

## Factors Affecting Java's Tax Revenue

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### Abstract

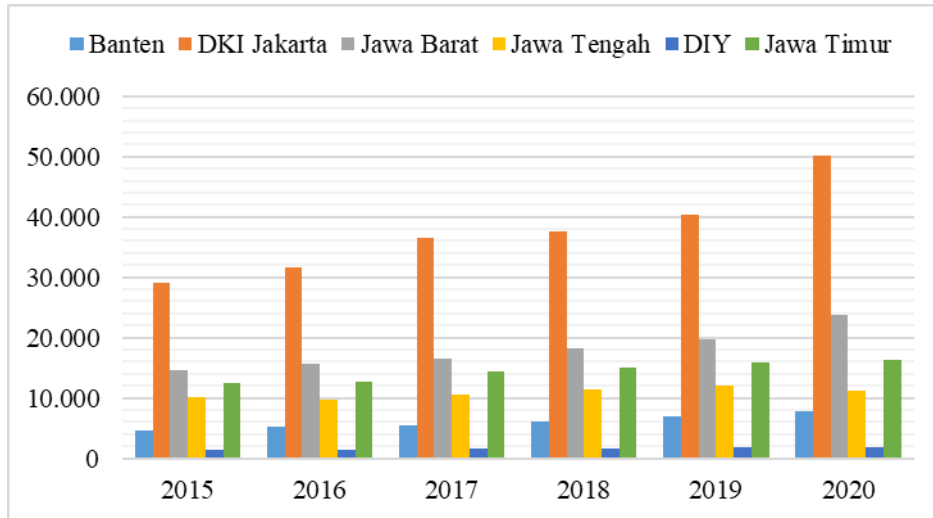
Tax revenue is the main factor in the implementation of regional autonomy which makes a region increase its source of income in meeting financing and promoting regional independence. Tax revenues in six provinces on the island of Java make a major contribution to the economy with a specialization in the function of socio-economic activities. The purpose of this study is to examine the effect of population and inflation on tax revenues in all provinces in Java. The panel data analysis hypothesis was used using the Eviews 10 program with a saturated sampling technique of six provinces in the 2015-2020 period, In this study, the population used is all provinces on the island of Java using data on tax revenues, population, per capita income, inflation and the number of motorized vehicles. Sampling in this study used non-probability sampling, with saturated sampling technique thus the total sample used was 36 data sourced from Central Bureau of Statistics and Regional Revenue Agency. The results show that population and inflation affect tax revenue, where population growth affects the level of demand for both investment and reflects taxpayers and inflation affects the increase in the production of goods and services in an area. is the uniqueness of the research. This study use two independent variables used with a sample that only focused on six provinces on the island of Java with a research period of six years of observation i.e. 2015-2020, when there are other factors outside the study that can affect tax revenue, a wider research sample and a longer research period. In terms of the relationship between tax revenue, with total population and inflation, it has a relationship of 99.4% and simultaneously the population and inflation affect tax revenues

Keywords: Inflation, Population, Tax Revenue.

### Introduction

Local government financing in carrying out development requires a source of revenue. The amount of development costs required makes local governments are required to be able to explore the potential of regional income obtained from tax revenues. Taxes are defined as payments, which are imposed by the government on its citizens to facilitate its spending, taxes are the main source of state revenue. Taxes are not voluntary payments from the people, nor are they donations. On the other hand, taxes are paid by the government. The amount of tax revenue as a reference for local governments in accelerating economic development and realizing a just and prosperous society. This means that tax revenue is the spearhead of development. Tax revenues in six provinces on the island of Java play a major role in the economy with specialization in the function of socio-economic activities. The role of taxes is very important when regional financing can be used as a source of funding and the main buffer for activities carried out in an area. The amount of tax revenue can be determined from the total population.

There is a positive influence of the population on tax revenue, which if the population increases it has an influence on the number of taxpayers. The increasing population will expand the market and will increase the level of specialization in the economy. As a result of the specialization that occurs, the level of economic activity will increase. Inflation is the tendency of prices to rise as a whole and continuously. The increase becomes widespread or results in most of the prices of goods such as rising food prices, prices of basic commodities, cigarette prices and transportation prices as well as prices for financial services, then it can be called inflation. This can cause inflation to have an impact on people's income, so the ability of the community to pay taxes decreases which also results in a decrease in tax revenues.

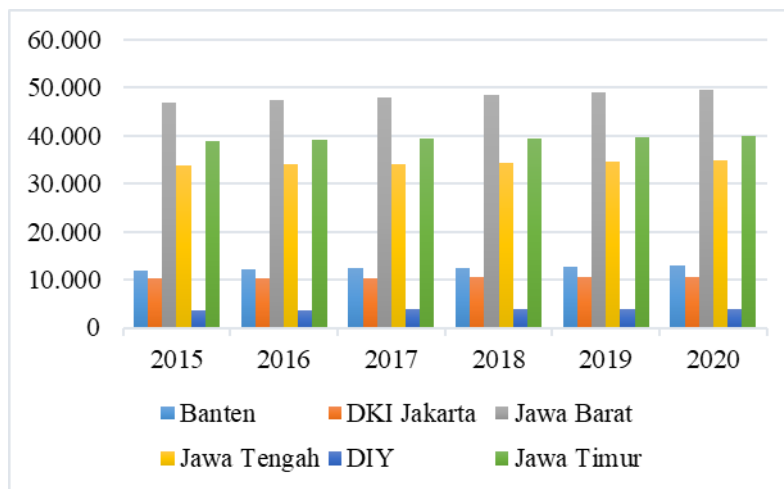


**Figure 1 . Tax Revenue (billion) in Java Island**

Source: Central Bureau of Statistics

Based on the data above, it shows the movement of the rate of tax revenue which tends to increase, but there are areas that are also affected by the Covid-19 pandemic which causes a decrease in tax revenue generated. The rate of tax revenue in Banten Province continues to increase where the highest value increase in 2019 is Rp. 941 million, because there is a program to eliminate administrative fines for paying motor vehicle taxes. Meanwhile, the lowest increase in 2017 was IDR 272 million , due to the lack of coordination between the province and regencies/cities so that the absorption of financial aid was low. The increase also occurred in DKI Jakarta Province with the highest average increase supported by domestic taxes which became the source of regional tax revenues. In 2015 the lowest domestic tax revenue, due to changes in the realization of tax revenues for each component.

West Java Province averaged an increase of Rp 1.8 billion. The high economic growth of West Java encourages an increase in tax revenue in the area and efforts are made to stay within the corridor of the dynamic balancing strategy policy . Central Java Province has an average increase over the past six years of IDR 197 million. Where with the highest value increase, there are many medium industries that have good performance in maintaining growth. DI Yogyakarta Province has an average increase over the past six years of IDR 118 million, which is the lowest average increase compared to the other five provinces. This is due to MSMEs that are less developed so that the role of large trade is still relied upon. East Java Province has an average increase over the past six years of IDR 748 million. Where with the highest increase value, because there is the abolition of motor vehicle tax administration fines and name fees which are welcomed by the local community. Meanwhile, the lowest value increase was Rp. 225 million, which was caused by contraction due to declining economic conditions.



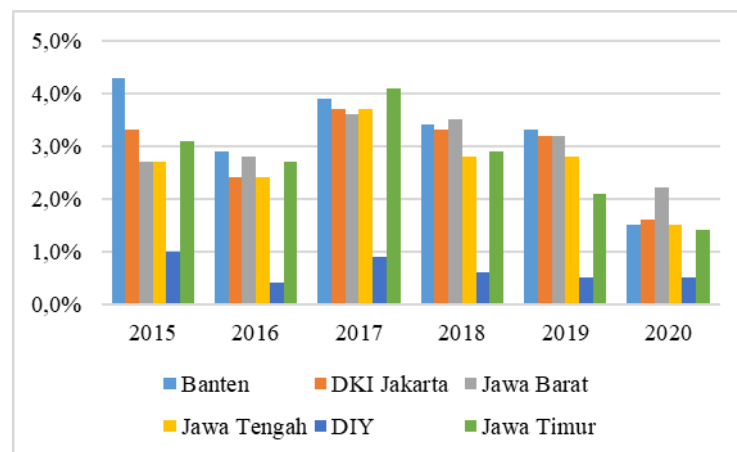
**Figure 2. Population (million people) in Java Island**

Source: Central Bureau of Statistics

The size of the population shows the potential for human resources in an area and can affect the amount of tax payers. Provinces with the highest population density are DKI Jakarta at 16,937 people/km<sup>2</sup>, West Java at 1,345 people/km<sup>2</sup>, Banten at 1,220 people/km<sup>2</sup>, DI Yogyakarta at 1,173 people/km<sup>2</sup>, Central Java at 1,135 people/km<sup>2</sup> and East Java by 858 people/km<sup>2</sup>.

The increasing percentage of people who are in productive age as an opportunity to accelerate economic growth dominates the majority of the population of West Java, East Java and Central Java which causes the average population of the three regions to be the highest over a six-year period. The three regions have approached the era of the aging population where an increase occurred in the percentage of the elderly population (60 years and over), in line with the increase in life expectancy. The phenomenon of lower fertility rates, lower mortality rates, negative migration patterns of the productive age population and positive migration patterns of the elderly population are demographic indicators that encourage the aging population. The government needs to prepare development policies that are responsive to these population conditions.

The lowest average population occurred in the provinces of Banten, DKI Jakarta, and DI Yogyakarta. The low average population growth is due to the composition of the population, which is 65% of the population of productive age, so that the management of welfare and human resources can be a challenge as well as a strength. Economic benefits derived from these conditions, provided that this demographic bonus is managed by the labor force absorbed in economic activities. Thus, the government needs to pay attention to the development of the quality of human resources in order to form a quality and competitive workforce and to optimize tax revenues.



**Figure 3. Inflation (percent) in Java Island**

Source: Central Bureau of Statistics

Based on the table data above, it shows that in general the average inflation rate that occurred from 2015-2020 is quite stable, but in 2020 the inflation rate tends to decrease due to the Covid-19 pandemic causing a decline in economic growth and national economic productivity which also declines. Banten province with a high inflation rate supported by its proximity to the national capital does not make it a moderate inflation rate. The high inflation rate occurred in 2017 and was mostly driven by inflation in the fuel, lighting and water category (Bank Indonesia, 2017). Also the increase in food prices such as cayenne pepper, vegetables, garlic and shallots as well as the high intensity of rainfall which affects the supply and distribution of crops that affect price stability. In this case, the government is also trying to rehabilitate prices through a market monitoring system for basic needs so that the increase is not too high and can be controlled properly (Disketapang Banten, 2015). DKI Jakarta inflation is influenced by the ability of the people's purchasing power, the decline in production and the remaining stock of goods.

West Java experienced "year on year" inflation, declining compared to 2017 which was still above national inflation but remained within the inflation target range. During 2018, the clothing expenditure group experienced the highest inflation and the processed food, beverage, cigarette and tobacco groups contributed to inflation (Djpb Ministry of Finance, 2018). Central Java's low inflation is in line with the downward trend in inflationary pressure at the national level. The decline in inflation was caused by limited public demand and consumption so that it was able

to maintain relatively stable inflation. In 2017, the DI Yogyakarta province experienced the highest inflation increase due to the increase in the consumer price index for foodstuffs, processed foods, beverages, cigarettes and tobacco. Electricity tariffs are the main commodity that contributed to the largest inflation in 2017 in East Java (Republika, 2017). Electricity tariffs are the main contributor due to the revocation of electricity subsidies for customers of the 900 VA category because they are categorized as capable.

There are several studies that look at the effect of population and inflation on tax revenues, namely by focusing on linking these variables with increasing tax revenues. The research consists of national and international research in a span of six years. Where the nature of his research states the influence of the independent variables used on tax revenues.

## Methodology

### *Population and Sample*

In this study, the population used is all provinces on the island of Java using data on tax revenues, population, per capita income, inflation and the number of motorized vehicles. Sampling in this study used non-probability sampling, with saturated sampling technique. Saturated sampling technique is a sampling technique when all members of the population are used as samples. The sample in this study took data from all provinces on the island of Java consisting of Banten, West Java, DKI Jakarta, Central Java, DI Yogyakarta and East Java in 2015-2020, so the total number of research samples became 36 data.

### *Data collection technique*

The data in this study were obtained through the publication of the Central Statistics Agency (BPS) and the Regional Revenue Agency (Bapenda) which consisted of data on the realization of tax revenues, population, per capita income, inflation and the number of motorized vehicles in the 2015-2020 period. Data research is carried out in several ways, including data collection through documentation techniques and data collection through a theoretical study or other references related to values, culture, and norms embedded in relevant social situations because research cannot be separated from scientific literature.

### *Data analysis technique*

The regression model used is a panel data analysis model that consists of combining data collected over a period of time against an individual (time series) and collected over a period of time against several individuals (cross section). The formula is as follows:

Where :

$$PP_{it} = \beta_0 + \beta_1 PDDK_{it} + \beta_2 INF_{it} + \varepsilon_{it}$$

PP	= Tax Revenue
$\beta_0$	= Constant
$\beta_1, \beta_2, \beta_3$	= Coefficient on the regression line
PDDK	= Population
INF	= Inflation
i	= <i>Cross Section</i>
t	= <i>Time Series</i>
$\varepsilon$	= <i>Error term</i>

As for the estimation of the panel data regression model through the selection of the most appropriate approach model through the common effects, fixed effects, and random effects models. In selecting panel data estimates, the Chow and Hausman tests were used. Also with the use of tests in order to determine an unbiased, precise and consistent model (Winarno, 2015) through normality, heteroscedasticity, multicollinearity, and autocorrelation tests. Proof of the relationship between the significance level of the regression coefficient of the independent variable on the dependent variable which consists of the t-statistical test in looking at the influence of individuals on the independent variable on the dependent variable. The f-statistical test in knowing the effect of all independent variables on the dependent variable and the coefficient of determination is a test aimed at explaining how big the proportion of the dependent variable is explained by the independent variable.

## Result

### Panel Data Regression Analysis

**Table 1. Regression Fixed Effect Model**

Dependent Variable: LOGPP  
Method: Panel EGLS (Cross-section weights)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-16.77529	3.290692	-5.097800	0.0000
LOGPDDK	4.900410	0.772062	6.347167	0.0000
INF	-0.023251	0.011538	2.115173	0.0436

Source: Output Eviews 10

Based on the panel data regression table above, the regression equation is described as follows:

$$LOGPP = -16.77529 + 4.900410 LOGPDDK - 0.023251 INF$$

Based on the panel data regression equation, it can be interpreted as follows:

First. The constant value of 16,77529 means that if the value of the independent variable is 0, then the value of the Tax Revenue (PP) variable is 16,77529

Second. The regression coefficient value of the Population Variable (PDDK) is 4.900410 , which means that if the value of the PDDK variable increases by 1 unit, then the value of tax revenue increases by 4.900410 .

Third. The regression coefficient value of the inflation variable (INF) is 0.023251 . means that if the value of the INF variable increases by 1 unit, then the value of tax revenue decreases by 0.023251 .

### Hypothesis Testing and Analysis

The test is to be able to find out whether or not each regression coefficient is significant on the dependent variable and considers the other variables constant. With whether the following hypothesis:

$H_0$  is accepted if  $t_{count} \leq t_{table}$ , or  $sig = 5\%$

$H_1$  is accepted if  $t_{count} > t_{table}$ , or  $sig < 5\%$

**Table 2. T-statistical test**

Variable	t-Statistic	Prob.
C	-5.097800	0.0000
LOGPDDK	6.347167	0.0000
INF	2.115173	0.0436

Source: Output Eviews 10

Based on this research, the value of  $df = nk$ , which resulted in  $df = 36-1 = 35$  with a significance of 5% (0.05), then the  $t_{table}$  value of 2.03 011 was obtained . So that the t-statistic test in this model is interpreted as follows:

First. Total population has  $t_{count} > t_{table}$  ( 6.347167 > 2.03 011 ) and probability  $0.0000 < 0.05$ . This shows that statistically  $H_0$  is rejected so that it can be said that the population has a significant influence on Tax Revenue in other words the first hypothesis in this study can be accepted .

Second. Inflation has  $t_{count} > t_{table}$  ( 2.115173 > 2.03 011 ) and probability  $0.0436 < 0.05$ . This shows that statistically  $H_0$  is rejected so that it can be said that inflation has a significant effect on Tax Revenue, in other words, the second hypothesis in this study is accepted.

The test is to be able to find out how much influence the regression coefficient simultaneously has on the dependent variable. With the following hypothesis:

First. If  $F_{count} < F_{table}$  or probability  $> 0.05$  then the independent variable has no significant effect on the dependent variable, then  $H_0$  is accepted.

Second. If  $F_{count} > F_{table}$  or probability  $< 0.05$  then the independent variable has a significant influence on the dependent variable, then  $H_1$  is accepted.

**Table 3. Test f-statistics**

F-statistics	84.2722
Prob(F-statistic)	0.000000

Source : Output Eviews 10

Based on the determination of the f-statistics test above, it can be determined the value of  $df_1 = 1$ ,  $df_2 = 35$  with a significance of 5% (0.05). Thus, the value in Ftable is 4.12, then the f-statistic test in this model is interpreted as  $F_{count} > F_{table}$  ( $84.2722 > 4.12$ ) with a probability value of  $0.00000 < 0.05$ . In this case, the hypothesis on  $H_0$  is rejected, so it can be concluded that the population and inflation together have a significant effect on tax revenue.

The adjusted r-squared test is used to measure the model's ability to explain variations in the dependent variable. The adjusted R-squared value is obtained as follows:

**Table 4. Adjusted R-squared**

Adjusted R-squared	0.994133
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Source : Output Eviews 10

Based on the results of the regression in this research model, the value of the Adjusted R-Squared is 0.994133, which shows the relationship between the Y variable, namely Tax Revenue, and the X variable, namely Population and Inflation, which has a relationship of 99.4%, while the remaining 0.6% is influenced by variables outside the study.

## Discussion

Taxation intends to collect the necessary funds for expenditure, income redistribution and stabilization economy, influencing the allocation of resources and to address externalities. Taxation also supports stable process of economic growth. The population has a significant effect on tax revenue, in other words, the first hypothesis in this study can be accepted, so it can be interpreted that increasing the number of residents can increase tax revenue. The results of this study are in accordance with the hypothesis and theory used by stating that an increasing number of residents can increase tax revenues because the number of residents provides an overview of the number of tax payers. The population is also a potential input because it can encourage economic development by participating as a workforce so that in order to have an impact on tax revenues, residents are required to always be productive at work in order to earn income so that they are able to pay taxes and levies collected by the government which can later have an impact on the revenue generated. also increases.

Inflation has a significant effect on tax revenue, in other words, the third hypothesis in this study is accepted. The results of the study are in line with the hypothesis and theory, which show that inflation has an influence on tax revenue. So it can be concluded that the theory of inflation and tax revenue goes hand in hand, where if economic income increases it can be followed by an increase in inflation. So that in the short term the rising inflation rate can encourage the productivity of the economic sector because producers can be moved to produce to meet consumer needs, and this can increase income in a region.

## Conclusion

Based on the results of the analysis and discussion of this study, it can be concluded that the population affects tax revenue, because the large number of residents reflects the number of taxpayers so that the more taxpayers, the more taxes paid so that tax revenues also increase. Inflation affects tax revenue, because a decrease in inflation in the short term can indicate an increase in tax revenue, this has an effect on increasing the production of goods and services, so that the more produced, the welfare of the people increases. Suggestions for the government in each province on the island of Java are expected to suppress the rate of population growth so that it is balanced with an increase in tax revenue. In order to attract registrants to become local taxpayers, it is necessary to facilitate the registration system that can go online and actively socialize it both directly and through social media platforms.

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