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# Impact of Government Debt and Basic Needs on Economic Growth in Pakistan

Sadia Shaheen
national defence university,islamabad
chsadia70@yahoo.com
Sadaf Ayub
fatima jinnah women university, rawalpindi.
sadafraja2010@yahoo.com

**Abstract**
This paper examines the relationship between basic needs and economic growth and also finds the interaction between output, health, education and nutrition. The study also focuses on the impact of government debt and debt servicing on economic growth. Time series data is used from period 1970 to 2010.Augmented dickey-fuller test is used in order to check the stationarity of time series data. The ordinary least square (OLS) method and Granger Causality test are used in order to find an interrelationship between basic needs variables like health, education, nutrition and growth. The results show the significant impact of all variables except debt servicing on economic growth. Granger causality also indicates the causal relationship between all variables and growth except labor force rate.
**Key words;** economic growth, education, health, debt, labor force rate, nutrition.

## Introduction

Basic needs (both goods and services) are physical contributors of quality of life which are necessary for development process (Perlo-Freeman & Webber, 2010). The basic needs fulfillment is the key element for economic growth of a country. It is a two way process as economic development of a country makes it better to invest in people welfare and in turn physically better people gives the higher level of output. Improvement in education facilities enhances the development and productivity of country (Kakar et al, 2011). Health and nutrition have substantial impact on economic growth as its major ingredient and the effect of early nutrition and health on income of adults showed a reasonable long run impact on growth of a country (Mayer-Foulkes, 2006). Health, education and nutrition variables may have an impact on output or growth of a country.

The unavailability of basic needs or scarcity of resources to fulfill the required needs of living is poverty. Poverty is the major reason of malnutrition and hunger. It is estimated by Food & Agriculture Organization of the United Nations (FAO, 2009), that 963 million or approximately around 15 percent of the estimated world population are based on those people who have inadequate food for living (Govt of Pakistan, 2010-11). It is estimated that around 75% of world resources are with only 20% of world population while other 80% have only 25% resources for living. This is a big cause of income inequality and income poverty. Pakistan is suffering in same situation. Around 40% of Pakistani nation is living below poverty line (Govt of Pakistan, 2010-11), lagging behind in basic needs like nutrition, health and education. Many studies on poverty showed that there is indication of high level of poverty in rural areas of Pakistan as compared to urban. Poverty is a rural phenomenon and despite steady economic growth during 1990 poverty level increased (Arif, 2006). It was found that the poverty line in1984-85 was rupees 690 for food consumption, 1415 rupees for all expenditures and it was also concluded that poverty line differ in rural urban areas and in provinces (Havinga et al, 1989).

High government debt and low economic growth are hard issues for Pakistan. The debt accumulations in other south Asian countries have not so far as negative impact as Pakistan has on its economic growth (Siddiqui& Malik, 2002). The government debt is increasing at an alarming rate without having any productive impact. It is not utilized on people welfare. Unfortunately the most adverse impact is that a large part of development expenditure is going in debt servicing and debt repayment. There are no sound policy measures in any country for debt management and for government future liabilities (Cecchetti et al, 2010). The paper is focused on an investigation on impact of government debt and basic needs on economic growth.

Due to gap between receipts and payments (balance of payments), Pakistan has no other option except foreign aid or borrowing to meet its expenditures. The reasons of external debt have both interior and exterior elements. Interior elements embraces expansionary financial policies and highly slanted trade policies, while exterior elements contain the policies of developed countries like high interest rates, less imports from developing countries and other discriminations against developing world (Were, 2001).

The debt burden on economy is increasing day by day and there is no marked improvement in economic growth. Large number of population is lagging behind in availability of basic needs. When people are not self-sufficient in nutrition, health and education facilities, their productivity will obviously go down. Both government debt and non- availability of basic needs to common people are big issues for Pakistan. This paper finds interrelationship between government debt, growth and basic needs whether they have a positive or negative relationship.

 

The main purpose of this paper is to analyze the availability of basic needs in the country and their impact on economic growth and also to examine the debt situation and its impact on economic growth.

**Review of literature**

Yildirim,Denizand, Hepsag (2011) examined the effect of public educational expenditures on economic growth. The results based on causality analysis showed that the causal relationship was not bidirectional as it run from public expenditures to economic growth but not from growth to public educational expenditures. Kakar, Khiliji and Khan (2011) investigated the relationship between education expenditure and economic growth. The results indicated the long-run relationship between growth and education. Improvement in education facilities enhanced the development and productivity of country.

Leung and Wang (2010) studied the endogenous link between healthcare, life expectancy and production in a neoclassical growth model. This paper observed the interdependence between healthcare and economic development in an equilibrium framework. The study concluded that the healthcare and savings rise and fall in equilibrium path. The healthcare facilities increases the life expectancy which in turn enhances the productivity and the comparison between counties showed that rich countries are better in economic development because of healthcare spending.

In a study, Perlo- Freeman and Webber (2009) studied the relationship between basic needs and economic growth. Data was taken from three countries on interval of 10 years. The study employed simultaneous four equation model and three stage least square methods. The results showed a one sided relationship that improvement in wellbeing adds to labor productivity but a reverse causation from growth to nutrition.

Presbeterio (2011) examined the growth effects of public debt in developing countries. Data were taken from low and middle income countries from period 1990-2007. The results showed negative impact of public debt up to 90% threshold level of GDP. It was found that industrialized countries were better in obtaining benefits from public debt.

Illzetzki (2011) studied the fiscal policy and dynamics of debt in developing countries. The study employed various econometrics techniques on variety of tax bases from 28 countries. The results showed the simulative effect of tax cuts on economic growth. The paper also used vector auto regression for incorporating the dynamics of debt in developing countries. The effects of taxes on output in high income countries were moderate while significant in low income countries

Safdari and Mehrizi (2011) examined the relationship between economic growth and external debt in Iran considering five variables of GDP, private investment , public investment, external debt and imports and data was take from period 1974 to 2007. Vector auto regression was employed and stability of data was checked by dickey-fuller test. Convergence of variables was checked through Johnson test. The results showed that external debt had negative impact on gross domestic product and private investment and public and private investment had positive relation with each other.

Cecchetti, Mohanty and Zampolli (2010) examined the fiscal policies for debt management in high debt burdened countries. The study on the bases of theoretical analysis showed that there were no sound policy measures in any country for debt management and for government future liabilities. Drastic measures required for sustainability of growth and also for checking for rapid growth of government liabilities.

Checherita and Rother (2010) investigated the effects of public debt on per capita GDP. The data were taken from twelve euro area countries over a period of about 40 years starting in 1970. The study found a non-linear impact of debt on growth with a turning point—beyond which the government debt-to-GDP ratio had a deleterious impact on long-term growth at about 90 -100% of GDP. The study suggested that for many countries current debt levels already may have a detrimental impact on GDP growth, given that the euro area average debt-to-GDP ratio (estimated to increase from 78.7% in 2009 to 88.5% in 2011) is already above the lower threshold level.

Augustin, Kwasi and Fosu (2010) examined the constraints of debt services and public expenditures allocation in Sub-Sahara Africa. Data was taken from 35 sub-Sahara African countries from period 1975-94 on interval bases. The methodology was based on estimation of constraints- consistent debt service ratios and employed them in seemingly unrelated regression. The study reflected that constraining debt service was a big hurdle in the way of allocation of public expenditures especially in health and education sector but on the other hand external aid or even debt made a little share in social sector improvement.

Misztal (2010) presented the relationship between public debt and economic growth. The data were taken from European Union from period 2000 to 2010. The study employed both theoretical and empirical methods. The empirical technique used was vector auto regression model. The results showed no significant impact of public debt on individual European countries. Overall there was positive impact of public debt on economic growth in European countries.

**Methodology and Results**

Data used in this study is based on secondary sources included both from government of Pakistan and word bank sources. Data is taken from 1970 to 2010 on Pakistan. All variables were taken in natural log form. Data on debt,

 

investment (as ratio to GDP) and GDP were taken in real terms(2000 as base year) and in constant dollar prices US $. Data is analyzed by different econometrics technique. Augmented Dickey-Fuller unit root test is applied in order to check the stationarity of time series data. Least square method is applied to check the significance of variables and the causal relationship between variables is estimated through granger causality test. All tests are applied with the help of statistical package E-views 5.

Single equation regression is one of the most common techniques used in statistical procedures for simple analysis.

**The estimation equation would be as follows:**

LRGDP(-1) = C + LCE+ LRCAL(-1)+ LRDS(-1)+ LRGD(-1)+ LSE(-1)+ LLBR(-1) +LRINVTGDP(-1) +LINFT+……..eq(1)

Where

C = Constant

LRGDP =Log of Gross Domestic Production

LRCAL = Log of Calories Intake

LRGD =Log of Government Debt

LRDS = Log of Debt Servicing

LCE =Log of College Enrollments

LINFT =Log of Infant Mortality Rate

LRINVTGDP=Log of Investment as ratio to GDP

LSE=Log of School Enrollment

LLBR=Log of Labor Force Rate

μ = Error Term

**Substituted Coefficients: t satistics in ( ) & p value in [ ]**

==========

LRGDP(-1) = 0.4504531492*LCE + 0.9717111284*LRCAL(-1) + 0.1185099806*LRDS(-1) +
(3.761809) (9.819735) (1.850844)
[0.0007] [0.0000] [0.0734]

0.4895016509*LRGD(-1) + 0.2921977795*LSE(-1) + 0.2650021448*LLBR(-1) –
(3.832068) (2.585314) (2.500488)
[0.0006] [0.0145] [0.0177]

0.2887611875*LRINVTGDP(-1) + 0.2421723571*LINFT
(3.844857) (2.618039)
[0.0005] [0.0134]

 

**Table 1 least square method**

| Dependent Variable: LRGDP(-1) | | | | |
|---|---|---|---|---|
| Method: Least Squares | | | | |
| Date: 04/09/12 Time: 11:08 | | | | |
| Sample (adjusted): 1971 2010 | | | | |
| Included observations: 40 after adjustments | | | | |
| | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| LCE | 0.450453 | 0.119744 | 3.761809 | 0.0007 |
| LRCAL(-1) | 0.971711 | 0.098955 | 9.819735 | 0.0000 |
| LRDS(-1) | 0.118510 | 0.064030 | 1.850844 | 0.0734 |
| LRGD(-1) | 0.489502 | 0.127738 | 3.832068 | 0.0006 |
| LSE(-1) | 0.292198 | 0.113022 | 2.585314 | 0.0145 |
| LLBR(-1) | 0.265002 | 0.105980 | 2.500488 | 0.0177 |
| LRINVTGDP(-1) | -0.288761 | 0.075103 | -3.844857 | 0.0005 |
| LINFT | 0.242172 | 0.092501 | 2.618039 | 0.0134 |
| R-squared | 0.739106 | Mean dependent var | | 20.48365 |
| Adjusted R-squared | 0.682036 | S.D. dependent var | | 0.124120 |
| S.E. of regression | 0.069989 | Akaike info criterion | | -2.304101 |
| Sum squared resid | 0.156751 | Schwarz criterion | | -1.966325 |
| Log likelihood | 54.08201 | Durbin-Watson stat | | 1.224948 |

Here GDP is taken as dependent variable and all other included variables as independent. The p-values at 5% level and t statistics values (above 2 for 40 Obs) shows significant results with education, nutrition, government debt, investment, labor force and health. Only debt servicing shows insignificant result. It means that all variables except debt servicing have impact on GDP. The external and domestic debt, both taken combined as government debt in this estimation gave better results.

In order to check causal relationship between variables, granger causality test employed which shows number of hypothesis explaining causality between variables.

 

**Table 2 Granger causality test**

| Null Hypothesis: | Obs | F-Statistic | Probability |
|---|---|---|---|
| LCE does not Granger Cause LRGDP(-1) | 39 | 6.25802 | 0.00485 |
| LRGDP(-1) does not Granger Cause LCE | | 0.16058 | 0.85229 |
| LRCAL(-1) does not Granger Cause LRGDP(-1) | 39 | 13.2948 | 5.4E-05 |
| LRGDP(-1) does not Granger Cause LRCAL(-1) | | 0.88678 | 0.42129 |
| LRDS(-1) does not Granger Cause LRGDP(-1) | 39 | 3.63898 | 0.03698 |
| LRGDP(-1) does not Granger Cause LRDS(-1) | | 0.45923 | 0.63563 |
| LRGD(-1) does not Granger Cause LRGDP(-1) | 39 | 5.58819 | 0.00797 |
| LRGDP(-1) does not Granger Cause LRGD(-1) | | 0.58525 | 0.56248 |
| LSE(-1) does not Granger Cause LRGDP(-1) | 39 | 5.17810 | 0.01089 |
| LRGDP(-1) does not Granger Cause LSE(-1) | | 0.53618 | 0.58984 |
| LLBR(-1) does not Granger Cause LRGDP(-1) | 39 | 1.03954 | 0.36459 |
| LRGDP(-1) does not Granger Cause LLBR(-1) | | 1.04048 | 0.36426 |
| LRINVTGDP(-1) does not Granger Cause LRGDP(-1) | 39 | 6.17376 | 0.00516 |
| LRGDP(-1) does not Granger Cause LRINVTGDP(-1) | | 0.48052 | 0.62260 |
| LINFT does not Granger Cause LRGDP(-1) | 39 | 1.37573 | 0.26636 |
| LRGDP(-1) does not Granger Cause LINFT | | 3.12018 | 0.05700 |

The table (2) shows the different hypothesis between growth and other independent variables .Except labor force rate and infant mortality rate, all variable shows unidirectional relationship with growth. The causality between variables and growth runs one way from basic needs and debt to growth but not the other way.

**Conclusion**

This paper presents an investigation into the interrelation and simultaneity between economic growth and basic needs fulfillment, using data from 1970 to 2010. Debt service is included in this study as explicitly endogenous variable. The results of the study are not very significant and it happens in most studies dealt with these basic needs variables because of the nature of these goods. The results suggest different roles of basic needs and their impact on economic growth. Education has unidirectional relation with economic growth which means that the relationship runs one way means education enhances the growth. The result also shows unidirectional relation between nutrition and economic growth in Pakistan.

On the whole, this study presents some meaningful findings on impact of basic needs and government debts on economic growth. Especially the granger causality test gives significant results of dependent variable GDP with other independent variables. An interesting point is that the direction of causality seems to run much more strongly from basic needs fulfillment to growth than the other way round. This may suggest that economic growth on its own is not sufficient to guarantee improvements in basic human welfare, but that the resources made available by economic growth need to be specifically directed towards these basic needs.

 

The significance of government debt with growth indicates that there is a need of debt management in order to avoid the adverse impact of debt burden on economy and also required suitable strategies to curb the insufficiency of basic needs. Pakistan has the highest debt ratio among all south Asian countries reported by Asian development bank and this high debt burden no matter has adverse impact on economy. So there is a need to formulate some remedies for debt management in order to avoid serious consequences of debt burden

Basic needs are physical contributors for quality of life and there importance is unavoidable. As mentioned earlier that 40% of Pakistani nation live below poverty line having insufficient food, health and education facilities. So, there is a need to formulate policies in order to curb the Pro-poor strategies need the investment and expertise from public sector in those key areas which are beneficial for poor nation of country. Especially in those areas which directly benefits poor by generating employment, reducing inflation and also securing macroeconomic stability. For this purpose, government should adopt the growth supporting fiscal and monetary policies.

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