households play a vital and significant role in accelerating GDP due to its larger share towards GDP thus being such important policy variable it got huge attention of different policy makers (Tapsin and Hepsag, 2014). The problem of two way causality between household final consumption expenditure per capita and real GDP per capita might take the model towards dynamic sense. But for further confirmation economic wellbeing model is tested for problem of autocorrelation.

4.3.2. Results of Wooldridge Test for Autocorrelation

As discussed earlier this test used to ensure the presence of autocorrelation problem in analysis under consideration. It follows the F-distribution.

Table 4.3.2: Wooldridge Test for Autocorrelation in Panel Data

H_0: no first-order autocorrelation	
F(1, 20)	97.345
Prob> F	0.0000

Probability value suggested significant value that is 0.0000 which is less than 0.05 thus it become the basis for rejection of null hypothesis at 5% level of significance in favor of alternative hypothesis stating the presence of autocorrelation problem in economic wellbeing model.

Thus in such situation where problems of both endogenity and autocorrelation exists the economic wellbeing model remain no longer a static model rather it become the dynamic model in such circumstances. So application of simple Fixed Effect or Random Effect Model in case of economic wellbeing model will intensify the problematic issues in analysis and could lead to inappropriate, inconsistent and biased estimates. Under the head of such econometric issues of endogenity and autocorrelation most popular Arellano Bond Dynamic Panel Data Estimation technique is favorably applicable.

4.3.3. Results of the Sargan Test

By incorporating the lag value of the dependent variable in the model the Arellano Bond Dynamic Panel Data Estimation is undertaken with one step estimators. Before the detail analysis at this stage the Arellano Bond Dynamic Panel Data Estimation with one step estimator are put under the sargan test in order to test the validity of over identifying restrictions.

Table 4.3.3:Sargan Test of Over Identifying Restrictions

H_0: over identifying restrictions are valid	
chi2(481)	574.3188
Prob> chi2	0.0022

The probability value of sargan test shows the statistical significance. Probability value of the sargan test is 0.0022 which is less than 0.05 thus it become the responsible reason for the rejection of the null hypothesis thus stating that the over identifying restrictions are not valid at

5% level of significance. Thus the sargan test shows that in case of the Arellano Bond Dynamic Panel Data Estimation with one step estimator the over identifying restriction is invalid so it pushes towards the application Arellano Bond Dynamic Panel Data Estimation with two step estimators.

4.3.4. Results of Arellano-Bond Test for Autocorrelation

After the application of Arellano Bond Dynamic Panel Data Estimation with two step estimators the results are put under the analysis to check for the problem of autocorrelation.

Table 4.3.4: Arellano-Bond Test for Autocorrelation

Order	Z	Prob>z
1	-2.5417	0.0110
2	-0.2781	0.7809

H_0: no autocorrelation

The probability value at order 2 is such that it favor of the acceptance of null hypothesis stating no problem of autocorrelation. Like the usual case the probability value at second order is greater than 0.05 which means that the problem of autocorrelation is removed from the model under analysis whereas the probability value at order 1 is less than 0.05 thus rejecting the null hypothesis at 5% significance level. So the probability value at order 2 state the removal of the autocorrelation thus making the estimates unbiased and consistent which we get from the Arellano Bond Dynamic Panel Data Estimation with two step estimators.

4.3.5. Result of Arellano-Bond Dynamic Panel-Data Estimation

The results of Arellano-Bond dynamic panel-data estimation with the two step estimators is in scripted as below;

Table 4.3.5: Arellano-Bond Dynamic Panel-Data Estimation

Dependent Variable: LHCEpc

Variables	Value of Coefficients	Probability Values
LHCEpc L_1	0 .8186	0.000***
EDUEXP	0.0225	0.057**
HEALTHEXP	-0.0112	0.901
LRGDPpc	0 .6970	0.000***
LCPI	0.0277	0.949
UR	-0.0436	0.000***
TO	0.1410	0.050**
_cons	1.0367	0.147

Note: a) *** represents $P \leq 0.01$ showing 1 % level of significance
b) ** $P \leq 0.05$ showing 5% level of significance
c) *$P \leq 0.10$ showing 10 % level of significance

Almost all incorporated variables in model show the statistical significance that is there probability values are less than 0.05. Except for two variables, the other explanatory variables in model significantly contribute towards the economic wellbeing. Moreover, most of the variables show the relationship that are according to theory except for two variables; Government Expenditure on Health (HEALTHEXP) and Consumer Price Index (CPI). These two variables show opposite relationship with household final consumption expenditure per capita that is economic wellbeing but their opposite relationship get muted due to insignificant contribution byrespective explanatory variable towards economic wellbeing.

The results inferred while analyzing the impact of public social services expenditures on economic wellbeing shows that the lag value of the real household final consumption expenditure per capita ($LHCEpcL_1$) have the strong positive and significant relationship with the current real

household consumption expenditure per capita (LHCEpc). This means that the current year consumption expenditures per capita of the household depends upon the past year consumption expenditure per capita. Such type of results is embodied in the "habit persistence" of the consumer behavior whose current utility get affected by both the current and past consumption. Further its detail inscription suggested that current consumption levels depend upon the current income level and lagged consumption levels (Byun, 2013; Watson and Teelucksingh, 2002). Further the finding of study suggesting the positive and significant association between current consumption and lagged consumption are also in lined with the empirical study of Khan et al. (2014) who also favored the positive and significant impact of lagged consumption level on the current consumption level.

Further government expenditure on education illustrates strong positive significance towards the real household final consumption expenditure per capita. Results reveal that provision of basic social service that is education by respective government or the government attention by spending more to social services enable inhabitants to improve their living standard and economic wellbeing. These results of study are in lined with study of Mallick et al. (2016), Baldacci et al. (2010), Hessami (2010) and Angelopoulos et al. (2007) who suggested positive significance between government education expenditure and economic wellbeing or economic welfare of inhabitants.

As mentioned above the government expenditure on health shows negative but insignificant relationship with economic wellbeing. This means that the negative impact of government health expenditure on consumption expenditure of household does not have significant contribution in declining the economic wellbeing of people. According to different empirical studies health expenditure show positive and significant contribution towards the economic wellbeing. Such linkage is shown by Tuluce et al. (2016) and Baca Campodónico et al. (2014) who find the positive association between health care spending and economic growth which they ultimately reflect it

towards the wellbeing of the society. Findings of the present study have subdued the negative relationship between public health expenditure and economic wellbeing due to their insignificant contribution.

As the Consumer Price Index (CPI) used for the inflation show the positive but insignificant association with the household final consumption expenditure per capita, thus this opposing impact is depress by insignificant contribution between them. Findings of other empirical studies show negative and significant contribution between inflation and consumption expenditure of household. Such kind of impact is captured by Anafo et al. (2014), Burke and Ozdagli (2013) and Bălăcescu and Zaharia (2011). The positive impact of CPI towards the consumption expenditure in current study get weakens due to their insignificant contribution as shown by the probability value of CPI.

The other control explanatory variables like Real GDP per capita to show income level of the individuals and trade openness revealed strong positive and significant contribution towards the household consumption expenditure per capita. The increase in these explanatory variables significantly accelerates the economic wellbeing of individuals. Different empirical studies favor these results such as studies by Nicklaus (2015) and Ezeji and Ajudua (2015) who reflected the positive linkage between household income levels and their consumption levels. Likewise the positive association between trade openness and household welfare are reflected in studies by Seshan (2013) and Okodua and Alege (2014).

Additionally unemployment rate reveal negative and significant contribution towards the household consumption expenditure per capita that is with the increase in problem of unemployment, consumption expenditure of individuals tend to reduce. This kind of linkage between unemployment rate and consumption expenditure of households has been favored in different studies

conducted by Campos and Reggio (2014), Ganong and Noel (2016), Moutos and Malley (1996) and Dynarski and Sheffrin (1987)

4.4. Results of Model 2

4.4.1. Problem of Endogenity

Economic Growth model does not give any indication or sign for existence of problematic issue of endogenity. Explanatory variables incorporated in economic growth model do not highlight the presence of feedback effect with the dependent variable.

Further economic growth model is tested in order check for problem of autocorrelation.

4.4.2. Results of Wooldridge Test for Autocorrelation

Following the F-distribution Wooldridge Test give indication about the absence of problem of autocorrelation in model 2.

Table 4.4.2: Wooldridge Test for Autocorrelation in Panel Data

H_0: no first-order autocorrelation	
F(1, 20)	0.872
Prob> F	0.3616

As discussed earlier following the F- distribution, here probability value is greater than 0.05 so we accept null hypothesis stating no first order autocorrelation in the present model. So, economic growth model is then put through different tests for Fixed Effect and Random Effect Model.

4.4.3. Results of Breusch and Pagan Lagrangian Multiplier Test

For model 2 same procedures are followed like model 1. Breusch and Pagan Lagrangian Multiplier Test demonstrate and built a guideline that help in application of fixed effect and random effect model. Model 2 following the same procedure starts the estimation with application of Pool OLS later fixed effect and then random effect models are applied. Basically

in order to make the distinction between Pool OLS and fixed random effect Breusch and Pagan LM Test is used.

Table 4.4.3: Estimated Results

	Var	sd = sqrt(Var)
GRGDP	19.3507	4.3989
E	17.8739	4.2277
U	0.87453	0.9351
Prob> chibar2		0.0000

As following the Chi Square (χ^2) distribution, probability value show significance that is its value is less than 0.05 thus become the basis for rejection of null hypothesis at 5 % level of significance. Here null hypothesis state the presence of Pool OLS or the non-occurrence of random effect. According to the result of Breusch and Pagan LM Test Pool OLS does not give insightful version of analysis so its rejection leads to the inference that either the fixed effect model is applicable or the random effect model. Later other tests show the distinction between fixed effect and random effect.

4.4.4. Results of Hausman Specification Test

Following same procedures as followed in economic wellbeing model after storing the results from fixed effect and random effect model HausmanSpecifiifcation test is used to differentiate between fixed effect and random effect (Brein and Patacchini, 2006).

Table 4.4.4: Hausman Specification Test

	---------- Coefficients ----------			
	(b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
EDUEXP	-0.04120	-0.07303	0.03182	0.03867
HEALTHEXP	0.10280	0.09421	0.00858	0.03400
LRGFCF	0.76127	0.45736	0.30391	0.28154
TO	1.50515	1.15425	0.35089	0.79107
POP	1.19716	0.80005	0.39710	0.13520
Prob>chi2		0.0683		

For the economic growth model probability value suggested by hausman specification test is greater than 0.05 so it turned out in favor of acceptance of the null hypothesis thus preferring the application and results of random effect model.

4.3.5. Results of Random Effect

Being acceptable method by hausman specification test results of random effect model are stated below along with detail analysis;

Table 4.4.5: Random Effect Model

Dependent Variable: Growth of Real GDP (GRGDP)

Variables	Value of Coefficients	Probability Value
EDUEXP	-0.07303	0.123
HEALTHEXP	0.09421	0.075*
LRGFCF	0.457362	0.000***
TO	1.154255	0.032**
POP	0.800057	0.000***
_Cons	-7.82266	0.016**
Prob> chi2	0.0001	

Note: a) *** represents $P \leq 0.01$ showing 1 % level of significance
b) ** $P \leq 0.05$ showing 5% level of significance
c) *$P \leq 0.10$ showing 10 % level of significance

After the application of random effect it confirms the overall significance of model. Here Chi Square (χ^2) distribution shows significant value. Like the economic wellbeing model, in economic growth model almost all variables included in the model show statistical significance except for the government education expenditure that is showing insignificant value along with negative sign.

For analyzing the impact of social services expenditures towards the economic growth of the developing countries of Asia and Africa, education expenditure show negative association with economic growth but this negative effect is overcome and depress by its insignificant value. This means that negative effect of government education expenditure does not significantly contribute towards economic growth of countries under study. Different empirical studies have favored the positive connection between the public education expenditure and economic growth. In this regard the studies conducted by Mallick et al. (2016), Mekdad et al. (2014), Kaur et al. (2014) and Mercan (2013). Another study conducted by Bexheti and Mustafi (2015) found the significant negative

impact of public education expenditure and the economic growth and stresses on improving the quality of education which improve the productive capacity of labor as well as of firms and industries leading to accelerate economic growth.

Further another social service expenditure that is government expenditure on health discovered positive and significant association with economic growth. This states that inclining government expenditure towards the social services that is health and health care facilities would significantly contribute in accelerating economic growth. The studies conducted by Tuluce et al. (2016), Baca Campodónico et al. (2014), Asghar and Awan (2012) and Maitra and Mukhopadhyay (2012) discovered the positive connection between public health expenditure and economic growth.

The other explanatory variables used as control and standard variables in economic growth model include real gross fixed capital formation (RGFCF), trade openness and population growth has showed statistical significance and positive association with economic growth which means that every rise in these explanatory variables leads to increase in Growth of real GDP of country. For real GFCF or physical capital studies conducted by Uneze (2013) and Adhikary (2011) highlighted positive linkage of this extremely important variable with economic growth of country. Further the studies conducted for exploring the impact of trade openness on economic growth includes Andersen and Babulla (2008) and Dao, '15 (2015) who found positive and significant connection between two. Population growth as one of important standard variable in economic growth model also suggests the positive and significant contribution towards economic growth or GDP of country. This type of relationship between population growth and economic growth is highlighted in the studies conducted by Ali et al. (2013) and Thuku et al. (2013).

Both the models that are economic wellbeing model and economic growth model have reflected the importance of social services toward growth of economy and the wellbeing of inhabitants.

Chapter 5

Conclusion and Recommendations

5.1. Conclusion

Present research aimed to analyze certain objectives which have provided basic guideline and framework regarding the importance and standing contribution of social sector not only towards growth of economy but also towards the actual wellbeing of its people. The present study uttered the two main objectives; one about exploring the impact of public social services expenditures on economic wellbeing and second about investigating the impact of public social services expenditures towards economic growth. For the fulfillment of these objectives of study the panel data has been taken for 21 developing countries divided under two heads of Asia and Africa. The time period of the analysis started from 1980 to 2014. The panel data estimation techniques used for achievement of these main objectives has been Arellano Bond Dynamic Panel Data Estimation and Random Effect Model. As for social services expenditures, the expenditures of two main and important social services of education and health have been used in the study. After estimation results of study revealed that both government extended expenditures to education and health affect the economic wellbeing as well as the economic growth.

For case of economic wellbeing government extended expenditure to education has positive and significant impact. Means with every rise in education expenditure by government play a significant and the fruitful role in raising the economic wellbeing of people. Different endogenous growth theories by Romer (1986, 1990), Lucus (1988) and Mankiw et al. (1992) also suggested for human capital that specifically taken as education to contribute positively and significantly towards economic growth which ultimately turned out helpful in improving

people's wellbeing. A famous Chinese proverb about the importance of education is stated as "If you are planning for a year, sow rice; if you are planning for a decade, plant trees; if you are planning for a lifetime, educate people" (Everyday Power, 2012-2016). Thus education has long lasting and standing impact on people's life, their wellbeing and towards economy of the country.

Further the public health expenditures affect the economic wellbeing negatively but it does not show any significance for it. Means the negative affect of government expenditures on health does not really affect the economic wellbeing of inhabitants. So here it is concluded that the economic wellbeing of individuals and their standard of living get affect by education expenditures more effectively and efficiently as compared to the expenditures extended by government to health. This is so because provision of improved and better education facilities generated with utilization of expenditures by government enables people to improve their productive capacity and learn better skills and talents which turned out helpful in increasing their earnings thus improve their wellbeing. Such contribution of returns to investment in education by both public and private sector was also explained by the work of Mincer (1958, 1975), Schultz (1961) and Becker (1962).

Moreover, education expenditures by government have negative but insignificant impact towards the economic growth. This suggests that negative impact of government education expenditure does not significantly contribute towards the economic growth. The negative association of public education expenditure with economic growth does not really reduce the economic growth in significant value. Further today's education expenditures extended by government benefits the economy in future periods that is with lag intervals. Further the study conducted for Macedonia by Bexheti and Mustafi (2015) also found the negative linkage

between the education expenditures and economic growth and stress was laid on improving the structure of education as well as its quality. As per our results are concerned economic growth does not really reduce by education expenditure. Here the negative sign between education expenditure and economic growth is neutralized by insignificant probability value.

As far as the impact of health expenditure is concerned towards the economic growth it showed the positive and significant association. Means with every rise in government health expenditure significantly increases the economic growth of country. Health, being one of the components of human capital show positive linkage with economic growth is favored in both the generation of endogenous growth theories by Romer (1986, 1990), Lucus (1988) and Mankiw et al. (1992).

Furthermore public social services expenditures stand equally important for both economic growth and economic wellbeing. The study revealed that government expenditures on education contributed more towards economic wellbeing than economic growth, as government expenditures on education has showed positive significance towards economic wellbeing whereas it showed negative but insignificant association with economic growth. The contribution of public health expenditures has showed more tilt towards economic growth than economic wellbeing because government health expenditures highlighted the positive significance towards economic growth whereas negative but insignificant association was found with economic wellbeing.

Moreover the results reflected by both models of economic wellbeing and economic growth are also consistent with the Keynesian Approach who suggested that government expenditures in any sector of the economy bring growth and prosperity in economy.

Furthermore, other control explanatory variables have rightly affected both economic wellbeing and economic growth except for consumer price index used for inflation in the economic wellbeing model affect the consumption expenditure of households positively but it is not problematic as its probability value show insignificance towards consumption expenditures. So findings suggested that apart from education and health other elements or variables added in both models are equally important for bringing the economy up and providing opportunity to its people to look for the better life.

5.2. Recommendations

Importance of attention of government to social services help in bringing the progress and prosperity in economy of developing countries has been highlighted by the findings of study. So some recommendations in this regard are suggested as follows;

- Government should take into account all the expenditures that are beneficial for education and health sector so that they in turn contribute towards progress and prosperity of country.
- Moreover, government should revise their expenditures from low level to higher level such as in case of education government should extend expenditures from primary to higher education level.
- The government should strive to enhance expenditures in these social services not only on increasing the provision of social services in terms of quantity but also focus on improving the quality of these services.
- For case of developing countries if economy have high physical to human capital ratio then their physical capital holdings dissimulate and being the important factor of production negatively affect growth. But the economies having higher

human to physical capital ratio or have low physical to human capital ratio shows a sustainable increase in the holdings of physical capital and thus affect the economy positively.

5.3. Future Research

The aspects for future research suggested that the researcher can focus on the expenditures of other social services apart from just education and health. Moreover the researcher can focus on drawing the comparison between the developing countries of Asia and Africa.

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Appendix

1. Results of Model 1

1.1.Results of Breusch and Pagan Lagrangian Multiplier Test

Table 1.1: Estimated Results

	Var	sd = sqrt (Var)
LHCEpc	.4946949	.7033455
e	.0156326	.1250302
u	.1180395	.3435688
Prob> chibar2	0.0000	

1.2.Results of Hausman Specification Test

Table 1.2: Hausman Specification Test

	---------- Coefficients ----------			
	(b) Fixed	**(B) Random**	**(b-B) Difference**	**sqrt(diag(V_b-V_B)) S.E.**
EDUEXP	0.059318	0.0058045	0.0535135	-
HEALTHEXP	-0.064843	-0.0065549	0.0582881	-
LRGDPpc	0.02027	0.002062	-3.50e-04	7.67e-07
LCPI	0.02804	0.0027524	0.0252876	-
UR	-0.0115171	-0.0105708	-0.0009462	0.0001577
TO	0.1367623	0.1427501	-0.0059879	0.0026241
Prob>chi2	0.0296			

1.3.Fixed Effect Model

Table 1.3: Fixed Effect Model

LHCEpc	Value of Coefficient	Probability Value
EDUEXP	0.059318	0.001**
HEALTHEXP	-0.064843	0.002**
LRGDPpc	0.02027	0.000***
LCPI	0.02804	0.000***
UR	-0.0115171	0.000***
TO	0.1367623	0.000***
_cons	6.24104	0.000***

Note: a) *** represents P ≤ 0.01 showing 1 % level of significance
b) ** P ≤ 0.05 showing 5% level of significance
c) *P ≤ 0.10 showing 10 % level of significance

Prob> F = 0.0000

1.4.Results of Breusch-Pagan LM test of Independence

Correlation Matrix of Residuals:

	__e1	__e2	__e3	__e4	__e5	__e6	__e7	__e8	__e9	__e10	__e11	__e12	__e13
__e1	1.0000												
__e2	0.4905	1.0000											
__e3	-0.1678	0.6718	1.0000										
__e4	-0.6165	-0.3598	0.1413	1.0000									
__e5	-0.0895	-0.3974	-0.4975	0.2281	1.0000								
__e6	-0.1410	-0.8931	-0.8649	0.2303	0.5060	1.0000							
__e7	-0.1942	0.5403	0.8042	0.1046	-0.2777	-0.7542	1.0000						
__e8	0.3346	0.8322	0.6355	-0.2490	-0.2494	-0.8232	0.6840	1.0000					
__e9	-0.0816	0.6470	0.7733	0.1492	-0.1297	-0.7066	0.5250	0.6144	1.0000				
__e10	-0.2483	0.3894	0.7873	0.3484	-0.5031	-0.5944	0.6871	0.4761	0.5028	1.0000			
__e11	0.2580	0.2952	0.2533	-0.1129	-0.5805	-0.2776	0.2313	0.1676	-0.1948	0.2908	1.0000		
__e12	-0.1326	0.0881	0.1492	0.2761	0.4172	-0.0878	0.4652	0.3462	0.1915	0.1679	-0.0171	1.0000	
__e13	-0.0761	-0.5167	-0.6729	-0.0408	0.7026	0.6306	-0.6632	-0.5379	-0.2978	-0.7536	-0.5737	0.0080	1.0000
__e14	-0.1056	0.6204	0.8442	0.1324	-0.5454	-0.8239	0.6836	0.6464	0.6198	0.7826	0.2406	-0.0940	-0.7383
__e15	-0.4071	-0.6049	-0.5311	0.0764	0.0552	0.4878	-0.3446	-0.4577	-0.5913	-0.3136	-0.1038	-0.1349	0.3138
__e16	-0.1015	-0.7001	-0.7344	0.1931	0.0926	0.7707	-0.7093	-0.6671	-0.6971	-0.4276	0.0067	-0.3195	0.3532
__e17	0.8886	0.4874	-0.1601	-0.6667	-0.0658	-0.1358	-0.2516	0.2418	0.0070	-0.4307	0.1324	-0.1452	0.0818
__e18	0.2294	0.8408	0.7391	-0.1723	-0.6962	-0.8560	0.4840	0.6010	0.5641	0.5943	0.4444	-0.1869	-0.6715
__e19	0.1501	-0.6097	-0.8322	-0.1492	0.6031	0.8053	-0.6681	-0.5215	-0.5642	-0.6880	-0.3870	0.0508	0.7317
__e20	-0.7208	-0.4810	-0.0087	0.3262	0.0007	0.2321	0.0030	-0.3458	-0.0884	0.0340	-0.1908	-0.1192	0.0116
__e21	0.7036	0.6177	0.0152	-0.6440	-0.0521	-0.3590	-0.1738	0.3498	0.2373	-0.3892	0.0051	-0.2791	0.1284

	__e14	__e15	__e16	__e17	__e18	__e19	__e20	__e21
__e14	1.0000							
__e15	-0.3198	1.0000						
__e16	-0 5182	0.6321	1.0000					
__e17	-0.2204	-0.4219	-0.1501	1.0000				
__e18	0.7521	-0.4268	-0.5228	0.2058	1.0000			
__e19	-0.8388	0.3010	0.4826	0.1962	-0.8242	1.0000		
__e20	-0.0252	0.4570	0.1835	-0.6090	-0.2379	-0.0520	1.0000	
__e21	0 0224	-0.3895	-0.2687	0.8307	0.3584	0.0002	-0.5046	1.0000

Breusch-Pagan LM Test of Independence:chi2(210) = 1640.215, Pr = 0.0000

1.5.Result of Modified Wald Test for Group-Wise Heteroskedasticity

- **Modified Wald Test for Group-Wise Heteroskedasticity in Fixed Effect Regression Model**

H_0:sigma(i)^2 = sigma^2 for all i

chi2 (21) = 3072.09

Prob>chi2 = 0.0000

Panel Unit Root Test

- **Household Final Consumption Expenditure Per Capita**

Levin-Lin-Chu unit-root test for HCEPC

	Statistics	p-value
Unadjusted t	6.6630	
Adjusted t*	11.9474	1.0000

- **Government Expenditure on Education**

Levin-Lin-Chu unit-root test for EDUEXP

	Statistics	p-value
Unadjusted t	-8.3595	
Adjusted t*	-2.8130	0.0025

- **Government Expenditure on Health**

Levin-Lin-Chu unit-root test for HEALTHEXP

	Statistics	p-value
Unadjusted t	-10.6415	
Adjusted t*	-1.5298	0.0630

- **Real GDP Per Capita**

Levin-Lin-Chu unit-root test for RGDPPC

	Statistics	p-value
Unadjusted t	5.9569	
Adjusted t*	10.4469	1.0000

- **Consumer Price Index**

Levin-Lin-Chu unit-root test for CPI

	Statistics	p-value
Unadjusted t	5.9004	
Adjusted t*	10.0931	1.0000

- **Unemployment**

Levin-Lin-Chu unit-root test for UR

	Statistics	p-value
Unadjusted t	-6.1120	
Adjusted t*	-2.8771	0.0020

- **Trade Openness**

Levin-Lin-Chu unit-root test for TO

	Statistics	p-value
Unadjusted t	-4.4493	
Adjusted t*	0.2614	0.6031

- **Growth of Real GDP**

Levin-Lin-Chu unit-root test for GRGDP

	Statistics	p-value
Unadjusted t	-15.5655	
Adjusted t*	-7.9693	0.0000

- **Real Gross Fixed Capital Formation**

Levin-Lin-Chu unit-root test for RGFCF

	Statistics	p-value
Unadjusted t	6.5091	
Adjusted t*	14.3663	1.0000

- **Population Growth**

Levin-Lin-Chu unit-root test for POP

	Statistics	p-value
Unadjusted t	-10.7738	
Adjusted t*	-9.4665	0.0000

Selected Developing Countries

The data on 21 developing countries categorized under Asia and Africa are mentioned below;

ASIA

Bangladesh	BGD	01
India	IND	02
Indonesia	IDN	03
Iran	IRN	04
Jordan	JOR	05
Malaysia	MYS	06
Pakistan	PAK	07
Philippines	PHL	08
Sri Lanka	LKA	09
Thailand	THA	10

AFRICA

Botswana	BWN	11
Burkina Faso	BFA	12
Cameroon	CMR	13
Egypt	EGY	14

Kenya	KEN	15
Lesotho	LSO	16
Mali	MLI	17
Morocco	MAR	18
Sierra Leone	SLE	19
Togo	TGO	20
Tunisia	TUN	21