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Tax Structure and Its Relationship with Economic Growth – Bangladesh Context

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Research Article

Abstract

Purpose: *The paper aims to explain the current tax structure of Bangladesh. It also intends to identify the relationship between different categories of taxes and the country's economic growth.*

Methods: *Data have been gathered from different publications of the government for a period of 29 years from 1989-90 to 2017-18. Both descriptive and inferential statistics are utilized to achieve the purpose of the study.*

Results: *Results reveal that tax revenue constitutes, on average, 84.20% of the total revenue of the Government of Bangladesh, while 70.47% of the total tax comes from indirect sources. VAT has been found as the largest source of tax revenue (34.12% of the total tax) followed by income tax (27%). Supplementary duty and customs duty contribute significantly to the national exchequer amounting to approximately 15% of the total tax each. Concerning the influence of taxation on economic growth, indirect taxes are found significant. When corporate and personal income taxes are considered, only personal income tax is identified as having a significant impact on economic growth. As far as the specific categories of taxes are concerned, customs duty, excise duty, and non-tax revenue are found significant, while income tax, VAT, supplementary duty, and other taxes do not have any significant relationship with the economic growth of Bangladesh.*

Implications*: The paper recommends enhancing the collection of indirect tax, as well as expansion of the tax net to bring more and more people under the umbrella of taxation rather than increasing the tax rate which may impede entrepreneurial enthusiasm at the individual level.*

Limitations: *The study combines some types of taxes such as import duty, export duty, narcotics duty, land tax, motor vehicle tax, surcharge, etc. under one heading, namely other taxes. As such the impact of these taxes per se on economic growth remains unveiled.*

Keywords: Tax structure, economic growth, direct tax, indirect tax, Bangladesh

1. Introduction

Tax, often termed a 'burden' for the payers, is much liked by the governments in each of the economies of the world as it is the main source of revenue for them. In a developing country like Bangladesh, the government needs to rely heavily on tax to fund its public expenditures. This is evident from the fact that 91.47 percent of the total revenue of the Bangladesh government came from taxation in 2018-19 (Bangladesh Economic Review, 2020). Irrespective of the types of economic systems (free-market economy, command economy, or mixed), governments need to play an equally important role alongside the private sector to augment the economic advancement of a country. To this end, the government needs

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to undertake lots of development projects aiming at the production of public goods. Entrepreneurs need to rely heavily on these public goods to ensure both human and non-human resources for their ventures. Higher taxation can be justified as well as considered growth-enhancing if it augments the entrepreneurs' expected returns through the provision of plenty of these public goods (Aghion et al., 2016). In addition, for the smooth functioning of all of the organs of the state, the government must provide administrative and judicial services to its citizens. Governments can also use taxation as an important tool to achieve macro-economic objectives such as - controlling inflation, reducing unemployment, protecting of home industry, etc. (Mahmud et al., 2019). In line with these arguments, prior research has also reported a significant positive impact of different types of tax on the economic growth of a country. For example, Iswahyudi (2018) reported a positive and statistically significant impact of consumption taxes on the economic growth of Indonesia. Kizito (2014) found customs duties had more impact than other forms of taxes on the economic growth of Nigeria. Keho (2011) suggested enhancing indirect tax to augment the economic growth of Cote d'Ivoire.

But, is taxation an unmixed blessing? Some argue that taxation harms the motivation of the entrepreneurs and discourages investments which are critical for growth (Zeng, Li & Li, 2013). Proponents of this view support minimizing the tax burden to encourage more and more people to become successful entrepreneurs. Taxation thus may result in a positive influence on growth if the benefits generated by tax revenue outweigh its negative impacts (Durusu-Ciftcia, Gokmenoglub, & Yetkinerc, 2018). A good number of prior studies identified negative relation between tax components and economic growth. For instance, Lee & Gordon (2005), using cross-country data from 1970 to 1997, found corporate tax rates were significantly and negatively correlated with average economic growth rates. Having examined the relationship between tax structures and economic growth in a panel of 100 countries, Mcnabb (2018) reported a negative relationship between income tax and economic growth. Atems (2015) reported such a negative correlation between state and local taxes and economic growth in the USA too. Against this backdrop, the paper intends to study the taxation system of Bangladesh. The paper also aims to identify the impact of different components of taxation on the economic growth of the country.

The rest of the paper has been organized as follows. Section two reviews the extant literature and the development of hypotheses. The methodology of the study has been explained in section three, followed by findings and analysis in section four. Finally, section five concludes the paper and formulates the policy recommendations.

2. Literature Review and Hypotheses Development

The relationships between taxation and economic growth were studied extensively in different economies of the world. Results vary widely among the economies. Even within the same economy, while one type of tax is found to be significant in explaining the variations in economic growth, the other is not. The directions of relationships, i.e., positive or negative are not uniform among the economies too. In a developed economy like USA, Adkisson & Mohammed (2014) explored the relationship between state and local tax structure and the growth of real per-capita GDP between 2004 and 2010. The tax structure was found to have a statistical relationship with short-term economic growth between 2004 and 2010. The marginal effects of various taxes differ and were not especially large but statistically detectable. In the same economy, Aghion et al. (2016) analyzed the effect of taxation and corruption on growth and innovation using cross-state and then cross-country panel data from the Longitudinal Business Database of the US Census Bureau. Their findings were consistent with the theoretical prediction that the effect of taxation on growth and innovation should be increasing and concave, and that higher local corruption should weaken the positive effect of taxation on growth and innovation. Contrary to their findings, Atems (2015), using data for 48 contiguous US States, found that a 1% increase in state and local taxes was associated with a 0.37% decrease in growth in the short run, while the growth was reduced by 0.33% in the long-run. Similarly, Lee & Lin (2015) investigated the impact of sales tax on economic growth in the United States during the period of 1960 to

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2013. Their study found a negative relationship between the variables in the long run, although, in the short run, a positive influence was detected. But, the suggestions of Angelopoulos, Malleyf, & Philippopoul (2012) for the long-run growth and welfare of the UK economy were somewhat different. Based on the findings, they recommended that the authority should reduce labor taxes and increase capital and/or consumption taxes to achieve long-run growth. In a similar line of research, Branson & Lovell (2001) examined the impact of tax burden and tax mix on the growth of real GDP in New Zealand. The authors noticed a dramatic change in the tax burden and tax mix since World War II. The ratio of tax revenue to GDP increased from 23% to 35% and the contribution of direct tax to the total tax revenue was computed at 65%. The paper found that a move to such a tax structure would generate nearly a 17% increase in real GDP and such an increase would result in a 6% reduction in tax revenue which would, in turn, deliver a 27% increase in purchasing power to the remainder of the economy.

A good number of studies on the same issue were also carried out in developing economies. In such a study, Ojong, Anthony, & Arikpo (2016) examined the impact of tax revenue on the economic growth of the Nigerian economy and found that there was a significant relationship between petroleum profit tax and economic growth. But they did not find any significant correlation between the company income tax and the growth of the Nigerian economy. In a similar study in the same economy, Kizito (2014) reported that customs duties had more impact on economic growth than company income tax, value-added tax, and petroleum profit tax. In a similar vein, Koch, Schoeman, & Tonder (2005) conducted their research in South Africa and found that decreased tax burdens were strongly associated with increased economic growth potential. Further, contrary to most theoretical research, decreased indirect taxation relative to direct taxation was strongly correlated with increased economic growth. But, Keho (2011) reported the opposite result in his research taking Cote d'Ivoire as the case. As per his findings, tax variables, except direct tax, and real GDP were positively related in the long run. He, thus, suggested switching the tax burden from direct to indirect taxes to have a positive effect on the economic output. Contrary to the findings of the above studies, Man, Zheng, & Lang (2011), concentrating on the economy of China, commented that the tax burden had a negative correlation with economic activities.

Some of the previous research detected some kinds of taxes are positively correlated with economic growth, while the other types of taxes are correlated negatively. For instance, Neog & Gaur (2020) examined the long-run and short-run relationship between tax structure and state-level growth performance in India for the period 1991 to 2016. Their study found 'U' shape relationship between tax structure and growth performance. Based on the analysis, they concluded that for faster growth of Indian states, policymakers should give more focus on property taxes along with the reduction in income taxes. Again, Mdanat et al. (2018) analyzed the impact of tax structures on economic growth in Jordan over the period 1980 to 2015. They found that income tax, corporate taxes, and personal taxes influenced per capita income growth negatively. These taxes greatly reduced both short and long-term per capita growth, while tariffs and consumption taxes were found to influence per capita income growth positively. The study also reported that relying heavily on increasing total taxes without taking into consideration the tax structure of the country would lead to a reduction in per capita income. Similarly, Iswahyudi (2018) investigated how changes in the tax structure may affect Indonesia's long-run economic growth. Results suggested that income taxes might not exert a statistically significant impact on long-run growth, while consumption taxes were found to have a positive and statistically significant impact. The study also concluded that the mix of direct and indirect taxes was unlikely to have an impact on the long-run economic growth of Indonesia. Moreover, Nguyen (2019) studied the impact of direct and indirect tax on economic growth in Vietnam from the period 2003 to 2017. The paper concluded that Vietnam's economic growth had been positively influenced by indirect tax, while the impact of direct tax was invisible.

A lot of previous studies discovered a negative relationship between taxation and the economic growth of economies. For example, Adam, Kammas, & Lapatinas (2015) carried out an analysis on a cross-section dataset of 75 developed and developing countries and concluded that countries characterized by high inequality rely heavier on capital taxation which in turn led to lower growth rates and poor economic performance. In a similar vein, Grdinic, Drezgic, & Blazic (2017) investigated the relationship between tax structures and economic growth in 20 selected countries (EU-13 and selected former Soviet Union countries and Albania). All forms of tax were found to harm economic growth. Personal income taxes proved to have the highest negative impact on economic growth, followed by corporate income taxes and property taxes. In contrast, consumption taxes showed to be statistically insignificant. Further, Karras & Furceri (2009) investigated the effects of changes in taxes on economic growth using data from 1965 to 2003 for a panel of nineteen European economies. They found that the effect of an increase in taxes on real GDP per capita was negative and persistent. An increase in the total tax rate by 1% of GDP has a long-run effect on real GDP per capita of -0.5% to -1%. They further noticed that increases in social security contributions or taxes on goods and services had larger negative effects on per capita output than increases in income tax. Furthermore, Lee & Gordon (2005) explored how tax policies affect a country's growth rate, using cross-country data from 1970 to 1997. Results showed that statutory corporate tax rates were significantly negatively correlated with cross-sectional differences in average economic growth rates. In fixed-effect regressions, they further reported that increases in corporate tax rates led to lower future growth rates within countries. The coefficient estimates suggested that a cut in the corporate tax rate by 10 percentage points will raise the annual growth rate by one to two percentage points. Moreover, Widmalm (2001) studied the relationship between tax structure and economic growth using pooled cross-sectional data from 23 OECD countries. He reported that the proportion of tax revenue raised by taxing personal income had a negative correlation with economic growth. Evidence also suggested that tax progressivity, measured in terms of the long-run income elasticity of tax revenue, was associated with low economic growth. Using data from a panel of 100 countries, Mcnabb (2018) also concluded that revenue-neutral increases in income taxes were associated with lower long-run GDP growth and that revenue-neutral reductions in trade taxes did not necessarily guarantee a positive effect. Arnold et al. (2011) examined the question of how to design a tax policy that both speeds recovery from the current economic crisis and contributes to long-run growth using a panel of 21 OECD countries over 34 years. As per their conclusion, the growth-enhancing changes like the reduction of corporate taxes and the top rate of personal income tax were unlikely to help the recovery from the current economic crisis. At the same time, tax changes that appear to be bad for growth, such as reductions in sales taxes and property taxes, would do little to speed recovery. They further opined that the most promising tax change in terms of both increased growth and economic recovery was the reduction of income taxes. This would stimulate demand, increase work incentives and reduce income inequality. Contrary to the above findings, Bakija & Narasimhan (2015), after examining data from a panel of 79 countries from 1980 through 2010 to see how the level and structure of taxes affect long-run economic growth, found no significant long-run equilibrium relationship between the level or structure of taxes, and the growth in or the level of real GDP per person.

A few studies tried to understand the relationship between taxation and the economic growth of Bangladesh. To this end, Hosen (2019) examined the relationship between the growth rate of Gross Domestic Product (GDP) and the indirect tax in Bangladesh over 43 years. He commented that if the Government, in the long run, increases the collection of indirect tax revenue by one percent then the GDP will decrease by 0.96 percent. The study concluded that the stability of economic growth can be achieved through a reformed tax policy based on the country's socio-economic strength and the canons of taxation. In a similar research, Islam (2016) investigated the contribution of indirect taxes to the GDP of Bangladesh. His study found an almost perfect positive correlation between indirect taxes and GDP in Bangladesh during the period covering 2001-02 to 2013-14. He then argued that decreasing the dependency on indirect taxes and increasing the collection of direct taxes may contribute to the reduction of income inequality between poor

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and rich. Rana & Wahid (2017), while examining the impact of fiscal deficit on the economic growth of Bangladesh, recommended the restructuring of the tax system, removing the tax loopholes, and expanding the tax base to enhance the pace of economic growth of Bangladesh. Furthermore, Islam (2019) estimated the relationships between tax revenues and the economic growth of Bangladesh and found a positive relationship between the variables.

It is evident from the above review of literature that although the issue is at the center of the researchers' interest all over the world, it remains under-researched in the economy of Bangladesh. While some authors attempted to investigate the impact of only one type of tax on economic growth, others tried to figure out such impact of total tax revenue as a whole. A dearth of research to examine the relationship between the tax structure and the economic growth of Bangladesh motivated us to undertake this study to unveil the current status of the composition of taxes and their influence on the level of economic growth of the country. To achieve the purpose of the study, considering the above literature review, the following hypotheses have been formulated:

H_1: Economic growth is positively influenced by direct tax.
H_2: Economic growth is positively influenced by indirect tax.
H_3: Corporate income tax has a positive impact on economic growth.
H_4: Personal income tax has a positive impact on economic growth.
H_5: Income tax is positively associated with economic growth.
H_6: VAT is positively associated with economic growth.
H_7: Economic growth is positively influenced by customs duty.
H_8: Supplementary duty has a positive impact on economic growth.
H_9: Excise duty is positively correlated with economic growth.
H_{10}: Other taxes have a positive influence on economic growth.
H_{11}: Economic growth is positively influenced by non-tax revenue.

3. Methodology

3.1. Data

The study is based on secondary data collected from different publications. These publications include Bangladesh Economic Review – a publication of the Ministry of Finance, Statistical Yearbook Bangladesh – a publication of the Ministry of Planning, and the Annual Reports of the National Board of Revenue (NBR), Bangladesh. A period of 29 years from 1989-90 to 2017-18 have been covered to provide a long-term view of the subject in question.

3.2. Statistical Methods

Both descriptive and inferential statistics have been used to achieve the purpose of the study. Average, percentage, etc. have been computed and the results are tabulated to understand the current picture of the taxation system of Bangladesh. Correlation and regression analyses have been carried out to identify the impact of different types of taxes on the level of economic growth.

3.2.1. Regression Model

Model – 1:

The following regression model has been employed to examine the impact of direct and indirect tax on the level of economic growth:

$$L\_GDP = \alpha + \beta_1 DT + \beta_2 INDT + \varepsilon \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{(i)}$$

Model – 2:

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To investigate the impact of corporate income tax and personal income tax on economic growth, the following model has been specified:

$$L\_GDP = \alpha + \beta_1 CIT + \beta_2 PIT + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots \text{(ii)}$$

Model – 3:

To assess the impact of different types of tax on the level of economic growth, the following model has been designed:

$$L\_GDP = \alpha + \beta_1 IT + \beta_2 VAT + \beta_3 CD + \beta_4 SD + \beta_5 ED + \beta_6 OT + \beta_7 NTR + \varepsilon \ldots\ldots\ldots \text{(iii)}$$

3.2.2. Dependent Variable: L_GDP = Natural log of Gross Domestic Product (GDP) at constant price. It is used as a proxy for the economic growth of Bangladesh. This variable was also used as a measure of economic growth by prior researchers like Xing (2012), Keho (2011), etc.

3.2.3. Independent variables:

DT = Direct Tax
INDT = Indirect Tax
CIT = Corporate Income Tax
PIT = Personal Income Tax
IT = Income Tax
VAT = Value Added Tax
CD = Customs Duty
SD = Supplementary Duty
ED = Excise Duty
OT = Other Taxes

3.2.4. Control Variable:

NTR = Non-tax Revenue
α = Constant, ε = Error term.

4. Findings and Analysis

4.1. Contribution of Tax to Total Revenue

The following table shows the contribution of tax revenue to the total revenue of the Bangladesh Government for a period of ten years from 2008-09 to 2017-18, along with the average of 29 years:

Table 1: Tax Revenue to Total Revenue (Billion Taka)

Year	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	Average (10 Yr from 2008-09 to 2017-18)	Average (29 Yr from 1989-90 to 2017-18)
Total Revenue (Tk.)	691.8	795	951.9	1149	1397	1567	1634	1774	2185	2595	1473.8	673.11
Tax Revenue (Tk.)	555.3	640	790.5	962.9	1168	1302	1407	1554	1923	2322	1262.37	566.75
% of Tax Revenue to Total Revenue	80.27	80.47	83.04	83.81	83.64	83.09	86.11	87.60	87.99	89.50	85.65	84.20

Source: Bangladesh Economic Review 2019.

Although the Government of Bangladesh generates revenue from different sources, namely, tax, loans, income from public ventures, the printing of money, etc., the tax becomes the principal source for a long. It is evident from the table that the Government has constantly increased its dependence on tax as a source of revenue. The percentage of tax to total revenue was 80.27 percent in 2008-09, which has shown a gradual increase over the period under study and reached 89.50 percent in 2017-18. The average percentage contribution of tax to total revenue for ten years is 85.65 percent, which is computed at 84.20 percent taking a longer period of 29 years from 1989-90 to 2017-2018 into account.

4.2. Direct Tax Vs. Indirect Tax

One of the major classifications of tax is direct versus indirect. Direct tax may be defined as one, the burden of which is to be borne by the person who pays it (Mahmud et al., 2019). Examples are income tax, wealth tax, gift tax, etc. Mahmud et al. (2019) defined indirect tax as one which is imposed on a person or goods but its burden is shifted to others, such as Value Added Tax (VAT), Import Duty, Supplementary Duty, Custom Duty, etc.

The imposition of direct tax may be supported on the ground that it ensures social justice as it is based on the ability to pay principle. The higher the income of an assessee, the higher is the tax burden. It contributes to the reduction of inequality too. But it is criticized as harming motivation for work that discourages entrepreneurs to undertake new ventures. Further, it is much disliked by the taxpayers, which leads to the tendency of tax evasion and avoidance.

In contrast, indirect tax may be collected by the Government more conveniently with little chance of evasion or avoidance by the taxpayers. It is also convenient for the people as such taxes can be paid in small amounts along with the consumption of goods or services throughout the year. But social justice cannot be maintained in this case as the same amount of tax is to be paid by the assessee irrespective of his or her financial condition.

Table – 2 demonstrates the comparative picture of the direct and indirect portion of taxes in the economy of Bangladesh.

Table 2: Direct Tax Vs. Indirect Tax (Billion Taka)

Year	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	Average (10 Yr from 2008-09 to 2017-18)	Average (29 Yr from 1989-90 to 2017-18)
Total Tax Revenue (Tk.)	555.3	639.6	790.5	962.9	1168	1301.8	1406.8	1554	1922.61	2322	1262.37	566.75
Direct Tax (Tk.)	150.88	179.66	233.12	295.13	403.61	472.42	501.24	529.45	602.74	715.41	408.36	167.37
% of Direct Tax to Total Tax	27.17	28.09	29.49	30.65	34.55	36.29	35.63	34.07	31.35	30.81	32.35	29.53
Indirect Tax (Tk.)	404.42	459.94	557.38	667.77	764.59	829.38	905.56	1024.55	1319.87	1606.61	854.01	399.38
% of indirect Tax to Total Tax	72.83	71.91	70.51	69.35	65.45	63.71	64.37	65.93	68.65	69.19	67.65	70.47

Source: (i) Bangladesh Economic Review 2019, and (ii) Annual Report, 2017-18 of NBR

The Government of Bangladesh needs to rely mainly on indirect tax as a source of tax revenue. The proportion of indirect tax to the total tax revenue varied from 63.71% to 72.83% over ten years from 2008-09 to 2017-18, with an average of 67.65%. The percentage contribution of indirect tax was even higher, 70.47% if a longer period from 1989-90 to 2017-18 is taken into consideration. On the other hand, collection in the form of direct tax is much lower historically which constitutes only 32.35%, on average, over ten years. Over 29 years, the portion of direct tax is computed only at 29.53 percent, showing a clear dominance of indirect tax in the economy of Bangladesh.

4.3. Taxation System of Bangladesh

The taxation system of Bangladesh may be termed a multiple tax system. Total tax revenue is collected in different forms under different legal arrangements. Different types of taxes are briefly explained as under:

Income Tax: One of the most notable forms of tax is the income tax. It is a direct tax imposed on the income of the persons (individuals or business enterprises) under Income Tax Ordinance, 1984, relevant Finance Act, and other applicable legal provisions.

Value Added Tax (VAT): VAT has become a major source of tax for the Government of Bangladesh. It is an indirect tax imposed on value addition at different stages from production to delivery to ultimate consumers. It is governed by the Value Added Tax and Supplementary Duty Act, 2012.

Customs Duty: It is an indirect tax imposed on international trade under the Customs Act, 1969.

Supplementary Duty: It is an indirect tax administered under the Value Added Tax and Supplementary Duty Act, 2012. It is mainly imposed on imported goods and on some specific services which range from 10 percent to 350 percent as prescribed.

Excise Duty: Excise duty is imposed on products like tobacco, alcohol, etc. which are considered harmful. In addition, it is also imposed on bank balances beyond certain limits.

Other Taxes: In addition to the above taxes, revenues are generated by imposing a few other taxes too. Some notable taxes are import-export duty, surcharge, narcotics and liquor duty, non-judicial stamp, etc.

The quantum of taxes from different types is shown in the following table:

Table 3: Tax mix (Billion Taka)

Year	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	**Avg** (10 Yr from 2008-09 to 2017-18)	**Avg** (29 Yr from 1989-90 to 2017-18)
VAT	201.16	227.95	282.74	343.04	404.66	458.77	495.73	539.13	686.75	827.13	446.71	193.40
% of VAT to Total Tax	36.23	35.64	35.77	35.63	34.64	35.24	35.24	34.69	35.72	35.62	35.44	34.12
Income Tax	135.38	165.6	221.05	280.6	353	443.7	486.14	517.96	538.12	611.44	375.30	153.01
% of Income Tax to Total Tax	24.38	25.89	27.96	29.14	30.22	34.08	34.56	33.33	27.99	26.33	29.39	27.00
Supplementary Duty	91.21	104.85	135.54	162.2	199.69	191.57	98.52	250.64	295.19	347.66	187.71	84.82
% of Supplementary Duty to Total Tax	16.43	16.39	17.15	16.84	17.09	14.72	7.00	16.13	15.35	14.97	14.87	14.97
Custom Duty	93.71	89.97	115.56	131.54	133.22	136.51	153.5	180.17	210.69	245.02	148.99	84.34
% of Custom Duty to Total Tax	16.88	14.07	14.62	13.66	11.40	10.49	10.91	11.59	10.96	10.55	12.51	14.88
Excise Duty	2.37	2.61	2.75	4.5	9.97	12.03	9.35	10.33	11.99	16.64	8.25	5.69
% of Excise Duty to Total Tax	0.43	0.41	0.35	0.47	0.85	0.92	0.66	0.66	0.62	0.72	0.61	1.00
Other Taxes	31.47	48.62	32.86	41.02	67.66	59.22	163.56	55.77	179.87	274.13	95.42	45.50
% of Other Taxes to Total Tax	5.67	7.60	4.16	4.26	5.79	4.55	11.63	3.59	9.36	11.81	6.84	8.03
Total Tax	**555.3**	**639.6**	**790.5**	**962.9**	**1168.2**	**1301.8**	**1406.8**	**1554**	**1922.6**	**2322.02**	**1262.37**	**566.75**

Source: (i) Bangladesh Economic Review 2019.

The above table affirms that the largest portion of tax revenue comes from VAT. In 2008-09, Tk.201.16 billion was collected in the form of VAT out of the total tax revenue of Tk.555.3 billion. Collection of tax revenue from this source has shown a gradual increase over the period under study and reached its peak in the year 2017-18 amounting to Tk.827.13 billion. The average percentage contribution of VAT to total tax has been computed at 35.44%, ranging from a minimum of 34.64% to a maximum of 36.23% over ten

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years. Over a longer period of 29 years from 1989-90 to 2017-18, this proportion was a little bit lower amounting to 34.12%.

The second-largest source of tax revenue happens to be the Income Tax for long. Collection of revenue in the form of income tax was Tk.135.38 billion in 2008-09, which has increased steadily over the period and reached Tk.611.44 billion in 2017-18. The contribution of income tax to the total tax revenue was 24.38% in 2008-09, which has increased gradually over the next few years and reached its peak (34.56%) in 2014-15. The proportion of income tax then started declining and amounted to 26.33% only in 2017-18. Ten yearly average was, however, 29.39%, which was slightly lower (27%) over a longer period of 29 Years.

Supplementary Duty secured the third position in terms of contribution as tax revenue to the total revenue for the Government of Bangladesh. Tk.91.21 billion was obtained as a supplementary duty in the year 2008-09, which was 16.43% of the total tax revenue. The collection from this source trended upward for the next few years but fell dramatically to Tk.98.52 billion in the year 2014-15. It resumed its pace in the very next year and continued its support to the national exchequer to a significant extent. Ten yearly average contributions of supplementary duty to the total tax revenue were 14.87%, which is almost similar (14.97%) while taking a longer period (29 years from 1989-90 to 2017-18) into consideration.

Customs duty has also been a good source of tax revenue in the economy of Bangladesh. Tk.93.71 billion was collected from this source in the year 2008-09, which was 16.88% of the total tax revenue. After a slight decline (Tk.89.97 billion) in the following year, collections in the form of customs duty have increased smoothly over the next periods and arrived at Tk.245.02 billion in 2017-18. The contributions to total tax revenue fluctuated for ten years from 10.49% to 16.88%, with an average of 12.51%. But throughout 29-year, the average collection was almost similar to supplementary duty, computed at 14.88%.

The contribution of excise duty to the national exchequer is not quite significant. Still, this tax has been used for many years by the Government of Bangladesh to generate revenue. The average amount collected from this source was Tk.8.25 billion over ten years, which was only 0.61% of the total tax revenue. This proportion was slightly better (1%) over the period from 1989-90 to 2017-18.

Few other taxes, namely, sales tax, land tax, non-judicial stamp, narcotics duty, tax on the transfer of property and assets, etc. have been providing notable figures to the national exchequer. For ten years, the average amount of taxes accumulated under this category was Tk.95.42 billion, which was 6.84% of the total tax revenue. The volume of tax from these sources varied widely showing a range from Tk.31.47 billion in 2008-09 to Tk.274.13 billion in 2017-18. Considering a period from 1989-90 to 2017-18, the percentage contribution to total tax was significantly higher, computed at 8.03%.

4.4. Corporate and Personal Income Tax

Income tax can broadly be categorized into two: corporate and personal. Corporate income tax has shown a clear dominance over personal income tax over the years. The reason behind this may be the ease of administration, monitoring, and control of corporate taxpayers as compared to the dispersed individual assessees. Table 4shows the disaggregation of income tax into corporate and personal.

It is seen from the table that the proportion of corporate, as such the personal income tax fluctuated widely over the period under investigation. The percentage of corporate income tax to total income tax varied from 54.98% to 73.55%, with an average contribution of 61.31% during the period from 2008-09 to 2017-18. The average contribution remained almost the same (61.01%) over a longer period of 29 years. The absolute amount of corporate income tax was Tk.75.28 billion in 2008-09, which increased every year except 2015-16. The highest amount of corporate income tax was collected in the year 2017-18 amounting to Tk.388.88 billion, which is 63.6% of the total income tax.

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Table 4: Corporate Vs. Personal Income Tax (Billion Taka)

Year	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	**Avg** (10 Yr from 2008-09 to 2017-18)	**Avg** (29 Yr from 1989-90 to 2017-18)
Total Income Tax	135.38	165.6	221.05	280.6	353	443.7	486.14	517.96	538.12	611.44	375.30	153.01
Corporate Income Tax	75.28	92.17	126.00	158.54	194.08	321.77	357.56	261.83	324.76	388.88	230.09	93.35
% of Corporate Income Tax to Total Income Tax	55.61	55.66	57	56.5	54.98	72.52	73.55	50.55	60.35	63.6	61.31	61.01
Personal Income Tax	60.10	73.43	95.05	122.06	158.92	121.93	128.58	256.13	213.36	222.56	145.21	59.66
% of Personal Income Tax to Total Income Tax	44.39	44.34	43	43.5	45.02	27.48	26.45	49.45	39.65	36.4	38.69	38.99

Source: (i) Bangladesh Economic Review 2019, (ii) Annual Report, 2017-18 of NBR

In contrast, approximately 39% of the income tax has been collected from individuals over the years. For 29 years from 1989-90 to 2017-18, the amount of personal tax was, on average, Tk.59.66 billion, which increased significantly during recent years evidenced by the average amount of Tk.145.21 billion for the period of ten years from 2008-09 to 2017-18.

4.5. Contribution of Tax Revenue to GDP

GDP growth has been considered extensively as a measure of economic advancement in the extant literature. Tax-GDP ratio has been an effective criterion to see the contribution of tax to the formulation of GDP in an economy. The following table demonstrates the Tax-GDP ratio for the period under investigation.

Table 5: Tax Revenue as a percentage of GDP (billion Taka)

Year	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	**Avg** (10 Yr from 2008-09 to 2017-18)	**Avg** (29 Yr from 1989-90 to 2017-18)
GDP at Constant Price	5750.56	6070.97	6463.42	6884.93	7298.96	7741.36	8248.6	8835.4	9479	10224.4	7699.76	4924.63
Tax Revenue	555.3	639.6	790.5	962.9	1168.2	1301.8	1406.8	1554	1922.6	2322.02	1262.37	566.75
Tax Revenue as a % of GDP	9.66	10.54	12.23	13.99	16.01	16.82	17.06	17.59	20.28	22.71	16.39	11.51

Source: (i) Bangladesh Economic Review 2019

It is evident from the table that the contribution of tax revenue to GDP increased steadily over the period. The Tax-GDP ratio was 9.66% in 2008-09 which reached its highest, 22.71%, in the year 2017-18, showing an upward trend over ten years. The average Tax-GDP ratio for the ten years is 16.39% and it is much lower, 11.51% when a longer period of 29 years is taken into consideration.

4.6. Correlation Analysis

The following correlation matrix shows the relationship between growth and different types of tax.

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Table 6: Correlation between economic growth and different types of taxes

Correlations									
		IT	VAT	CD	SD	ED	OT	NTR	Log_ GDP
IT	Pearson Correlation	1							
	Sig. (2-tailed)								
	N	29							
VAT	Pearson Correlation	.987**	1						
	Sig. (2-tailed)	.000							
	N	29	29						
CD	Pearson Correlation	.962**	.985**	1					
	Sig. (2-tailed)	.000	.000						
	N	29	29	29					
SD	Pearson Correlation	.940**	.968**	.970**	1				
	Sig. (2-tailed)	.000	.000	.000					
	N	29	29	29	29				
ED	Pearson Correlation	.509**	.475**	.381*	.427*	1			
	Sig. (2-tailed)	.005	.009	.042	.021				
	N	29	29	29	29	29			
OT	Pearson Correlation	.830**	.869**	.835**	.785**	.585**	1		
	Sig. (2-tailed)	.000	.000	.000	.000	.001			
	N	29	29	29	29	29	29		
NTR	Pearson Correlation	.960**	.954**	.950**	.930**	.398*	.740**	1	
	Sig. (2-tailed)	.000	.000	.000	.000	.032	.000		
	N	29	29	29	29	29	29	29	
Log_ GDP	Pearson Correlation	.890**	.902**	.943**	.893**	.172	.665**	.952**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.373	.000	.000	
	N	29	29	29	29	29	29	29	29
**. Correlation is significant at the 0.01 level (2-tailed).									
*. Correlation is significant at the 0.05 level (2-tailed).									

Correlation analysis depicts that growth is highly correlated with all the components of tax, namely, income tax, VAT, customs duty, supplementary duty, other tax, and non-tax revenue except excise duty. Income tax, VAT, customs duty, and supplementary duty are highly and positively correlated with growth with a correlation coefficient of 0.89 and above. But the correlation coefficient between other taxes and growth is much lower (r = 0.665) as compared to other types of taxes. All these coefficients are significant at a 1% level of significance (p-value = 0.000). Conversely, the relationship between excise duty and growth has been found insignificant (p-value = 0.373).

4.7. Regression Analysis

4.7.1. Direct Vs. Indirect Tax and Growth

The impact of direct and indirect tax on the level of growth has been examined through regression analysis. Results are shown in the following tables:

Table 7: Regression Summary- Direct Vs. Indirect Tax and Growth

Model	R	R^2	Adjusted R^2	F-value	p-value
1	0.898[a]	0.806	0.791	54.100	0.000

a. Predictors: (Constant), INDT, DT

Table 8: The effect of selected variables on economic growth

Model	Variables	Coefficient (β)[b]	Standard Error	t-value	p-value
1	(Constant)	3.458	0.032	108.873	0.000
	INDT	0.001	0.000	1.824	0.080
	DT	0.000	0.001	-0.207	0.838

b. Dependent Variable: L_GDP

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It is found from the analysis that the dependent variable 'growth' has been influenced by the independent variables, namely, direct tax and indirect tax to a significant extent. 79.1% of the variations in growth are explained by the independent variables as specified (adjusted R^2 = 0.791). The model is significant at 1% level of significance (p-value = 0.000).

The impact of indirect tax on the level of growth is positive and significant at a 10% level of significance (p-value = 0.08). On the other hand, the relationship between direct tax and growth has been found insignificant.

4.7.2. Corporate Vs. Personal Income Tax and Growth

One of the notable and commonly applied types of tax is income tax. It is seen from Table – 3 that a significantly large portion of the tax was collected in the form of income tax. Income tax can broadly be categorized into two: corporate and personal. Regression results taking these categories of income tax as independent variables are shown in the following tables:

Table 9: Regression Summary- Corporate Vs. Personal Income Tax and Growth

Model	R	R^2	Adjusted R^2	F-value	p-value
2	0.894[a]	0.799	0.784	51.701	0.000

a. Predictors: (Constant), PIT, CIT

Table 10: The effect of selected variables on economic growth

Model	Variables	Coefficient (β)[b]	Standard Error	t-value	p-value
2	(Constant)	3.496	0.023	151.310	0.000
	PIT	0.002	0.001	2.547	0.017
	CIT	0.001	0.000	1.694	0.102

b. Dependent Variable: L_GDP

These two variables i.e., corporate income tax and personal income tax are explaining 78.4% (adjusted R^2 = 0.784) of the variations in the dependent variable 'growth'. The model is found significant at 1% level (p-value = 0.000). Personal income tax has been found highly and positively related to the level of growth (p-value is 0.017). The p-value in the case of corporate income tax is slightly over the range of acceptability (p = 0.102) which makes the variable insignificant in explaining the variations in the dependent variable.

4.7.3. Different Types of Taxes and the Economic Growth of Bangladesh

The principal aim of this paper is to identify the impact of different types of taxes on the level of economic growth of Bangladesh. Taxes in Bangladesh are broadly categorized as income tax, value-added tax (VAT), customs duty, supplementary duty, excise duty, and other taxes. Regression results concerning the magnitude of influence of these categories of taxes on the level of economic growth are furnished in the following tables:

Table 11: Regression Summary- Different Types of Taxes and the Economic Growth

Model	R	R^2	Adjusted R^2	F-value	p-value
3	0.994[a]	0.988	0.984	240.551	0.000

a. Predictors: (Constant), NTR, ED, OT, SD, IT, CD, VAT

The independent variables as included in the model are explaining 98.8% (adjusted R^2 = 0.988) of the variations in the dependent variable. The model is significant at 1% level of significance (p-value = 0.000). Further scrutiny of the regression results reveals that out of the variables, only three, namely, non-tax revenue, excise duty, and customs duty are found to have a significant impact on the level of economic growth of Bangladesh. The coefficients of non-tax revenue and custom duty are positive and significant at

a 1% level of significance (p-value = 0.000). On the other hand, excise duty harms the level of economic growth. This variable has been found significant at 5% level of significance (p-value = 0.017).

Table 12: The effect of selected variables on economic growth

Model	Variables	Coefficient (β)[b]	Standard Error	t-value	p-value
3	(Constant)	3.285	0.027	122.260	0.000
	NTR	0.002	0.000	6.994	0.000
	ED	-0.005	0.002	-2.595	0.017
	OT	0.000	0.000	-0.705	0.488
	SD	-0.001	0.000	-1.374	0.184
	IT	0.000	0.000	-0.447	0.659
	CD	0.004	0.001	6.547	0.000
	VAT	-0.001	0.000	-1.033	0.313

b. Dependent Variable: L_GDP

Regression analysis further affirms that other independent variables, namely, supplementary duty, income tax, value-added tax, and other taxes do not have any significant impact on the level of economic growth of Bangladesh (p-value $\geq$ 10%).

5. Conclusions and Policy Implications

The paper aims to understand the current status of the taxation systems of Bangladesh. To achieve this purpose, data have been gathered for a period of 29 years from 1989-90 to 2017-18. Necessary computations are made and tabulated to provide the descriptive statistics of different types of taxes. The paper also intends to examine the relationships between the tax structure and the level of economic growth in Bangladesh. Correlation and regression analyses have been employed to this end. Results reveal that most of the revenues of the Bangladesh Government come from tax revenue. The average contribution of tax to total revenue is computed at 84.20% over 29 years, showing an upward trend for a long. It is also found that indirect tax constitutes the majority portion (70.47%) of tax revenue during the period under study.

About the specific category of tax, VAT has been identified as the largest source of tax revenue. The contribution of this source has been increasing over time yielding an average of 34.12% of the total tax revenue. Income tax happens to be the second-largest source of tax revenue over the years. 27%, on average, of the total tax revenue, is generated in the form of income tax during the period. Supplementary duty and customs duty are also contributing a notable portion of taxes to the national exchequer. Their percentage contributions to total tax are approximately 15% each. The remaining 9% of the tax revenue is collected in different names, such as excise duty, import-export duty, surcharge, non-judicial stamp, narcotics and liquor duty, etc.

It is further unveiled that about 61% of the total income tax comes from corporations. The remaining 39% are collected from the income of the dispersed individuals. The contribution of tax to the GDP of the country has been showing a gradual increase over the period and reached its highest level of 22.70% in the year 2017-18. The average Tax-GDP ratio is 11.51% for the period from 1989-90 to 2017-18.

Correlation analysis confirms a high positive correlation between economic growth and each type of tax except excise duty. Economic growth has highly been correlated with non-tax revenue too. The correlation coefficients are at least 0.89 for income tax, VAT, customs duty, supplementary duty, and non-tax revenue, while the same is 0.665 in the case of other taxes. All the coefficients are significant at a 1% level of significance (p-value is 0.000). On the other hand, the coefficient of excise duty has been found insignificant (p-value is 0.373).

Regression results affirm that indirect tax has a positive and significant impact on the level of economic advancement of the country. In contrast, direct tax has been found to have no significant influence on

economic growth. This finding is consistent with outcomes reported by Keho (2011) but contrary to the findings of Koch, Schoeman, & Tonder (2005).

Results also show that personal income tax has a significant positive influence on economic growth, while the corporate tax has been found insignificant. Corporate income tax was also identified as insignificant by Ojong, Anthony & Arikpo (2016). Iswahyudi (2018) found both corporate and personal income taxes were insignificant in having any influence on economic growth. Contrary to our result, Lee & Gordon (2005) found a negative relationship between corporate tax and economic growth, while Mdanat (2018) discovered both corporate and personal income taxes were negatively correlated.

About the specific type of tax, customs duty has been identified as having a positive and significant impact on the level of economic growth. Kizito (2014) also detected a significant relationship between these two variables. Moreover, economic growth has been influenced positively by non-tax revenue. On the other hand, an inverse relationship has been discovered between excise duty and economic growth. Other variables, namely, income tax, value-added tax, supplementary duty, and other taxes have been found to exert no significant impact on the level of economic growth of Bangladesh.

Based on the findings, the paper recommends the expansion of indirect tax intending to enhance the economic growth of the country. Similar recommendations were also made by Keho (2011) in the economy of Cote d'Ivoire. As far as the income tax is concerned, more emphasis should be given to the collection of personal income tax. The tax net should be expanded as far as practicable to bring more and more people under the umbrella of taxation rather than increasing the tax rate, which may hinder the enthusiasm of the individual entrepreneur.

6. Limitations and Directions for Future Research

The paper suffers from several limitations, which need to be considered while interpreting the results. *First*, some taxes are grouped under the heading of other taxes, which may further be decomposed into more specific categories, and the impact on economic growth might be assessed more rigorously. *Second*, data could not reliably be gathered for the latest years, i.e., 2018-19, 2019-20, and 2020-21, which could have provided the most current picture of the subject in question. *Moreover*, the study covered 29 years, whereas a longer period may result in more reliable outcomes. Further research may include more categories of taxes to see their respective impact on the economic growth of the country. Extending the period of the study to more recent years would make the research findings more relevant.

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