IMPACT OF VALUE-ADDED TAX ON GROSS DOMESTIC PRODUCT OF BANGLADESH

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ABSTRACT

International Monetary Fund advocates the Bangladesh government introduce Value Added Tax that was incepted in 1991. Before that, it was known as sales tax. Now Bangladesh scales up its country income status from a low-income country to a middle-income country, while value-added tax is the key player contributing a great part to gross domestic product. The study inspects the effect of value-added tax on Bangladesh's gross domestic product using a long dataset from 1991-1992 to 2020-2021. The study uses a co-integration technique invented by Johansen with a restricted V.A.R. named vector error correction model. This article finds that value-added tax has a specific positive impact on a gross domestic product that ensures good and continuous economic growth over the decades in Bangladesh.

INTRODUCTION

German economist F. Von Siemens 1918 proposed that value-added tax (V.A.T.) is a substitute for German turnover tax. French Economist Maurice Laure innovates the value-added tax in the year 1954. It is an indirect tax. Another name for V.A.T. is goods and service tax (G.S.T.). V.A.T. is levied on each stage of value addition. The French Republic first introduced the V.A.T. on 10th April of 1954. European Economic Committee (E.E.C.) imposes V.A.T. to ensure a uniform trading system. V.A.T. was introduced in most of the French-speaking African countries in 1964. Brazil was the first developed country that implemented V.A.T. in 1967. India and China both introduced V.A.T. in the year 1990. Bangladesh introduced V.A.T. in 1991 to replace sales tax. Now, the V.A.T. is the most common practice of internal revenue for all countries of the world. The international monetary fund (I.M.F.) advocates and plays a vital role in this case. Nowadays, the V.A.T. is an important tool of fiscal management.

William Petty gives the basic concept of gross domestic product (G.D.P.) in sixteen half-centuries. Charles Davenant developed the method in 1675. In 1934, at the Bretton Woods conference, G.D.P. became the most important parameter for understanding a country's economic health, and Simon Kuznets sketched that idea. When China started practicing G.D.P. as a financial health measuring scale of a country office in 1993, it gained global affiliation. G.D.P. is the monetary value of final goods and services produced by a country for a given period. G.D.P. is determined in real and nominal value; otherwise, G.D.P. is valued at the constant price or current price, alternately known as inflation-adjusted or not. G.D.P. is defined in three ways: production, income, and expenditure. The most common and widely used approach is the expenditure approach. According to the expenditure approach, G.D.P. = C+I+G+(X-M). Where, C= household final consumption, I= Investment, G= Government expenditure on final goods and services, X= Gross export, and M= Gross import.

The National Budget of Bangladesh has been growing positively over the years. In order to back up the rapid growth of G.D.P., the government of Bangladesh needs to increase its expenditure (Faridy & Sarker, 2011). In order to increase government expenditure, Bangladesh needs to increase indirect taxes like V.A.T. It is important to know the extent of the relationship between V.A.T. & G.D.P. This study will investigate the extent of the relationship between

V.A.T. and G.D.P. by covering a period from its inception to the recent past. The study's main purpose is to find a causal relation between V.A.T. & G.D.P.

LITERATURE REVIEW

If you buy more, you have to pay more tax; this is the underlying philosophy of V.A.T. It is levied to the person when s/he purchases V.A.T. applicable goods and services. The seller is the custodian of the government to collect V.A.T. under the V.A.T. law, 2012, which shows that V.A.T. has a significant positive impact on G.D.P. of Bangladesh. They also find the significant positive effect of V.A.T. on total tax revenue and revenue for the period of 1991-1992 to 2018-2019. Lalarukh and Chowdhury (2013) opine that V.A.T. has significantly positive contributions to G.D.P. of Bangladesh from 1991-1992 to 2011-2012. Many researchers find positive effects of V.A.T. on G.D.P. in various countries and time frames using different methodologies, for example, Adegbie, Olajumoke, and Danjuma (2016), Anojan (2015) in Srilanka, Ayoub, and Mukharjee (2019) in China, Rahman, and Sarkar (2016) in Nigeria, Emmanuel (2013), Gatawa et al. (2017) in Pakistan, Jalata (2014) in Ethiopia, Nasiru, Haruna, and Abdullahi (2016). Okoye and Gbegi (2013), Onwuchekwa and Aruwa (2014), Shala (2017) in Kosovo, and Simionescu and Albu (2016) in Bulgaria, Czech Republic, Hungary, Poland, and Romania. However, Gashi, Asllani, and Boqolli (2018), Stoilova, and Patonov (2013) find a significant negative impact of V.A.T. on G.D.P. in Nigeria. Kalas and Milenkovic (2017) find no impact of VAT on GDP.

Mursgrave (1969) opines that tax impacts are classified as (i) ability to give up, (ii) efficient resource use, (iii) ability to collect (iv) comparison with average performance. Emran and Stiglitz (2005) analyze reforms of trade tax and V.A.T. in the countries with informal economies and conclude that most developing countries replacing trade taxes with V.A.T. can reduce welfare under plausible assumptions. Michael et al. (2013) opine that in a tradable only economy with no informal sector, a reduction in the import tariff on the commodity bearing the highest taxation and the highest total indirect tax burden increases welfare under suitable assumptions of substitutability. The lost revenue is compensated by an increase in the consumption tax on the commodity bearing the lowest indirect tax burden (Michael et al., 2013). Contemporary literature concludes that V.A.T. is a significant revenue-raising essential for developing countries in the eye of efficacy (Fjeldstad, 2014). The improper tax system is the major gridlock of industrial growth in the case of Bangladesh (Nashashibi (2002) V.A.T. raises production costs which creates the product non-competitive (Nashashibi, 2002) V.A.T. is not a hinder industrial growth as well as an economic growth of Bangladesh. Nashashibi (2002) focuses more on V.A.T. governance rather than its impact on economic growth.

RESEARCH METHODOLOGY

Both V.A.T. and G.D.P. have common trends of consistent growth from year to year. If this study considers this dataset, the relationship between two variables gives misleading results. Finding the solution to this problem, Engle and Granger (1987) cite that non-stationary data sets must be converted into stationary by differencing. This type of conversion is known as co-integration or co-integrating equation (C.E.). Johansen's Co-Integration technique is suitable for this study because it solves the problem of non-stationary level data. So, the equation of this study is:

$$GDP_t = \beta_0 + \beta_1 VAT_t + e_t \tag{1}$$

Where, β_0= intercept, β_1 = coefficient and e= error term. First-order differentiation converts non-stationary data into stationary data and tests the relation between V.A.T. and G.D.P. The Augmented Dickey-Fuller test is conducted to test the stationarity of the data set in this study. The vector error correction model is a model which gives a remedy for linear regression having non-stationary data set, which are co-integrated. So V.E.C. model is the best technique to assess the relation between V.A.T. and G.D.P.

Data

Secondary time series data are collected from Bangladesh Economic Review, B.B.S., Bangladesh Bank, Ministry of finance, etc., from 1991-1992 to 2020-2021.

EMPIRICAL ANALYSIS

The null and alternative hypotheses of the Augmented Dickey-Fuller test are:
Null hypothesis (H_0): There is a unit root in the data set.
Alternative Hypothesis (H_1): There is no unit root in the data set.

Table 1. Augmented Dickey-Fuller test output

Variables	Unit Root in	Z-statistic and (p-value) of test with constant but without trend	Z-statistic and (p-value) of test with constant and trend	Comments
Log(G.D.P.)	Level	1.4500 (0.9973)	-1.7380 (0.7339)	Non Stationary
	1st Difference	-4.1320** (0.0000)	-3.9320* (0.0109)	Stationary
Log(VAT)	Level	-0.2430 (0.9332)	-2.2100 (0.4840)	Non Stationary
	1st Difference	-6.9660** (0.0000)	-7.0190** (0.0000)	Stationary

*(**) denotes statistical significance level at 5% (1%) level.

Table 1 shows the Augmented Dickey-Fuller test results. Both variables, G.D.P. and V.A.T., have unit root levels, and both are non-stationary. From the above table, the study finds that we cannot reject the null hypothesis at one level, which implies the data set is not stationary. For this type of non-stationary dataset Johansen co-integration test technique is the best tool to establish a co-integration relation between two variables.

Table 2. Results of Johansen Co-integration Test

Hypothesized No. of Co-integration Equation(s)	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None**	21.4351	15.41	20.04
At most 1	1.5300	3.76	6.65

*(**) denotes statistical significance level at 5% (1%) level.

Table 2 reports the results of the Johansen Co-integration test. Table 2 reports the trace statistic value at none and number one and concludes that there is one co-integration equation between G.D.P. and V.A.T. which is statistically significant at 5% and 1% significance levels.

Table 3. The output of Co-integration Coefficients

	Log(G.D.P.)	Log(V.A.T.)	Constant
Coefficient	1.0000	-0.8113	-5.7817
Standard Error		0.0188	0.1632
Log-Likelihood	92.5304		

Table 3 suggests that there exists the following co-integration equation:

$$\text{Log (GDP)}_t = 5.7817 + 0.8113 \ \text{Log(VAT)}_t + e_t \tag{2}$$

Equation 2 states that V.A.T. has a significant positive impact on G.D.P. The reason behind that positive impact is that V.A.T. increases government revenue and this increased government revenue meet the various government expenditure, which is a part of gross domestic product.

CONCLUSION

This study establishes a relation that V.A.T. has a statistically significant positive influence on G.D.P., which plays a vital role in the income status improvement of Bangladesh. Bangladesh's economic growth has consistently achieved a standard growth rate since the inception of V.A.T. today. The positive impact of V.A.T. on G.D.P. may find positive outputs in the essentials of G.D.P. This finding of the positive effect of V.A.T. on G.D.P. will help policymakers improve or change consumption patterns and investment in goods and services which may help reduce unemployment, control inflation, increase purchasing power, etc., in many more ways.

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