Analysis of Factors Affecting Regional Original Revenue in Yogyakarta Special Regional Province 2016-2020

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ABSTRACT
This study examined several factors affecting Regional Original Revenue with several macroeconomic variables as independent variables, covering inflation, population density, number of hotels, and number of tourists visiting the regencies/cities. This research utilized secondary data from five regencies/cities in the Special Region of Yogyakarta (DIY) for the period 2016-2020 and panel data regression with the Pooled Least Square (PLS), Fixed Effect Model (FEM), and Random Effect Model (REM) as the analytical methods. The estimation steps employed the Chow and the Hausman tests. The study results unveiled that inflation and the number of hotels had a positive and significant effect on Regional Original Revenue in DIY. Meanwhile, population density and the number of tourists had no significant effect on Regional Original Revenue in DIY. This research is the first study to examine the effect of Regional Original Revenue in 2016-2020 at Universitas Muhammadiyah Surakarta.

Keywords: Regional Revenue, Inflation, Population Density, Number of Hotels, Number of Tourists, Panel Data

1. INTRODUCTION
Regional Original Revenue (PAD) is obtained by the region from its regional sources, collected based on applicable regional regulations for financing regional expenditures in carrying out government and development tasks, resulting in the collection of various types of regional levies related to various aspects of people’s lives. PAD reflects the level of regional independence where the greater PAD, the more it shows that a region can implement fiscal decentralization and dependence on the central government. In addition, policies regarding the budget will assist local governments in controlling financial problems and as a tool to influence the increase in regional revenue.

Wagner’s law states that in an economy, if per capita income increases, relatively government spending will increase because the government must regulate relations that arise in society, law, education, recreation, culture, and other fields [1]. Based on Law No. 33 of 2004 concerning Regional Government, regions are given autonomy or authority to manage their household affairs. One form of financial independence of a region is indicated by its size. PAD has been compared to regional revenue from other sources [2]. The regional government also seeks to develop regional potential by optimizing existing resources to increase PAD. If PAD increases, it will drive the independence of a region in financing government administration and implementing development [3]. According to Law No. 32 of 2004 Article 157, PAD includes regional tax proceeds from regional levies, separated regional wealth management results, and other legitimate PAD [4].

PAD is income obtained by the region and is collected based on the applicable laws and regulations. Regional taxes and levies are the largest components contributing to PAD formation in several regions because taxes and levies are closely related to the industrial sector, providing added value to economic strength [5]. PAD is influenced by several factors such as investment, population, and per capita income. PAD is crucial in implementing development because this fund belongs to the regional government, allowing local governments to have full authority to manage these funds.

This study was conducted in the Province of the Special Region of Yogyakarta (DIY), which has four regencies of Bantul, Kulon Progo, Gunung Kidul, Sleman, and one city, Yogyakarta. With abundant natural resources in the province, each regency has different potential revenues and regional budgets. It is one of the major sources of income in the regional development process. It can be a good starter for economic circulation in DIY. Thus, all sectors that spur economic growth in this area, especially regional revenue (PAD), always achieve the planned targets.
Graph 1. Realization of Regional Original Revenue (PAD) of the Special Region of Yogyakarta in 2016-2020

Source: BPS DIY 2016-2020

Graph 1 illustrates that PAD in DIY, especially in the last six years, experienced a significant increase, but a decline occurred in 2020, displaying the highest number in every regency and city. Moreover, the development of PAD is quite significant due to several factors, including being influenced by Gross Regional Domestic Product (GRDP), population, and government spending. It demonstrates the level of independence of the four regencies and one city in DIY, having a major contribution to revenue in the province.

2. LITERATURE REVIEW

2.1 Definition of Local Owned Revenue

Local governments should be able to take advantage of PAD collected from the community to construct facilities and infrastructure that follow community needs [6]. Increasing PAD is not only a concern of the executive but also the legislature’s interest due to the size of the PAD, affecting the budget structure of the council [7]. PAD is one of the crucial factors in implementing the wheels of the government of a region based on the principle of real, broad, and responsible autonomy.

PAD is part of regional income obtained from each potential regional source collected based on regional regulations following statutory regulations. Local revenue groups are divided according to the type of income, which consists of:

a. Local tax
b. Regional levies
c. Results of separated regional wealth management
d. Other legitimate local revenue [2]

Regional taxes and levies are the largest components contributing to PAD formation in several regions because they are closely related to the industrial sector, providing added value to economic strength. Taxes must be managed properly to increase PAD. The higher the PAD of an area, the more independent a region is in managing its finance [8]. To increase PAD, regions are prohibited from setting regional regulations on revenues that cause economic costs.

PAD is income sourced from regional taxes, levies, and other legitimate regional revenues. The aim is to provide flexibility to the region in exploring funding to implement regional autonomy as a manifestation of the principle of decentralization [3]. The research conducted by [5] discovered that the effectiveness of PAD in 2015 fell in the very effective category with a value of 105.20%, in 2016 and 2017 in the quite effective category with a value of 96.61% and 95.95%, while in 2018, the category was less effective with a value of 77.31%.

2.2 Effect of Inflation on PAD

Inflation tends to increase the price of goods and services in general, taking place continuously. If the price of goods and services in the country increases, inflation will also increase. However, the increase in the price of goods and services causes a decrease in the value of money. Thus, inflation can also be interpreted as a decrease in the value of money against the value of goods and services in general [9]. Inflation is the tendency of prices to rise in general and continuously [10]. It is a continuous increase in prices. An increase in the price of one or two goods alone cannot be called inflation unless the increase extends to other goods [11]. In general, depending on its severity, inflation has a positive and negative impact. If inflation is mild, it has a positive effect because it can encourage a better economic increase in making people passionate about saving and investing. On the other hand, in times of severe inflation, when there is uncontrollable inflation (hyperinflation), the economy becomes chaotic, and the economy feels sluggish; people are not enthusiastic about working, saving, investing, and producing because prices are rising rapidly. Civil servants or private employees and workers will be overwhelmed to bear and offset the price so that their lives become increasingly degenerate and worse from time to time [12].

a. Inflation Theories

1) Quantity Theory: It is the oldest inflation theory. This theory highlights the role in inflation of the money supply and psychology/people’s expectations of rising prices (expectation).

2) Classical Theory: It argues that the price level is primarily determined by the money
supply, which can be explained through the relationship between the value of money and the quantity of money and the value of money and prices.

3) Keynes Theory: According to this theory, inflation occurs because society wants to live something beyond the limits of its economic capacity. Subsequently, inflation is nothing but grabbing a share of the fortune among social groups who want a larger share, usually provided by the community.

4) The structuralist theory is a long-run theory of inflation that highlights the causes of inflation stemming from the strength of the economic structure, particularly the rigidity of the supply of food ingredients and export goods [13].

An increase in the inflation rate can reduce people’s purchasing power or consumption due to their decreasing income. It can impact decreasing revenue for the PAD component that depends on public consumption [14]. However, if inflation decreases, people’s real income will increase. Furthermore, people’s purchasing power will increase, and PAD will also increase. Relatedly, inflation will increase PAD, of which the determination is based on sales turnover, for example, hotel and restaurant taxes. Inflation is a process of increasing prices prevailing in an economy, and there is a term creeping inflation, defined as a slow process of increasing the prices of goods [15].

2.3 Effect of Population Density on PAD

According to the implementation of SP2020, residents are those domiciled in the territory of the Unitary State of the Republic of Indonesia for a year or more or those domiciled for less than a year but aim to settle down [9]. Total population is the number of people who live or domicile in an area and is calculated in units of souls [7]. Population density is the ratio between the total population and the area inhabited [16].

The population density is divided into:

a. Crude Population Density displays the number of residents for each square kilometer.
b. Physiological Density states the number of inhabitants for every square kilometer of cultivated land area.
c. Agricultural Density demonstrates the number of farmers for each square kilometer of cultivable land area. This measure describes the agricultural intensity of farmers on the land, reflecting the efficiency of agricultural technology and the intensity of agricultural labor.
d. Gross population density is a measure of population distribution commonly used because apart from the simple data and calculation method, this measure has been standardized by area.

The relationship between population density and PAD is that the number of residents can influence the amount of income. If the population increases, income will also increase. However, population growth does not always affect income proportionally [17]. An increase in population will impact increasing income; in this case, PAD will also increase.

2.4 Effect of Number of Hotels on PAD

A hotel is a type of accommodation that uses part or all of the building to provide lodging services, food and beverages, and other supporting services for the public managed commercially [18]. It is a building specifically provided for people to stay or rest, obtain services, and other facilities for a fee, including other integrated buildings, managed and owned by the same party, except for shops and offices [19].

The relationship between the number of hotels and PAD is that the higher the number of hotels sold, the more developed the area, depicting its great economic growth. The higher the hotel occupancy rate, the higher the potential influence on the PAD element.

2.5 Effect of Number of Tourists on PAD

Tourists are people who carry out tourism activities [20]. A tourist is a person who travels from his place of residence without staying at the place he is visiting or only temporarily staying in the place he is visiting. Those considered tourists are people who do fun [21].

Tourists are divided into two:

a. Domestic tourists stay a maximum of 24 hours, but not more than 12 months, in a place visited for business, recreation, sports, friends and family, missions, meetings, conferences, health, study, and religious reasons.
b. A foreign tourist is any person who travels to a country outside the country of residence, for less than one year driven by the main purpose (business, vacation, or other personal purposes), other than to work with residents of the country visited [9].

The number of tourist visits in an area is calculated based on where they come from [22]. The increasing number of tourists, both domestic and foreign, will impact the socio-economic conditions of the community, leading to an increase in income for the community and the area.

3. RESEARCH METHODS
In this study, the authors applied a quantitative method based on data in numbers and statistical analysis. This study examined the relationship between the effects of several variables, encompassing inflation, population density, number of hotels and number of tourists on local revenue in DIY.

The data were obtained from websites related to variables, namely the Central Bureau of Statistics (www.bps.go.id), Regional Development Planning Agency (Bapeda) of Yogyakarta (http://bappeda.jogjaprov.go.id) and the Yogyakarta Regional Finance and Budget Agency (http://bpka.jogjaprov.go.id) using panel data regression analysis, a combination of time series data and cross-section data in annual data for the 2016-2020 period.

An Eviews application was utilized as a statistical processing tool with a Panel Data Regression analysis approach using a significance value of 0.01. Systematically, the formulation of the econometric model or the estimator model is as follows:

\[
\log(PAD)_{it} = \beta_0 + \beta_1 \text{INF}_{it} + 2 \log(KPDDK)_{it} + 3 \log(JHOTEL)_{it} + \beta_3 \log(JWISTN)_{it} + \epsilon_{it}
\]

where:
- \(PAD\) = Regional Original Revenue (Rupiah)
- \(INF\) = Inflation Rate (%)
- \(KPDDK\) = Population Density (Life/Km3)
- \(JHOTEL\) = Number of Hotels (Units)
- \(JWISTN\) = Number of Tourists (Soul)
- \(\epsilon\) = Error Term

4. RESULTS AND DISCUSSION

In this research, the Chow and Hausman tests were employed to select the best-estimated model between Pooled Least Square (PLS), Fixed Effect Model (FEM) and Random Effect Model (REM). If it turns out that in the Chow test, Pooled Least Square (PLS) is selected and the Hausman test obtains Random Effect Model (REM), an additional test must be carried out, namely the Lagrange Multiplier (LM) test, to choose the best-estimated model between Pooled Least Square (PLS) and Random Effect Model (REM).

Table 1. Panel Data Model Estimation Results - Cross Section Regression Coefficient

<table>
<thead>
<tr>
<th>Variable</th>
<th>pls</th>
<th>FEM</th>
<th>BRAKE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(C)</td>
<td>23.1217</td>
<td>22.0619</td>
<td>23.1217</td>
</tr>
<tr>
<td>(INF)</td>
<td>0.1796</td>
<td>0.1227</td>
<td>0.1796</td>
</tr>
<tr>
<td>(LOG(KPDDK))</td>
<td>0.0341</td>
<td>0.4422</td>
<td>0.0341</td>
</tr>
<tr>
<td>(LOG(JHOTEL))</td>
<td>0.4014</td>
<td>0.1223</td>
<td>0.4014</td>
</tr>
<tr>
<td>(LOG(JWISTN))</td>
<td>0.0503</td>
<td>0.0230</td>
<td>0.0503</td>
</tr>
<tr>
<td>(R^2)</td>
<td>0.7727</td>
<td>0.9393</td>
<td>0.7727</td>
</tr>
<tr>
<td>Adjusted (R^2)</td>
<td>0.7273</td>
<td>0.9090</td>
<td>0.7273</td>
</tr>
<tr>
<td>F stats</td>
<td>17.0009</td>
<td>30.9371</td>
<td>17.0010</td>
</tr>
<tr>
<td>Prob. F stats</td>
<td>0.0003</td>
<td>0.0000</td>
<td>0.0003</td>
</tr>
</tbody>
</table>

Model Selection Test

1) Chow:
   Cross-section F(4, 16) = 10.9708;
   \(\text{Prob. F}(4, 16) = 0.0002\)

2) Hausman
   Cross section random 2(4) = 43.8830;
   \(\text{Prob. 2}(4) = 0.0000\)

The diagnostic test exhibits the empirical probability value of the Chow test of 0.0002 (<1%) and the Hausman test of 0.0000 (<1%). It indicates that the best-estimated model is the Fixed Effect Model (FEM) test, of which complete estimation results are displayed in Table 2.

Table 2. Econometric Model Estimation Results

| \(AD\) | -22.06186 +0.1227 INF. + 0.4423Log(KPDDK) - (0.0313)** (0.0238)* (0.7290) +0.1223 Log(JHOTEL) -0.0230 Log(JWISTN) - (0.0928)* (0.4171) | \(R^2\) = 0.9393; DW = 1.4945; F = 30.9371; Prob. F = 0.0000 |

Source: Secondary data (processed) Description:
*Significant at = 0.01; **Significant at = 0.05; ***Significant at = 0.10; The number in brackets is the probability of the statistical value t.

Table 2 portrays that the FEM model exists with a coefficient of determination \(R^2\), depicting the predictive power of the estimated model. The regression obtained a value of 0.9393, meaning that 93.93% of the PAD variable could be explained by the variables of inflation, population density, number of hotels and total travelers. The remaining 6.07 was influenced by other variables or factors not included in the model.

Based on the effect validity test, all independent variables comprising the inflation (INF) and the number
of hotels (JHOTEL) significantly influenced PAD. Meanwhile, the variables of population density (KPPDN) and the number of tourists (JWISTN) did not significantly affect PAD.

PAD in four regencies and one city in DIY during 2014-2017 was positively influenced by inflation and the number of hotels. In this study, inflation had a positive effect as it obtained a regression coefficient of 0.1227, with a probability t-statistic of 0.0238 < = 0.01. In other words, inflation had a positive and significant effect. Every 1% inflation development will increase inflation by 0.0238%. Inflation illustrates the overall price increase; when inflation in a region increases, PAD tends to increase because inflation emphasizes the effect of wage increases on the money supply. A large inflation rate can also affect people’s incomes, which tend to increase. Hence, high inflation rates will affect people’s purchasing power, resulting in the PAD of DIY experiencing a significant increase. Inflation is also interpreted if inflation rises will cause local tax revenues to increase. This research is supported by research [13] and [23], discovering that the inflation variable significantly affected PAD. However, this study contradicts the research conducted by [24], revealing that the inflation variable had no significant effect on PAD.

The population density in this study had a regression coefficient of 0.4422, with a probability value of t-statistics of 0.7290 > = 0.01. It implies that population density had a positive and insignificant effect on the PAD of DIY. Every development of population density increases by 1% will increase the PAD by 0.7290%. It is similar to [25] and [26], disclosing that population density had no significant effect on PAD elements. However, this study contradicts [27] and [28], unveiling that population awareness had a positive and significant effect on PAD.

The number of hotels in this study had a regression coefficient of 0.1222, with a probability t-statistical value of 0.0928 > = 0.01, meaning that the number of hotels had a positive and significant effect on the PAD of DIY. If the number of hotels increases by 1%, PAD will increase by 0.0928. The greater the number of hotels, the higher the regional potential in hotel tax and levy revenues, thus providing additional PAD. In addition, the high tourism potential in the region and the phenomenon of tourists staying on holidays, which are quite high, can attract investors to invest in the hotel business. Therefore, hotel growth increases and more tourists visiting hotels will lead to higher tax rates. Hotels paid to local governments will also increase, resulting in the rise of PAD. This research is supported by [29] and [30], discovering that the number of hotels significantly affected hotel tax revenues. However, this study contradicts [31], uncovering that the number of hotels did not significantly affect PAD.

The number of tourists had a regression coefficient of 0.0230, with a t-statistical probability value of 0.4717 < = 0.01, indicating that the number of tourists had a positive and insignificant effect on the PAD of DIY. Every time the number of tourists increases by 1%, PAD will increase by 0.4717%. It depicts that tourist visits in DIY are not able to affect PAD because tourist expenditures may not lead to demand for tourism products or tourism services available in tourist areas. This research is supported by [32] and [33], stating that the variable of the number of tourists insignificantly affected PAD in DIY. However, this study contradicts [34], declaring that the number of tourist visits and the number of residents significantly affected local revenue.

5. CONCLUSION

Based on the regression analysis results using the Fixed Effect Model and the validity testing with a significance (α) of (0.01) to test the influence of inflation, population density, the number of hotels and number of tourists on the PAD in DIY, the variables of inflation and the number of hotels, both affected PAD because the significance was below 0.01. On the other hand, the variables of population density and the number of tourists did not affect PAD. This study suggests that the government is expected to maintain inflation stability to provide certainty for economic actors in making public decisions regarding consumption, investment, and production to increase economic growth in the community and maintain people’s purchasing power. Each regency and city can facilitate the licensing of new hotel operations to increase the PAD. Hotel entrepreneurs can regulate hotel growth comply with existing regulations to prevent unfair business competition between hotels and local tax collection and re-analyze the factors affecting PAD. Future research is expected to add other variables with the opportunity to affect PAD.

AUTHORS’ CONTRIBUTION

The results of this study are expected to contribute to various parties as follows:

For academics, this research is expected to add insight into references and scientific development, especially those interested in researching factors that can affect PAD and be used as a basis for making decisions. For the government, this research is expected to add references and be used as decision making in increasing PAD in an area. This research is expected to be a reference material and additional empirical evidence for future researchers interested in analyzing factors that can affect PAD.
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