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Determinants of tax revenue in Indonesia with economic growth as a mediation variable

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ABSTRACT

Tax revenue has an important role as the main source of state revenue. However, for several years, the realization of tax revenues has not been able to reach the target and the level of the tax ratio is still not ideal. This shows that tax revenue needs to be increased so that the factors that can affect tax revenue need to be analyzed. This study aims to examine the effect of corruption, government spending, and human development on tax revenues and the effect of economic growth in mediating these effects. The analysis was conducted on 10 provinces during 2010 to 2019 was selected using a purposive sampling technique and 100 observations were obtained. Multiple linear regression was used as a method to analyze the hypothesis. The results showed that (1) government spending, human development and economic growth had a positive effect on tax revenue, while corruption had no effect on tax revenue; (2) government spending and human development have a positive effect on economic growth, while corruption has no effect on economic growth; (3) economic growth mediates the effect of government spending and human development on tax revenues; (4) economic growth does not mediate the effect of corruption on tax revenues.

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Introduction

In running the government and implementing development, the government requires significant funds. Following the function budget air of taxes, tax revenue is essential in meeting these funding needs. This can be shown from the proportion of tax revenue as the primary source of state revenue. As presented in Table 1, the average proportion of tax revenues to total state revenues has reached 81% over the last five years. Thus, tax revenue is still the backbone of state revenue.

Although it has an important role, the performance of tax revenues has not been able to achieve the set targets. Tax revenues fluctuated from 2013 to 2020 but did not reach the target. The trend of realization of tax revenue from 2013 to 2020 can be seen in Figure 1. from 2013 to 2020.

In addition, tax revenue is still not optimal compared to economic activities. This can be seen from the amount of the tax ratio in Indonesia. According to the Director-General of Taxes, the tax ratio in Indonesia has not yet reached the ideal figure according to International Monetary Fund (IMF) standards, which is 15% and above (Ministry of Finance, 2019).

Table 1. Proportion of Tax Revenue 2016-2020

Year	of State Revenue (billion rupiah)	Tax Revenue (billion rupiah)	PPh (billion rupiah)	PPN and PPnBM (billion rupiah)	Tax revenue tostate revenue
2016	1,546,946.6	1,284,970,1	666,212.4	412,213.5	83.1%
2017	1,654,746.1	1,343,529.8	646,793.5	480,724.6	81.2%
2018	1,928,110.0	1,518,789.8	749,977.0	537,267.9	78, 8%
2019	1,955,136.2	1,546,141,9	772,265.7	531,577.3	79.1%
2020	1,698,648,5	1,404,507.5	670,379.5	507,516,2	82.7%

Source: processed from the website Agency'sStatistics Center

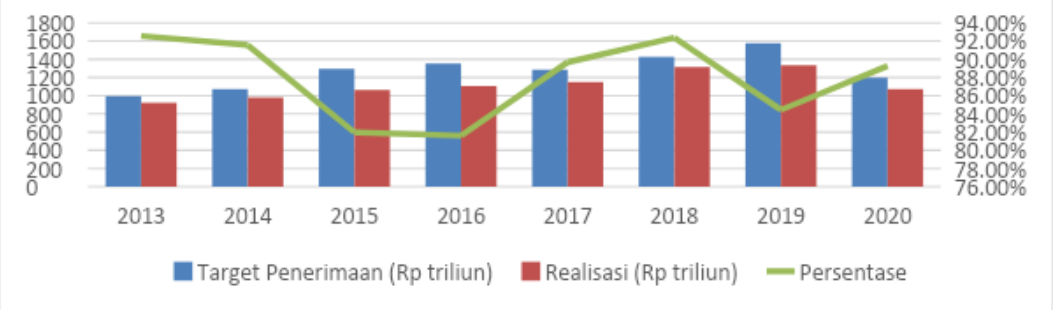

Figure 1. Trend of Realization of Tax Revenue
Source: processed from the Performance Report of the Directorate General of Taxes 2016-2020

Figure 2. Trends in Tax Ratio Indonesia's2010-2019
Source: processed from the March 2019 Edition of Financial Media

From 2010 to 2019, the highest tax ratio in Indonesia occurred in 2012 at 14% and never exceeded this achievement in other periods. The trend of tax ratio Indonesia'sduring 2010 to 2019 can be seen in Figure 2 with the components of tax revenues calculated in the tax ratio, including central tax revenues and Non-Tax State Revenues (PNBP) for oil and gas and general mining.

The trend of the tax ratio that has not been able to reach the ideal number and the realization of tax revenues that have not been able to reach the target indicates and efforts need to be made to increase the amount of tax revenue in Indonesia so that it is necessary to know what factors can affect tax revenue. Factors that affect tax revenue can be in the form of statistical determinants such as income per capita, literacy level, and state expenditure; institutional determinants such as the quality of tax administration and the level of corruption; as well as tax policy determinants such as tax rates and the number of types of taxes (Tanzi, 1989). According to Rodriguez (2018), the determinants of tax revenue can also be distinguished based on the literature theoretical underlying, including structural determinants, tax morale, political motivations, and tax administration's constraints.

Based on several determinants of tax revenue, this study will examine the influence of several factors, including corruption, government spending, and human development. Studies to examine these factors have been carried out previously. The research was conducted both in Indonesia and in other countries such as Richter and Dimitrios (2013), Hunady and Orviska (2015), Arif and Rawat (2018), Mispiyanti and Kristanti (2018), Muttaqin and Halim (2019), Kurniawan et al. (2020) and Singgoro (2021).

Research examining the effect of corruption on tax revenue has been carried out by Hunady and Orviska (2015) and Arif and Rawat (2018). Consistent results show that corruption hurts tax revenue. If corruption in a country increases, it will decrease tax revenues.

Furthermore, the relationship between government spending and tax revenue is explained by several theories, including the spend-tax hypothesis, tax-spend hypothesis, fiscal synchronization, and institutional separation (Kurniawan et al., 2020). Namely, government spending affects tax revenue. According to the

research results of Kurniawan et al. (2020), empirically, the relationship between government spending and tax revenue follows the spend-tax hypothesis. The same results also occur in the research of Richter and Dimitrios (2013), while in the research of Garcia (2019), the results are close fiscal synchronization to perfector tax revenues and government spending influence each other. These results differ depending on the country's subject of the study.

The next factor, namely human development, has not been widely studied for its influence on tax revenue. In Singoro's research (2021), HDI significantly affects tax revenue. The greater the resources owned are directed at increasing the skills and knowledge of human resources, the more the economy's productivity will increase such tax revenues (Singgoro, 2021).

From several previous studies, the level of corruption, government spending, and human development also influence economic growth. In Haryanto's research (2013), both direct and indirect, government spending positively affects economic growth. The same results also occur in Ngutsav (2018) and Dandan (2011) research, proving that government spending positively affects economic growth. In addition, the results of research by Ngutsav's (2018) also show that the level of corruption hurts economic growth in line with the research results of Ertimi et al. (2016). Furthermore, in the research of Kurniawan et al. (2020), Ridha and Budi (2020), and Appiah et al. (2019), human development positive effect on economic growth.

Previous research has been conducted to examine the relationship between economic growth and tax revenue. The results of several studies show that economic growth has a positive effect on both overall tax revenue and certain types of taxes. These studies include Muibi and Sinbo (2013), Mispiyanti and Kristanti (2018), Syairozi and Fatah (2017), Puspitha and Supadmi (2018), Muttaqin and Halim (2019), Inriama and Setyowati (2020).

No research has explained the indirect effect of corruption, government spending, and human development from various previous studies. Therefore, this study will include a mediating variable in economic growth, which is measured using real Gross Regional Domestic Product (GRDP) as an intermediary for the influence of these three variables on tax revenue. In addition, this study will also use panel data in the form of provinces in Indonesia from 2010 to 2019.

Based on the previous explanation related to the importance of increasing tax revenues, it is necessary to research to examine the factors that can affect tax revenue. Therefore, this research was conducted with the following objectives: (1) To examine the effect of corruption on tax revenue; (2) Testing the effect of government spending on tax revenues; (3) Testing the effect of human development on tax revenue; (4) Testing the effect of economic growth on tax revenue; (5) Testing the effect of corruption on economic growth; (6) Testing the effect of government spending on economic growth; (7) Examine the effect of human development on economic growth; (8) Examine whether economic growth can mediate the effect of corruption on tax revenue; (9) Examine whether economic growth can mediate the effect of government spending on tax revenues; (10) Testing whether economic growth can mediate the effect of human development on tax revenues. Thus, the results of this study are expected to provide additional references, study materials, and comparisons for further research, as well as a material consideration for determining strategies and policies on factors that can increase tax revenues.

Tax Definition

There is some argument about the definition of taxes. According to Judisseno (2005), tax is a state obligation, community service, and active role in financing national development, regulated in-laws, and regulations to realize prosperity. Supramono and Damayanti (2010) define tax as a contribution that does not get a direct contra-achievement and is intended and used to finance general expenses. Furthermore, according to Rochmat Soemitro (quoted in Nurmantu, 2005), taxes are people's contributions to the state treasury based on the law (which can be enforced) without receiving a direct contra-achievement which is intended and used to pay general expenses. Thus, it can be concluded that the definition of tax contains the following elements: (1) it is a people's contribution to the state, (2) the collection is forced by law, (3) does not receive a direct contra-achievement, (4) is used to finance general expenditures for welfare.

According to Hyman (2010), there are two tax components, namely the tax rate (tax rate) and the tax base (tax base). The tax rate is a rate that is generally expressed in the form of a percentage and is used to calculate the amount of tax owed or, in other words, the amount of tax that must be paid (Supramono& Damayanti, 2010). The other component, the basis of taxation, is an economic activity subject to tax, which is generally divided into three categories: income, consumption, and wealth (Hyman, 2010). Changes in rates or tax bases will directly affect tax revenues.

Theory of Tax Collection

The authority of the state in collecting taxes can be explained based on the theory of tax collection. Insurance theory states that the relationship between the state and taxpayers is equated with the relationship between insurance companies and the insured. Taxes must pay premiums in the form of taxes (Sutedi, 2022). Furthermore, in the theory of interests, taxes are charged to the community according to interest in protecting life and property organized by the government. It is only natural that these costs are charged to the community (Supramono & Damayanti, 2010). The argument for tax collection in the theory of filial piety holds that the state has an absolute right to collect taxes from its citizens as a form of devotion to implementing the public interest (Sabon & SH, 2019). Furthermore, the pilgrim style theory does not justify tax collection by the state. It only proposes that tax collection should be adjusted to the carrying capacity of the taxpayer (Liliyani, 2018). Finally, according to Supramono and Damayanti (2010), in the theory of the principle of purchasing power, taxes collected will reduce income that will be used for consumption activities by the community so that it will reduce people's purchasing power which will then be redistributed in the form of public welfare.

Economic Growth Theory

According to the Keynesian perspective, the economy is driven by the demand side, including four macroeconomic actors: households, companies, governments, and foreign countries (Wahyudi, 2020). Furthermore, according to Katz and Robbins (2018), the leading actor is the government that controls economic growth by making fiscal policy essential in economic development. One form of government intervention through fiscal policy is government spending (Azwar, 2016). Keynesian thought assumes that government intervention through spending will stimulate aggregate demand, which will increase economic growth (Nurlina, 2015). This happens because the expansionary fiscal policy will inject money into the economy. Expansionary fiscal policy will increase aggregate demand to make investors optimistic and encourage increased investment, output, and economic growth (Alqadi & Ismail, 2019).

In contrast to the Keynesian view, which examines economic growth in terms of demand, Neoclassical theory examines economic growth in terms of supply. According to Sukirno (2016), this theory was developed by Abrahamovits and Solow. They stated that economic growth depends on the development of production factors. Empirical studies by Solow show that the most critical factors that bring about economic growth from these production factors are technological advances and the skills and expertise of the workforce (Sukirno, 2016). This is supported by Denison (cited in Sukirno, 2016), who concludes in his study that technology and skill development are the main factors in realizing economic growth.

Tax Morale

According to Horodnic (2018), tax morale is often interpreted as an intrinsic motivation to pay taxes. In line with this, Frey (1997, quoted in Simanjuntak & Mukhlis, 2012) defines tax morale as an explanation of moral principles or values believed by someone who causes him to pay taxes. Chariye (2016) concluded that several definitions of tax morale include the individual's desire to pay taxes, intrinsic motivation to pay taxes, attitudes to pay taxes, moral obligation to pay taxes, or beliefs to contribute to society. From these several definitions, it can be concluded that tax morale is a desire, motivation, intrinsic value, or attitude that will affect the number of tax payments.

According to Simanjuntak and Mukhlis (2012), several factors influence tax morale, including the perception of honesty, an attitude of helping or serving from the apparatus, trust in government agencies, appreciation or respect from tax officials, as well as several other individual traits. Horodnic (2018) groups the factors that influence tax morale based on 82 studies into three groups. The three groups include formal, informal, horizontal trust, socio-demographic characteristics, and personal values/norms.

Spend-tax Hypothesis

The spend-tax hypothesis to explain the causality between government spending and tax revenue due to the political system will determine how much state spending is done. This is in line with the opinion of Payne (2003), which states that in the spend-tax hypothesis, state spending decisions are determined first. Then make adjustments in tax policy and revenue sources to finance expenditures (Richter & Dimitrios, 2013). Then adjustments are made in tax and income policies to meet these expenditures. According to Peacock and Wiseman (1979), a temporary increase in government spending due to a crisis or war will increase permanently higher taxes. Furthermore, Barro (1979) states that the concept of the spend-tax hypothesis based on the context of Ricardian equivalence shows that an increase in government spending will cause an increase in taxes because the amount borrowed by the government today will increase the tax liability that must be paid.

The Economic Growth

Hudson (2020) describes economic growth as a continuous increase in per capita income or purchasing power. This opinion is different from Subandi (2019) and Sukirno (2016). They agree that a continuous increase in per

capita income is economic development, not economic growth. According to Simon Kuznets (quoted in Subandi, 2019), economic growth increases a country's ability to provide economic goods caused by technological and institutional advances and their explanations. In line with this, Sukirno (2016) explains the definition of economic growth as a development in the economy that causes the production of goods and services in society to increase. From the definitions that have been described, it can be concluded that economic growth is an increase in the country's ability to produce goods and services. Although there are differences in defining economic growth, both Hudson (2020), Subandi (2019), and Sukirno (2016) state that the measure of economic growth is GDP. GDP can be interpreted as measuring the country's ability to produce goods and services in one year (Sukirno, 2016).

Corruption

According to Transparency International (nd), corruption abuses power for personal gain. Furthermore, according to Indonesian law, "corruption is an act against the law with the intention of enriching oneself/others, both individuals and corporations, which can harm state finances/state economy" (Corruption Eradication Commission, nd). Corruption can take many forms. According to Law Number 31 of 1999 stated Law Number 20 of 2001 concerning the Eradication of Criminal Acts of Corruption, there are 30 types of corruption crimes mentioned in 13 articles which can be grouped into seven groups. The articles include offenses related to state financial losses, embezzlement in office, giving something/promise to Civil Servants or State Administrators, conflicts of interest, fraudulent acts, acts of extortion, and gratuities (Corruption Eradication Commission, nd). In Indonesia, the Corruption Eradication Commission (KPK) is tasked with preventing and eradicating criminal acts of corruption as stipulated in Law Number 30 of 2002 stated Law Number 19 of 2019 concerning the Corruption Eradication Commission. Efforts in eradicating corruption include coordination, supervision, monitoring, investigation, investigation prosecution, examination in court, and community participation.

Government Expenditure Government

Spending is expenditure made by the government to influence economic activities taken from the government budget (Terminanto & Rama, 2017). Government spending is carried out either by the central government or referred to as state spending or by regional governments, referred to as regional spending. In this study, the intended government spending refers to regional spending. Ariadi (2021) defines regional expenditure as "all expenditures from the regional general treasury account that reduce the equity of funds and are regional obligations in one fiscal year and will not be repaid by the region." (p. 27).

Regional expenditures can be classified according to expenditure groups into direct and indirect expenditures, with the difference being in the linkage of the budget to the implementation of programs/activities (Amin, 2019). Types of expenditures directly related to programs/activities can be honorarium expenditures, goods expenditures, and capital expenditures. Meanwhile, expenditures that are not directly related to programs/activities can be in the form of spending on salaries and employee benefits, interest spending, donations, financial aid, and grants.

Human Development

According to the United Nations Development Program or UNDP (1990), "human development" is the process of expanding human choices" (p. 20). Human development is used to develop communities to build their capabilities (UNDP, 2002). The UNDP concept in measuring human development is used by the Central Statistics Agency (BPS), which is known as the Human Development Index (IPM). The measurement concept uses three components: longevity and healthy life, knowledge, and a decent standard of living. According to Asnidar (2018), the basis of IPM is the importance of attention to the quality of resources human for human development should be able to simulate processes that can improve the quality of human resources itself. HDI achievements across regions can be grouped into four categories, including low HDI (IPM<60), moderate HDI (60≤IPM<70), high HDI (70≤IPM<80), and very high HDI (IPM≥80).

Previous research

Hunady and Orviska (2015) examined the effect of corruption on tax revenue. The test was carried out by regression analysis from 46 OECD countries and Latin America for 1998-2013. The test results show that corruption has a significant negative effect on tax revenue. According to this study, corruption can hurt tax administration and audit as well as the credibility of the institution, motivating taxpayers to enter the shadow economy and be reluctant to pay taxes.

In Arif and Rawat's research (2018), institutional variables in corruption and governance were tested for their effect on tax revenue. The study was conducted on 10countries, Emerging and Growth Leading Economies (EAGLE), from 2001 to 2015 using estimates Pooled Mean Group (PMG). As a result, corruption

and governance affect tax revenue. Improving governance and decreasing levels of corruption increases tax revenue.

Research to test the theory of the relationship between government spending and tax revenue was conducted by Richter and Dimitrios (2013). The study was conducted from 1833 to 2009 in Greece using GDP as a control variable. The analysis was carried out by performing a unit root, cointegration, and Granger causality test. The study results support the spend-tax hypothesis, which shows that government spending is determined in advance and will affect the tax revenue collected.

Kurniawan et al. (2020) examine the effect of government spending on tax revenues in Indonesia by using GDP as a control variable. The analytical methods used include Granger test, Partial Adjustment Model (PAM), Error Correction Model (ECM), and Vector Autoregression (VAR). The study was conducted for the period 2001 to 2017. The study results prove that government spending positively affects tax revenues and supports an increase in tax revenues. It can occur due to the direct imposition of taxes on several types of government spending.

The independent variable in Singgoro's research (2021) is HDI tested its effect on tax revenue. The research was conducted in Kenya from 2003 to 2018, with data measured at the national level. Testing is done by using correlation and regression analysis. As a result, HDI has a significant positive effect on tax revenue. This means that the greater the human resources who have the skills and knowledge will increase productivity in the economy, which ultimately increases tax revenue.

Muibi and Sinbo (2013) conducted a study on the macroeconomic determinants of tax revenue in Nigeria. The research was conducted from 1970 to 2011. The analysis was carried out using the unit root, cointegration, augmented dicky fuller, and error correction models. The conclusion from the results of this study is that the level of economic growth and trade openness has a positive effect on tax revenue. In contrast, the exchange rate, inflation, and foreign debt are negatively affected.

Mispiyanti and Kristanti (2018) examine the effect of GRDP, inflation, exchange rates, and labor on tax revenues. The research was conducted in several regencies, namely Cilacap, Banyumas, Purbalingga, Kebumen and Purworejo from 2012 to 2015. The results of this study are that GRDP and labor have a positive effect. In contrast, inflation and exchange rates do not affect tax revenue.

Puspitha and Supadmi (2018) examine the effect of economic growth and inflation on VAT receipts. The research was conducted at the Tax Offices (KPP) throughout Bali from 2012 to 2016. Economic growth was measured at GRDP. The analysis was carried out using multiple linear regression. The results showed that economic growth positively affected VAT revenues while inflation had no effect. According to this study, the greater the economic growth, the greater the activity of trading in goods and services so that VAT revenues also increase.

The effect of the number of KPP, the number of taxpayers, the rate of economic growth, and the interest rate were tested in Syairozi and Fatah's research (2017). The study was conducted on income tax receipts in Indonesia from 2001 to 2012 using multiple linear regression. As a result, the interest rate variable does not affect income tax revenues. In contrast, the other three variables, namely the number of KPP, the number of taxpayers, and economic growth, have a positive effect. The number of taxpayers and economic growth can expand the tax base by adding objects and subjects.

Inriama and Setyowati (2020) conducted a study on corporate income tax receipts of ASEAN countries from 1999 to 2018. The independent variables tested included economic growth, Foreign Direct Investment (FDI), and tax rates. The study results prove that economic growth and tax rates positively affect. The positive effect of economic growth means that when there is an increase in GDP, the production and business activities of the company will grow. Then increases operating income and profits, increasing corporate income tax revenues. In contrast, FDI does not affect tax revenues.

Muttaqin and Halim (2019) conducted a study to examine the effect of economic growth and inflation on total tax revenues, income tax revenues, and VAT. This research was conducted in Bengkulu Province with dominant economic activities in agriculture, plantations, and fisheries from 2010 to 2016. The results show that economic growth and inflation simultaneously affect total tax revenues, PPh, and VAT.

Ngutsav (2018) examines the effect of corruption and government spending on economic growth in Nigeria from 1981 to 2015. Variable testing uses a vector error correction model and the impulse response function. The results show that government spending has a positive effect on economic growth. In contrast, corruption hurts economic growth. In addition, corruption can worsen economic growth due to increased government spending.

Ertimi et al. (2016) conducted a study to examine the effect of corruption on economic growth. The study was conducted on 14 Organization of Islamic Cooperation (OIC) countries from 2003 to 2010. The study results using regression showed that corruption hurt economic growth.

Kurniawan et al. (2020) examine the effect of corruption and human development on economic growth. The study was conducted on 44 Organization of Islamic Cooperation (OIC) countries from 2009 to 2018 using multiple linear regression. The results of this study indicate that corruption does not affect economic growth. At the same time, human development has a positive effect on economic growth.

Dandan (2011) examines the effect of government spending on economic growth in Jordan. The data used are data time series from 1990 to 2006. Using regression, the results show that in aggregate, government spending has a positive effect on economic growth following Keynesian theory. The results also show that government consumption expenditure, government investment expenditures, and transfer payments have a positive effect in terms of the type of expenditure. In contrast, interest payments do not affect tax revenue.

Haryanto's research (2013) aims to examine the effect of government spending consisting of direct and indirect spending on economic growth. The study was conducted on 35 regencies/cities in Central Java from 2007 to 2011. The results of this study indicate that government spending through direct and indirect spending has a positive effect on economic growth.

Method

Types and Sources of Data

Based on the benefits, this research is included in pure research while based on the approach taken, including quantitative research. Furthermore, the type of data used based on the source includes secondary data, namely data obtained from various pre-existing sources or the author as a second hand (Siyoto & Sodik, 2015). However, if viewed from its nature, this type of data is quantitative. The data in this study is also included in the type of panel data, namely a collection of data from the behavior of the unit cross-sectional observed over time or a combination of data time-series and cross-section (Ghozali and Ratmono, 2017).

The data in this study will be collected using documentation techniques, namely by collecting the required data regarding things or variables in the form of notes, transcripts, books, newspapers, and so on (Siyoto & Sodik, 2015). The data to be collected is annual data for each province from 2010 to 2019 obtained from several sources for each variable, including (1) data on the realization of tax revenues per Regional Office of the Directorate General of Taxes obtained from the Financial Report of the Directorate General of Taxes, (2) data on GRDP, the realization of provincial government expenditures, and HDI were obtained from the website BPS, and (3) data on corruption cases were obtained from the Annual Report of the Corruption Eradication Commission.

Sampling Techniques

From the population in all provinces in Indonesia, samples will be taken for research. The technique in selecting the sample to be used is non-probability sampling with purposive sampling. The definition of nonprobability sampling is a technique that does not provide equal opportunities for all population members. In contrast, purposive sampling is a sample selection technique with specific considerations or selection (Siyoto & Sodik, 2015). This technique was chosen because specific criteria are needed in selecting sample members so that the data obtained are in harmony and achieve the research objectives.

Tax revenue data per DGT Regional Office is used to determine tax revenue per province because tax revenue per Tax Service Office is not available. Thus, selecting a sample using a purposive sampling technique with several criteria is necessary. These criteria are (1) Provinces in Indonesia in which there is a DGT Regional Office with a working area of only one or part of the province (not divided with other provinces), and (2) having complete data needed in research starting from 2010 until 2019.

Research Variables and Operational Definitions

The dependent variable in this study is tax revenue. The intended tax revenue is the realization of central tax revenue managed by the DGT. This variable will be measured by the amount of realized tax revenue in one province for each year from 2010 to 2019. Measurements using tax revenue realization are also carried out in Muttaqin and Halim's (2019) and Mispiyanti and Kristanti's (2018) research.

The independent variables that will be tested include corruption, government spending, and human development. The operational definition of corruption is the level of corruption based on corruption cases handled by the KPK. The level of corruption is calculated by the total number of corruption cases based on the province that the KPK takes action on every year from 2010 to 2019. The measurement of corruption refers to

Alfada's research (2019) as the first corruption study using data on corruption cases at the provincial level. in Indonesia. According to Alfada (2019), the use of the number of corruption cases as a measure has the advantage that it can measure both the level of corruption and the strength of law enforcement to represent the motivation to eradicate corruption.

The operational definition of government expenditure as the following independent variable is the realization of expenditure, including total direct and indirect expenditures. To measure government spending, data on the realization of provincial expenditures are used every year from 2010 to 2019. This measurement follows the research of Kurniawan et al. (2020) and Haryanto (2013).

The last independent variable, namely human development, is community convenience in accessing development which includes long and healthy life, knowledge, and a decent standard of living following the UNDP concept (1990). This study's measurement of human development will use the provincial HDI issued by BPS from 2010 to 2019. Measurements using the HDI follow previous studies, including Singoro (2021), Kurniawan et al. (2020), Ridha and Budi (2020), and Appiah et al. (2019).

The mediating variable that mediates between the independent and dependent variables to have an indirect effect is called the mediating variable (Sudaryono, 2016). The mediating variable used is economic growth. According to Hudson (2020), Subandi (2019), and Sukirno (2016), the right measure of economic growth is GDP at constant prices. Furthermore, because this study uses local data, GDP is adjusted to constant GRDP. Thus, economic growth in this study is the number of changes in the value-added goods and services at the provincial level. The use of GDP and GRDP as a measure of economic growth is also used in the research of Dandan (2011), Muibi and Sinbo (2013), Mispiyanti and Kristanti (2018), Inriama and Setyowati (2020), and Kurniawan et al. (2020).

Thinking Framework

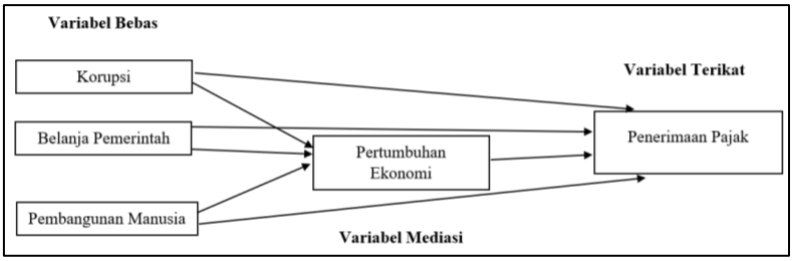

Figure 4. Thinking Framework
Source: processed by the author

As previously explained, it is necessary to research to examine the factors that influence tax revenue, including the level of corruption, government spending, and human development. In addition to the direct effect, the indirect effect of these factors will also be tested on tax revenues by adding economic growth as a mediating variable. Based on the theoretical basis and literature review from previous research, the framework of thought is arranged in Figure 4.

Analysis Techniques and Research Models

The analytical techniques used to achieve the research objectives include descriptive statistical analysis, panel data regression analysis, and path analysis. Panel data regression analysis determines the estimation method, classical assumption testing, and regression testing (Maulana & Muchtar, 2018). According to Maulana and Muchtar (2018), the determination of the estimation method between the standard effect model, random model effect, andThe model was a fixed effect carried out by the Lagrange Multiplier (LM), Chow Test, and Hausman Test. Furthermore, the classical assumption test was carried out for panel data, including normality, multicollinearity, autocorrelation, and heteroscedasticity tests (Maulana & Muchtar, 2018). Finally, regression testing is needed to determine the accuracy of the sample regression function in estimating the actual value that is out of the goodness of fit that statistically can be measured by the coefficient of determination (R2), F statistic values, and statistical values t (Ghozali and Ratmono, 2017).

The next stage of analysis is path analysis. Path analysis is an analytical technique used to determine the relationship in multiple regression if the independent variable has a direct and an indirect effect on the dependent variable (Retherford & Choe, 1993).

The research model to explain the direct and indirect effects of the independent variables consists of three models (Jose, 2013). In the three models, the variables of tax revenue, economic growth, and government spending are transformed into the natural logarithm (Ln) to reduce the scale so that the variance is relatively

tiny without changing the proportion (Inriama & Setyowati, 2020). The three models used in the study are formulated as follows.

$$\text{Model 1: } LnTAX_{it} = {}_1 + \beta_1 CORR_{it} + \beta_2 LnEXP_{it} + \beta_3 IPM_{it} + \varepsilon_1$$
$$\text{Model 2: } LnTAX_{it} = \alpha_2 + \beta_4 CORR_{it} + \beta_5 LnEXP_{it} + \beta_6 IPM_{it} + \beta_7 LnPDRB_{it} + \varepsilon_2$$
$$\text{Model 3: } LnPDRB_{it} = {}_3 + \beta_8 CORR_{it} + \beta_9 LnEXP_{it} + \beta_{10} IPM_{it} + \varepsilon_3$$

Description:
i = province sample
t = period of
LnTAX = Ln tax receipts
α= Constant
β=coefficient RegressionLnPDRB = Ln Gross Regional Domestic Product
LnEXP= Ln Realized government spending
HDI = Human Development Index
CORR= Number of corruption
cases = error

Results and Discussions

Research Results

From the results of the sample selection, it was found that ten provinces in the period 2010 to 2019 met the criteria, so that the total sample observed in this study was 100 observations. These provinces include Aceh, North Sumatra, DKI Jakarta, Banten, West Java, Central Java, Yogyakarta Special Region (DIY), East Java, West Kalimantan, and Bali.

Table 2. Descriptive Statistics of Research

VARIABLES	OBS	MIN	MAX	MEAN	MEDIAN	STD. DEV.
LN_TAX	100	28,26701	33,30930	30,49463	30,51051	1,326237
CORR	100	0,00000	37,00000	3,82000	1,00000	6,77843
LN_EXP	100	27,88893	31,80446	29,89094	29,88174	0, 91015
HDI	100	61.97000	80.76000	70.91550	70.07500	4.39794
LNGDP	100	31.80046	35.14647	33.50540	33.60545	1.09271

Source: processed from the Eviews application 11

From the total observations, a descriptive analysis was conducted to describe a picture of the sample data that has been collected without making conclusions that apply in general (Siyoto & Sodik, 2015). The description of the data includes the minimum value, maximum value (median),(mean), and standard deviation (std. dev.). The summary of the statistical descriptions is presented in Table 2.

Next, the best estimation method is selected. The results are shown in Table 3. In model 1, the random model effect was selected in the LM test. In contrast, the model fixed effect was selected in the Chow and Hausman tests. The same thing happened to Model 3. In contrast to Model 1 and Model 3, in Model 2, the random model effects were selected in the LM test and Hausman test, while the model fixed effect was selected in the Chow test. Thus, the best model used in subsequent tests on Model 1 and Model 3 is the model fixed effect, while in Model 2, the best model is the random model effect.

Table 3. Results of Regression Model Selection

Research	LM	Test Chow	Test Hausman Test	Model Selected
Model 1	random effect	fixed effect	fixed effect	fixed effect
Model 2	random effect	fixed effect	random effect	random effect
Model 3	random effect	fixed effect	fixed effect	fixed effect

Source: processed from Eviews 11 application

Based on the normality test results in Table 4, the probability values in the three models show a value greater than or 0.05. In addition, the chi-square value of 2 df at a significance of 0.05 is 5.99146. This value is more significant if compared with the JB value in Table 4 for the three regression models. Thus, in the third regression model, H1 is rejected, and residuals are distributed. normally.

Table 4. Normality Test Results

Model	Skewness	Kurtosis	Jarque-Bera (JB)	Prob	Conclusion
1	0.318622	3.184895	1.834443	0.399628	H1 declined
2	0.491562	2.348663	5.794887	0.055164	H1 declined
3	0.431483	3.185298	3.246021	0.197304	H1 rejected

Source: processed from the Eviews 11 application.

In this study, the multicollinearity test was performed using a correlation matrix. According to Ghozali and Ratmono (2017), if the correlation matrix has a value of more than 0.9, there is a high correlation between the independent variables. Based on Table 5, the correlation between independent variables shows a value of less than 0.9 on all independent variables. There is no high correlation between independent variables. The regression model fulfills the assumption of being free from multicollinearity problems.

Table 5. Test Results Multicollinearity

	CORR	LN_EXP	IPM	LN_PDRB
CORR	0.446709 0.060132 0.459538			1.000000
LN_EXP	1.000000 0.265425 0.847042			0.446709
IPM	0.265425 1.000000 0.069690			0.060132
LN_PDRB	0.847042 0.069690 1.000000			0.459538

Source: compiled from applications Eviews 11

According to Table 6, the test results heteroskedasticity with Breusch-Pagan-Godfrey on the three regression models show a probability value of more than or 0.05. The residuals in the three regression models have the same variance (homoscedastic). Thus, there is no heteroscedasticity problem.

Table 6. Heteroscedasticity Test Results for

Variables	Prob		
	Model 1	**Model 2**	**Model 3**
CORR	0.3191	0.4451	0.1323
LN_EXP	0.4590	0.5853	0.0786
HDI	0.4802	0.5934	0.1204
LN_PDRB	-	0.5277	-

Source: processed from the Eviews 11 application

Furthermore, according to Basuki and Prawoto (2015), autocorrelation only occurs in data time series. The autocorrelation test on data that is not time series (cross-section or panel) does not mean anything. Thus, no autocorrelation test is needed.

Table 7. Regression Test Results

Bound Variable Independent	Variables	t-test (one-tailed)	Sobel test (p-value)	F test	Adj. R2
LN_TAX	CORR	0.1024		0.000000	0.993755
	LN_EXP	0.00005			
	HDI	0.0000			
LN_TAX	CORR	0.0736		0.000000	0.937818
	LN_EXP	0.00395			
	HDI	0.0000			
	LN_GDP	0.0000			
LN_PDRB	CORR	0.42555	0.85051	0.000000	0.999225
	LN_EXP	0.000000	0.00003		
	IPM	0.000000	0.00000		

Source: adapted from Eviews applications 11

Regression test results in Table 7 show the determination coefficient(adjusted$R^{2)}$or the scale of independent variables in Model 1, Model 2, and Model 3 in explaining the dependent variable respectively 99.3%, 93.78%, and 99.92%. In comparison, other factors outside this study explained 0.62%, 6.22%, and 0.08%. The F statistic test also shows that all independent variables simultaneously (simultaneously) affect the dependent variable in the three models. For the results of the t-test, the independent variable is said to have an effect if the probability value is less than or 0.05. Thus, only the corruption variable does not affect tax revenue and economic growth in the three models.

The regression equation for each model based on the regression results can be written as follows: a) Model 1: LnTAXit = 11.16843 + 0.002452 CORRit + 0.331636 LnEXPit + 0.132608 IPMit; b) Model 2: LnTAXit = -15.17942 + 0, 002579CORRit + 0.205263LnEXPit +0.068658IPMit + 1.034453LnPDRBit + Ɛ2; c) Model 3: LnPDRBit = 25.59977 to 0.000105 + 0.116397 CORRitLnEXPit +0.062424IPMit + Ɛ3

Variables mediate the relationship between two variables if the basic relationship is reduced in mediating variables in the regression tested and should be signed with the Sobel test (Jose, 2013). The Sobel test is done by calculating the z-score.

z-score=ab(b2sa2+a2sb2)

Description:

a = coefficient of the independent variable on the mediating variable (model 3)
b = coefficient of the mediating variable on the dependent variable (model 2)
Sa = standard error of the variable independent of the mediating variable (model 3)
Sb = standard error of the mediating variable on the dependent variable (model 2)

Table 8. Sobel Test Results

Variable	A	Sa	b	Sb	Sobel Test	
					z value	p-value
CORR	-0.000105	0.000557	-	-	-0, 18 846	0.85051
LN_EXP	0.116397	0.024002	-	-	4.201734	0.00003
IPM	0.062424	0.005909	-	-	6.582205	0.00000
LN_PDRB	-	-	1.034453	0.122925		

Source: compiled from Eviews 11

Suppose the value z-score is more significant than 1.96 or p-value less than α = 0.05. In that case, there is mediation with a significance level of 5%. Based on this equation, the Sobel test results can be summarized in Table 8.

Further, by calculating the value error obtained from the residual value of the coefficient of determination or can be calculated by 1-adjusted R2, the direct and indirect pathways studied variables are presented in Figure 5. Value of influence direct, indirect, and total effect can be seen in table 9.

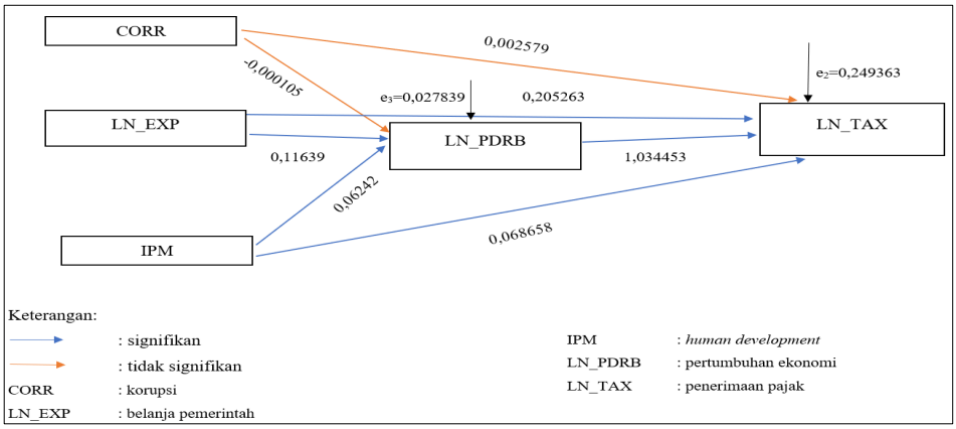

Figure 5. Diagram Path Analysis
Source: compiled from Eviews 11

Table 9. effect of Variables with Mediation Variablesexistence

Variables	**influence direct**	**indirect effect**	**total effect**	**Test Results Sobel**
CORR	0.002579	-0.0001086	0.0024704	not significant
LN_EXP	0.205263	0.1204072	0.3256702	significant
HDI	0.068658	0.0645747	0.1332327	significant

Source: processed from Eviews 11

Effect of Corruption on Tax Revenue

Research results This is different from Bramantyo (2020) and Arif and Rawat (2018) and does not support the opinion that corruption can undermine tax morale. The difference in the results of this study may occur due to the different proxies used. There is no data commensurate with the corruption index at the provincial level. In addition, the large number of corruption cases may not reflect the total amount of corruption that occurs because, as a hidden activity, it is difficult to know the proper level of corruption. The KPK also has limitations in investigating corruption cases, including the number of officers, budget, and technology in conducting investigations (Alfada, 2019).

Influence of Government Expenditure on Tax Revenue

Given the spend-tax hypothesis, the amount of government spending determined based on the political process causes adjustments in tax policy to finance these expenditures (Richter & Dimitrios, 2013). Based on the context of Ricardian equivalence stated by Adriani & Ramdan (2020), an increase in government spending will increase taxes because the amount borrowed by the government today will increase the tax liability that must be paid. Thus, the results of this study support the spend-tax hypothesis.

Furthermore, the theory spend-tax hypothesis is also supported by an increase in sources of tax revenue caused by an increase in economic activity due to government spending. According to Kurniawan et al. (2020), various types of government spending will eventually be taxed, for example, the imposition of VAT on goods and capital expenditures and PPh on personnel expenditures.

The Effect of Human Development on Tax Revenue

The results of the study showing that human development increases tax revenue can mean an increase in attitudes that affect the number of tax payments or tax morale. Increased human development can affect trust in public authorities. This happens because public authorities pay attention to the community's needs to increase trust in public authorities. In the end, people will disclose all their income (Larissa, 2015). In addition, better human development also means that the level of education that the community can feel is getting higher. This level of education is also a socio-demographic factor characteristic that affects tax morale (Horodnic, 2018). Higher education increases public understanding of the tax system and the role of government performance. So, even though there is an opportunity to be disobedient, this understanding will encourage people to have a better attitude and be more obedient towards paying taxes Muhlis (2021).

The results of this study also support the concept of an integrated behavioral model. In the integrated behavioral model, to realize the behavior of paying taxes, even though there is a firm intention, knowledge, and skills are still needed to carry out the behavior (Awet Sandi, 2016). Knowledge and skills are influenced by human development because the more excellent the opportunity they have in experiencing development, it will stimulate processes that can improve the quality of human resources themselves (Asnidar, 2018).

Effect of Economic Growth on Tax Revenue

Increasing economic activity will enlarge the tax base in income, consumption, and wealth (Yunus, 2022). Thus, the ability to pay taxes (ability to pay) increases with increasing economic growth (Mispiyanti & Kristanti, 2018). This happens because the increased economic growth illustrates the level of welfare and the community's economy. There is a tendency to increase people's income (Muttaqin & Halim, 2019). Increased income will change the level of public consumption. In addition, increased income can also increase wealth, for example, through investment. Thus, tax revenues, both PPh and VAT, will increase due to the increase in the tax base.

The Effect of Corruption on Economic Growth

This result is different from the research results by Ngutsav (2018) and Ertimi et al. (2016). However, this study's results follow the research of Kurniawan et al. (2020), which shows that corruption does not affect economic growth. According to the neoclassical economic growth theory, a high level of corruption causes economic underdevelopment in a country (Subandi, 2019). In other words, the impact of corruption follows the "*hypothesissand the wheel*" or hinders economic growth. However, according to Tseng (2020), not all corruption hurts economic growth. Corruption with the characteristics of "*speed money*" or "*grease the wheel*" can increase economic growth (Alfada, 2019). This happens because corruption can be a lubricant to accelerate the process of economic activity when the economic system is inefficient due to a bureaucracy that does not function properly (Juwono, 2018). Supporting this, Colombatto (2003) in Juwono (2018) states that corruption eliminates unfavorable conditions and hinders development in developing countries because it can act as "*speed money*" in conditions of political instability and institutional inefficiency.

The results in this study may also be due to the different impacts of corruption in each region. The existence of regional autonomy causes the bureaucracy in each region to be different. The more the bureaucracy is not functioning, the more corruption will be needed to facilitate economic activities (Juwono, 2018). This follows the Suryawan et al. (2020) research, which showed that the ten provinces tested showed

significant results but in different directions. Thus, corruption in each province has a different effect on economic growth by following the "*sand of wheel*" or "*grease of wheel*."

The Effect of Government Expenditure on Economic Growth
The results of the study show that more enormous (smaller) government spending will lead to more significant (more nominal) economic growth. These results support the Keynesian theory of economic growth. In this theory, economic growth increases because government intervention through spending will stimulate the level of aggregate demand, which in turn increases economic growth (Nurlina, 2015). Thus, government spending can become a policy instrument to encourage economic growth.

The Effect of Human Development on Economic Growth
The test results show that economic growth will be more significant (more minor) if human development increases (decreases). These results support the neoclassical theory of economic growth. The main production factors that influence economic growth in the neoclassical view are technological advances and the skills and expertise of the workforce (Sukirno, 2016). This can be achieved if there is a level of human developmenttall one. High human development shows the quality and quantity of labor. The greater the HDI value, the greater the main production factors that increase economic growth.

The Effect of Economic Growth in Mediating the Effect of Corruption on Tax Revenue
Based on the results of hypothesis testing, economic growth does not mediate the effect of corruption on tax revenue. These results can be seen from the Sobel test, which shows the p-value is more excellent than = 0.05 or not significant, which means there is no mediation. Based on the path analysis, the amount of corruption does not directly or indirectly affect tax revenues through the mediation of economic growth. The indirect effect through the mediation of economic growth does not occur because corruption does not affect economic growth.

The Effect of Economic Growth in Mediating the Effect of Government Expenditure on Tax Revenue
According to the results of hypothesis testing, economic growth mediates the effect of government spending on tax revenue. This means an indirect effect of government spending on tax revenues through economic growth. The increase in government spending is one form of fiscal policy that will encourage economic growth. Furthermore, increased economic growth means increased economic prosperity. Thus the ability to pay taxes (ability to pay)is also increasing. The tax base will be more excellent and more significant tax revenues.

The Effect of Economic Growth in Mediating the Effect of Human Development on Tax Revenue
In path analysis, human developmenthas a positive effect on economic growth, and economic growth positively affects tax revenue. Thus, the more excellent (trim) the value of human development will increase (decrease) economic growth, which will then increase (decrease) tax revenue. High human development shows an excellent opportunity for humans to develop their abilities. The quality of quality resources will be realized with the high level of human development. Quality human resources contribute to economic growth through their creativity and productivity. The more excellent the opportunity for people to access education, health, and a decent standard of living, the more significant their contribution to economic growth. Furthermore, increased economic growth will increase the ability to pay taxes (ability to pay). The tax base will be even more excellent. In the end, tax revenue will increase.

Conclusions

Based on the study results, it can be concluded several things, including: (1) Corruption does not affect tax revenue. This result is different from previous studies because the actual amount of corruption is difficult to know. The difference in the proxies used is due to the unavailability of data similar to the provincial corruption index; (2) Government spending positively affects tax revenue. Tax policies are adjusted to the needs of government spending. Each type of government spending will be taxed directly; (3) Human development positively affects tax revenue. Human development affects people's attitudes or behavior in paying taxes. The increased quality of human resources will increase productivity in the economy; (4) Economic growth positively affects tax revenue. Increased economic activity will increase the ability to pay taxes (ability to pay). (5) Corruption does not affect economic growth. Not all corruption will reduce economic growth ("sand of wheel") but can also increase economic growth ("grease of wheel"); (6) Government spending has a positive effect on economic growth. Government intervention can increase economic activity. Government spending can become a policy instrument to encourage economic growth; (7) Human development positively affects tax revenue. The increase in human development as measured by the HDI value indicates the increasing quality of human resources. Therefore, the main production factors of economic growth will increase; (8) Economic growth does not mediate the effect of corruption on tax revenue. Corruption does not affect economic growth, so there is no indirect effect; (9) Economic growth mediates the

effect of government spending on tax revenues. As a form of fiscal policy, an increase in government spending will encourage economic growth, which will increase economic growth so that it will have an impact on increasing the ability to pay taxes. The tax base will be more significant and increase tax revenue. (10) Economic growth mediates the effect of human development on tax revenues. Increased human development will improve the quality of human resources as the main factor of economic growth, which then makes the ability to pay taxes increase so that the tax base will be even more significant and impact increasing tax revenues.

This study has several limitations. First, the research was limited from 2010 to 2019 due to changes in the HDI measurement method and the base year at constant price GRDP in 2010 and data for 2020. Second, the measurement of corruption variables based on the number of cases at the provincial level was limited to cases handled. The KPK due to the unavailability of data in other institutions, namely the Police and the Prosecutor's Office. Finally, the sample used is limited to the work area of the DGT regional office.

Following the results of the research that has been submitted, thegovernment is expected to pay attention to policies to increase economic growth and tax revenues, among others related to the level of corruption, government spending, and HDI. Prevention of corruption can be done by simplifying the long and convoluted bureaucracy and information technology in more modern public services. In addition, it is necessary to supervise the policy of increasing government spending to be efficient and effective by ensuring that there are no overspending or misspending and paying attention to the inflation rate not to exacerbate these conditions. Improvement of human development needs to be done, especially in areas with a moderate HDI category, such as increasing the availability of health services, education, and training in these areas so that the community's welfare is more evenly distributed. Then, it is expected that the amount of government spending, the HDI value, and economic growth can indicate the size of the potential tax revenue in a region. For further research, it is possible to develop the results of this study by extending the research time to be longer and adding other variables that determine tax revenue. The limited research sample based on the working area of the DGT regional office can be detailed using the work area of the Tax Service Office (KPP). In addition, the measurement of the corruption variable can use all corruption cases, not only cases handled by the KPK but also the Police and the Attorney General's Office.

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