

## **Impact of High and Growing Public Debt on Economic Growth in SAARC Countries: An Econometric Analysis**

**Muhammad Reehan Hameed and Muhammad Abdul Quddus**

### **Abstract**

Developing countries of South Asia are continuously facing problems in managing and servicing their huge public debt obligations. This high level of public indebtedness has serious implications on countries economic development. However, their economic performance continues to deteriorate due to significant outflow of resources to meet their debt obligations. The study designs to examine the structure of public debt its implications on economic growth in of SAARC economies of Bangladesh, India, Pakistan and Sri Lanka. For this purpose the panel data of selected countries for the period of 1990-2018 has been used. From the literature several factors through which public indebtedness effect economic growth have been identified: public debt to GDP ratio, debt servicing as a ratio of export earnings, net foreign financing as a ratio of total deficits, private and public investment as ratio of GDP. Besides these variables some policy, fundamental and shock variables like inflation, exchange rate, terms of trade and population growth. For analysis of data the econometrics techniques like Fixed Effect Model, Hausman Test and PMG/ Panel ARDL approach have been applied to analyze the long run association among the regressors. The results of the study reveal that public debt negatively affected the economic performance both in short period and long period. The study concludes that presently, simultaneous achievement of desirable level of economic growth and public debt stock seems to be difficult and could remain elusive if some serious measures are not taken.

**Keywords:** SAARC, Public debt, PMG/ ARDL, Fixed Effect Model, Economic growth

### **Introduction**

The linkage between Public debt<sup>1</sup> and economic growth has always been the subject matter of an ongoing debate among the economists of the world. The shortage of government revenues to meet its outlays has greatly drawn attention in public finance literature. Public debt is as necessary for developing countries as the need for capital in economic growth. It is an admitted fact that the deficiency of capital is one of the

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<sup>1</sup> The portion of total debt which has a direct charge on government revenues as well as the debt obtained from the IMF is defined as public debt. Public debt has two main components, namely domestic debt (which is incurred principally to finance fiscal deficit) and external debt (which is raised primarily to finance development expenditure).

major problems of underdeveloped countries. The shortage of funds is a resultant factor of under savings which compel the economies to search an additional source of revenues in the form of external debt (Adepoju et al., 2007). Capital accumulation through external sources has observed to play a key role in development process of many countries, commonly known as capital fundamentalism (Beddies, 1999, Ghura, 1997, Ghura & Hadjimichael, 1996).

It is argued that foreign borrowing if utilized properly and optimally can play prime role in economic development of an economy by enhancing the existing capital stock in the country over a specific period of time. But such foreign borrowings are desirable only if they are used to finance such projects which could yield sufficient returns and smoothing the level of consumption in the presence of inadequate aggregate supply. In such situation it will increase the level of welfare which otherwise could not be attained. It is necessary to point out that in order to avoid debt problem, the investment made through borrowed funds must be obtained so much returns that could pay the principal amount as well as interest on it. If the condition for optimal utilization of borrowed money is violated the foreign debt becomes a burden on the economy and the economy is unable to maintain the present level of debt stock. Moreover, debt crises got much importance since the early 1980's for most of the developing countries of Asia, Africa and Latin American. However, according to conventional point of view, external debt is expected to increase capital formation and helpful in raising the pace of economic development in the country. But the economic growth of many debtor countries countermines due to accumulation of debt stock (Adegbite et al., 2008; Checherita & Rother, 2012; Fosu, 1999; Ajayi & Oke, 2012). Despite the prime importance of understanding our debt problem and adopting a strategy to cope with it, there has not been much done systematic work on debt issues i.e. the nature of our debt problem, the root causes of the debt build up, and the consequences of rising public debt on growth and investment of the economy. Nor is there a debate on the options, admittedly rather limited, to trim down the burden of debt in the context of a medium term economic framework which also ensures a recovery in the growth rate. This study has mainly focused on the detrimental consequences of public borrowings on economic performance of selected SAARC economies. The stock of public debt is so huge as to terrorize the countries capability to pay back their past debt. It dampens all the efforts of the government to take structural and financial reforms that could strengthen the country's economic growth and financial positions. A government whose fiscal position is deteriorating finds itself under mounting pressure to repay foreign debt obligations. The needs of reforms would exist in a country with a large Public debt burden, but it is of special concern of SAARC countries, where structural and fiscal reforms are indispensable to prolong higher growth.

#### **OBJECTIVES OF THE STUDY:**

## **Impact of High and Growing Public Debt on Economic Growth in SAARC Countries: An Econometric Analysis**

1. To investigate the affect of increasing public indebtedness on economic growth of SAARC Countries.
2. To suggest some Policy recommendations to resolve the issue of high and growing public debt in SAARC Countries.

### **SIGNIFICANCE AND CONTRIBUTION OF THE STUDY:**

Governments in SAARC Countries persistently relying on both foreign and domestic resources in order to fulfill their development requirements. Since 1990s, there has been a persistent increase in public debt obligations of SAARC Countries. Therefore, an in-depth empirical analysis is needed to examine the affect of growing public indebtedness on economic growth of SAARC economies which will give basic foundation for policy configuration and become helpful in constituting a thriving debt management strategy that could contribute to a sustainable economic growth in these Countries. The literature review indicates that very few studies have been undertaken in this area and most of them focused on external debt, for instance, Chowdhury (1994); Iyoha (1996); Cohen's (1993); Ali et al (2014). But economic performance of a country is affected not only because of external debt also of its external debt. Therefore, this study is an attempt to fulfill the information gap by adding both external and domestic debt. The outcomes of this research are very important to the policy makers, planners, politicians and world academic community as well. Firstly, the findings give insight to the policy makers and country planners on the long term effect of public debt on economic growth of the economy. This will be useful to constitute future policy and will be helpful for the policy makers in decision making on the issues related to public debt. This would also provide sensibility to the public officials about how the debt effects the growth and how to make decisions in order to cope with past and current public debts.

### **II. LITERATURE REVIEW**

Cunningham (1993) examined the relationship between debt and growth in 16 heavily indebted poor countries for the period of 1971-1979. The results obtained indicated that public debt burden in heavily indebted poor countries (HIPC) was negative associated with economic growth of these countries. Fosu (1996) analyzed the effect of debt on economic growth of Sub Saharan African (SSA) countries over the period of 1970-1986. The variables used in the study were production growth rate, labor, capital and exports. The results revealed that debt had significant negative relation with economic growth in SSA countries. Iyoha (1999) made an econometric analysis to examine the impact of foreign borrowings on economic growth of SSA economies from 1970-1994. The result of the study revealed that high and growing debt decreased investment through crowding out effect and disincentive effect. Were (2001) analyzed the impact of external debt obligations on economic growth of Kenya using 25 years time series data from 1970-1995. The external debt had negatively

affected economic growth and investment which confirmed the existence of debt overhang phenomenon in Kenya. Karagol (2002) examined the impact of debt servicing on economic growth of Turkey from 1956-1996. The results obtained revealed that debt servicing had a negative association with gross national product while human capital had a positive relation with economic growth in the long run. Bakar (2008) examined the impact of foreign indebtedness on economic growth in Malaysian economy over the period of 1970-2005. The results indicated that foreign borrowings were positively related to economic growth in Malaysia. Paudel and Perera (2009) analyzed the impact of external debt on economic growth of Sri Lanka for the period of 56 years 1950-2006. The results of the study revealed that foreign debt had a positive relation with economic growth in Sri Lankan economy in the long run. Amassoma (2011) analyzed the cause and effect nexus of foreign debt, domestic debt and economic growth in Nigeria. He used the data of 39 years from 1970 and 2009. From the results it was evident that foreign borrowings did have significant effect on economic growth while domestic debt had positively contributed in economic performance of Nigeria. Baum *et al.* (2013) analyzed the impact of public debt on economic growth in 12 Euro area countries over the period of 1990-2010. The result of the study revealed that in short run debt had positively affected GDP growth rate. Bal and Rath (2014) analyzed the effect of public indebtedness on economic growth in Indian economy. The study used annual data of 31 years over the period of 1980-2011. The autoregressive distributed lag approach (ARDL) and error correction technique (ECM) had been applied on the given set of data to analyze the long term impact of public debt on economic growth. The results acquired indicated that public debt and debt servicing affected growth negatively in the short run. Lee and Ng (2015) made an investigation regarding the long run association between public debt on economic growth in Malaysian economy over the period of 22 year from 1991-2013. The results of the study were in accordance with the pervious literature that there existed a negative association between public debt and economic growth. Serrao *et al.* (2016) analyzed the association between public borrowings and economic growth in advanced economies. The study used 63 years data ranging from 1946 to 2009. The outcomes of the research revealed that an inverse relationship existed between public indebtedness and economic growth in advanced economies. Burhanudin *et al.* (2017) analyzed the impact of government debt on growth performance of Malaysian economy for the time span of 35 years 1970-2015. The results of the study revealed that there was a significant and positive association in government debt and economic growth both in short and long period. Fernando *et al.* (2017) analyzed the relationship between of public borrowing on GDP growth rate of Sri Lanka. For this purpose times series data of 65 years starting from 1960-2015 had been used for analysis. The ARDL econometrics technique had been applied to estimate the long run linkage between public indebtedness and economic performance. The result of the study pointed out a negative association between public borrowing and economic performance in Sri Lanka. Gomez-Puig and Sosvilla-Rivero (2018) found out short and long period relationship between public indebtedness and economic growth in

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central Euro Area (EA) countries for the time span of 53 years ranging from 1961-2013. The result of the study revealed that in long run public debt had asserted negative effect on economic performance of Euro Area economies. However, in short run, this effect was positive and varied from economy to economy. Chiminya *et al.* (2018) analyzed the association between external debt and economic performance in 37 Sub-Saharan African (SSA) economies. For the sake of analysis 32 years data from 1980-2012 had been used. The results obtained exhibited an opposite association between public debt and growth performance both for short and long period in Sub Saharan African (SSA) countries. Jibir *et al.* (2018) analyzed the public debt vs economic growth nexus in Nigeria. The annual data of Nigerian economy for the period of 1981-2016 had been taken for the sake of analysis. The variables used in the study were real GDP and External debt and Control variables which included domestic debt and public debt servicing. The ARDL approach had been used to examine the long run linkage among the variables. The results of the study revealed negative association between foreign borrowings and economic growth in short as well as in long period.

### **III. MODEL SPECIFICATION:**

The model used in the study links economic performance to public debt burden. The Gross domestic product (GDP) is used as a proxy for economic growth. From the literature different factor through which public indebtedness effects growth has been identified: Public debt as a ratio of GDP (PDGDP), Debt Servicing as a ratio to Export Earnings (DEXP) captures the crowding out effect, Net foreign financing as a proportion of total deficits (NFFTD). Besides these variables some policy, fundamental and shock variables like inflation (INF) reflects macroeconomic stability, movement in exchange rate (ER) reflects incredibility of policies and terms of trade (TOT) captures external shocks. The growth model is incomplete without including the rule of human capital which is captured through population growth rate (POPGR) in the model. Further Gross Fixed Capital Formation total (GFCF) is used as a proxy for total investment. The total investment is further disaggregated into private and public investment to capture their individual effect on economic growth separately in the model. Public debt sabotages the process of capital formation and encourages capital flight, increases interest rate, crowd out private investment, increases budget deficits and creates inflation in the economy which indirectly effect growth rate of GDP (Checherita & Rother, 2012; Teles & Mussolini, 2014; Zouhaier & Fatma, 2014; Levy & Chaudhary, 1995; Woo, 2015).

### **THE MODEL**

The general form of the empirical specification of the model used can be written as

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$$\ln GDP_{it} = \alpha_0 + \alpha_1 PDGDP_{it} + \alpha_2 DSEXP + \alpha_3 NFFTD_{it} + \alpha_4 PRIGDP_{it} \\ + \alpha_5 TOT_{it} + \alpha_6 POPGR_{it} + \alpha_7 INF_{it} + \alpha_8 ER_{it} + \alpha_9 PBIGDP_{it} + \mu_t$$

Where, **LGDP**= Natural Log of Gross Domestic Product uses as an independent variable.

**PDGDP** = Public debt as a ratio of gross domestic product.

**DSEXP** = The Debt Servicing as a ratio of export earnings.

**NFFTD** = Net foreign Financing as a Proportion of Total Deficit.

**PRIGDP** = Private Investment as a Ratio of gross domestic product

**TOT** = Terms of Trade.

**POPGR** = Population Growth Rate

**INF** = Rate of Inflation.

**ER** = Movements in Exchange rate.

**PBIGDP** = Public Investment as a Ratio of gross domestic product

### DATA SOURCES

To analyze the effect of Public Debt on economic growth panel data of selected SAARC economies have been used from 1990-2018 on annual bases. Data has been collected from, World Development Indicator (WDI), International Debt Statistics (IDS), International Monetary Fund (IMF) and World Economic Outlook (WEO).

### METHODOLOGY:

The general form of the empirical specification of the model used can be written as

$$Y_{it} = K_{it} \beta + W_{it} \alpha + \varepsilon_{it}$$

i = cross section dimension, t = time series dimension

$Y_{it}$  = Explained Variable

$K_{it} \beta$  = set of explanatory variables

$W_{it} \alpha$  = the heterogeneity, or cross-sectional impact

### ORDINARY LEAST SQUARE (OLS):

In time series panel data, before analysis of any model stationarity of the series have to be checked. A series will be stationary if it has zero mean and constant variance. In econometrics different stationarity techniques have been used e.g. Levin, Lin & Chu Unit Root Test, Im, Pesaran and Shin Unit Root Test, ADF Fisher Unit Root Test, Phillips – Perron Fisher Unit Root Test

### FIXED EFFECT MODEL:

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This is rare and we face a complex situation when  $W_i$  is unobserved and have a correlation with  $K_{it}$ . In this case OLS estimates will be biased and not consistent due to the fact that model has omitted variable. However, under this condition, the model.

$$Y_{it} = K_{it}\beta + \alpha_i + \varepsilon_{it}$$

Where  $\alpha_i = W_i \alpha$ , has all those effects that can be observed and it enumerates an estimable conditional mean. The Fixed Effect Model considers  $\alpha_i$  to be country specific intercept in the regression model.

**HAUSMAN SPECIFICATION TEST:**

Hausman specification test has been used to sort out whether Fixed Effect Model or Random Effect Model is better for the estimation of the model.

**POOLED MEAN GROUP (PMG)/PANEL AUTOREGRESSIVE DISTRIBUTIVE LAG (ARDL) APPROACH TO COINTEGRATION:**

PMG /ARDL was introduced by Pesaran, Shin and Smith (2001), Pesaran and Shin (1995, 1997 & 1999). The ARDL approach avoids the problem of endogeneity because it is capable of distinguishing among dependent and explanatory variables and can estimate long and short period components of the model simultaneously. The ARDL approach to cointegration is better than some other estimation techniques of cointegration i.e. Engle and Granger (1987), Johansen (1988, 1991), Johansen and Juselius (1990), Gregory and Hansen (1996), Saikkonen and Lutkepohl (2000) and Stock & Watson (1993). These approaches can only be applied if all the regressors have same order of integration I(1). But in economics, due to shocks, time trends and different nature of the economies, it is impossible to have same order of integration and mostly the series are integrated at different order i.e. I(0) and I(1). The Panel ARDL approach to cointegration can be applied to find out long run relationship among the variables, whether the series have different orders of integrations. But the only condition is that the dependent variable must not be integrated at order I(2).

**IV. EMPIRICAL RESULTS AND ANALYSIS**

**F- TEST RESULTS OF MODEL:**

In Panel data analysis to check whether pooled OLS is appropriate or fixed effect model for the estimation of the model F- test has been applied. The null hypothesis, there is common constant for all cross sections. The results presented in table 4.1 indicates that null hypothesis is rejected at 1% level of significance which validates that fixed effect model is appropriate for the estimation of the model.

**Table 4.1**

Null Hypothesis OLS is appropriate			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	365.308366	(3,103)	0.0000*

\* At 1% Level of Significance

**5.2 HAUSMAN TEST RESULTS OF MODEL 4.1:**

In order to decide, whether fixed effect model is appropriate or random effect model for the estimation of the model Hausman test has been employed. The results of Hausman test presented in table 4.2 reject the null hypothesis that random effect is appropriate as the Chi square statistics is higher and p-value is significant at 1% level of significance. On the basis of the results of F- test and Hausman test the fixed effect model is used for the estimation of the model.

**Table 4.2**

Null Hypothesis Random Effect Model is Appropriate		
<b>Chi-Sq. Statistic</b>	<b>Chi-Sq. d.f.</b>	<b>Prob.</b>
374.885863*	9	0.0000

\*Null Hypothesis has been rejected at 1% level of Significance

**FIXED EFFECT MODEL RESULTS:**

The fixed effect model results presented in table 4.3 indicates that Public debt to GDP ratio (PDGDP) has a significant and negative association with economic growth. One unit increase in public debt to GDP ratio leads to decrease economic growth 0.31 percent. This also indicates that PDGDP is a significant predictor of economic growth. As public debt to GDP ratio increases all the increased capital and output goes to pay debt along with its servicing charges having negative impact on economic growth. When PDGDP increases, major share of domestic capital use to finance debt obligations squeezing the funds available for investment having negative impact on economic growth. This confirms the existence of debt overhang problem in selected SAARC countries.

**Table 4.3**

Dependent Variable lnGDP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
PDGDP	-0.315932	0.058606	-5.390788*	0.0000



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<b>DSEXP</b>	-0.728076	0.072116	-10.09585*	0.0000
<b>NFFTD</b>	-0.011303	0.006046	-1.869587***	0.0644
<b>PRIGDP</b>	1.017634	0.159193	6.392461*	0.0000
<b>TOT</b>	0.002987	0.000366	8.168255*	0.0000
<b>POPGR</b>	-0.250677	0.023678	-10.58699*	0.0000
<b>INF</b>	-0.006395	0.001221	-5.236745*	0.0000
<b>ER</b>	0.006766	0.000272	24.89249*	0.0000
<b>PBIGDP</b>	3.304205	0.355223	9.301773*	0.0000
<b>C</b>	1.738674	0.065616	26.49782*	0.0000
Number of Observations=116				

\* At 1% Level of Significance, \*\* At 5% Level of Significance

The debt overhang hypothesis postulates that when debt level expected to increase countries repayment capacity major share of domestic output goes to pay debt and its servicing charges. This will intern discourage investment and growth performance of an economy. The results of the study also support Keynesian view that economic growth is determined by investment and savings. A high public debt to GDP depresses the circular flow of income due to higher payment of debt obligations which discourages the flow of investment and asserts negative impact on economic growth of the economy. The inverse relationship between debt and growth coincides with the empirical findings of Ajaye & Oke (2012); Ayadi & Ayadi (2008); Mohamad (2005) and Clement et al., (2003). Debt servicing as a ratio of export earnings (DSEXP) also have a significant negative association with economic growth. The value of coefficient is 0.71 indicates that one unit increase in debt servicing as a ratio of export earnings brings 0.71 percent decline in economic growth. The huge borrowings on the part of the government result in increasing the interest rate which crowds out private investment. The diminution of investment in the country leads to depress growth rate in the country in future. Further, increase in borrowing on the part of the government compels the government to adopt discretionary tax measures which sabotage the saving potential of the economy, increase the interest rate, decrease investment and ultimately economic growth as well (Elmendorf & Mankiw, 1999). Net foreign financing as proportion to total deficits (NFFTD) has significant negative relation with economic growth. The private investment to GDP ratio (PRIGDP) which captures the accelerator principal stimulates economic growth. As increase in PRIGDP enhances the level of production, generates employment opportunities which in turn increases growth rate of the economy. It confirms the Solow (1988) contention that when capital grows more compared to labor results in higher growth rate because of employment of more capital along with labor. The increase in investment brings multiple changes in national income through accelerator principal. Terms of trade (TOT) captures external shocks has positive association with economic growth.

Improvement in TOT increases the receipts in form of foreign exchange earnings and decreases the payments which improve the current account deficits having positive effect on economic growth. Population growth rate (POPGR) uses as a proxy for human capital has negatively associated with economic growth. One unit increase in population leads to decrease growth rate of GDP 0.25 percent. Rapid increase in population discourages savings and per capital income. The public expenditure diverts towards providing social infrastructure to the growing population rather than diverting resources towards productive activities. Population pressure intensifies the foreign exchange earnings and aggravates the balance of payment (BOP) position which depresses economic growth in country (Weitzman, 2009). Inflation reflects macroeconomic stability has also significant negative relation with economic growth. Inflation increases the prices of domestic goods, discourages exports and encourages imports which worsens the BOP position of a country and has negative effect on economic growth. Inflation also creates uncertainty in the functioning of the economy. The domestic capital starts flowing out of the country through capital flight which hampers the flow of investment, decrease exports and discourages economic growth. (Stambuli, 1998). The aggravating BOP position compels the country to borrow more to finance the current account deficits. Exchange rate is an important indicator of economic growth is positively associated with economic growth. An increase in exchange rate means depreciation of national currency which increases the price of imported goods or raw material leading to decrease imports. Moreover, consumer prefers domestic good over foreign goods due to their cheapness which increases the level of domestic production, stimulates exports and having favorable impact on economic growth of a country. Public investment as a ratio of GDP (PBIGDP) is positively and significantly stimulates economic growth. One unit increase in PBIGDP leads to increase economic growth 3.30 percent. Public investment is an important and prime factor of economic growth. It influences economic growth in different ways: public investment brings multiple increase in national income by influencing the evil effect of different negative factors of the economy i.e. poverty, inflation, income inequality, unemployment etc. Public investment also stimulates economic growth by encouraging private investment, improving infrastructure, and increasing savings (Ud`din and Aziz, 2014).

#### **UNIT ROOT TEST RESULTS:**

We conclude from table 4.4 that Public debt to GDP ratio (PDGDP), private investment as a ratio of GDP (PRIGDP), population growth rate (POPGR) and public investment as ratio of GDP (PBIGDP) are stationary at order I(1) and other variables

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are at order  $I(0)$ . So, we can use PMG/ Panel ARLD technique to analyze the long term association among the dependent and explanatory variables.

**Table 4.4**

Variables	ADF - Fisher Chi-square & PP - Fisher Chi-square				Levin, Lin & Chu Unit Root Test & Im, Pesaran & Shin Unit Root Test			
	I(0)		I(1)		I(0)		I(1)	
	Intercept	Intercept &	Intercept	Intercept & Trend	Intercept	Intercept &	Intercept	Intercept &

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		Trend				Trend		Trend
<b>lnGDP</b>	4.11811 (1.0000) 4.75660 (1.0000)	1.60156 (0.9454) 0.87435 (0.8090)	-3.23241** (0.0006) -5.78079** (0.0000)	-2.21596** (0.0133) -4.90094** (0.0000)	1.9253 (0.9729) 4.25473 (1.0000)	1.23877 (0.8923) 1.53607 (0.9377)	-3.1733** (-0.0008) -3.1806** (0.0007)	-2.8463** (0.0022) -2.1447** (0.0160)
<b>PDGDP</b>	0.18301 (0.5726) -0.22280 (0.4118)	0.23167 (0.5916) -0.31353 (0.3769)	-4.04195** (0.0000) -6.87741** (0.0000)	-2.66730** (0.0038) -5.72265** (0.0000)	-0.02636 (0.4895) 0.17583 (0.5698)	0.62663 (0.7345) 0.24391 (0.5963)	-3.2175** (0.0006) -4.0724** (0.0000)	-2.1464** (0.0159) -2.6131** (0.0045)
<b>DSEXP</b>	-1.38695* (0.0827) -4.12357* (0.0000)	-0.81414 (0.2078) -4.17149* (0.0000)	-6.47084** (0.0000) -9.70791** (0.0000)	-5.38090** (0.0000) -11.2739** (0.0000)	-1.9220* (0.0273) -1.3855* (0.0829)	-1.4239* (0.0772) -0.88419 (0.1883)	-4.1760** (0.0000) -7.2604** (0.0000)	-2.2836** (0.0112) -6.1054** (0.0000)
<b>NFFTD</b>	-3.37783* (0.0004) -2.21063* (0.0135)	-2.54970 (0.0054)* -8.14007 (0.0000)*	-4.61573** (0.0000) -5.58117** (0.0000)	-3.44878** (0.0003) -11.2160** (0.0000)	-1.6058* (0.0538) -3.8610* (0.0001)	-1.07291 (0.1417) -2.9969* (0.0014)	-4.2739** (0.0000) -5.8461** (0.0000)	-2.5576** (0.0053) -4.5568** (0.0000)
<b>PRIGDP</b>	-1.38083 (0.0837) -1.46852 (0.0710)	1.52258 (0.9361) 1.52258 (0.9827)	-3.13444** (0.0009) -5.62381** (0.0000)	-2.54446** (0.0055) -5.52706 (0.0000)	-2.4265* (-0.0076) -1.3628* (0.0865)	0.99629 (0.8404) 1.46159 (0.9281)	-0.54061 (0.2944) -3.1496** (0.0008)	0.44410 (0.6715) -2.6932** (0.0035)
<b>TOT</b>	-0.64907 (0.2581) -0.17123 (0.4320)	0.22571 (0.5893) -0.08179 (0.4674)	-5.48674** (0.0000) -7.25668** (0.0000)	-4.39421** (0.0000) -6.26293** (0.0000)	-0.98337 (0.1627) -0.63599 (0.2624)	1.19306 (0.8836) 0.22430 (0.5887)	-5.4698** (0.0000) -5.9248** (0.0000)	-4.7769** (0.0000) -4.7280** (0.0000)
<b>POPGR</b>	13.0877 (0.1089) 20.8487 (0.0076)	15.2842* (0.0538) 15.6370 (0.0479)	51.6023** (0.0000) 69.1590** (0.0000)	38.5906** (0.0000) 304.885** (0.0000)	-2.2183* (0.0133) -1.05076 (0.1467)	-3.1632* (0.0008) -2.2693* (0.0116)	-2.2531** (0.0121) -2.2161** (0.0133)	-1.04771 (0.1474) -1.4034** (0.0802)
<b>INF</b>	15.9729* (0.0428) 21.4564 (0.0060)	10.9632 (0.2038) 15.5678 (0.0490)	59.7848** (0.0000) 101.665** (0.0000)	46.5535** (0.0000) 119.630** (0.0000)	-1.7860* (0.0370) -2.6095* (0.0045)	-0.87408 (0.1910) -1.7954* (0.0363)	-7.9199** (0.0000) -8.5224** (0.0000)	-6.6009** (0.0000) -7.2597** (0.0000)
<b>ER</b>	0.39541 (0.9999) 0.60801 (0.9997)	5.30713 (0.7243) 3.95847 (0.8609)	35.4780** (0.0000) 48.4589** (0.0000)	24.9742** (0.0016) 34.7489** (0.0000)	1.43669 (0.9246) 4.03307 (1.0000)	1.16141 (0.8773) 0.82086 (0.7941)	-2.7540** (0.0029) -4.4829** (0.0000)	-1.9331** (0.0266) -3.2639** (0.0005)
<b>PBIGDP</b>	-1.61663* (0.0530) -2.44049* (0.0073)	0.05575 (0.5222) -0.93520 (0.1748)	-6.31556** (0.0000) -8.61437** (0.0000)	-5.65392** (0.0000) -11.1129** (0.0000)	-1.04951 (0.1470) -1.6254* (0.0520)	-0.12595 (0.4499) -0.01228 (0.4951)	-7.1005** (0.0000) -7.0805** (0.0000)	-6.4019** (0.0000) -6.5246** (0.0000)
<b>PBIGDP</b>	-1.61663* (0.0530) -2.44049* (0.0073)	0.05575 (0.5222) -0.93520 (0.1748)	-6.31556** (0.0000) -8.61437** (0.0000)	-5.65392** (0.0000) -11.1129** (0.0000)	-1.04951 (0.1470) -1.6254* (0.0520)	-0.12595 (0.4499) -0.01228 (0.4951)	-7.1005** (0.0000) -7.0805** (0.0000)	-6.4019** (0.0000) -6.5246** (0.0000)

Values in Parentheses are p-values. \* Shows stationary at level and \*\* shows stationary at first difference

### POOLED MEAN GROUP (PMG) /PANEL ARDL RESULTS OF MODEL

The PMG/ Panel ARDL results presented in table 4.5 indicate that, in the long run, public debt as a ratio GDP (PDGDP) has negative and significant relation with economic growth. PMG is statistically most sophisticated and rigorous estimator. It validates the long run association between PDGDP and GDP growth rate. The other

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variables, private investment to GDP ratio (PRIGDP), terms of trade (TOT), public investment to GDP ratio (PBIGDP) have significantly and positively related with economic growth. Population growth rate (POPGR) retards economic growth in the long run. Debt servicing as a ratio of exports earnings (DSEXP) has positive impact on growth performance of an economy in the long run.

**Table 4.5**

Dependent Variable lnGDP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
<b>Long Run Equation</b>				
<b>PDGDP</b>	-1.009965	0.427654	-2.361641*	0.0215
<b>DSEXP</b>	0.622018	0.596603	1.042599	0.3014
<b>NFFTD</b>	-0.033189	0.058105	-0.571104	0.5700
<b>PRIGDP</b>	1.198501	0.656620	1.825258***	0.0730
<b>TOT</b>	0.015606	0.003273	4.768267*	0.0000
<b>POPGR</b>	-0.448347	0.124811	-3.592154*	0.0007
<b>INF</b>	-0.004683	0.005873	-0.797481	0.4284
<b>ER</b>	-0.004683	0.005873	-0.797481	0.4284
<b>PBIGDP</b>	0.020482	0.001933	10.59428*	0.00000
<b>C</b>	0.385527	1.714019	0.224926	0.8228
<b>Short Run Equation</b>				
<b>COINTEQ01</b>	-0.069657	0.044443	1.567319*	0.0022
<b>D(LGDP(-1))</b>	-0.190474	0.131628	-1.447071	0.1532
<b>D(LGDP(-2))</b>	0.197560	0.211606	0.933619	0.3543
<b>D(PDGDP)</b>	-0.273260	0.054225	-5.039330*	0.0000
<b>D(DSEXP)</b>	-0.010600	0.036217	-0.292674	0.7708
<b>D(NFFTD)</b>	-0.003134	0.067251	-0.046599	0.9630
<b>D(PRIGDP)</b>	0.176717	0.124929	1.414535	0.1625
<b>D(TOT)</b>	0.000188	0.000314	0.598895	0.5515
<b>D(POPGR)</b>	0.096146	0.075149	1.279410	0.2058
<b>D(INF)</b>	4.05E-05	0.000899	0.0445046	0.9642
<b>D(ER)</b>	-0.003805	0.001841	-2.066396**	0.0432
<b>D(PBIGDP)</b>	-0.450525	0.460512	-0.978314	0.3319

Mean dependent var	0.035769	S.D. dependent var	0.028683
SE. of regression	0.013691	Akaike info criterion	-4.836008
Sum squared resid	0.011059	Schwarz criterion	-3.482951
Log likelihood	337.4885	Hannan-Quinn criter	-4.286744

Number of Observations=104, \* At 1%, \*\*\*At 10% Level of Significance

Net foreign financing as a proportion to total deficits (NFFTD), inflation (INF) and exchange rate (ER), in the long run, has positive but insignificant relation with economic growth. PMG/ Panel ARDL short run estimates indicates the error correction term is negative and significant which explains speed of convergence of the model towards the equilibrium. The PDGDP and exchange rate (ER) have negatively and significantly associated with economic growth in short run. The other remaining variables have insignificant impact on economic performance in the short run.

## **V. CONCLUSION AND POLICY RECOMMENDATIONS**

### **CONCLUSION:**

The central focus of this study is to examine the effect of high and growing public debt on economic growth in SAARC countries. Developing countries of South Asia have continuously facing problems in managing and servicing their huge stocks of public debt. The high level of public indebtedness and ever increasing public debt burden has serious implications on their economic growth and debt sustainability measures. Economic performance of these countries is continuously deteriorating due to significant outflow of resources to meet their debt obligations. Public debt is a complex phenomenon and it affects growth through various factors that empirically determine the pattern of growth. From the literature different factors effecting the growth of the country have been identified: Public debt as ratio of GDP, Debt Servicing as a ratio of Export Earnings captures the crowding out effect, net foreign financing as a ratio of total deficits. Besides these the study also uses some policy, fundamental and shock variables like inflation indicates macroeconomic stability, exchange rate reflects incredibility of policies, terms of trade captures external shocks and population growth represents human capital development. Private and Public investment have used separately in the model to capture their effect on growth individually. For the sake of analysis the econometrics techniques like Fixed Effect Model, Hausman Test and PMG/Panel ARDL have been applied to analyze the long run relationship among dependent and explanatory variables. The causes of public debt and its impact on economic growth have been linked to both internal and external factors. The internal factors are mainly over expansionary fiscal policies and highly distorted trade policies. The external factors include deterioration of terms of trade and instability of exchange rate which have contributed to weak economic performance in SAARC countries. The results obtained indicate that the public debt has disastrous effect on economic growth in these countries both in long and short period. Debt servicing also has negative effect on growth while private and public investment stimulates economic growth. Population growth rate, inflation, net foreign

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financing as proportion to total deficits have negative while TOT and exchange rate have positive impact on economic growth.

### **POLICY RECOMMENDATIONS:**

Several policy implications emerge from the study. There is a dire need to manage public debt in SAARC countries. In this regard, government needs to strengthen its policies that will ensure better and efficient management of public debt and reduce debt mismanagement to promote economic growth. Efforts will be made to reduce budget deficit which is possible if the government makes fiscal adjustments through cuts in their expenditures. An effective and viable monitoring system is put in place to ensure proper and systematic utilization of borrowed funds for the development projects. Good governance having strong political will is required that undertakes and implements political and economic reforms. There is a need to provide favorable environment to attract the domestic and foreign investors in order to boost the level of investment in the country.

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