The Impact of Tax Revenue on Economic Growth: Evidence from Indonesia

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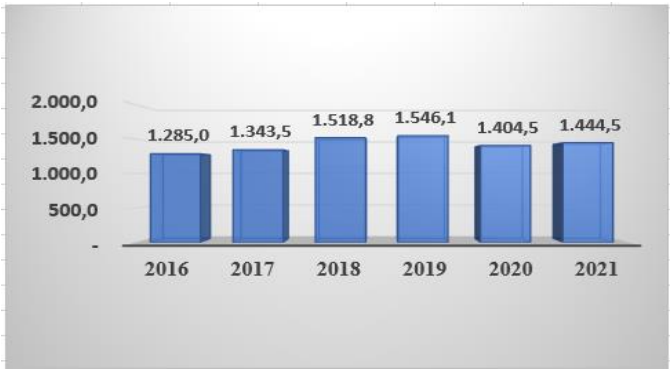
***Abstract*: Theoretically and empirically explain that tax revenue has an impact on economic growth. This study is intended to conduct a review of tax revenue and economic growth in Indonesia. Research data was collected from the World Bank from 1972 to 2019. The results of this study indicate that tax revenues can significantly increase economic growth, and the correlation of tax revenues with economic growth is strong so that it is recommended for the government to continue fiscal policy with strict management to avoid the bad consequences of the policy.**

***Keywords*: Tax revenue, economic growth, non-taxes revenues, grants, state income**

I. INTRODUCTION

Based on the researcher's in-depth observations on data published by the World Bank on Indonesia's tax revenues in the last six years as illustrated in graph 1. Tax revenues tend to increase and reach a maximum point in 2019 of Rp 1,546.1 trillion. However, this figure decreased by 9.2% in 2020 to Rp 1,404.5 trillion as a result of the Covid-19 pandemic that hit the world, including Indonesia. However, this decline will not occur in the long term because in 2021 tax revenues will increase slightly by 2.8% or to Rp 1,444.5 trillion. This increase in tax revenue becomes a new force for the Indonesian government to finance increased state financing in the health sector, as explained Mukhlis & Simanjuntak (2011) that taxes are an instrument of the state to support state financing.

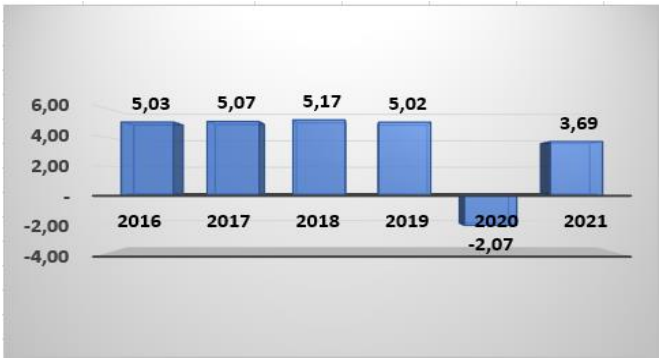
Graph 1. Indonesia's 2016-2021 Tax Revenue



The dynamics of the tax revenue figure are also followed by economic growth, where in 2020 it decreased to -2.07% as shown in graph 2. decline. According to Rachdianti et al. (2016), taxes are one of the most important sources of state funding to support the realization of development and welfare. As a result of this decline in tax revenues in 2020, Indonesia's economic growth declined and the government responded positively by implementing fiscal stimulus policies as carried out by ASEAN countries, Japan, China and South Korea.

According to Mulyani (2021), this fiscal stimulus has proven to be able to minimize the negative consequences of the negative risk of the State Budget (APBN). Fiscal stimulus implemented by the Indonesian government, such as tax cuts and additional government spending (Su'aidy, 2020; Wardhana & Hartono, 2012) and public investment, unemployment insurance, assistance to the labor and household sectors in the form of job retention schemes, unemployment insurance, direct cash payments, and tax relaxation (Suksmonohadi & Indira, 2020).

Graph 2. Indonesia's Economic Growth 2016-2021



The very importance of taxes for a country is relevant to the explanation Myles (2000) that taxes as an engine of economic growth are collected from taxpayers. State revenues from the tax sector are then used to finance public expenditures as happened in several countries that are members of the Organization for Economic Co-operation and Development (OECD) (Johansson et al., 2020) namely to realize the welfare of the community, for example for social protection, infrastructure in the fields of education, order, health, defense, peace, the environment and other public services.

The short thought above is considered by researchers to examine in more depth the contribution of tax revenue to national development which in this study is explained by economic growth using time series data with the research locus in Indonesia.

II. LITERATURE REVIEW

Economic growth is an important indicator to measure the success of a country's economic development, as stated by Sukirno (2013) which explains that economic growth is an increase in the production of industrial goods, infrastructure development, an increase in the number of schools, an increase in the production of the service sector and an increase in the production of capital goods. Mankiw (2018) put forward that economic growth is related to increased productivity of physical capital, human capital, natural resources and technological knowledge. Where physical capital is a variety of equipment and structures used to produce goods and services. Human capital is the knowledge and skills acquired by workers through education, training and experience. Natural resources are inputs for the production of goods and services provided by nature such as land, rivers and mineral resources. Technological knowledge is people's understanding of the best ways to produce goods and services.

However, growth and productivity as theory Mankiw (2018) and Sukirno (2013) difficult to achieve without government intervention. Das et al., (2015) and Mankiw (2018) argued that the government's role in promoting economic growth was indispensable in the form of taxation and the formation of public capital. Modern economic growth is not possible without investment in public infrastructure such as roads, airports, ports and a legal system that protects property rights. Meanwhile, investment in the public infrastructure sectors is also difficult to materialize without adequate state revenue support.

Kuncoro (2015) explained that state spending includes central government spending and transfers to regions. Central government expenditure consists of: personnel expenditure, goods expenditure, capital expenditure, interest payments on domestic and foreign debt, energy and non-energy subsidies, grant expenditures, social assistance and other expenditures. Meanwhile transfers to the regions include: balancing funds and special autonomy funds and adjustments to special autonomy funds and adjustment funds. The balancing fund includes, among others, profit-sharing funds in the form of income tax (PPH), land and building tax (PBB), Customs for Land and Building Rights (BPHTB) and excise. According to Samuelson & Nordhaus (2009), the government's role in economic activity can be seen from the aspect of government taxes in the form of fiscal policy that can affect the growth of national output.

Previous research in relation to the effect of tax revenue on economic growth as conducted by Stoilova & Patonov (2012) that the direct tax regression analysis is very efficient in supporting the increase in economic growth in European Union countries in the period 1995 to 2010. The amount of state revenue through direct taxes is influenced by the economic crisis where this situation has an impact on decreasing corporate profits and personal income. This decline affected the amount of taxes paid to the government which also decreased, especially in the 2007-2009 period.

Likewise in the United States that tax policy has a strong influence on economic growth. Even the proposition that high taxes have a negative impact on economic growth is refuted by the findings Engen & Skinner (1996) which explains that efficient tax management can have a positive impact on economic growth in the long run. Meanwhile, according to Kakaulina (2017), that an increase in tax revenue can encourage increased economic growth if implemented properly.

According to Egbunike et al., (2018), tax revenues in Nigeria and Ghana are used by the government to finance infrastructure and other social needs. Efficient tax management on government financing or expenditure can encourage the realization of economic growth which in the long term can improve economic performance in both countries. Likewise with research Piancastelli & Thirlwall (2020), especially in developing countries including Indonesia, taxes are used for government expenditures of a social nature and to provide public goods such as health, infrastructure and education.

This positive contribution of tax revenue to economic growth also occurs in Indonesia, as shown by research Saragih (2018) who conducted observations in 34 provinces in Indonesia. The results of data analysis show that in the period 2013 to 2016, Indonesia's economic growth is influenced by local tax revenues with a significant positive relationship pattern. This local tax revenue is then used to support projects that have the potential to accelerate economic growth. Same result as research Sihaloho (2020) that income tax has a significant positive effect on government revenue and economic growth in the period 1970 to 2010.

Empirical evidence that tax revenue has a positive effect on economic growth in a country requires strategic policies to increase state revenues through tax channels as research Gale et al., (2015) that by cutting income tax rates will increase economic growth and entrepreneurial activity in the United States. In Indonesia, this tax cut is an instrument in fiscal stimulus as research shows Wardhana & Hartono (2012) where effective tax management can boost the national economy.

Optimization of local taxes also contributes to economic growth as research shows Soewardi et al., (2018) who found that fiscal policy as mandated in Law No. 25 of 2009 can encourage increased economic growth, especially in terms of local taxes in the form of street lighting taxes, hotel and restaurant taxes, and property taxes. Whereas Rachdianti

et al., (2016) in his research, he recommends that the use of E-Tax is important to make it easier for taxpayers to carry out their tax obligations.

Related to the relationship between the two variables, namely tax revenue and economic growth, Dackehag & Hansson (2012) and Engen & Skinner (1996) explained that the correlation between corporate income tax and economic growth is stronger. Whereas Kalaš et al., (2017) in his research found that in the period 1996-2016 there was a strong and positive relationship between the growth of tax revenue and corporate income tax with the growth of gross domestic product in the United States. Besides that, Gurdal et al., (2021) and Magan (2020) in his research on the G7 countries namely Canada, France, Germany, Italy, Japan, UK, United States and in developing countries found that there is a two-way short-term and long-term causality between economic growth and tax revenue.

Based on the theoretical literature and empirical literature above, this research is directed to test the following hypotheses:

H1: Tax Revenue Has Significant Effect on Economic Growth;

H2: Tax Revenue Has a Significant Correlation to Economic Growth.

III. METHOD

As a form of quantitative research that tests hypotheses, this research data collection technique uses documentation collected from documents published by the World Bank. The type of data used is numerical data on tax revenue and Indonesia's economic growth from 1972 to 2019, thus the number of observations in this study is 48 time series data. Analysis of the data used is SPSS with stages, namely: residual normality test, heteroscedasticity test, autocorrelation test, regression test and hypothesis testing. Some of the provisions used are:

1. In the residual normality test using guidelines, if the Asymp value. Sig < 0.05 then the data is not normal. And vice versa if the value of Asymp. Sig > 0.05 then the data is normally distributed;
2. The guideline used in the heteroscedasticity test is to compare the value of Sig, with the following conditions: if the value of sig > 0.05 then there is no heteroscedasticity, and if the value of Sig < 0.05 then there is heteroscedasticity. Heteroscedasticity testing in this study used the spearman's rho test;
3. The autocorrelation test in this study uses a guideline: if the value of Durbin-Watson (DW) < 1 or > 3 then autocorrelation occurs, so if the DW value is 1 to 3 intervals then there is no autocorrelation. To test the research autocorrelation based on (Field, 2009);
4. The research hypothesis test is based on the comparison of the Sig value with = 0.05. The guidelines used if the value of Sig < the research hypothesis is tested, and vice versa if the value of Sig > then the research hypothesis is not tested;
5. Correlation coefficient test, used to test the closeness of the relationship between the independent variable and the dependent variable. The guidelines used refer to Sujianto (2009):

value 0.00 – 0.20 very weak correlation;
value 0.21 – 0.40 weak correlation;
value 0.41 – 0.70 strong correlation;
value 0.71 – 0.90 very strong correlation;
value 0.91 – 0.99 very strong correlation;
value of 1 perfect correlation.

IV. RESULT

Based on the results of the study, the following tables describe the stages of testing the research hypothesis starting with the results of the residual normality test (table 1).

Table 1. One-Sample Kolmogorov-Smirnov Test

	Unstandardized Residual
N	48
Test Statistics	.098
asymp. Sig. (2-tailed)	.200

Kolmogorov Smirnov normality test is part of the classical assumption test. Normality test aims to identify the residual value is normally distributed or not. A good regression model has a residual value that is normally distributed. Based on the results of the normality test, it is known that the Sig value is 0.200 > 0.05. So it can be concluded that the residual value is normally distributed.

Table 2. Spearman's Rho Correlations

			Tax Revenue	Unstandardized Residual
Spearman's rho	Tax Revenue	Correlation Coefficient	1,000	-.229
		Sig. (2-tailed)	.	.135
		N	48	48
	Unstandardized Residual	Correlation Coefficient	-.229	1,000
		Sig. (2-tailed)	.135	.
		N	48	48

Spearman's Rho Correlations are used to test heteroscedasticity by referring to: if the value of Sig > 0.05 then there is no heteroscedasticity, and if the value of Sig < 0.05 then there is heteroscedasticity. Based on table 2, the value of Sig (0.135) > 0.05, it can be concluded that there is no heteroscedasticity in the data.

Table 3. Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.277a	.076	.055	1.52711	1.344

Based on table 3, the DW value is 1.344. This DW value is in the interval of 1 to 3 so it can be decided that the research data does not have autocorrelation. The value of the coefficient of determination (R2) shows the ability of the Tax Revenue variable in providing an explanation of the economic growth variable. The value of R^2 is 0.076, meaning that the ability of the Tax Revenue variable to explain or predict the variable of economic growth is 7.6%.

Table 4. Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4,902	.186		26,305	.000
Tax Revenue	3.111E-15	.000	.810	9.153	.000

Table 4 above is useful for finding econometric equations with the dependent variable, namely economic growth (Y) and the independent variable Tax Revenue (X).

$Y = \alpha + \beta X$

Y = 4.902 + 0.000000000000003111 X

Economic Growth = 4.902 + 0.000000000000003111 (Tax Revenue)

The above equation can be explained that:

1. The constant (α) shows the magnitude of economic growth when Tax Revenue (X) is 0 or when there is no tax levy, for example central tax and local tax;
2. Coefficient value(beta) independent variable of 0.000000000000003111, which means that the slope level which shows the contribution (contribution) of the Tax Revenue variable to economic growth is very low because of its small value (3.111E-15);
3. The effect of Tax Revenue on positive economic growth indicates that an increase in taxes can result in an increase in economic growth;
4. The positive effect of Tax Revenue on economic growth is significant or can be accounted for statistically considering the value of Sig Tax Revenue is 0.000 or less than = 0.05 = 5%.
5. The first hypothesis which reads: Tax Revenue Has Significant Effect on Economic Growth, is tested.

Table 5. Pearson Correlation

		Economic Growth	Tax Revenue
Economic Growth	Pearson Correlation	1	.519**
	Sig. (2-tailed)		.000
	N	48	48
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 5 describes the correlation coefficient test which in this study uses Pearson correlation. The results showed that the correlation value was 0.519, so the correlation between Tax Revenue and economic growth was strong. This strong correlation is significant so that the second hypothesis which reads: Tax Revenue is Significantly Correlated to Economic Growth, is tested.

V. DISCUSSION

1. Effect of Tax Revenue on Economic Growth

The results of the study which show that Tax Revenue has a significant positive effect on economic growth are relevant to the theory put forward by Kuncoro (2015); Mankiw (2018); Samuelson & Nordhaus (2009) that state tax revenues, both central and local, can encourage an increase in economic growth, either directly or indirectly. Indirectly, this tax revenue is used to fund government programs in the fields of health, education, defense and security, roads, airports, ports, and other social infrastructure.

The production results of economic actors (household companies, micro, small, medium and large) and natural resources produced by the national economy are difficult to market internationally without the support of land, sea and air infrastructure. Increasing the quantity and quality of this infrastructure can be a driving force for the growth of the people's economy so that it can affect the national economy. Meanwhile, infrastructure is provided by the government whose funding source is from taxes, so that this tax revenue can indirectly affect the increase in economic growth.

In many countries including Indonesia, taxes are the main source of government revenue to develop the country in addition to other funding sources such as grants. By the state, this tax revenue is used to run the government, namely to pay employees, as well as to provide public facilities and build infrastructure to support the realization of sustainable national development (Egbunike et al., 2018; Engen & Skinner, 1996; Gale et al., 2015; Kakaulina, 2017; Piancastelli & Thirlwall, 2020; Rachdianti et al., 2016; Saragih, 2018; Sihaloho, 2020; Soewardi et al. , 2018; Stoilova & Patonov, 2012; Wardhana & Hartono, 2012).

2. Tax Revenue Correlation with Economic Growth

This strong correlation between tax revenue and economic growth is the second finding with positive and significant results. That is, there is a close relationship between these two variables, where the increasing government revenue from the tax sector is closely related to economic growth. Meanwhile, the increase in economic growth is inseparable from the government's efforts in implementing the state constitution in the field of development, so the results of this study support research Dackehag & Hansson (2012); Engen & Skinner, (1996); Gurdal et al., (2021); Kalaš et al., (2017); Magan (2020) that there is a short-term and long-term

relationship between tax revenue and economic growth in developing countries, even in developed countries.

VI. CONCLUSION

In general, it can be concluded that central and local tax revenues are able to increase economic growth. So that fiscal stimulus is needed, such as tax cuts and tax relaxation, especially during the Covid pandemic to increase the per capita income of economic actors and national income. The strong relationship between tax revenue and economic growth also provides empirical evidence that government revenue from the tax sector is an important aspect for realizing national development. Thus, further research is needed that examines the tax stimulus program in a broad sense during the Covid-19 pandemic which is associated with poverty, economic independence and national entrepreneurship.

REFERENCE

[1] Dackehag, M., & Hansson, Å. (2012). Taxation of Income and Economic Growth : An Empirical Analysis of 25 Rich OECD Countries (Issue March). https://www.researchgate.net/publication/239807572_Taxation_of_Income_and_Economic_Growth_An_Empirical_Analysis_of_25_Rich_OECD_Countries

[2] Das, S., Mourmouras, A., & Rangazas, P. C. (2015). Economic Growth and Development: A Dynamic Dual Economy Approach. In Springer. Springer. https://doi.org/10.1007/978-3-319-14265-4

[3] Egbunike, F. C., Emudainohwo, O. B., & Gunardi, A. (2018). Tax Revenue and Economic Growth : A Study of Nigeria and Ghana. Signifikan: Jurnal Ilmu Ekonomi, 7(2), 213–220.

[4] Engen, E., & Skinner, J. (1996). Taxation and Economic Growth. National Tax Journal, 49(4), 617–642. https://doi.org/10.54648/bula1989027

[5] Field, A. (2009). DISCOVERING STATISTICS USING Spss THIRD EDITION (and sex and drugs and rock 'n' roll). In Sage (Vol. 2nd, Issue Third Edition).

[6] Gale, W. G., Krupkin, A., & Rueben, K. (2015). The relationship between taxes and growth at the state level: new evidence. National Tax Journal, 68(4), 919–942. https://doi.org/http://dx.doi.org/10.17310/ntj.2015.4.02

[7] Gurdal, T., Aydin, M., & Inal, V. (2021). The relationship between tax revenue, government expenditure, and economic growth in G7 countries: new evidence from time and frequency domain approaches. Economic Change and Restructuring. https://doi.org/10.1007/s10644-020-09280-x

[8] Johansson, Å., Heady, C., Arnold, J., Brys, B., & Varta, L. (2020). Tax and Economic Growth. Cambridge University Press. https://www.oecd.org/mena/competitiveness/41997578.pdf

[9] Kakaulina, M. O. (2017). Visual Representation of Laffer Curve Factoring in Implications of Capital Outflow. Journal of Tax Reform, 3(2), 103–114. https://doi.org/https://doi.org/10.15826/jtr.2017.3.2.034

[10] Kalaš, B., Mirović, V., & Andrašić, J. (2017). Estimating The Impact of Taxes on The Economic Growth in The United States. Economic Themes, 55(4), 481–499. https://doi.org/10.1515/ethemes-2017-0027

[11] Kuncoro, M. (2015). Mudah Memahami dan Menganalisis Indikator Ekonomi. Yogyakarta: UPP STIM YKPN.

[12] Maganya, M. H. (2020). Tax revenue and economic growth in developing country: an autoregressive distribution lags approach. Central European Economic Journal. https://doi.org/10.2478/ceej-2020-0018

[13] Mankiw, N. G. (2018). Principles of Macroeconomics. Sixth Edition (6th ed.). Canada: South-Western Cengage Learning.

[14] Mukhlis, I., & Simanjutak, T. H. (2011). Pentingnya Kepatuhan Pajak dalam Meningkatkan Kesejahteraan Hidup Masyarakat. Maksi, 220282. https://www.neliti.com/publications/220282/pentingnya-kepatuhan-pajak-dalam- meningkatkan-kesejahteraan-hidup-masyarakat#cite

[15] Mulyani, S. (2021). Berkat Stimulus Fiskal Dampak Buruk Covid19 Mampu Diminimalisir. Kementerian Keuangan Republik Indonesia. https://www.kemenkeu.go.id/publikasi/berita/berkat-stimulus-fiskal-dampak-buruk-covid19-mampu-diminimalisir/

[16] Myles, G. D. (2000). Taxation and Economic Growth. Fiscal Studies, 21(1), 141–168. https://core.ac.uk/download/pdf/7107863.pdf

[17] Piancastelli, M., & Thirlwall, A. P. (2020). The Determinants of Tax Revenue and Tax Efort in Developed and Developing Countries: Theory and New Evidence 1996-2015. Nova Economia, 30(3), 871–892. https://doi.org/10.1590/0103-6351/5788

[18] Rachdianti, F. T., Astuti, E. S., & Susilo, H. (2016). PENGARUH PENGGUNAAN E-TAX TERHADAP KEPATUHAN WAJIB PAJAK (Studi pada Wajib Pajak Terdaftar di Dinas Pendapatan Daerah Kota Malang). Jurnal Perpajakan (JEJAK), 11(1), 1–7. http://perpajakan.studentjournal.ub.ac.id/index.php/perpajakan/article/view/300

[19] Samuelson, P. A., & Nordhaus, W. D. (2009). Economics. 19th ed. The McGraw-Hill series economics. www.mhhe.com

[20] Saragih, A. H. (2018). The Effect of Tax Revenue on the Economic Growth in Indonesia. Sikap, 3(1), 17–27. http://jurnal.usbypkp.ac.id/index.php/sikap

[21] Sihaloho, E. D. (2020). Analisis pengaruh penerimaan pajak terhadap pertumbuhan ekonomi Indonesia : pendekatan vektor autoregressive Analisis pengaruh penerimaan pajak terhadap pertumbuhan ekonomi indonesia : pendekatan vektor autoregressive. Forum Ekonomi, 22(2), 202–209. https://journal.feb.unmul.ac.id/index.php/FORUMEKONOMI/article/view/7370

[22] Soewardi, T. J., Ananda, C. F., & Erlando, A. (2018). Analisis Hubungan Kebijakan Fiskal dan Makroekonomi Daerah Kabupaten / Kota di Jawa Timur. SNKN 2018 | Simposium Nasional Keuangan Negara, 1128–1148. https://jurnal.bppk.kemenkeu.go.id/snkn/article/view/284

[23] Stoilova, D., & Patonov, N. (2012). An Empirical Evidence for The Impact of Taxation on Economy Growth in The European Union. Tourism and Management Studies International Conference Algarve, 3(27), 1033–1038.

[24] Su'aidy, A. (2020). Stimulus Fiskal di tengah Badai Pandemi. Anggaran.Kemenkeu.Go.Id. https://anggaran.kemenkeu.go.id/assets/FTPPortal/Peraturan/Opini Kajian Artikel Paper Jurnal/Opini - 1 Juli 2020 - Stimulus Fiskal di tengah Badai Pandemi - Ahmad Su'aidy - DJA.pdf

[25] Sujianto, A. E. (2009). Aplikasi Statistik dengan SPSS untuk Pemula. Jakarta: Prestasi Pustaka.

[26] Sukirno, S. (2013). Makro Ekonomi, Teori Pengantar. Jakarta: Penerbit PT. Raja Grafindo Persada.

[27] Suksmonohadi, M., & Indira, D. (2020). Kebijakan Penanganan Pandemi Covid-19. https://www.bi.go.id/id/publikasi/laporan/Documents/8.Bab-5__Artikel_II-2020.pdf

[28] Wardhana, W., & Hartono, D. (2012). Fiscal Stimulus Instruments : Policy Options and the Effect on the Economy. Jurnal Ekonomi Dan Pembangunan Indonesia, 12(2), 107–115. https://doi.org/https://doi.org/10.21002/jepi.v12i2.492