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Do Debt Boosts Economic Growth? A Study of the South Asian Countries

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Abstract
This article determines the long run and short term relationship between GDP growth rate and three selected variables of debt in South Asian economy for the period of last 20 years i-e from 1994-2014. We inspected this relationship using graphical trend analysis, unit root test (ADF) and correlogram test. We implemented multiple regression analysis technique to determine the causality between the variables. Our findings depicts that in short run and long run significant positive linear relationship exists between external debt and GDP growth rate for South Asian economy. Surprisingly, no impact of central government debt and household debt on GDP growth rate was found. Our findings prove that external debt is a blessing for South Asian countries.
Keywords: GDP, External debt, Central Government Debt, Household Debt, Multiple Regression Model

Introduction

The debt has always been taken as an expected result of economic activities. It is a reality that some institutions and countries have excesses in finance and some other have needs to finance. It is a well-known fact that countries when lack in capital would have an option to borrow from external sources in order to increase their domestic saving (Puig & Rivero, 2015)

(Oyedele, Emerah, & Ogege, 2013), explained that there are two reasons for which countries borrow .The first one is macroeconomic reason which is to get funds for meeting higher level of consumption and investment and the second reason is to avoid constraint of budget to boost the economic growth of the economy and to reduce the poverty levels . This constant borrowing in order to overcome the budget insufficiency led to the formation of debt

Ideally, debt has always been taken to boost economic growth. But if not managed properly its consequences would be very dangerous. (Azam, Emirullah, Prabhakar, & Khan, 2013) .Though, the initial crisis of external debt was actually seen in 1978, when a country borrowed from the international market on the commercial terms including high interest rates. This led to the rapid increase in country's debt level and as a result it had worse effects on the economy. (Kasidi & Said, 2013) .

Higher debt levels have always been very dangerous for all world economies. Same is the case of Greece which set out a new financial crises. By the spring of 2010, it was deviating towards bankruptcy and finally on June 30th 2015, it became the first developed country who failed to repay the loan of €323bn back to IMF (Allen, 2015)

For the south Asian countries total debt has been increased tremendously from the last two decades and now its 2.608 trillion US dollars (The World Bank, 2015). Therefore, the debt issue is critical for the South Asian countries and their policy makers. Thus, when economies have taken such a huge amount of debt, it is very important to check a whether they are able to pay back their debt with interest. So it is important to consider Debt to GDP ratio. Up till now economists have not recognized any ideal debt to GDP ratio (Investopedea, 2015).

Table 1.Annual Debt to GDP ratio

Country Name	Debt to GDP ratio Latest ratio	Debt to GDP ratio Highest ratio	Debt to GDP ratio Lowest ratio	Annual GDP %
Sri Lanka	75.50	103.20	75.50	5.80%
India	66.10	84.30	65.80	6.9%
Pakistan	64.30	87.90	54.90	4.92%
Nepal	28.80	69.50	28.80	4.40%
Bhutan	101.30	101.30	36.90	4%
Afghanistan	6.60	184	6.60	6.40%
Bangladesh	18	44.90	18	5.61%
Maldives	24.40	47.35	24.40	8.50%

Source: (Trading Economies, 2015)

The Debt to GDP ratio for the all above countries in table 1 shows that the current debt position of the whole South Asian economy is not so stable. Showing that the link between the debt and GDP is heterogeneous. Similarly all GDP growth rates of above countries is also very low, with Bhutan showing the lowest rate of 4%.Similarly the trend in GDP growth rate for all south Asian economies can be seen in the following figure:-

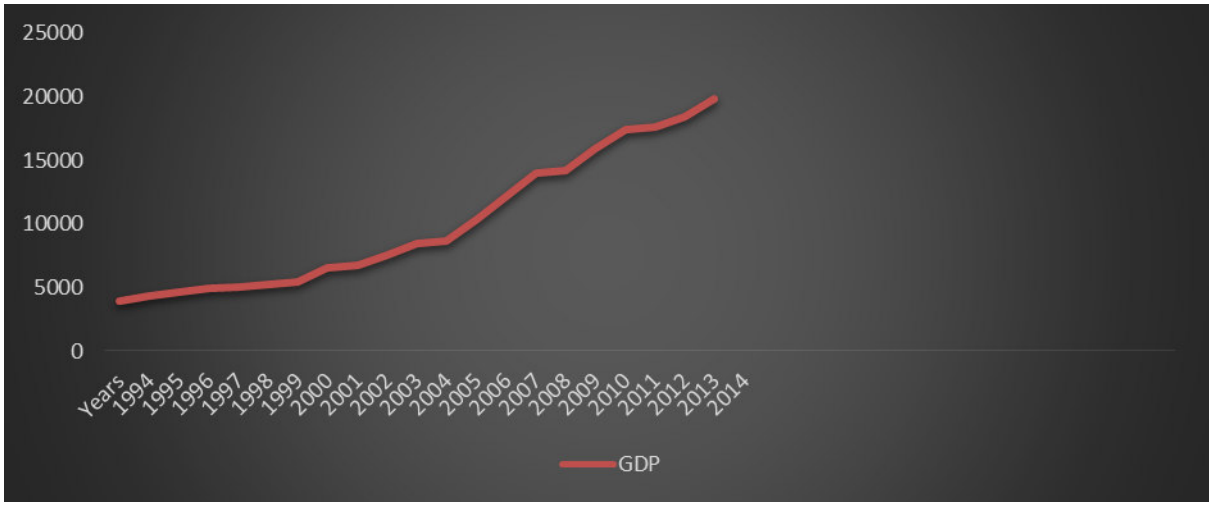

Figure 1. Real GDP in South Asian countries (in millions of Us Dollars) from 1994-2014
Source: (The World Bank, 2015)

It is visible from the above graph that the rate of growth is increasing very slowly over the time period of last 20 years. The reason for this slow growth is the investment of debt in non-productive projects, the rise in debt services and lastly the corruption in the field of public administrations. (Azam, Emirullah, Prabhakar, & Khan, 2013)

The main goal of this paper is to examine whether there is any causal link between debt and GDP growth rate of south Asian countries for the time period ranging from 1994 to 2014.For examining the impact of debt more descriptively we have taken three different variables of debt i-e household debt, central government debt and the external debt and to analyze the link in between the variables of the debt and the GDP growth rate, we implemented the multiple regression analysis model proposed by Francis Galton on panel data. Although some authors have used the Granger methodology to examine the causality for OECD countries. As (Ferreira, 2009) used this approach and comes with a conclusive statement that there exist a causal and bi-directional relationship between public debt and growth. But to our knowledge the causal link between our selected variables debt and GDP growth rate for time period of last 20 years has not been analyzed for the South Asian economy.

In particular, to compare our results with existing literature done in this area, our study is closely related to that of (Ajovin & Narro, 2015)**,** as they all have researched and found the presence of casualty between the high levels of public debt and its economic growth. However like their studies we have not used the panel Granger causality test. Our technique of multiple regression is data-driven which allows us to select best statistical model by doing best estimation of causality between the variables.

Similarly no study has been done which examined the impact of those debt variables which we have selected in our research. In this way our study will be filling a conceptual and empirical gap. This research will also prove very important for the policy makers of developing countries for proffering their policies regarding the proper use of debt. Thus, this study will serve as an important protective economic strategy for all the developing countries of south Asia.

Literature review

Many realistic studies have been conducted to find out do debt and GDP growth rate have correlation between them. Debt can have a positive or a negative effect on growth mainly dependent on its use. As it would have a positive impact on economy if government utilize the amount for the investment-based projects like power, projects related to infrastructure and agricultural projects. On the other hand it would negatively affect if it's used only for the public and private consumption purposes. (Winifred, 2014).

In this paper the selected three explanatory variables of debt are vital components of debt. As the value of external debt is the current value of debt which includes the debt amount having original maturity of more than one year. And which is owned to non-residents by the residents. (The World Bank, 2015).

The second variable is the central government debt, it contains foreign financing (acquired from non-residents) and the domestic funding (acquired from the residents), or those resources through which government offers financial funds for covering budget deficit or assigns monetary fund's rising from a budget excess (The World Bank, 2015).

The third variable is the household debt which includes the amount of debt taken by an adult family member. (The World Bank, 2015).These all variables have been tested to check whether they have any impact on GDP of South Asian Economy. As the dependent variable of our study is GDP-gross domestic production. It

shows all the financial value of finished goods & services made by south Asian countries in a specific time duration. (The World Bank, 2015)

For the South Asian countries, scenario of external debt has exposed variation over time. (Azam, Emirullah, Prabhakar, & Khan, 2013). The rising burden of repayment and the rapid accumulation of debt have raised the question regarding the critical impact of the debt on the economic growth among South Asian economy.

Amongst the south Asian countries Sri Lanka and Bangladesh has shown worse foreign debt to GDP ratio (Trading Economies, 2015).This increasing trend in foreign dependency gives a signal to creditors about their liquidity constraints. If this trend of foreign borrowing continues in the future, than these countries might face highest risk of default.

(Clements, Bhattacharya, & Nguyen, 2004), emphasized that reduction in external debt for (HIPCs) would rise the income by 1% per annum. And they found debt not only share a negative relationship with growth but it also has worse impact on service payments of debt. As these payments soak up the resources and reduce public investments.

(Spilioti & Vamvoukas, 2015), investigated the link between government debt and the economic growth in Greek for the period of 40 years. The found a statistically significant negative impact of debt on the GDP growth rate. On the other hand (Dritsaki, 2013), found that Granger causality in unidirectional form runs from exports to GDP rate and from GDP growth rate to the government debt, but exists no relationship in short run between the exports and the government debt. But in long run, the output depicts that there is a unidirectional Granger causality runs from the GDP growth rate to government debt.

(Westphal & Rother , 2012), determined the impact of government debt on the GDP-per capita in 12 euro countries and found U-shape relationship between the variables with non-linear impact of debt on GDP growth rate. (Kourtello, Stengosb, & Tanc, 2013), used structural threshold regression model and concluded with an increase in debt the GDP growth rate reduces. (Égert, 2015), also used non-linear threshold models and found negative non-linear relationship between public debt and economic growth dependent on modelling choices.

(Pattillo, Poirson, & Ricci, 2001)**,** explained in their study that link between average debt and GDP growth rate converts to negative when debt to GDP ratio is 160-170 percent. They have also explained that the political considerations also lead to excess borrowing which results in funds flight that slows down the GDP growth rate of the borrowing country. (Ayadi & Ayadi, 2008)**,** applied the neoclassical growth model that includes indicators of debt and other macroeconomic variables for determining linear relationship between debt and growth rate and found that debt have significant and negative relationship with growth. Similarly (Reinhart & Rogoff, 2010) stated that debt and economic growth are negatively correlated. But (Panizza & Presbitero, 2013), described that no study has been done which makes a convincing case related to causation relationship between the debt and GDP growth rate. They had found no influence of debt on GDP growth rate. Due to this the goal of this article is to examine the existence of a causal relationship amongst debt and growth of GDP of an economy.

(Lof, Malinen, & Tuomas, 2014), used panel (VAR) model and found reverse impact of growth on debt for 20 developed countries. Similarly (Sutherland & Hoeller, 2012), numerates that private debt generates vulnerabilities in balance sheet disclosure to income shook's and movements in asset price. Due to which many economies are suffering from the multiple debt overhang issues. (Jordà, Schularick, & Taylor, 2013)**,** found that many advance economies since 1870 faces financial stability risks due to debt taken by private sector rather the public debt.

(Akram, 2011), used historical data from year 1970 to 2009 for his research .In which he found that external debt and the growth rate per capita income of the Pakistan are negatively correlated. But his main focus was on two economic indicators: per capita income growth rate and investment. But he paid no attention to the other variables that are very important for finding the impact of foreign loan on the economic performance of Pakistan. Our research plan is to fill the gap by including the three different types of variables that will help in verifying economic performance and its result.

A research was undertook by (Kasadi & Said, 2013) on Tanzania for a period of 1990-2010 and they found high external debt have significant positive impact on the growth as external debt helps in meeting the needs of a country.

(Loganathan, Sukemi, & Sanusi, 2010), have used the time series econometric methodology &VECM model on historical data for the time period ranging from 1988 to 2008 and the result showed that significant negative relationship exists between external debt & performance of Malaysia. They have utilized different techniques i-e Stationary tests and granger causality analysis. (Ozcan & Yilanci, 2008), applied time series econometric techniques on historical data from year 1990 to 2007 and have claimed that negative relationship exists between the both variables.

Technique used by (Caner & Hansen, 2004)**,** determined the stationary and non-linearity in data. Debt to GDP ratio detected as non-linear .Thus, unit root test was practiced. The result showed that external debt of

Turkey was unable to be realized in the long run. Panel data studied by them from the year 1980 to 2008 including variables like gross public debt and GDP growth.

Research paper of (Tsintzos & Efthimiadis, 2011), explored effect of external public debt on the economic growth of the Greece. The internal-external public debt ratio and public to private capital were exactly related to each other. Results are negative in case of outflow of domestic capital.

(Eberhardt & Presbitero, 2013), examined the presence of a nonlinearity between debt and growth permitting for cross-country heterogeneity and the presence of common stock. There econometric analysis showed that there is weak proof for nonlinearity in long-run link for debt and growth through selected countries. They also found that country-specific coefficient which explain the log run link between debt and per capita GDP are lower in countries which have high debt burdens.

(T, Ash, & Pollin, 2013), contempt the work of (Reinhart & Rogoff, 2010). They distinguished that coding errors and choosy segregation of available data cause serious errors in their work. They found that if public debt load is greater than 90% of GDP as a result it will drastically reduce GDP.

Little money is left for the private investment when piece of the government income is assigned for debt service payments. There will be poor economic growth if the private investment is low. Thus, debt and GDP are inversely related to each other. (Ezeabasili, Isu, & Mojekwu, 2010).

(Doğan & Bilgilib, 2014), took data from 1994-2009 for Turkey and analyzed relationship between external borrowing and its impact on GDP growth rate using Markov-switching mode. They found that there exists negative non-linear relationship between the variables. (Mitzeq & Matz, 2015), examined long term and short term relationship between public debt and GDP of German state for the period of 1970-2010. They used dynamic error correction models and found significant negative relationship between the variables.

Annual data of sixty developing countries from year 1984 to 2008 was taken. Experimental results shows that external debt has opposite impact on output growth (Qayyum & Haider, 2012). (Uzun, 2012), examined the link between GDP growth rate and external debts from year 1991- 2009 for evolution countries. In long run positive relationship was found between the debt and the growth rate of the countries. (Shah & Pervin, 2012), examined Bangladesh economy from year 1974 to 2010. Long run positive influence of external public debt stock on economic growth have found through the examination. It does not have any important effect in short run

(Abdelhadi, 2013), had determined link between external debt & economics growth in Jordan for duration ranging from 1990 to 2011. He used econometric techniques on time series data. He concluded external debt shares a positive link with economic growth. But he determined that debt service payments has significantly negative relationship with GDP growth rate.

(Ramzan & Ahmad, 2014), found negative impact of external debt on GDP of Pakistan for the period of 1970-2009, used ARDL approach to co-integration. (Stylianou, 2014), had analyzed time series data for the year 1980 up to 2010 and applied econometric tools like ADF, Phillips – Perron and KPSS and he was not able to found any connection between debt and growth in Greece. (Babu, 2014), used annual data from year 1970-2010 ,used (LLC) approach and Hausman specification and concluded with finding a negative influence of the external debt on the economic growth of EAC member countries. Vibrant panel data model was applied on sample consisting 19 developing states from the time period of 1999-2011 was used by (Zouhaier & Fatma, 2014) and their result showed external debt shares negative relationship by economic growth of countries.

“Findings from above studies differ across the variables. Some of them have shown positive relationships, while others have shown negative relationships between these variables while some of them have shown no relationship at all. These studies are in accordance with our topic of research but do not provide us clear picture regarding the relationship between the variables. We have used debt deflation theory by Dr. Irving Fisher which states that “recessions in the economy are due to the decrease in overall level of debt. (Wikipedia, 2015).This theory was also used by (Reinhart & Rogoff, 2010) in their article and by (Mirowski, 2014) in his interview. Thus, to examine this theory, this study has been conducted to determine what kind of relationship exists between our three selected variables of debt and GDP growth rate in the long and short run. The hypothesis which is to be tested in this study include:

1. H1: There is relationship between external debt and the economic growth of south Asian countries.
2. H1: There is relationship between central government debt and the economic growth of south Asian countries.
3. H1: There is relationship between household debt and the economic growth of south Asian countries.

But to check whether debt has any relationship on GDP growth rate separately on each country of South Asian economy. We have deduced following hypotheses

1. H1: There is relationship between our three selected variables of debt on GDP growth rate in each country of South Asia.

Research Methodology

The methodology adopted in this study is multiple regression analysis, Co-integration analysis is done by means of the unit root test i-e Augmented Dickey Fuller (ADF). The (ADF) test was also used in earlier studies like (Shah & Pervin, 2012) used it also. This technique is selected because it represents long-run economic growth and provides best coefficient estimates of the panel data used in analysis. Multi-collinearity check test (VIF) is also applied, to detect correlation among the variables. Independence of residuals is also checked with Durbin Watson test. We have used multiple regression analysis because it is the best statistical technique for determining the change in regressed GDP due to the change in any of our three variables of debt.

This study comprise of mainly secondary data acquired from the World Development indicators (WDI, 2015) and World Bank as these are authentic websites. Total south Asian countries comprise our target population and it's our sample also that is selected by doing judgmental sampling. South Asian countries contains Afghanistan Bangladesh, Nepal, Pakistan, Bhutan, India, Maldives and Sri Lanka. One of the reasons for selecting combine data of south Asian countries was the availability of data with objective to have as less as possible number of blanks in the dataset. The data for the last 20 years have been taken i-e 1994-2014 for doing long run multiple analysis for south Asian economy jointly and separately for each country. But due to lack of data availability we conducted multiple regression analysis separately on five countries of South Asian economy which are Pakistan, India, Sri-Lanka, Maldives and Nepal. The second reason for selecting the above countries is that, we want to find effect of debt on GDP growth rate for developing or suffering countries of south Asian economy. We have conducted short run and long run regression analysis in our study.

In order to find out the relationship of debt with economic growth of the South Asian countries. We made a regression model using panel data in which GDP (gross domestic production) is written as the dependent variable and three debt variables are taken as explanatory variables. And all the variables are measured in US dollars.

Model Specification

The model is specified with this equation as:

$GDPit = \alpha + \beta 1CGDit + \beta 2EDit + \beta 3HHDit + \varepsilon it$

While α is a constant variable; εit is the error term, a random variable at the time t; Panel data is depicted by the combine term ;it is cross-sectional dimension which is shown by subscript i, and time series dimension that is shown by subscript t. $\beta 1$, $\beta 2$, $\beta 3$ and $\beta 4$ represents coefficients of the variables.

GDP_{it} is the dependent variable at the time $_{it}$

While the three independent variables used in the equation are

- CGD_{it} = Central Government debt
- ED_{it}= External debt
- HHD_{it} = Household debt

In our study we have done panel data multiple regression analysis because we are observing 8 countries that fall in south Asian economy over a period of last 20 years. The reason for doing panel data study is that it involves two dimensions; a time series dimension and a cross-sectional dimension .So, it is more informative as it has more variability, have more degrees of freedom, and have less co-linearity among variables. Usually the higher value of degrees of freedom (df) helps in getting more authentic econometric estimates (Hsiao, 2006). Likewise panel data helps in getting simplifying computations and gives statistically significant conclusion.

Data Analysis & Interpretation

Before doing multiple regression analysis. Following assumptions are checked.

- Linear relationship between the explanatory and regressed variable should exists.
- All explanatory variables should be stochastic. And there should be no linear relationship between the predictors.
- The expected value should be zero of the error term $E(\varepsilon) = 0$
- For all the observations, no variation of error term should be present $E(\varepsilon^2) = \sigma^2 \varepsilon$
- No correlation of the error term between the observations should be present
- $E(\varepsilon t * \varepsilon s) = 0, s \neq t$

But the variables were having stationarity in them. Therefore, to convert this stationarity data into non-stationary, unit root test (ADF) is used.

Co-integration Analyses

Table 2.Results Obtained from ADF Test

Null Hypothesis: D(GDP,2) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=4)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.585588	0.0004
Test critical values:	1% level	-3.886751	
	5% level	-3.052169	
	10% level	-2.666593	

The result table shows that all the variables in the data are not trend stationary in the level but became stationary at the first of difference. So all variables in our data set integrated at I (1). Thus, residuals are expected at I (0) gotten from the regression. This result obtained shows the value of t-test at three levels of significance. But in this study we have taken 5% as the significance level. And according to the rule of statistics if the value of t-test at 0.05 is less than -2.862181 then t-stat is significant. Thus, our results do not support our null hypotheses.

Table 3. Results of Correlogram test

Date: 12/19/15 Time: 15:38
Sample: 1994 2014
Included observations: 19

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
***| . |	***| . |	1	-0.366	-0.366	2.9680	0.085
.**| . |	****| . |	2	-0.294	-0.494	4.9959	0.082
. |* . |	.**| . |	3	0.157	-0.282	5.6094	0.132
. |* . |	. | . |	4	0.209	0.038	6.7687	0.149
.**| . |	. | . |	5	-0.213	-0.060	8.0642	0.153
. *| . |	.**| . |	6	-0.187	-0.289	9.1341	0.166
. |**. |	. | . |	7	0.334	-0.007	12.836	0.076
. *| . |	.**| . |	8	-0.202	-0.329	14.321	0.074
. | . |	. *| . |	9	0.020	-0.091	14.337	0.111
. |* . |	. | . |	10	0.075	-0.043	14.588	0.148
. | . |	. *| . |	11	-0.040	-0.181	14.668	0.198
. | . |	. *| . |	12	-0.052	-0.164	14.822	0.251

For checking the autocorrelation among the variables the correlogram test is conducted in E-views software. Our results shows that autocorrelation do not exist in our variables as none of the spikes are going out of the bars.

Multi-Collinearity Test

Table 4. Results of VIF Test

Independent Variables	VIF
External Debt	3.439
Central Government Debt	2.943
Household Debt	3.043

The multicollinearity among the variables is checked with the help of variance inflating factor (VIF). Whose value is less than 10 in the absence multicollinearity. And in our results none of the variables has showed the value greater than 10.

Table 5.Results of Multiple Regression Analysis
Dependent Variable: GDP
Method: Least Squares
Date: 12/23/15 Time: 10:49
Sample (adjusted): 1994 2010
Included observations: 15 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8632.148	3041.994	2.837661	0.0176
CENTRAL_GOVT_DEBT	-68.40974	46.31821	-1.476951	0.1705
EXTERNAL_DEBT	7.99E-08	6.62E-09	12.07277	0.0000
HOUSEHOLD_DEBT	1.61E-07	3.92E-07	0.409722	0.6906

R-squared	0.983440	Mean dependent var	7334.045
Adjusted R-squared	0.976816	S.D. dependent var	3369.016
S.E. of regression	512.9777	Akaike info criterion	15.57954
Sum squared resid	2631462.	Schwarz criterion	15.81556
Log likelihood	-111.8466	Hannan-Quinn criter.	15.57703
F-statistic	148.4653	Durbin-Watson stat	2.045879
Prob(F-statistic)	0.000000		

Now the regression equation obtained is as follow:
GDPit =8632.148 -68.40974 CGDit +7.99E-08EDit +1.61E-07 HHDit + εit

This equation shows that only two variables i-e central government debt have negative relation with GDP of south Asian economy. Which means by 1$ increase in central government debt the GDP rate will decrease by 680 US dollars. While the other variables have shown positive relationship with GDP growth rate unexpectedly, but only external debt shares a significant positive relationship with GDP. This confirms existence of relationship between external debt and GDP growth rate so it's not supporting null hypotheses.

The results obtained by doing multiple regression analysis depicted that our model is good fit with significantly high value of R which is 0.983440. The results showed the adjusted R^2 also as it gives a better measurement of goodness of the fit. Normally its value lies within the range of zero and one .If the value is closer to one than it shows the better goodness of it as in this case the value is 0.976816 which is really close to 1.The values for standard errors reports the errors of coefficient estimates, their small values are preferable like in our results its values are quite small.

While the values obtained in T-test also shows that among the independent variables only the external debt is significant while others are insignificant. According to a rule of thumb if $t \geq 2$ is statistically significant and the value below this is not significant. The p-value has also shown significant value of the constant term and external debt while insignificant values of other independent variables are found. This also confirms that the results do not our null hypotheses as external debt has significant impact on GDP of south Asian countries. The F-stat value is meant to check the overall significance of complete model regarding to the dependent variable (GDP). It tests the combine variance of independent variables. The significance level used in this study is 0.05. So, if probability of F-stat is ≤ 0.05, the parameter estimates of independent variables is conjointly statistically significant. And the value greater than 0.05 makes it mutually statistically insignificant. In this study our value is highly statistically significant. Hannan-quinn criter Schwarz criterion and Akaike info criterion is used for selecting the model. All these criterions considers not only closeness of fit of the points but also the number of parameters. The results depicts that our model is closest to best fit model.

The Durbin Watson test is used for check independence of residuals in the model. It helps in specifying correct combination of independent variables. If its value is close to 2 then the model is best and if value is less than 2 it shows positive serial correlation. In our results the D.W value is 2.045 which shows our model is best fit. In the short run also only external debt has shown significant and positive relationship with GDP growth rate. While other variables remained insignificant. On the basis of all above test results, we can conclude that our objective of finding causal relationship between debt and GDP growth rate is achieved now. As we have found statistically significant positive relationship between external debt and GDP growth rate. Thus, we do not accept our null hypotheses.

While the results obtained by running multiple regression analysis for separately five countries of south Asian economy shows that Pakistan has non-linear and significantly negative relationship of household debt with GDP of Pakistan. While data of central government debt was not found and other variables are insignificant. For India the output shows that external debt and central government debt has linear and significant relationship with

GDP growth rate of India, having variable of household debt insignificant. For Sri-Lanka non-linear and statistically negative significant relationship between external debt and central government debt is found, having insignificant central government debt. Maldives output showed non-linear and significant negative impact of all independent variables on GDP growth rate of Maldives. Output of Nepal depicts non-linear relationship between the variables and only central government debt have negative significant relationship on GDP growth rate. While other variables remained insignificant in the results.

Discussion

As debt deflation theory states that recession in economy occur due to decease in debt level. Our results also support this theory as we have found that external debt has a positive statistically significant impact on the GDP growth rate. Thus, it can be concluded that with an increase in external debt, GDP growth rate will also boost and with a decrease in external debt the GDP growth rate will also decease.Secondly our findings strengthen the findings of (Kasadi & Said, 2013), (Abdelhadi, 2013) and (Uzun, 2012), as they all also founded positive relationship between external debt and GDP growth rate in their researches.

Our results are in contradict with the findings of (Westphal & Rother , 2012), who determined non-linear impact of external debt on GDP. And (Ramzan & Ahmad, 2014), (Babu, 2014) and (Doğan & Bilgilib, 2014), as all of them founded negative impact of external debt on GDP growth rate.

Similarly, our findings do not support the findings of (Panizza & Presbitero, 2013) and (Stylianou, 2014) as they stated that they could not find any relationship between debt and GDP growth rate.

But our results supports our one hypotheses as the positive significant relationship between external debt and GDP growth rate is confirmed. But surprisingly our findings do not support our two other hypothesis related impact of central government debt and household debt on GDP growth rate. Our findings strengthen the importance of external debt for increasing the economic growth of the South Asian countries. Consequently, external debt appears to dictate GDP growth rate at least to some extent. But the reason behind insignificance of other two variables (Central Government debt & Household debt) of our study could not be found.

Implications

Our findings contributed empirically in the previous literature as for the first time we inspected long run and short run relationship between three different variables of debt and GDP in South Asian countries jointly and separately. Our output gives evidence of the presence of linear and significant positive relationship between external debt and GDP growth rate. It will prove helpful to the debt policy makers in making their policies stronger and effective. This study will also help its readers to realize the importance of external debt in order to boost economy in the South Asian countries. Similarly, this article indirectly convinces the government and debt management wing (DMW) to become more cautious about the impact of external debt on GDP growth rate.

Limitations of Study

The current study has following limitations:

First of all, this article examined only south Asian countries. Thus, the vibrant effects of total debt on GDP growth rate might differentiate in other economies.

Similarly, besides debt there are many other factors like foreign remittances, foreign direct investment and imports which also effects GDP (Tahir, Khan, & Shah, 2015). But in this study only three variables of debt are considered. And our another limitation is that we could not get the complete separate data of our variables for Bhutan, Afghanistan and Bangladesh .So, we could not perform the study at a significant depth.

Future Directions

Further research can be done like finding the impact of private external debt, public debt on foreign direct investments, GDP and domestic revenues and on further different networks through which debt may affect GDP growth rate. More sophisticated work needs to be conducted which can investigate that why central government debt and household debt found insignificant. For the best use of external debt, its policy needed to be reviewed. Similarly previous studies like (Reinhart & Rogoff, 2010), (Ramzan & Ahmad, 2014) found significant and negative relationship between external debt and growth rate. But we have found a positive link. So, more research is required to be done and it also comes under the scope of future research.

Conclusion

The research work is carried out to determine a causal relationship between three different variables of debt and GDP growth rate in South Asian countries in long and short run. Actual gross domestic product was the dependent variable while external debt, household debt and central government debt were explanatory variables. Multiple regression analysis technique was implemented to find causal relationship between debt and GDP growth rate. The outcome support our one hypotheses as it shows existence of causal relationship between

external debt and GDP growth rate in the short and long run. Thus, it can be concluded that with an increase in external debt the South Asian economy will flourish.

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Appendices

Fig 1: Graphical Trend Analysis of Variables

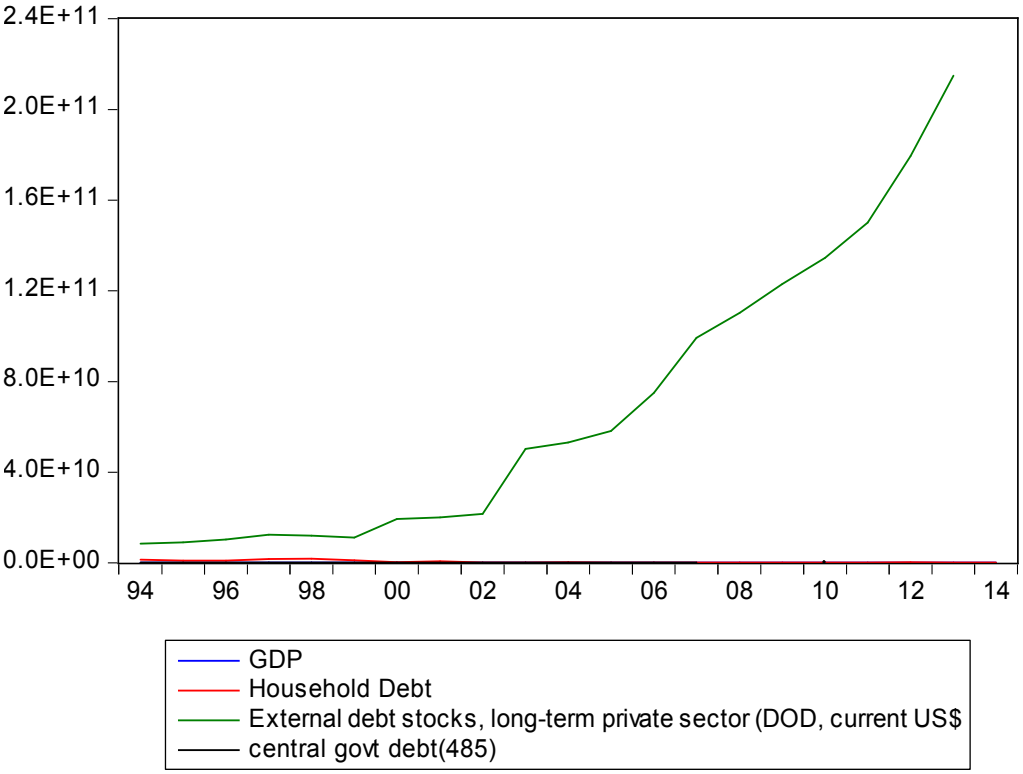

Fig 2: Graphical Linearity Test of Variables

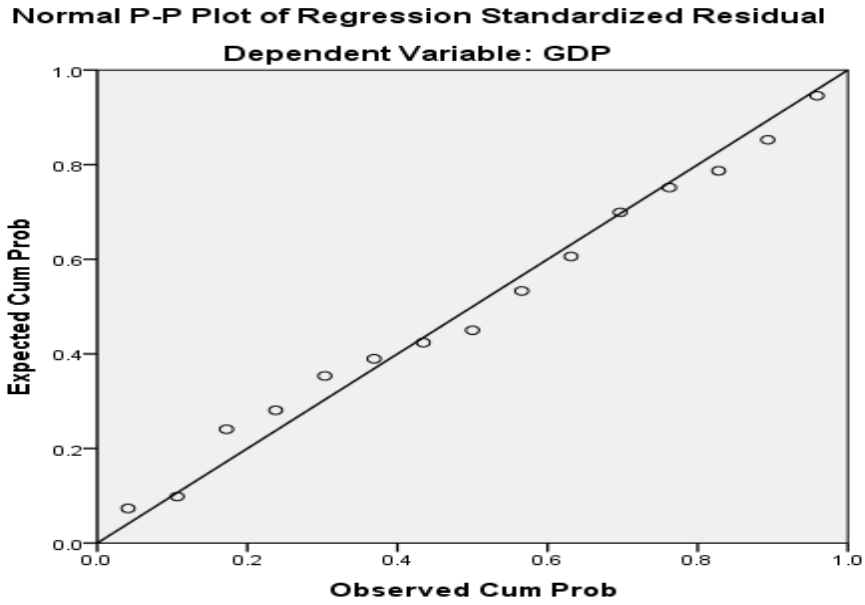

Fig 3: Heterscedasticity test

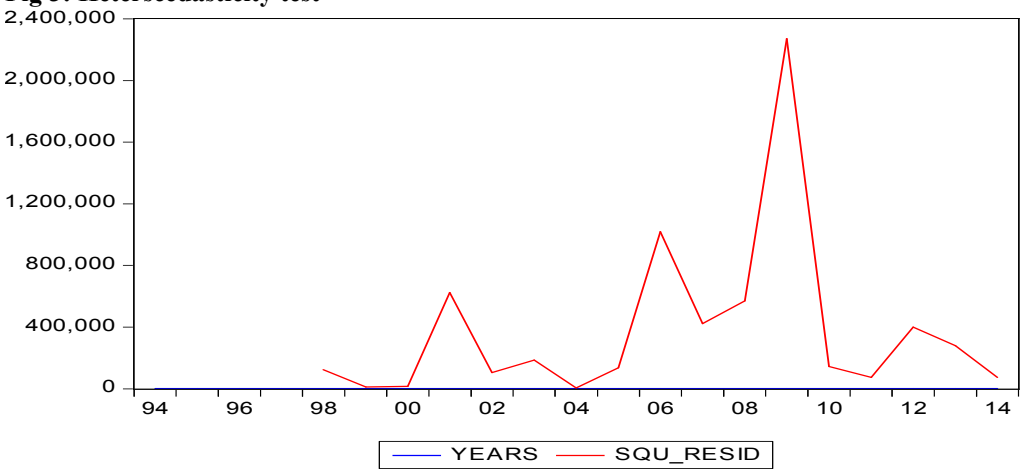

Fig 4:Separate Regression analysis for Pakistan

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	826.779	761.851		1.085	.293		
	Extdebt	.067	12.058	.001	.006	.996	.734	1.363
	Householddebt	-1.753E-006	.000	-.299	-1.108	.283	.734	1.363

a. Dependent Variable: GDP_Pak

Fig 5:Separate Multiple Regression analysis for India

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2538.667	214.286		11.847	.000		
	Extdebt	-32.795	2.659	-.932	-12.331	.000	.391	2.560
	Householddebt	-5.312E-008	.000	-.073	-.828	.420	.291	3.435
	CGDebt	-13.199	4.217	-.195	-3.130	.007	.578	1.730

a. Dependent Variable: Indiagdp

Fig 5:Separate Multiple Regression analysis for Sri-Lanka

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	10162.916	1122.395		9.055	.000		
	Extdebt	-117.806	32.094	-.807	-3.671	.003	.175	5.708
	Householddebt	-7.458E-006	.000	-.215	-1.672	.118	.513	1.951
	CGDebt	-.294	20.039	-.004	-.015	.989	.133	7.499

a. Dependent Variable: GDP_Srilanka

Fig 6:Separate Multiple Regression analysis for Maldives

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	6934.007	679.494		10.205	.000		
	Extdebt	-98.638	13.388	-1.077	-7.368	.000	.247	4.048
	Householddebt	.000	.000	.204	1.288	.219	.211	4.746
	CGDebt	44.301	14.752	.264	3.003	.009	.684	1.462

a. Dependent Variable: GDP_Maldives

Fig 8:Multiple Regression Analysis in Short-run

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	75.538	734.787		.103	.935		
	centralgovtdebt485	24.011	9.844	.229	2.439	.248	.859	1.164
	ExternaldebtstockslongtermprivatesectorDODcurrentUS$	3.293E-007	.000	1.197	9.296	.068	.458	2.184
	HouseholdDebt	-3.879E-007	.000	-.301	-2.305	.261	.447	2.238

a. Dependent Variable: GDP

Fig 7:Separate Multiple Regression analysis for Nepal

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1180.495	461.917		2.556	.025		
	Householddebt	-1.349E-006	.000	-.061	-.683	.508	.680	1.470
	Extdebt	-3.006	4.987	-.048	-.603	.558	.855	1.169
	CGDebt	-10.343	1.038	-.920	-9.961	.000	.629	1.591

a. Dependent Variable: GDP_Nepal