

## Province Regional Tax Revenue Increase Model

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**ABSTRACT:** This study aims to formulate a model of increasing local taxes in Jambi province. The model used in this study is the simultaneous equation model. The results showed that there was a positive and significant influence on regional investment, population, and economic growth, number of commercial business units, taxpayers and natural resources on local tax revenues. Meanwhile, tax resources have no significant effect on local tax revenues. Especially for regional investment, it is also significantly influenced by special allocation funds, while infrastructure does not have a significant effect on regional investment.

**KEYWORDS:** Tax, Simultaneous, Receipt

### INTRODUCTION

Indonesia is a unitary state that adheres to the principle of decentralization in administering government by providing opportunities and flexibility to the regions to carry out regional autonomy. In its implementation, regional governments need to increase efficiency and effectiveness by paying more attention to aspects of the relationship between the Central Government and the regions and between regions (Haniz & Sasana, 2013). Regional potential and diversity, as well as opportunities and challenges of global competition also deserve attention in the administration of regional government. The implementation of real and responsible regional autonomy requires authority and the ability to explore its own financial resources. Regional government financial revenues originating from regional own-source revenue (PAD) receipts as well as financial balancing receipts need to be managed and accommodated for these sources of revenue receipts to run good local government wheels.

Regional autonomy has the implication that the implementation of regional tasks in the context of implementing decentralization is financed at the expense of the APBD, on the other hand development funding will gradually become the burden on the regional government. This situation will further strengthen internal pressure on regional finances because the role of central assistance in financing regional development will be smaller. Central assistance in development financing will only be provided to support government spending, particularly for personnel spending and development programs to be achieved.

Granting autonomy to the regions in planning, exploring, managing and using regional finances in accordance with regional conditions, PAD can be seen as one of the indicators or criteria for reducing the dependence of a region on the center. In principle, the greater the contribution of PAD to the APBD, the less dependence the regions have on the center. In addition, regional governments can realize broad, real and responsible autonomy. Granting broader authority to regional governments is an effort to empower regional potential in various development fields. Thus, regional governments are ready to accept the burden and responsibility of managing and managing regional houses according to their capabilities.

To achieve this goal, relatively large financial readiness is required. Local governments need to explore various potentials to increase local revenue (PAD). This regional original income is seen as one of the indicators to measure the fiscal capacity of a region. The greater the contribution of PAD to the APBD, the greater the regional fiscal capacity to manage development in the region itself and the less dependent the region is on the central government.

In fact, the problems faced by the regions now are the different economic conditions between regions. Regions that lack economic potential will face difficulties in increasing Regional Own Revenue. This difference ultimately led to great expectations of subsidies from the central government as a source of financing in the regions.

To carry out regional development, a very large source of financing is needed, especially for investment which is expected to come from public funds. Investment funds from the public are still very limited, so government intervention is needed, especially to

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finance infrastructure development such as roads and bridges, electricity, transportation and others. One of the most important and potential sources of local government funding is Local Own Revenue which is expected to continue to increase.

Sanusi, A. (2002) states that Local Own Revenue can be seen as one of the indicators or criteria for measuring the dependence of a region on the central government, which in principle is that the greater the contribution of the Regional Original Revenue to the APBD, the smaller the region's dependence on the central government. In addition, high local original revenues illustrate a growing economy as seen from regional economic growth. Economic growth is a measure of the economy of a region. High and sustainable economic growth is the main condition or a must for the continuity of economic development and increased welfare. Economic growth is a process of increasing regional per capita income in the long run, and is one of the important objectives of macroeconomic policy to determine the progress of a region's economy.

Regional development is generally focused on economic development through efforts to increase economic growth. Development is identified with efforts to increase per capita income, or popularly called an economic growth strategy. Increasing income per capita can solve problems such as unemployment, poverty, and inequality in income distribution.

To realize community welfare through improving services, empowerment and community participation, as well as increasing regional competitiveness in Jambi Province, a sizable fiscal capacity is needed in Jambi Province so that it can meet all fiscal needs in Jambi Province generated from PAD and profit-sharing funds. from the center, in this case it is hoped that the proportion of PAD in meeting fiscal needs in Jambi Province can be higher which can reflect fiscal independence in Jambi Province.

With economic growth every year, the tax base will increase which will have an impact on increasing regional income of a region so that the level of fiscal dependence of an area can be reduced. Jambi province's economic growth in 2015 amounted to 4.21% and continued to increase until 2018 of 4.74%. However, starting in 2019 Jambi province's economic growth has decreased by 4.40% and in 2020 it is -0.46%. The decline was due to the decline in commodity prices for rubber and palm oil, which are the main commodities of Jambi Province. It is hoped that economic growth in Jambi Province can experience better growth, because with economic growth the tax base in Jambi Province will also increase so that it will have an impact on increasing local revenue in Jambi Province, with an increase in regional income it is hoped that it can reduce the level of Jambi Province's fiscal dependence on aid funds from the central government.

In order to increase local own-source revenue in order to reduce the level of fiscal dependence, it is necessary to intensify and extensify local-origin revenue, these efforts are urgently needed to be able to increase the revenue base from regional-origin revenue and must include all elements, both improvements in terms of revenue administration and monitoring of activities, as well as improve coordination between related agencies in order to obtain more valid potential data and to increase effectiveness and efficiency in terms of receiving local revenue. The description of receipts for regional original income in Jambi province is described in table 2.

**Table 2. Regional Income of Jambi Province for Fiscal Year 2015 - 2021**

Year	Regional Income		Total Regional Income
	Locally-generated revenue	Balancing Fund	
2015	1.241.240.979.650,28	1.419.079.798.364,00	2.660.320.778.014,28
2016	1.232.784.078.662,95	1.547.888.628.151,00	2.780.672.706.813,95
2017	1.578.972.908.933,33	2.723.260.588.950,00	4.302.233.497.883,33
2018	1.656.569.597.282,27	2.754.346.967.999,00	4.410.916.565.281,27
2019	1.651.089.944.335,33	2.896.753.806.401,00	4.547.843.750.736,33
2020	1.535.185.805.549,67	2.862.888.575.956,00	4.398.074.381.505,67
2021	1.843.431.186.553,00	2.879.979.691.030,00	4.388.299.688.277,00
average	1.534.182.071.566,69	2.440.599.722.407,29	3.926.908.766.930,26

**Source:** BPKPD Provinsi Jambi, 2022.

From table 2 it can be seen that the value of local tax revenues in Jambi Province tends to be stable except in 2016 it decreased by -0.04% when compared to 2015. From the table it can also be seen that the contribution of local taxes to Jambi Province PAD is on average 82% .31%. This means that the majority of PAD sources come from Regional Taxes.

Based on Law No. 28 of 2009 concerning regional taxes and levies, regional taxes are in addition to regional levies, BUMD profits and regional asset management results. Especially for regional taxes in Jambi province for the last 5 years (2015-2019) it seems to have stagnated. This means that it is necessary to work hard to increase local tax revenues. In the future, it is hoped that there will be an increase in the contribution of regional tax revenues to PAD. This can be seen from the exposure to regional tax revenue data and their contribution to PAD which is contained in table 3 below.

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**Tabel 3. Jambi Province Regional PAD and Tax Revenue for 2015-2021**

Year	PAD (Rp)	Local tax (Rp)	Tax contribution to PAD (%)
2015	1.241.223.028.011,76	1.010.318.979.969,00	81,39
2016	1.233.514.664.109,54	966.519.347.102,57	78,35
2017	1.580.304.867.342,36	1.316.162.467.485,16	83,28
2018	1.656.569.597.282,27	1.374.289.409.975,47	82,96
2019	1.651.089.944.335,33	1.345.106.684.308,21	81,47
2020	1.535.185.805.549,67	1.292.729.048.514,00	84,21
2021	1.843.431.186.553,00	1.558.105.416.539,00	84,52
Rata-rata	1.534.474.156.169,13	1.266.175.907.699,06	82,31

Source: BPKPD Provinsi Jambi, 2022

Table 3 shows that local tax revenues in Jambi province tend to be stable except in 2016 it decreased by -0.04% when compared to 2015. From the table it can also be seen that the contribution of local taxes to Jambi province PAD averaged 81.94 %. This means that the majority of PAD sources come from Regional Taxes.

Based on Law No. 28 of 2009 concerning regional taxes and fees, Jambi province has the authority to collect 5 types of taxes. The five types of taxes are Motor Vehicle Tax (PKB), Motor Vehicle Transfer Fee Tax (BNKB), Motor Vehicle Fuel Tax (PBBKB), Surface Water Tax (PAP), and Cigarette Tax (PR). The five taxes have the potential to increase regional tax revenues very much, especially those related to motorized vehicles which increase every year. Details of Jambi province regional tax revenues based on the 5 types of taxes collected can be seen in table 4 below

**Tabel 4. Jambi Province Regional Tax Revenue 2015 – 2020**

Year	Pajak kendaraan bermotor	Bea balik nama kendaraan bermotor	Pajak bahan bakar kendaraan bermotor	Pajak air permukaan	Pajak rokok
2015	321.805,01	270.301,44	282.231,17	1.290,83	134.772,53
2016	339.443,75	243.963,1	249.250,03	1.193,16	132.669,34
2017	416.706,23	329.507,75	300.364,9	1.227,05	268.356,52
2018	444.056,62	406.098,31	332.619,00	1.401,95	190.113,52
2019	457.833,10	374.039,16	315.579,37	1.503,02	196.161,04
2020	465.129,29	253.463,17	329.689,33	1.339,93	243.057,27
Rata-rata	407.495,67	312.895,49	301.622,30	1.333,02	194.188,37

Source: Badan Keuangan Daerah Provinsi Jambi, 2021

Table 4 above shows that the majority of local tax revenues come from 3 types of taxes related to motorized vehicles. The three types of taxes are motor vehicle tax, motor vehicle transfer fee, and motor vehicle fuel tax. During 2015 - 2021 the contribution of the three types of taxes referred to is 82.31% of total regional tax revenues. This means that efforts to increase regional tax revenues must prioritize these three types of taxes and must also pay attention to the growing number of motorized vehicles in Jambi province.

During the last 6 years, the average annual increase in motorized vehicles was 1,925,688.67 units. In 2020, the number of wheeled motor vehicles was recorded > 4261,833 units and 1,712,681 two-wheeled vehicles. Of the five types of taxes that can be collected by the government, three are related to motorized vehicles, while the other 2 types of taxes are not related to motorized vehicle taxes. This means that the increase in the number of motorized vehicles will potentially increase regional tax revenues. An overview of the number of motorized vehicles in Jambi province from 2015 - 2021 can be seen in table 5. It has been recorded that during the last 6 years the average annual increase in motorized vehicles was 1,925,688.67 units. In 2020, the number of wheeled motor vehicles was recorded > 4261,833 units and 1,712,681 two-wheeled vehicles. Of the five types of taxes that can be collected by the government, three are related to motorized vehicles, while the other 2 types of taxes are not related to motorized vehicle taxes. This means that the increase in the number of motorized vehicles will potentially increase regional tax revenues. An overview of the number of motorized vehicles in Jambi province from 2015 – 2021 can be seen in table 5.

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Tabel 5. Number of motorized vehicles in Jambi Province in 2015-2021

Year	Cars (unit)	Motorcycle (unit)	Jumlah kendaraan bermotor (unit)
2015	167.134	1.474.807	1.641.941
2016	180.653	1.545.244	1.725.897
2017	200.476	1.652.724	1.853.200
2018	223.403	1.771.810	1.995.213
2019	244.546	1.879.680	2.124.226
2020	261.833	1.951.822	2.213.655
2021	278.860	2.058.675	2.337.535
Rata-rata	222.415	1.762.109	1.984.524

Source: BPKPD Provinsi Jambi, 2021

In order to increase the regional tax of Jambi province in the future, it is necessary to explore the factors that influence it. Such tracing must be carried out simultaneously and comprehensively in order to capture the main factors influencing regional tax revenues. Comprehensively, it can be seen that macro and micro economic variables will affect regional tax revenues. From a macro perspective, the economic conditions reflected in the GRDP and regional investment also affect local tax revenues. Besides, on a micro basis the development of business units, human resources, natural resources and taxpayers will certainly also affect local tax revenues.

### LITERATURE REVIEW

#### 1. Local Tax

Taxes are people's contributions to the state treasury based on law (which can be enforced) by not receiving reciprocal services (contra Achievements) that can be directly shown and used to pay public expenses (Halim, 2001). Regional taxes are taxes collected by local governments that are coercive and used to the maximum extent possible to run the government. Meanwhile, regional taxes are collected by the regions based on the strength of regional regulations (Perda), so regional tax collection can be forced on people who are obliged to pay within their administrative power levy (Hidayat, 2016). Increasing local taxes will have implications for the distribution of community income and individual welfare in the regions (Yilmazkuday, 2017) Provincial tax collection authority lies with the provincial government. The types of provincial taxes are:

- a. Vehicle tax
- b. Motorized Vehicle Transfer Fee Tax
- c. Motor Vehicle Fuel Tax/Pajak Air Permukaan
- d. Cigarette Tax

#### 2. Locally-generated revenue

In law no. 32 of 2004 concerning regional autonomy, states that local revenue (PAD) comes from the results of regional taxes, regional levies, results of separated regional wealth management and other legitimate PAD. Apart from that, Regional Original Income based on Law Number 33 of 2004 concerning Financial Balance between the Central Government and Regional Governments, namely regional original income (PAD) is revenue obtained by regions from sources within their own regions which are collected based on regional regulations in accordance with applicable laws and regulations. Regional original revenue is revenue received by a region from sources within its own territory which is collected based on regional regulations in accordance with applicable laws and regulations. PAD sources consist of several elements, namely; regional taxes, regional levies, results of regionally owned companies, and other regional wealth management results that are separated, and other legitimate income (Wulandari & Iryanie, 2018)

### RESEARCH AND METHODS/METHODOLOGY

The method used in this study is a quantitative descriptive method using secondary times series data for the period 2007 – 2021. The analytical model used in this research is the Simultaneous Equation Model. This model is a development of the regression model. The simultaneous equation model has the advantage of overcoming the occurrence of relationships between independent variables or independent variables being influenced again by other variables. This statistical model is used to avoid bias, inconsistency and inefficiency when using the ordinary least squares (Koutsoyiannis, 1977). In addition, the simultaneous equation model explores the relationship between the independent variable and other variables (Yuvanda et al., 2020). For this reason, the simultaneous equation model is solved through Two Stage Least Square (TSLS). With TSLS, the problem of bias, inconsistency and inefficiency will be changed to be unbiased, consistent and efficient through 2 stages of least square calculation.

Mathematically, the factors that influence regional taxes in Jambi province can be formulated as follows:

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$$PD = a_0 + a_1SDM + a_2PDK + a_3WJP + a_4\widehat{IVD} + a_5PEJ + a_6UUK + a_7SDA + \mu_1$$

$$\widehat{IVD} = a_0 + a_1INF + a_2DAK + \mu_3$$

dimana :

PD	:	Local Revenue
SDM	:	SDM Tax
WJP	:	Tax payer
PDRB	:	PDRB at constant prices
SDA	:	Potential Natural Resources
$\widehat{IVD}$	:	Regional Investment
UUK	:	Commercial Business Unit
INF	:	Infrastructure
UMKM	:	Micro, Small and Medium Enterprises
Penduduk	:	Number of Population
DAK	:	Special Allocation Fund
$U_1, U_2, U_3$	:	error term
$a_1, a_2, a_3, a_4, a_5, a_6$	:	Regression coefficient

## FINDINGS AND DISCUSSIONS

Analysis of the factors affecting regional tax revenues in Jambi Province was carried out using a simultaneous equation model. The results of the simultaneous equation are carried out in 2 stages, namely exposure to the results of the sub-hypothetical regression equation and exposure to the results of the main hypothesis regression equation.

### A. The results of the simultaneous sub equations are obtained

Dependent Variable: IVD  
 Method: Least Squares  
 Date: 01/17/23 Time: 08:35  
 Sample: 2007 2021  
 Included observations: 15

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	937.0763	15403.61	0.060835	0.9525
INF	3.47E-08	2.20E-08	1.575430	0.1411
DAK	3.48E-08	8.69E-09	4.008810	0.0017
R-squared	0.637470	Mean dependent var		37573.80
Adjusted R-squared	0.577048	S.D. dependent var		24175.44
S.E. of regression	15722.44	Akaike info criterion		22.34042
Sum squared resid	2.97E+09	Schwarz criterion		22.48203
Log likelihood	-164.5532	Hannan-Quinn criter.		22.33891
F-statistic	10.55035	Durbin-Watson stat		1.272164
Prob(F-statistic)	0.002270			

From the table above, the simultaneous sub equation can be formulated as follows

$$IVD = 937,0763 + 3,47E-08INF + 3,48E-08DAK + e_1$$

Overall, infrastructure variables (INF) and special allocation funds (DAK) have a significant effect on regional investment at  $P = 0.002270$  and  $R^2 = 0.0637470$ . While partially only the special Allocation Fund variable has a significant effect on regional investment with a probability of 0.0017. The infrastructure variable has no significant effect on regional investment at  $P=0.1411$ .

### B. Simultaneous Equation Master Analysis

In analyzing the effect of the 7 variables, the Eviews program version 8.0 was used. The results are shown in the following.

Dependent Variable: PD  
 Method: Least Squares  
 Date: 01/18/23 Time: 08:29  
 Sample: 2007 2021

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Included observations: 15

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3137026.	1919445.	1.634340	0.1462
SDM	8533.534	4831.350	1.766284	0.1207
PDK	-1.685404	0.620230	-2.717384	0.0299
WJP	0.763976	0.289986	2.634529	0.0337
IVD_	10.27883	2.662172	3.861069	0.0062
PEJ	31792.62	11629.97	2.733679	0.0292
UUK	-58766.19	21463.59	-2.737948	0.0290
SDA	12.52602	6.430286	1.947973	0.0924
R-squared	0.989553	Mean dependent var	953541.3	
Adjusted R-squared	0.979106	S.D. dependent var	368776.2	
S.E. of regression	53305.93	Akaike info criterion	24.91001	
Sum squared resid	1.99E+10	Schwarz criterion	25.28764	
Log likelihood	-178.8251	Hannan-Quinn criter.	24.90599	
F-statistic	94.72043	Durbin-Watson stat	2.136741	
Prob(F-statistic)	0.000002			

From the results of the table display, a simultaneous equation can be created mathematically as follows:

$$PD = 3137026 + 8533,53 SDM - 1,685404 PDK + 0,763976 WJP + 10,27883 IVD + 3179,62 PEJ - 58766,19 UUK + 12,52602 SDA + e_2$$

From the F test as a whole it is found that the variables of human resources, population, taxpayers, regional investment, economic growth, commercial business units, and natural resources have a significant effect on local taxes at  $P=0.00002$  and  $R^2=0.989553$ . This means that the seven variables influence and contribute to regional tax revenues of 98.95%, only 1.05% are influenced by other variables.

Using the t test (partial), there are 6 variables that influence regional tax revenues, these six variables are.

1. Population has a negative and significant effect at  $P=0.0249$
2. Taxpayers have a positive and significant effect at  $P=0.0337$
3. Regional investment has a positive and significant effect at  $P=0.0062$
4. Economic growth has a positive and significant effect at  $P = 0.0292$
5. The commercial business unit has a negative and significant effect at  $P=0.0290$
6. Natural resources have a positive and significant effect at  $P=0.0924$

This is in line with the results of previous studies which revealed that GRDP, population, taxpayers, consumption, inflation, and economic growth affect local tax revenues (Aji & Sbm, 2021; Haniz & Sasana, 2013; Kadafi et al., 2020; Lumy et al., 2018; Prana, 2016). By paying attention to the variables that affect regional income, it will increase regional income (Alfirman, 2003). In line with the opinion (Zeng et al., 2013) that changes in tax sources are in line with changes in economic growth.

Two variables were found to have a negative effect on local tax revenues, namely the number of residents and the number of commercial business units. The number of residents has a negative effect on regional tax revenues, illustrating that an increase in population can mean a reduction in the amount of regional tax revenues. The large number of residents is not meaningful for increasing local tax revenues because not all residents are local tax payers. In addition, low population participation in regional taxation also has a negative impact on tax revenues. Therefore it is necessary to study the awareness of the population towards local taxes. For the variable number of commercial business units, it means that an increase in the number of commercial business units has a negative impact or decrease on the amount of regional tax revenue. This happens because commercial businesses are large businesses that pay more taxes to the central and regional governments outside the Jambi Provincial government. It is necessary to analyze and pay close attention to large businesses that operate in Jambi Province but pay less local taxes in Jambi Province.

Based on the results of the analysis, follow-up policies need to be taken. Future tax policies will have a positive impact on economic growth (Jelilov & Abdulrahman, 2017; Nga et al., 2020). For this reason, policies to increase regional income through taxes can be carried out in the form of:

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1. Increase in the number of regional investments made by regional governments, the private sector and the community. Regional tax incentives are needed that encourage the growth and development of regional investment. Providing special intensive regional taxation will attract regional investors and increase special allocation funds (DAK).
2. Increase in the number of regional taxpayers in the form of:
  - a. It is necessary to expand the objects and taxpayers of PKB, especially for heavy equipment
  - b. Special incentives are needed for transfer of title (BBM) actors in an easy way and at a minimum cost
  - c. Proper supervision and monitoring of fuel sales activities at gas stations and non-gas stations is needed
  - d. It is necessary to supervise and monitor surface water by private business actors and the government
  - e. Requires strict supervision and calculation of the number of cigarettes sold in the area
  - f. Supervision and monitoring of surface water is needed by private business actors and the government
  - g. There needs to be strict monitoring and calculation of the number of cigarettes sold in the area
3. Increasing the rate of regional economic growth through developing leading sectors outside the mining and quarrying sector so that it can have a positive impact on regional tax revenues. On the other hand (Egbunike et al., 2018) to encourage economic growth, it is necessary to build infrastructure and finance the social needs of the community through financing sources originating from regional taxes. Increase the rate of regional economic growth through developing leading sectors outside the mining and quarrying sector so that they can have an impact. positive for local tax revenues. On the other hand (Egbunike et al., 2018) to encourage economic growth it is necessary to build infrastructure and finance the social needs of the community through financing sources originating from local taxes.
4. Improving good local tax system governance and supported by up-to-date data bases, especially data on two-wheeled and four-wheeled motorized vehicles. Updating the data base and regional tax management system needs to be updated periodically. This is in line with the opinion (Adegbe et al., 2022; Asman et al., 2023) that in an effort to increase regional tax revenues, it is necessary to improve the quality of the current taxation system and database.
5. Increasing awareness of regional taxpayers needs to be carried out through socialization about the role of regional taxes in the context of regional development, where awareness of taxpayers is needed to participate in regional development. This is in line with (Alsarmi & Ahemed, 2022) where the awareness of regional taxpayers is positively related to the efficiency of regional tax collection. This means that an increase in the awareness of local tax payers will encourage an increase in local tax revenues. Apart from that (Kurniawati & Susanto K, 2021) it is also necessary to improve good tax services to encourage an increase in regional tax revenues.

## CONCLUSION

Residential area investment, economic growth, commercial business units, taxpayers and natural resources have a significant effect on local tax revenues. Meanwhile, human resources do not have a significant effect on regional tax administration in Jambi Province. Especially for regional investment, it is also significantly influenced by special allocation funds and infrastructure, which does not have a significant effect on regional investment.

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