A STUDY ON PUBLIC DEBT AND ECONOMIC GROWTH IN SELECTED SOUTH ASIAN COUNTRIES

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Abstract

Public debt is one of the core macroeconomic gages that represent the image of the country in the world. This study analyses the long run association as well as cause and effect of external debt and debt service on economic growth in South Asian countries including variables such as; interest payment, foreign direct investments, gross savings and net export to the model to prevent spuriousness of the outcomes. This research is directed by the neoclassic economic growth theory. The study uses secondary data that were collected from the World Bank (WB) and International Monetary Funds (IMF) by casing period from 1990 to 2015. The stationary of the data set has been tested by applying panel unit root tests. The long run association of the public debt and the economic growth were checked via applying Pedroni Residual Co-integration and cause and effect of the public debt on economic growth in short run check through Granger Causality test. The results show that external debt negatively impacts economic growth in countries of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka are the South Asian countries that are examined in the study. Panel data show that there is a co-integration between external debt and economic growth for South Asian countries.

Keywords: Public debt, Economic growth, South Asian countries

1. Introduction

Public debt is one of the main macroeconomic variables that denote countries image in the international market. A prudent public debt management helps economic growth and stability through mobilizing resources with low borrowing cost and limit financial risk exposure. Government debt is one method of financing government operations. It is created through various instruments including bonds,

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treasury bills and overdraft from central bank or World Bank. Public debt enables government to facilitate growth take off by investing in an infrastructure projects and social sectors when taxation capacity is limited. Public debt could be borrowed from domestic market or abroad. Therefore, there are two levels of public debt. They are domestic debt and external debt. External borrowings can increase a country's access to resources; domestic borrowing only transfers resources within the country.

Domestic debt plays a major part of government revenues that would have been used in development project to boost economic growth. The interest cost of domestic debt is risen due to holding a large amount of debt in short term instruments. Economic growth can be defined as an increase in the total output produced by a country. It says the capacity of economy to produce goods and services.

Empirical and theoretical analysis tries to analyze the question whether the rising of public debt shows positive or negative effects on the growth rate of economy. Most of South Asian countries utilize public debt as an imperative tool to finance its‟ expenditures (Chawdhury, 2001). However, if public debt is not utilized effectively then it restricts economic growth. The nexus between public debt and economic growth is multifaceted. The debt increases economic growth through investment and involving to cost because of interest payments. However most of South Asian countries use borrowings to increase growth through returns. The relationship between debt and economic growth in South Asian countries can be proved based on evidence given by Babu et al (2014). Although there seems to be an obvious positive linear relationship between debt and growth in South Asian countries it is difficult to establish a long term link between the two without a thorough empirical investigation.

2. Research Problem

South Asian countries borrow debt by using or issuing securities like treasury bills, treasury bonds, etc. Therefore, its interest payments or rates as well as cost of debt have significant impact on the economic growth. Public debts or borrowings are very essential for economic growth because it absorbs money from foreign investors (surplus) and inject money by distributing assets among people who can gain more than at the moment. The factors affecting economic growth in South Asian countries have been a debatable topic over the last few years. Kumara and Cooray (2013), Shabbir (2013) and Siddiqui and Malik (2001) studied the role of debt on economic growth in different countries. The findings of these researches show different results. Those findings conclude that the effectiveness of debt on economic growth differ from one country to another. Thus, this study further empirically analyses this ambiguity. This study mainly focuses on investigating the presence of findings of debt on economic growth relationship. The relationship between public debt and economic growth is important for policy makers.

To fill this research gap, this study identifies the research problem as: "*Whether there is a relationship and effect of public debt on economic growth in South Asian countries".*

In other words, it analyzes whether there is positive effect or negative effect. Internal and external debt has different effects on economic growth. Traditionally is said that domestic debt has negative impact on economic growth (Umaru and Hamidu, 2013). Therefore, the answer to the question of effect of public debt on economic growth is important. On the other hand, whether public debt causes the increase or decrease of GDP or GDP causes to control public debt has to be investigated.

There is an increasing trend of Debt to Export Goods and Services, Debt to Gross National Product, Total Debt Servicing to Export of Goods and Services, Interest Payment to Export of Goods and Services, Reserves to Debt Ratio, Short Term to Total Debt and Multilateral Debt to Total Debt in South Asian countries as well as South Asian region as compared to all other developing countries. Therefore, investigating what kind of relationship and effect is generated due to public debt on economic growth in South Asian countries needs to be investigated.

3. Research Objectives
Every nation has a willingness to achieve high economic growth and sustainable level of debt. For that clear understanding about the relationship between public debt and economic growth is very essential. Therefore, this study provides benefits to the government, private investors, students, scholars, policy makers, international agencies as well as the entire society. This study is important to several stakeholders, especially to scholars and academia. This study enhances the knowledge of the public debt and economic growth in the South Asian Region. The main objective of this research is to study the relationship and effects of the public debt on economic growth in South Asian countries.

4. Literature Review on Debt in Developing and Developed Countries
The views of the impact of public debt on economic growth and possible threshold of public debt are inconclusive. According to the analysis of Maana et al (2008) about domestic debt, they found public debt in Kenya shifted to domestic debt in favorable way and diverse institutional and individual investors. The significance of the domestic debt grows because of high interest payment that impact the budget. The result showed that there is a positive relationship but not significant impact on economic growth of domestic debt. (Maana et al, 2008). The traditional view presents a negative impact of domestic debt on economic growth in long run. Domestic debt is used to investment purpose in India. The relationship was examined by using Co-integration test and Granger causality test (Singh, 1999). External debt is the external bond of the country. Shabbir (2013) examined the relationship between external debts and economic growth in the long run by assessing 70 of developing countries from 1976 to 2011. The study proved that an increment of external debt reduces fiscal deficit and economic growth. External

debt is borrowings from the foreign lenders like foreign commercial banks, governments or international financial institutions. The interest that should be paid for the external debt is paid in currency which the borrowing was made for (Shabbir, 2013). The effect of external debt and domestic debt on economic growth in Nigeria from 1970 to 2010 by applying Ordinary Least Square method shows mixed results for African countries (Umaru et al, 2013).

According to some articles, it is argued that low level of debt implies higher growth and large level of debt implies lower economic growth. "included repudiation risk in the analysis and found low level of debt associated with higher growth (not under financial autarky) where as large levels of accumulated debt stocks lead to lower economic growth" (Siddiqui and Malik, 2001). The definition of the external debt mainly focuses on three directions. The first one is the currency which is the debt issued. The second one is the residence of creditor. The third one is the place where the regulations of debt contract issuance and the legislation. There are variance views about the external debt ratios and the amount of debt (Panizza and Presbitero, 2012). A high level of indebtedness and raise in the external debt to GDP ratio could be hurt to the economy (Casares, 2017).

According to the view of Panizza (2008), different kind of debt have different types of default risk. Therefore, domestic debt and external debt cannot be taken in to a single indicator when calculating the total public debt (Panizza, 2009). Matiti (2016) assessed that the most fundamental determinant of the growth of economy is investment according to the neoclassical and endogenous growth theories. The neoclassical theory explains that there is traditional period impact of investment and permanent effect of endogenous growth model. FDI is the main factor that impacts the internationalizing economic activities, technological transfer and growth of economy. Investment plays an important role in the short run and the long run according to the endogenous growth theory (Matiti, 2013). Levine and Renelt (1992) concluded investment as a basic contributing factor of economic growth and key determinants of effective investments are quality of investments, productivity, and appropriate policy, political and social infrastructures (Levine and Renelt, 1992). Checherita and Rother (2010) accessed when there is lower growth rate in the long run and 90-100 percent of debt of GDP. It is highly connected with public debt-to-GDP ratio. It is energized by providing evidence of effect of the public debt on economic growth in the long run (Checherity and Rother, 2010).

If public debt-to-GDP ratio is small, then impact of the debt level on economic growth may be positive. But with the increase of the debt level impact on the economic growth gradually decreases. There is a certain debt level beyond that level there is a negative impact on the GDP growth rate when it increases the debt further (Bilan and Ihnatov, 2015). The emerging markets which have optimal domestic debt levels by implementing Granger Causality Regression model in between period of 1975-2004. They found out there is significant positive impact on economic growth at the moderate levels of domestic debt- to-GDP ratio (Abbas and Christensen, 2007). Reinhart and Rogoff (2010) explored the impact of the

public debt on growth of the economy by examining forty-four developed and developing countries during last hundred years.
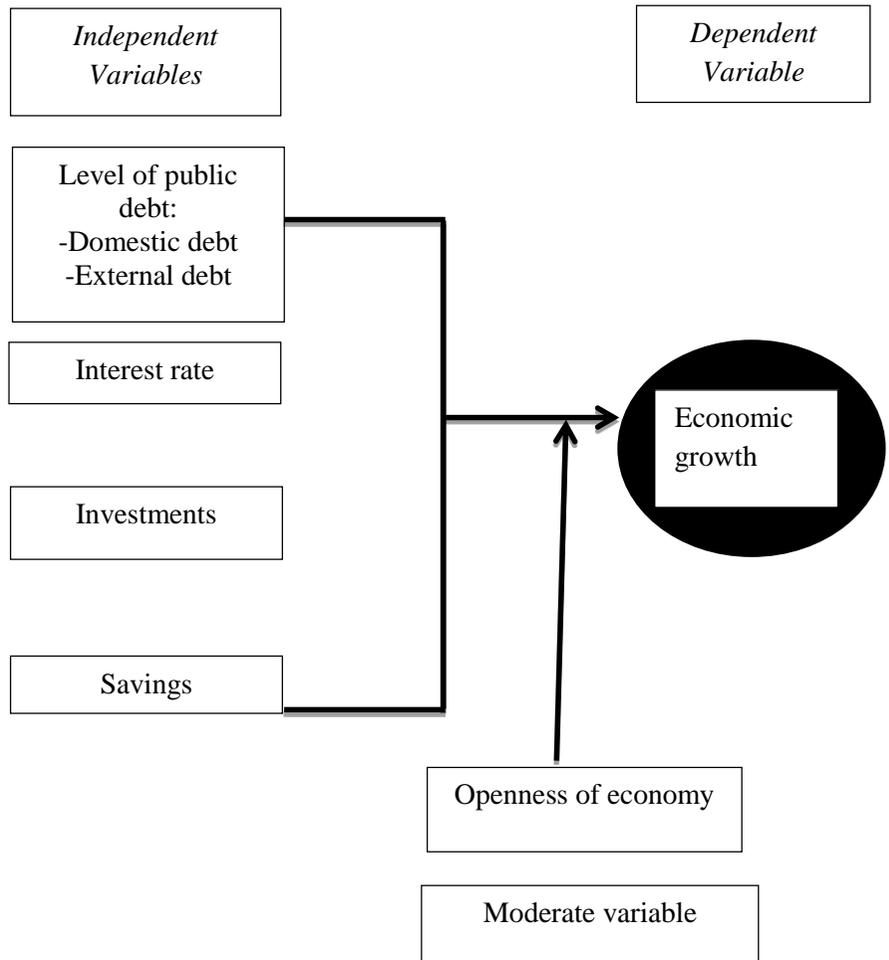
Finally, it was found out that there is a lower level of economic growth in both developed and developing countries if they have more than 90% level of public debt relating to GDP (Reinhart and Rogoff, 2010). Kumara and Cooray (2013) developed a technique to examine affiliation between debt-to-GDP ratio and per-capita growth and found out nonlinear relationship amid the public debt-to-GD ratio and per-capita growth rate in Sri Lanka. Further, he suggested threshold level of debt by applying normal time-series data and secondly suggested amount that need to capture the short run fluctuations by using 2-year non-overlapping averages (Kumara and Cooray, 2013). The general hypothetical assumption ratifies that there is positive impact of lower level of public debt, but after a certain level, there is a negative impact on economic growth, specifically when having approximately 80% and 94% public debt (Mencinger and Aristovnik, 2014). Inflation rate and the unemployment rate negatively impact economic growth. When increasing one percent of unemployment or inflation rate, then economic growth decreases by several percents (Kobey, 2016).

5. Methodology
In this research it was expected to study about relationship of public debt on economic growth in South Asian countries. Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka are South Asian countries that examine within the study. The study focuses on secondary data for South Asian countries for period from 1990 to 2015 that were collected from World Bank Economic Indicators, International Monetary Funds and South Asian Institutions. This analysis uses panel data study. The study exercises several analytical tools to analyze data. The Multiple Regression Analysis that helps to identify determinants of GDP and the debt. The other analytical tool used is Granger Causality Test. It checks whether cause and effect of public debt and economic growth in short run could exist. Before that the study uses unit root test to check validity and reliability of the variables. Co-integration Test is used to check whether there is economic relationship of public debt on economic growth in the long run. This study adopted a descriptive research and it is most appropriate to analyze the relationship between public debt and economic growth. Descriptive research tries to study characters of a situation scientifically. It provides characteristics of a particular individual, situation or group. It explains the situation using statistical indicators as well as determines the frequency by categorizing information.

According to the literature review, interest rate, savings, FDI, openness of economy and economic growth are the variables used by the study to analyze the debt issue of the South Asian countries. The conceptual framework that the study uses can be graphically represented as follows:

Figure 1: **Conceptual Framework**

Independent Variables		Dependent Variable

- Level of public debt:
  - -Domestic debt
  - -External debt
- Interest rate
- Investments
- Savings

Economic growth

Openness of economy

Moderate variable

Levels of measurement of the variables are given in Table 1.

Table 1: **Levels of Measurement**

Variable	Measurement	Scale
Economic Growth	Level Growth	Economic Growth rate
Public Debt	Level of Public Debt	Debt to GDP ratio Debt to Export ratio
Interest Rate	Level of Interest Payments	Interest Payment to Exports ratio
Savings	Level of Savings	National Savings to GDP ratio
Investment	Level of Investments	Capital Investment to GDP ratio
Trade openness	Level of Exports and Imports	Net Export to GDP ratio

Source: Author compiled based on survey data

The study exercises several analytical tools to analyze data by using E-Views 9.5. The Multiple Regression Analysis that help to identify determinants of GDP and the debt. That means it is used to determine the significance of the variables. The study used "t-test" to test significance of two groups. It also analyzed variance or tests whether the variance differed among groups of data using "ANOVA" statistics. The model is significant if "F value" is less than 0.05.

The strength of the relationship is measured through the correlation of coefficient. The other analytical tool is Granger Causality Test. It checks cause and effect of public debt and economic growth in short run. Before that unit root test was used to check validity and reliability of the variables. Co-integration Test was used to check whether there is an economic relationship of public debt on economic growth in the long run. The study tested the root of panel units of each variable and selected the stationary variables at the first difference and rejected variables which were stationary at the level to test the Pedroni Residual Co-integration. Also, it tested the units root of the panel data and selected variables that were stationary at the 1st difference.

6. Data Analysis and Findings

This section focused on the data analysis and discusses results of the analysis. To improve the robustness of the results, the study tested various assumptions before proceeding to study the impact of external debt, interest payment, gross saving, investment, net exports on the economic growth in South Asian countries.

Table 2: **Autocorelation and Heteroskedasticity Results**

Assumption	Test	Afgha	Pakis	India	Bangl	Maldiv	SriLan.	Bhutan	Nepal
Heterosce.	White	0.755	0.485	0.070	0.234	0.712	0.456	0.591	0.678
Autocorre.	BGSC	0.489	0.111	0.070	0.125	0.156	0.862	0.665	0.928

Source: Author compiled based on survey data

Table 2 gives the results of Autocorelation and Heteroskedasticity. According to the above results it implies that there is no Heteroscedasticity and Autocorrelation problem in data set of each country. It rejects null hypothesis and accepts alternative hypothesis.

The table below shows that some variables are non-stationary at the level (difficult to reject null hypotheses), but stationary at the 1st difference (reject null hypotheses) Table 4 2 gives the test stationary of each variable in panel data by using Levin, Lin and Chi-square distribution as follows:

Table 3: **Unit Root Test in Panel Data**

Variables	Level	1ST Difference
Debt service	0.2588	0.0000
Net export	0.2073	0.0000
Gross saving	0.1971	0.0000
External debt	0.0000	
FDI	0.0011	
Interest payment	0.0453	
GDP	0.0000	

Source: Author compiled based on survey data

Pedroni Residual Co-integration Test was applied to test co-integration of the panel data. The null hypothesis is that there is no co-integration between variables. If the P-value of each outcome is less than 0.05 then it rejects null hypothesis and accepts alternative hypothesis.

Table 0: **Panel Co-integration Test**

Type	Outcomes	Prob.	Prob. (Weighted)
Within dimension	Panel v-statistic	0.9155	0.8962
	Panel rho-statistic	0.5968	0.6347
	Panel PP-statistic	0.0000	0.0000
	Panel ADF-statistic	0.0320	0.0153
Between dimension	Group rho-statistic	0.9079	
	Group PP-statistic	0.0000	
	Group ADF-statistic	0.0017	

Source: Author compiled based on survey data

Panel PP-statistic and Panel ADF-statistic P-values are less than 0.05 within dimension and Group PP-statistic and Group ADF-statistic is less than 0.05 between dimensions. It means it rejects null hypothesis and accepts alternative hypothesis. There is co-integration. Six outcomes out of eleven outcomes rejected null hypothesis and accepted alternative hypothesis. Therefore, majority co-integrated. Since seven variables were co-integrated the variables have long run association.

The study examined cause and effect of the variables in short run under different lag values and the results are given in Table 5. The P value is less than 0.05. It rejects null hypothesis. It says there is cause and effect between variables. The results can be shown as follows:

Table 5: **Causality Test in Panel Data**

Country	Null Hypothesis	P Value
Panel data	EXDEBT does not Granger Cause GR	0.0174
	GR does not Granger Cause EXDEBT	0.3028
	DEBTSV does not Granger Cause GR	0.0496
	GR does not Granger Cause DEBTSV	0.6204
	INT does not Granger Cause GR	0.4559
	GR does not Granger Cause INT	0.0296
	GRSVNG does not Granger Cause GR	0.7528
	GR does not Granger Cause GRSVNG	0.3774

FDI does not Granger Cause GR	0.0970
GR does not Granger Cause FDI	0.9785
NETEXPORT does not Granger Cause GR	0.7244
GR does not Granger Cause NETEXPORT	0.0039

Source: Author compiled based on survey data

There are changes of external debt, debt service impact to change growth rate as well as changes of economic growth impact to interest payment and net export.

7. Conclusion and Recommendations

This study implemented a regression to identify the effect of public debt on economic growth in South Asian countries over the period of 1990 to 2015, considering growth rate as a function of public debt, debt service, interest payment, FDI, gross savings and net export. This study was designed to explain how external debt, debt service, interest payment, gross savings, FDI and net export impact the economic growth in South Asian countries. Panel data analyses showed negative effect of external debt on economic growth. The main objective of the study was to examine the relationship and the effect of the public debt on economic growth South Asian countries.

The external debt negatively impacted the economic growth in majority of South Asian countries; in that sense it increases external debt effect to decrease economic growth. Therefore, borrowing from domestic debt to finance investments will improve the economy of the nation. The nation should direct borrowings to growth stimulating projects. Government must implement policies by guiding the uses of public debt to direct activities that will enhance economic growth. Also, governments should utilize public borrowings to productive sectors that will develop economic growth such as education, health and infrastructure development, etc. Government debt policies should focus on keeping level of public debt below the recognized limits to avoid poisonous impact on growth of economy in South Asian countries.

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