Relationship between tax revenues and economic growth in Bangladesh

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Abstract

The relationship between economic growth and tax revenues is a debate that has existed for a long time in the living history. The discussion on the two variables has exhibit contentions from academicians and policy makers with one school holding on the view that taxation is bad for the economy while the other school believe that taxation is good for the economy. Valuable empirical literature exists that studies the relationship between economic growth and tax revenues though most of them analyze the variable at cross - country level. However, not much literature exists exploring the relationship between the two variables at country specific level. The object in this study was thus to fill in the literature gap in country specific studies by exploring the relationship between economic growth and tax revenues in Bangladesh and also determining causation between the variables. Two approaches were utilized to accomplish the study objective. The first method involved a classical linear regression model. The second method used cointegration test. The results of the study revealed a positive relationship between economic growth and tax revenues. In addition, the government should utilize the positive relationship between tax and economic growth to realize efficient government investment expenditure that spars growth in turn boosting the revenue levels.

Keywords: Economic growth, Tax revenue, classical linear regression, cointegration test, investment.

Introduction

One of the central questions in macroeconomics and public finance is how changes in tax policy affect economic activity and social welfare. In theory, it is usually considered that taxes are in a negative correlation with growth - so higher taxes mean lower growth rates of economy. This is explained with the fact that taxes introduce distortions to economy, that is, they do not have neutral effect on the behavior of individuals. All taxes except lump sum tax

(being the only neutral tax, although impossible to carry through in practice) introduce distortions to an economic system. Tax distortions change the system of incentives for individuals, so their decisions on, for example, work and leisure or saving and consumption are different than they would be in a world without taxes. The distortions that taxes introduce to economy result in loss of efficiency, which is called dead weight loss or excess tax burden. Therefore, higher taxes mean higher rates of distortion, which leads to higher loss of efficiency and, consequently, lower growth. Further in this paper we shall briefly explain this established theoretical relation between higher taxes and lower growth. Consequently, taxation leads to inefficiency in economy. Taxes stimulate people to change their behavior: for example, they could either work as much as before introduction of taxes and reduce their spending, or work more and spend less time at leisure, thus not needing to reduce spending substantially. Whichever way they choose to come to terms with taxes, they will be worse off than in a world without taxes and the balance in the market will be established on a lower level of output and higher level of prices.

In analyzing the relationship between tax revenues and economic growth in Bangladesh, the following questions will be addressed: how are the variables related in the long run? What is the dynamics causal relationship between the variables? A study of Bangladesh's tax regime and its impact on long term economic growth will provide an insight on how fiscal policy changes may increase the pace of Bangladesh's economic growth if Bangladesh has to achieve Vision 2041 targets. This will be useful to policy makers who will ensure prudent use of tax revenues to achieve economic growth.

Literature Review

Implicit in the following review of literature is that government fiscal policy, of which taxation is an integral part, has some bearing on a country's level of economic growth.

Kaldor (1963) posed that a country's tax potential depended on per capita real income, distribution of income, structure of the national economy, political and administrative governance. According to the author, the developing country tax performance would best be measured not by static indices such as tax ratios but by dynamic means such as tax effort and income-elasticity of the tax regime.

Karingi *et al* (2004) assessed the impact of economic, demographic, institutional and technological changes on fiscal policy in Kenya using the representative tax system. They found that the changes had been experienced in Kenya. They further revealed that the government had been under collecting revenues with tax efforts for VAT. excise and import duties being quite low. The authors finally concluded that the taxes for the future would be PAYE, excise tax and VAT while cautioning that the government should desist from import duties due to emerging globalization.

Mashkoor (2010) study of the relationship between tax revenues and the rate of economic growth in Pakistan narrowed on the "perception that the low ratio of direct to total taxation promotes high economic growth''. The author argues that higher taxes decrease the investment rate, discourage research and development activities (that are key to higher productivity), reduce the work effort and distort both labour and capital markets. By using Pakistani data for the period 1973-2008. the author concluded that the direct tax to GDP ratio Granger caused the growth in real GDP significantly and recommended that the country should decrease its heavy reliance on indirect taxation.

Musgrave and Musgrave (1980) by using data generated by Chelliah *et al* (1975) for 30 countries demonstrated that indeed as GNP *per capita* increased so did tax revenue as a percentage of GNP. Incidentally. Kenya emerged among the 30 as the country with the least income per head and tax ratio. The authors through regression analysis concluded that per capita income had a high explanatory value for tax ratio and tax effort.

Moyi and Ronge (2006) observed that despite the Kenya Government's tax modernization program aimed at, *inter alia,* enhanced revenue collection, improved tax administration and reduced compliance and collection costs, there were concerns that the challenges that confront the Kenya Revenue Authority (KRA) today are not much different from those it faced before the reforms. According to the authors, there also remains the perception that "tax competitiveness" *(sic)* in Kenya is relatively low and that the country is considered by both local and foreign investors as very tax unfriendly.

McLure (1972) explored how developing countries could utilize indirect taxation to raise the rate of economic development. Among author's proposed measures are: imposing charges on the benefit of using public services; levying charges on economic agents who cause pollution; minimizing market distortion by levying taxes that vary significantly; and promoting private sector economic activity because of the taxable revenue they generate.

Shoup (1969) analyzed different economic aspects of tax administration including evasion, embezzlement, avoidance and cost of compliance. All these have a bearing on the amount of tax revenue collected and. in turn, public expenditures. The author concluded the ideal tax administration system was a self-enforcing one where tax officials' primary roles would be collecting voluntarily paid taxes and keeping appropriate records. However, the author admitted that the desire for "pecuniary gain" by both tax payers and tax collectors rendered such a system extremely difficult to implement.

Stein (1988) in his book on fiscal policy by successive United States of America Presidents from the great depression of the 1930s to the recession and economic recovery of the 1980s, a span of over half a century is an insightful study national economic policy making and implementation. One relevant aspect to Kenya is the "supply-side" economics practiced by the Reagan administration (1981-1988) to get the U.S. economy out of a recession that began in 1980. The policy included the reduction of marginal tax rates to stimulate savings and investments and a reduction of government regulation of the economy to allow the private sector to function under minimal compliant costs in terms of license fees and corporate taxes. While America's economic growth increased over time it came at a heavy inter-temporal cost in the form of record high budget deficits and international indebtedness.

Most of the above cited empirical studies show that the different uses of total government revenue affect growth differently and a similar thought applies to the way tax revenue raised is used. The possibility exists that an economy with higher tax rate experiences at least short-run growth if taxes are used to finance tangible public spending that benefits households and private sector. In general, the correlation between tax revenue and economic growth seems to be stronger for developing countries. From this review, it appears that there is no study that has investigated the fact for Bangladesh specifically.

Materials and Methods

This study applies the analytical framework as conceptualized by Egen and Skinner (1996) and consequently specified in both the modified versions of the Ogbonna and Appah (2012) and Lee Young (2004). The cointegration diagnostic testing is based on Johansen Cointegration test approach to the analysis of long-run relationships. Based on the Ogbonna

and Ebimobowei analysis, the relationship between economic growth and tax revenues can be specified as;

GDP = F (INTX, IMD, EXD, S/VAT).....Equation (1) Where.

GDP is the real Gross Domestic Product which measures economic growth

INTX= Income Tax *1MD* = Import Duties *EXD* = Excise Duties

S/VAT = Sales Taxes or Value Added Taxes.

This study used secondary annual time series data for Bangladesh for the period 2001-2017 to investigate the empirical link between tax revenue and economic growth. Data was collected from publications by the World Development Indicator (WDI) and Bangladesh Bank.

Results

This study used sample data for the period 2001 - 2017 extracted from statistical abstracts and economic surveys obtained from the World Development Indicator. I he variables included in the study were; GDP and Tax revenue including Income Tax (InTx), Import duties (ImD). Excise duties (ExD) and Sales tax'Yalue added Tax (SVAT). The variables were selected based on data availability. All data are then transformed into logarithm to minimize the associated problems of heteroscedasticity, autocorrelation and multicollinearity hence the output from the analysis is thus interpreted as elasticities.

A classical linear regression model fit was employed in this study using the OLS method. The dependent variable GDP (ln gdp) is regressed on the independent variable total tax revenue. The results of the regression analysis are displayed in table 1.1.

Table 1.1: **Regression Model**

```
. regress growthrate taxrevenue revenue
```

Source	SS	df	MS		
Model	.01924346	2	.00962173	Number of obs =	17
Residual	.07045067	14	.005032191	F(2, 14) =	1.91
				Prob > F =	0.1844
Total	.08969413	16	.005605883	R-squared =	0.2145
				Adj R-squared =	0.1023
				Root MSE =	.07094

growthrate	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
taxrevenue	-.328765	.2824639	-1.16	0.264	-.9345898	.2770598
revenue	.8866905	.4650347	1.91	0.077	-.1107098	1.884091
_cons	.1833086	.4232574	0.43	0.672	-.7244882	1.091105

The regression analysis used 18 observations and the output shows that the overall model is statistically insignificant given that the probability statistic the F-test is 0.1844. The adjusted R- squared is quite low at 0.1023 indicating that 10% of variation in the dependent variable (GDP) is explained by the explanatory variables. Half of the coefficients of the explanatory variables have a positive sign implying that revenue has a positive relationship with the GDP.

The Johansen tests for cointegration which include: trace statistic test and maximum statistic test are used in this study to identify the number of cointegration equations that exist. This also tests for the existence of a long-term relationship between the explained and the explanatory variables. The null hypothesis being tested here is the there is no cointegration between the variables. The results for the Johansen tests are displayed in table 1.2.

Table 1.2 : Johansen Tests for Cointegration

```
. tsset obs, yearly
        time variable:  obs, 2001 to 2017
                delta:  1 year

. vecrank taxrevenue growthrate, trend(constant) max

                    Johansen tests for cointegration
Trend: constant                                      Number of obs =      15
Sample:  2003 - 2017                                       Lags =       2
```

maximum rank	parms	LL	eigenvalue	trace statistic	5% critical value
0	6	44.846206	.	21.5874	15.41
1	9	54.564958	0.72633	2.1499*	3.76
2	10	55.639926	0.13353		

maximum rank	parms	LL	eigenvalue	max statistic	5% critical value
0	6	44.846206	.	19.4375	14.07
1	9	54.564958	0.72633	2.1499	3.76
2	10	55.639926	0.13353		

Conclusion and policy recommendations

This study sought to investigate whether any relationship exist between taxation and economic growth and further determine causation between the variables with of coming up with fiscal policy recommendations. First, the study used a classical linear regression model based on the OLS estimation method to establish the nature and strength of relationship between taxation and economic growth. Second, a cointegration test was further employed to find out if there exist a long term relationship between economic growth proxied by GDP and taxation.

The results of the study revealed a positive relationship between economic growth and revenue. The cointegration revealed that there is at most one cointegrating equation hence giving an indication that there exist a long term relationship between economic growth and taxation.

From the foregoing it is concluded that there exist a positive relationship between taxation and economic growth.

Based on the study findings presented and discussed above, the following policy recommendations emanate that should be adopted by the government to enhance its fiscal policy decisions hence boost the economic growth.

First, the government should adopt a fiscal policy measure that concentrates on shifting tax structure and enlarging the tax base to increase tax levels without increasing the tax burden. This can be through enhancing the tax base on excise duties to ensure equity and reduce consumption of goods with negative externalities on the lives of citizens.

Second, the government can utilize the positive relationship that exists between tax and economic growth to try and efficiently use the taxes it collects to spar growth. This boost per capita incomes hence increasing disposable income that would in turn increase demand and eventually increasing tax levels on sales/VAT and excise duties.

Third, the findings give an implication that the government can change the long-run economic growth levels by generating more revenue from income taxes, sales tax/VAT and excise duties without raising tax rates or creating new taxes. This can achieved through improving the tax collection system, eliminating fraud, evasion and corruption.

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