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Does the Tax Structure Play a Role in Economic Growth? Empirical Evidence from Indonesia

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Article

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Abstract

Economic growth is important indicator of economic development. One of incentives to increase economic growth comes from taxes. Taxes are the easiest thing to get and do by the government. This paper aims to examine how tax structure affects Indonesian economic growth. Tax structure variables are income tax, goods and services taxes, and customs tax. This study uses a multiple linier regression based on data from period of 1994 to 2018. The results of study shows that income tax and customs tax had significant negative effect on Indonesian economic growth. Meanwhile, the goods and services tax have a significant positive effect on Indonesian economic growth. Referring to these results, it is recommended that the Indonesian government should consider not to increase income tax and customs tax because they have the impact on public consumption and cost of domestic production.

Keywords: Tax Structure; Income Tax; Goods and Services Tax; Customs Tax; Economic Growth

Introduction

Economic growth is one of the macro goals that every country must pursue. Achieving highest economic growth becomes the goal of all countries because it shows the indicator of success in economic development (Nuraini & Hariyani, 2019). Economic growth shows an activity that causes the production of goods and services to increase through time. A key concept is that high economic growth is essential for long-term development. However, there are numerous elements that contribute to a country's success, and one of them is economic growth indicators.

Each country's economic growth has specific goals. Typically, the government, as the primary player in this growth challenge, announces a target for economic growth for the following year while still in the current year. The government expects high economic growth or even exceeding the target. However, many hurdles exist, making economic progress difficult to attain. In terms of development, taxes are the most common source of funding for a century's development. Taxation is one of the tools used by the government to fund a variety of general activities other than loans and debts in the hopes of boosting economic growth. Because it is under

government control , this tax percentage is set depending on specific policies, often known as fiscal policy (Mankiw, 2016). Basically, each country's share of this tax scheme will be different. According to Andrew et al. (2021), taxation is not only revenue rising but also social policy tool. According to Chen and Xu (2022) government expenditure is financed by current revenue, such as taxes.

According to Gechert and Heimberger (2022), the cut in corporate tax rate will increase Gross Domestic Product (GDP) in less percentage. Based on this argument, it can be stated that taxes in general can faster economic growth in the country. According to Stoilova (2017), taxation is not only as the revenue source for the government but also contribute to the income distribution, the economic stabilization, and also resources reallocation. Certain groups are heavily reliant on the implementation of taxes on the community. Group of high-income earners, for example, will face higher taxes, often known as progressive taxes. The tax is also quite cheap for groups of people that have a poor economy. This has an effect on efficiency, ensuring that the wellbeing of all levels of society is maintained.

Local communities in Indonesia are subject to three types of taxes imposed by the Indonesian government. Income taxes, goods and services taxes, and customs and excise taxes are all examples. Income tax, commonly known as income tax, is a tax levied directly on the individuals or businesses regarding to their earnings. Meanwhile, indirect taxes include the goods and services taxes, as well as customs and excise taxes. These taxes have arisen as a result of tax and policy reforms, requiring the government to levy new taxes in order to boost the tax ratio. In terms of income taxes, goods and services taxes, and customs and excise taxes, Figure 1 depicts the evolution of taxes in Indonesia. The income tax is the primary source of governmental funding. This may be seen in the income tax, which was the greatest percentage of the tax from 1994 to 2000, accounting for 47 percent to 57 percent of total state revenue.

In 1998, Indonesia was hit by a monetary crisis, prompting the government to raise the income tax to 61 percent in order to salvage the economy. When transitioning from a moment of crisis to recovery, the contribution of income tax was dramatically reduced to 30 percent, and the tax on goods and services was transferred from 25 percent to 32 percent in 2000. Until 2018, the combined percentage of income tax and goods and services tax was above 35 percent. From 1994 to 2018, customs and excise taxes played a minor role in the tax contribution, falling below 10 percent.

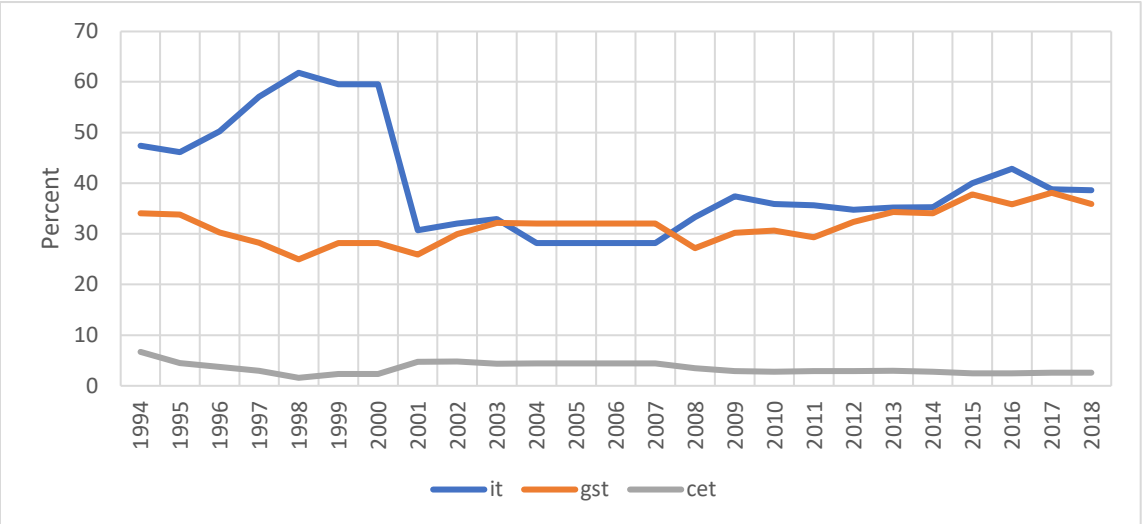

Figure 1. Percentage of Indonesian State Tax Revenue on Incomes Tax (IT), Goods and Services Taxes (GST), and Customs and Excise Tax (CET) Source: Indonesian Ministry of Finance (2019).

The study of tax structure and economic growth have become the long issue to be studied. However, most research findings of the tax effect are not always consistent, both positive and negative. This means that taxes do not always contribute to increasing economic growth. As the study conducted McNabb (2018), Sanzo et al. (2017), the imposition of income tax causes people to become sluggish and has an impact on purchasing power. The next effect is that economic growth becomes weak. However, Stiolova (2017) finds the opposite where taxes are able to improve the

economy because tax absorption is imposed on certain things so that it does not reduce purchasing power and this tax is allocated appropriately in development.

Gashi et al. (2018) in their research prove that almost of the taxes have their effect on the economic growth in a country. Furthermore, the researchers have proved that the taxes different effect toward economic growth. From the research it is found that: (1) tax on profits, (2) tax on individual business, (3) value added tax, (4) tax on resources is found have a positive and significant effect on the economic growth. Whereas, personal income tax and withholding tax have a negative not significant effect on the economic growth of Kosovo. On the other study, Neog and Gaur (2020) had undertaken research on the tax structure and economic growth in Indian State. By studying the short-term and long-term relationship between tax structure and the economic growth for the year of 1991-2016 in India, the researchers find that there is "U" shape relationship between the tax structure and the economic growth of India.

Furthermore, there are many studies state the positive effect of tax revenue and also tax structure on the economic growth such as Egbunike et al. (2018), Gale & Samwick (2014), Nwanakwere (2019), Stoilova & Patonov (2013), Nur Arifah et al. (2016), and Shinohara, M. (2014). But there are still less study on tax structure and the economic growth of Indonesia. Therefor this research is focused on filling the gap of the research especially on analyzing the role of tax structure on Indonesian economic growth by using multiple linier regression analysis.

The study on the tax structure and the economic growth is very important because taxes are the easiest thing to get and do by the government. But there are consequences such as a decrease in people's income. In addition, based on the researcher's knowledge, there are very little researches have been undertaken for the Indonesian case. Thus, the formulation of the problem in this research is how does tax structure affects economic growth of Indonesia?

Research Method

The focus of this research is to examine the effect of the tax structure on the economic growth of Indonesia. The tax structure is seen from income tax, goods and services taxes, and also customs tax. The data used is from 1994 to 2018. The data is taken from World Development Indicator (WDI) report. The descriptive statistic of the variables in this research is shown in Table 1. To achieve this goal, the researcher used multiple linear regression method. The best research is by following the research methods that have been carried out by previous studies. Following the research study of Ogundana et al. (2017), the main forms of the research tax structure are as follows:

$$GDP = f(Direct\ tax, Indirect\ tax) \qquad (1)$$

Then equation (1) is described in detail in econometrics:

$$lnGDP_t = \alpha_0 + \alpha_1 IT_t + \alpha_2 GST_t + \alpha_3 CET_t + \varepsilon_t \qquad (2)$$

Where GDP is Gross domestic product at constant prices 2010, IT is income tax, GST is goods and services tax, CET is customs tax and other import duties, α_0 is a constant, $\alpha_1 - \alpha_3$ is the coefficient of each variable, and is the residual. Income taxes are part of direct taxes and goods and services taxes and customs and other excise taxes are part of indirect taxes. The semi-log model interpreted the independent effect coefficient as unit on the bound as percent (Gujarati & Porter, 2009). The hypothesis of this research is income tax has negative effect, goods and services tax has positive effect, and customs tax has positive effect on economic growth. This method uses the OLS estimation technique, so it is necessary to test classical assumptions such as normality, autocorrelation, heteroscedasticity, and multicollinearity.

Results and Discussion

The first discussion is to describe descriptive statistics for the variables of economic growth, income tax, goods and services taxes, and also customs tax. Variable of economic growth is shown in the form of a natural logarithm (Ln). This study used 25 observations of data. Table 1 describes the average Indonesian economic growth is 27.18 that has maximum value is 27.76 and minimum value is 26.72. Meanwhile, the income tax explains the average of 39.90 percent and a peak of 61.83 percent. Meanwhile, the lowest score was 28.18 percent. For goods and services tax, an

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average of 31.57 percent was obtained with the highest value of 38.11 percent and the lowest of 24.97 percent. This excise tax variable has the lowest percentage compared to the two taxes. The average value of this tax is 3.45 percent with the highest value of 6.71 percent and the lowest of 1.60 percent. In comparison, it can be seen that income tax is the largest portion of tax structure.

Table 1
The Descriptive Statistic of Data

	GDP	IT	GST	CET
Mean	27.18	39.90	31.57	3.45
Maximum	27.76	61.83	38.11	6.71
Minimum	26.72	28.18	24.97	1.60
Std. Dev.	0.33	10.51	3.45	1.14
Obs.	25	25	25	25

Source: Estimation Result

Classical Assumption Test Result

Before starting the discussion on the results of the regression estimation, the discussion of the first step is testing the classical assumptions. The aim of this test is to evaluate if the estimation model has met the BLUE (Best Linear Unbias Estimator) criteria or there are no serious deviations in meeting the OLS method.

Testing for normality in this study used Jarque-Bera with a chi-square statistical approach ($\chi 2$). Table 2 gets a probability value is 0.868 where this value is higher than 0.05 so it can be concluded that we accept H0 i.e. the residuals are normally distributed.

Table 2
Normality Test Results

Jarque-Bera (χ^2)	Prob. (χ^2)	Decision
0.868	0.647	Ho

Source: Estimation Result

The next step after classic assumption test is heteroscedasticity test. This test examines the presence of residual variance inequality between the observation. The heteroscedasticity test used was based on the Glejser Approach with an F-stat value. The test results are shown in Table 3 explain F-stat value as much as 1.688 which has a probability as much as 0.200. The probability obtained is greater than 0.05 so it is concluded that it accepts H0 or homoscedasticity. The test results show that there is no violation of classical assumptions.

Table 3
Heteroscedasticity Test Results

Glejser F-stat	Prob. F-stat	Decision
1.688	0.200	Ho

Note: Author calculation (2021)

Furthermore, the test of autocorrelation is conducted by using Breusch-Godfrey LM test approach. Autocorrelation test results are shown in the following Table 4. The F-stat value of the Breusch-Godfrey test is 0.191 with a prob of 0.826. The prob obtained is greater than 0.05 so it can be concluded that you accept H0 i.e. there is no residual relationship with other residuals. The test results show that there is no violation of classical assumptions.

Table 4
Autocorrelation Test Results

Breusch-Godfrey LM (2 lags) F-stat	Prob. F-stat	Decision
0.191	0.826	Ho

Source: Regression Result

This multicollinearity test needs to be done considering the regression model used is multiple regression. Multiple meaning that there is more than one independent variable. Based on Table 5 shows the test results with VIF for IT of 1.311, GST of 1.108, and CET of 1.214. These three

variables are independent variables and it is concluded that there is no problem with multicollinearity violations or accepting H0 because the value obtained is smaller than 10.

Table 5
Multicollinearity Test Results

Variable	VIF	Decision
IT	1.331	Ho
GST	1.108	Ho
CET	1.214	Ho

Source: Estimation Result

After testing the classical assumptions and finding no violations, the next step is to interpret the regression results. Multiple regression estimation was performed using econometric software application. In accordance with the discussion of the method that the interpretation is read from percent to percent. The results of the research estimates are as follows:

Table 6
Regression Results of Tax Structural Effects on Economic Growth

Variable	Coef.	Std Err.	Prob.
IT	-0.0168*	0.0027	0.000
GST	0.0504*	0.0077	0.000
CET	-0.2070*	0.0244	0.000
Constant	26.9735*	0.3296	0.000
R^2= 0.879	F_{hit}	= 51.108*	
Adj. R^2 = 0.862	Prob F_{Hit}	= 0.0000	

*Source: Estimation Result, *Sig at 1%*

Regarding to estimation results from Table 6, the estimation formulation and coefficient value shown as follows:

LnGDP = 26.9735 – 0.0168(IT) + 0.0504(GST) – 0.02070(CET)

Based on the regression coefficient value above, it can be explained as follows: R-square (R2) of 0.879 means that 87.9 percent of the economic growth regression model can be explained by the tax structure variables, namely income tax, goods and services tax, and customs tax. Meanwhile, 12.1 percent of the variation in the equation may be explained by the other variables outside this model. The constant (α0) of 26,973 explains that if the independent variable is considered constant, then economic growth is 26,973. Furthermore, coefficient of (α1) is -0.0168 which explains that variable of income tax has a negative significant effect on Indonesian economic growth. Statistically, income tax variable is significant even at level of one percent alpha. This means that if income tax increases as much as 1 percent, economic growth will decrease as much as 0.0168 percent, cateris paribus. The coefficient (α2) of 0.0504 explains that the goods and services tax is found to have positive effect on Indonesian economic growth. The probability value of this variable is 0.000 which indicates that the goods and services taxes have significant effect toward Indonesian economic growth. This means that if the goods and services taxas increases by one percent, Indoensian economic growth will then increase by 0.0504 percent, cateris paribus. The coefficient (α3) of -0.0207 explains that this customs tax has negative effect on Indonesian economic growth. Statistical research results prove that customs taxes have significant effect on Indonesian economic growth at a significance level or alpha of 1 percent. If there are customs tax is increased by 1 percent, then economic growth is certain to decrease by 0.0207 percent. Simultaneous testing or F-test found a statistical value of 51.108 with a probability of 0.000. It explains that income tax, goods and services tax, and customs tax together affect Indonesian economic growth.

Both Taxes and also economic growth are of particular concern to policymakers. Taxes in Indonesia through the tax structure have increased and decreased throughout 1994 to 2018. The hope achieved is to help increase economic growth which is higher and in line with expectations. This study uses multiple linear regression to investigate how each tax affect economic growth in Indonesia. Referring to our research results, research finding is that taxes have positive significant contribution to Indonesian economic growth. Thus, taxes are an important component in Indonesian development. The income tax variable has a negative significant effect on Indonesian economic growth. These research results are in accordance to research findings of Sanzo et al. (2017), Mndanat et al. (2018), McNaab (2018). If a government want to increase revenue by increasing income tax, it will have an impact on people's purchasing power. If it is associated with Indonesia's

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condition that the majority of Indonesia's population is lower-middle class income, this will affect Indonesian economic growth. It is different compared to the conditions in developed countries which generally have high incomes, the imposition of taxes does not have a big impact.

The second finding is that the existence of tax on goods and services affect Indonesian economic growth positively significant. Our research findings are similar to what has been found by Mndanant et al. (2018), Mcnaab (2018), and Owino (2019). Growth will increase by 0.05 percent if the goods and services tax increases by 1 percent. Taking taxes from this perspective can help the economy, considering that goods and services taxes go directly to the state treasury. In addition, people generally consume more processed products.

Finally, the third finding is that customs taxes have negative significant effect on Indonesian economic growth. Our research finding is contrast to the research findings from Owino (2019) that state that customs taxes positively affect economic growth. This decline is reasonable because Indonesia still uses imported goods because it cannot be produced domestically. If the government plans to increase this tax, the price of goods that have been subject to the tax will increase, especially on technology capital goods and have an impact on production prices. Although data shows that this tax does not reach 10 percent, its impact is quite sensitive to economic growth.

Conclusions

Based on the research findings, it may be summarized that variable of income tax negative significantly affect Indonesian economic growth. The increase by one percent in income tax will reduce Indonesian economic growth by 0.0168 percent, cateris paribus. On the other hand, the goods and services tax variables positive significantly affect Indonesian economic growth. Indonesian economic growth will increase as much as 0.0504 percent if tax on goods and services increases by 1 percent assuming cateris paribus. Customs tax negative significantly affect Indonesian economic growth. If customs tax increase as much as one percent, it will decrease Indonesian economic growth as much as 0.207 percent. It can be concluded that taxes play an important role in driving economic growth in Indonesia but not overall.

Referring to our research findings, only goods and services tax can increase economic growth in Indonesia. Meanwhile, income taxes and customs taxes reduce economic growth. The policy implication is it is recommended that the government needs to consider not to increase income tax and also customs tax because it will affect public consumption and cost of producing goods in the country. For further research, it is suggested that this research still needs to be continued with other method approaches. This research is limited to static analysis, so it is needed to conduct research with dynamic methods by using VAR, VECM, and ARDL method of analysis. Further researchers can also add more variables such as other taxes and also use control variables such as population.

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