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Analysis Of Factors Affecting Income Inequality Between District Areas In Dumai City

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Abstract: Simon Kuznet explained the inverted U curve theory regarding inequality, which said that as a country develops, inequality will increase until it reaches a certain critical point, and after that inequality will begin to decrease. So this research is aimed at finding out the extent of income inequality between sub-district areas in Dumai City and analyzing things that have the potential to cause this inequality, using secondary data from 5 sub-districts in Dumai City from 2015 to 2023. All data provided used was obtained from the Basan Statistics Center of Dumai City and then processed using PSPP software. Analysis of inequality using the Williamson Index and fixed effect model panel data regression, resulted in the independent variables, namely agricultural productivity, road stability, economic growth and population growth rate, each having a significant effect on income inequality between sub-districts in Kot Dumai.

Keyword: inequality, Williamson Index, agricultural productivity, road stability, economic growth, population growth rate.

INTRODUCTION

In 2023, the Dumai City Government held an RKPD (Regional Apparatus Work Plan) forum, regarding the preparation of the 2023 Dumai City RKPD which discussed and agreed on several things as the main focus in regional development that would be implemented. In this deliberation, 5 priority elements were found and the one in first place was "community economic development as a support for industrial and port activities", these two sectors, namely industry and ports, are economic sectors located around the city center so that it can be confirmed that in the future the focus of development will be more rapid in the central area of Dumai City. Therefore, it does not rule out the possibility that this strategy will later give rise to a social phenomenon, namely migration by people who are far away from city areas to urban areas. This strategy may also cause an increase in the number of disparities in the infrastructure development sector between sub-districts in the area. Dumai City.

However, it cannot be denied that so far there have been many efforts made by the regional government of the city of Dumai to increase equitable development, however, along with the implementation of the development trilogy, there are still new problems that need to

be resolved. One of the reality problems that arise in Dumai City as a result of the government's strategy which focuses on coastal/harbour areas around the city center is the creation of development gaps/disparities between sub-districts in Dumai City, this is proven by the large number of roads that damaged and not yet cemented in areas far from the city center such as Jalan Soekarno Hatta which is around the Murini intersection, Jalan Mataram which has not been completely cemented, Jalan Panam which is also full of holes due to the lack of maintenance by the government on the cementization of previous roads which caused damage to the roads, as well as several roads in Bukit Kapur District, even the latest case regarding a road construction project which was damaged before the benefits were felt by the community.1.Previous research by (Ekwarso, Taryono, & Isyandi, 2016) obtained results that there was income inequality between sub-district areas, namely the sub-district with the largest income in 2010 was in West Dumai sub-district amounting to Rp. 76.12 million and increased in 2014 to Rp. 93, 66 million, while the sub-district with the lowest income is Sungai Sembilan sub-district with a per capita income of Rp. 57.10 million in 2010 and increased to IDR 58.58 million in 2014. 2.This could be triggered by the regional government's lack of focus on development projects that are far from port/city areas. On the other hand, the unequal distribution of resources, both human resources and natural resources, is also a trigger for the gap in development rates in the city of Dumai. Based on this, this research is aimed at identifying: 1) Income disparities between sub-districts in Dumai City, 2) Factors that influence income disparities between sub-districts in Dumai City.

METHOD

This research was conducted in Dumai City which covers all sub-district areas in Dumai city, namely, Bukit Kapur, Medang Kampai, Sungai Sembilan, West Dumai and East Dumai. This research uses secondary data taken from data that has been published by the Central Statistics Agency and related agencies whose variables are used in this research. The data required is as follows: Dumai City GRDP data, Dumai City Population Data and other data that supports this research for the last 9 years, namely from 2015-2023. Because this research uses secondary data, the data was taken from the official website of the Central Statistics Agency (BPS), especially BPS Dumai city, which publishes these data. In this research, two analysis techniques were used, the first data analysis using the Williamson index which was used to determine the extent of income inequality between sub-district areas in Dumai City, using the variables GDP per capita of the sub-district, average GDP per capita of all sub-districts, population of the sub-district, and the total population of Dumai City. After getting the Williamson index value which becomes the Y variable.

RESULTS AND DISCUSSION

Tabel 1 Heterokedastisitas Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,002	,019		,112	,911
	PP	-1,076E-7	,000	-,166	-,731	,469
	PE	9,383E-9	,000	,253	1,467	,150
	KJ	-5,066E-5	,000	-,318	-1,490	,144
	LPPK	-,013	,028	-,075	-,474	,638

a. Dependent Variable: abs_RES

From the test results above, it can be seen that the significant value of each variable used in this study is >0.05, so it can be concluded that the data used is data that is free from

symptoms of heteroscedasticity, so the regression in this study can be said to be a good regression.

Table 2 Multikorelasi Test

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1,027	,038		26,772	,000		
	PP	-1,451E-6	,000	-,578	-4,934	,000	,422	2,368
	KJ	,000	,000	-,316	-2,862	,007	,477	2,097
	PE	-1,388E-7	,000	-,967	-10,867	,000	,732	1,365
	LPP	-,240	,057	-,346	-4,224	,000	,863	1,159

a. Dependent Variable: IW

From the results of the multicorrelation test above, it can be seen that if the PP variable has a Tolerance coefficient of 0.422 (>0.100) and a VIF coefficient of 2.368 (<10.00), then the agricultural productivity variable is free from multicorrelation, as are other variables with tolerance coefficients. >0.100 and <10.00, then all variable data in this study is free from multicorrelation.

Table 3 Koefisient Determinan Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,844[a]	,712	,684	,02486

a. Predictors: (Constant), KJK, PE, LPP, PP

The information that can be obtained from the table above is that the coefficient of determination is 0.712, which means that the contribution of agricultural productivity, road stability, economic growth and population growth rate to income inequality between sub-districts in the city of Dumai is 71.2% and 28%. The remaining .8% is influenced by other factors not taken into account in this study.

Tabel 4 Analyze Test F

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,061	4	,015	24,780	,000[b]
	Residual	,025	40	,001		
	Total	,086	44			

a. Dependent Variable: IW

b. Predictors: (Constant), KJK, PE, LPP, PP

From the table above it can be seen that the value of the F-test was found to be 0.000 or smaller than 0.05, so it can be concluded that H0 is rejected and H1 is accepted. This means that simultaneously or together the variables of agricultural productivity, road stability, economic growth and the rate of population growth has a significant effect on the level of income inequality between sub-district areas in Dumai City.

Table 5 Analyze Test T

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1,018	,043		23,824	,000

	PP	-1,405E-6	,000	-,560	-4,291	,000
	PE	-1,379E-7	,000	-,961	-9,698	,000
	LPP	-,167	,065	-,236	-2,582	,014
	KJK	,000	,000	-,267	-2,172	,036

a. Dependent Variable: IW

$$Y = 1{,}018 – 0{,}0000014PP – 0{,}00000014PE – 0{,}167LPP + 0{,}000KJK + E$$

The Effect of Agricultural Production on Income Inequality

The results obtained from the regression of the agricultural production variable show a figure of 0.000 or smaller than 0.05, which means that agricultural production between sub-district regions has a significant negative influence on the level of income inequality. These results are in line with previous research by Al & Subrata (2018) which shows that agricultural production has a negative effect on income inequality between districts/cities in East Java. The differences in the geographic location of the regions in each sub-district in Dumai City mean that the diversity of resources dominates, including agriculture, but differences in area size and distance to the city center mean that the benefits of this sector are not evenly felt by the community, especially those in areas near the city center.

The Effect of Road Stability on Income Inequality

The road stability variable shows a significant positive relationship with the level of inequality. The total number of stable and good quality road surfaces available in an area varies, where there are definitely areas with very poor to the best road stability conditions, for example in areas far from the city center the road conditions are usually poorly maintained. In accordance with previous research by Savitri & Ashar (2023) which shows that the road stability variable has a positive and significant influence on the variable of economic inequality in East Java. Roads have an impact on the low level of inequality. Roads with moderate and heavy damage conditions will be the cause of large inequality gaps between regions. This is in accordance with research conducted by Rosmeli (2018).

The Effect of Economic Growth on Income Inequality.

It can be seen that the economic growth variable has a significant and negative relationship with income inequality between sub-district areas in Dumai City. These results can be supported by previous research by (Alitio et al., 2024) in the case study of this research in the South Sumatra Province area which also showed a significant negative relationship with income inequality. It is said that if it is assumed that there is an increase in the rate of population growth, it can be said that inequality will increase in South Sumatra. This opinion is supported by research (Malindar, 2020) that GRDP per capita has a significant and negative influence on the level of regional inequality. This is said to be because the level of GRDP per capita is preceded by local economic growth which will then also influence inequality between regions.

The Effect of Population Growth Rate on Income Inequality.

The regression results show that the population growth rate is 0.014 or less than 0.05. It can be concluded that the population growth rate variable has a significant influence on the level of income inequality between sub-district areas in Dumai City. According to Adelman and Morris, this could happen because of the high increase in population every year. will cause a decrease in the per capita income figure for each region if economic growth is lower than the population growth rate.The Effect of Population Growth Rate on Income Inequality.
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CONCLUSION

The Williamson Index has 3 classifications, if the Williamson Index is <3 then the level of inequality is said to be low. The Williamson Index >3-5 is a category of moderate inequality and the level of inequality is high if the Williamson Index is >5. The Williamson index which occurs in Dumai City every year always fluctuates, in 2015 the inequality index reached 0.66. This continues to experience slight fluctuations but until 2019 the inequality figure for the Williamson Index continued to be in the range of 0.66 or it could be said from 2015 to 2019 Income inequality between sub-district areas in Dumai City is relatively high. Then in the following year period 2020 to 2023 inequality began to decline to 0.59 in 2020 then in 2021 with a Williamson Index of 0.58 and followed by 2022 of 0.57 and in the last data year, namely 2023, the income inequality index between regions The sub-district in the city of Dumai is estimated to be around 0.56, this figure is classified as a moderate level of inequality.

The agricultural productivity variable (X1) has a significant negative influence on income inequality. This means that if agricultural productivity continues to be supported by programs and policies, it will reduce the rate of income inequality between sub-district areas in Dumai City. Then the road stability variable which is measured using data on the length of roads in good condition influences inequality significantly and positively, so it can be said that if the proportion of roads in good condition is less than the number of roads in good condition, this will make income inequality tend to be higher. The rate of economic growth in Dumai City is indeed experiencing fluctuations, but overall it can be said that economic growth in Dumai City is relatively continuing to increase and the figure of income inequality tends to decrease from year to year. This is supported by the regression results of the economic growth variable which has a significant negative effect on the level of economic growth in Dumai City. inequality means that if economic growth in Dumai City continues to increase, the inequality index will relatively decrease. And the variable population growth rate (X4) which has a significant negative effect shows that if the growth rate increases it will actually reduce the income inequality rate between sub-district areas in Dumai City.

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