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INTER-REGIONAL POVERTY DISPARITIES IN JAVA, INDONESIA: AN ANALYSIS OF KEY INFLUENCING FACTORS (2010-2020)

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Abstract

This study seeks to investigate the evolution of poverty in Java from 2010 to 2020, as well as the regional factors that contributing to disparities in poverty between regions. The results of the analysis indicate a downward trend in the number and proportion of poor people on the island of Java but a rise during the COVID-19 pandemic. There are regional distribution groups with high and low poverty rates. The results of the ANOVA reveal significant differences in the occurrence of urban poverty on the island of Java based on province and regional status but not by zone. Positively and negatively, the majority of the predictors have a very significant relationship with poverty. Six regional variables (level of consumption (expenditure), level of health (life expectancy), income per capita, level of education (number of years of schooling), population density (people/km2), and economic potential (GRDP at current prices)) account for 68.10% of the variation in the number of poor people in Java, while the remaining 31.9% is determined by other variables. The model of variation in Java's poverty is determined by three variables: per capita income, GRDP, and public consumption level.

Keywords: Poverty, spatial variation, determining factor

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INTRODUCTION

The problem of poverty is not new in development discussions (Goodwin et al., 2018). Like a labyrinth, poverty seems to be a timeless problem; from leadership to leadership, from program to program, it is constantly changing, including in Indonesia (Asrol and Ahmad, 2018). Theoretically, poverty has many definitions. The Indonesian Central Bureau of Statistics defines poverty as a condition in which a person's per capita expenditure is below the poverty line (BPS, 2021). Apart from referring to the definition of the central statistics agency, poverty in Indonesia can be approached through the Bappenas conceptual framework (Yusri, 2022). In addition to income, Bappenas mentions the importance of fulfilling ten basic human rights, namely the right to food, clothing, shelter, employment, education, health, clean water, a sense of security, political participation, and a sustainable environment (Nasution, 2023).

In line with poverty in Indonesia, the government's serious efforts to overcome poverty in Indonesia have been made since the new order era (Purwanto, 2007). Various implementations of anti-poverty policies have been carried out, both since the era of the first president and now. Not without results, the implementation of government policies and assistance has reduced Indonesia's poverty rate (Eko and Cahyani, 2022). However, poverty is still a problem that has not been resolved. This fact applies not only to Indonesia but to most countries in the world. Poverty then becomes a global issue that ranks first out of the 17 pillars of the SDGs. Eliminating poverty and hunger by 2030 is the "backbone" of the goals of the sustainable development agenda (Bappenas, 2020).

Based on historical time, for more than 20 years, the poverty rate in Indonesia has fluctuated. However, in the 2008-2019 range, the poverty percentage in Indonesia has consistently decreased. Poverty has been reduced by 6.01 percent in 11 years (BPS, 2020). This achievement is considered, politically, an extraordinary development achievement. The slowdown in the decline in the poverty rate shows that reducing poverty is getting more and more difficult, but the sustainable development strategy implemented by the government is considered successful (Tarigan, H., Sinaga, J.H., & Rika, 2020). Muta'ali (2014) explained that development goals cover four things, namely growth, equity, prosperity, and sustainability.

The consistency of reducing the poverty rate in Indonesia for 11 years finally stopped in 2020. The poverty rate increased again by 0.37 percent. In 2019, Indonesia's poverty percentage was 9.41 percent. Meanwhile, in 2020, the value will be 9.78 percent, and worse, it will increase again to 10.14 percent in March 2021 (BPS, 2021b). When accumulated in numbers, there were 27.54 million poor population in Indonesia in March 2021, an increase of 1.12 million people compared to March 2020 (BPS, 2021b). This increase in the poverty rate

is largely influenced by the outbreak of the Covid-19 pandemic that is currently spreading throughout the world.

According to Iswari and Muharir (2021) the Covid-19 epidemic significantly influenced the Indonesian economy's volatility. According to research by Widiastuti & Silfiana (2021) many sectors of society feel the pandemic's influence. The order of life altered dramatically in a short period of time, such as in economic activities and education, which were suddenly carried out from within the home. At a higher level, the pandemic has increased unemployment, decreased individual and corporate productivity, and resulted in the appearance of a new poor population, resulting in a rise in the total number of poor populationPowell (2009); Izzati, 2020; Suryahadi et al., 2020). In theory, Alkire et al., (2011); Alkire & Kanagaratnam (2018) refer to this situation as cyclic poverty. Periodic poverty is linked to global economic fluctuations, pandemics, and natural calamities (Schneiderbauer and Ehrlich 2004; Shah et al., 2023). A disease that rapidly affects a person and forces him into poverty beyond his control (Marten, 2010).

In terms of numbers, Indonesia's highest distribution of poor population is in Java. Data shows that out of a total of 27.54 million poor population in Indonesia, 14.8 million are on the island of Java, equivalent to 53.6 percent of the national total (Databoks, 2021). Giovanni (2018) explains that the high number of poor people in Java is motivated by the fact that more than 50 percent of the population is concentrated on this island, and the majority percentage of provincial poverty rates in Java Island is relatively high. Functionally, it is clear that Java holds the key to all aspects of development in Indonesia. Java is still the fulcrum of all centers of activity, economic, social, government, political, cultural, and so on. Java contributes more than 50 percent (59 percent, to be precise) of Indonesia's total GRDP (Bappenas, 2020a).

The phenomenon of poverty is a challenge for each region. This is because each region has different characteristics of poverty. In practice, efforts to reduce poverty in Indonesia are still global; they have not paid attention to regional aspects. Azzoni & Haddad, (2018) explained that inter-regional disparities play a major role in shaping poverty. According to Ryberg-Webster, 2022),one of the primary elements that impacts the emergence of poverty is related to geography. Zhou & Liu (2022); Robinson et al., (2019) through their research results, also explained that development programs, especially in poverty alleviation, must pay attention to spatial elements or locations to minimize program or policy failures. Industry also have their role in poverty alleviation due to acceptance of labor (Izzudin et al., 2022). Research by Shah et al. (2023) in Sabah, Malaysia also revealed that stakeholders involved in the poverty eradication is the key of successful programe. Poverty has a devastating impact on the subjective well-being of urban children in Kuala Lumpur, Malaysia (Sulaiman et al., 2023).

In this regard, the spatial element becomes important to study because the characteristics and factors that cause poverty in each region are different. Municipal regencies on the island of Java that have variations in regional characteristics (Handayani et al., 2020), both natural and human resources (Haryanto et al., 2019), as well as economic resources, will certainly provide varying outputs in population numbers and poverty percentages, making it interesting to serve as a spatial poverty determination model. The availability of poverty time series data from 2010–2020 can also be used as capital in developing poverty determinant models.

RESEARCH METHODOLOGY

The scope of the research area is all regencies and cities on Java Island, totaling 119 regencies and cities, consisting of 85 regencies and 34 cities. These Regency-City areas have varied geographical conditions and physical environments, resulting in different socio-economic and environmental characteristics as well as regional development, which are believed to influence the phenomenon of poverty. In the study of developmental geography, this spatial difference or variation (area differentiation) is interesting and serves as a basis for regionalization.

The unit of analysis used in this study is the Regency-City with the observation period between 2010 and 2020, where the years 2019–2020 are specifically analyzed to see the development of poverty during the COVID-19 Pandemic. In general, this research is more descriptive-analytical with a quantitative approach Anderson et al. (2018) based on secondary data analysis, which includes details of poverty variables and regional variables. These variables are derived from regional and poverty data issued by the Central Bureau of Statistics. Several indicators, time frame variables, and research area differentiations are presented in the following table:

Table 1: Research Indicators and Variables

No	Indicators	Variables
A	**Regional Poverty**	
1	Number of Poor Population (Y1)	1. Number of Poor Population
2	Percentage of Poor Population (Y2)	1. Number of Poor Population 2. Total Population 3. Percentage of Poor Population
3	Time Determination	2010-2019 (before COVID-19 Pandemic era) 2019-2020 (COVID-19 Pandemic era)
B	**Region Data**	

No	Indicators	Variables
1	Influenced Variables (X)	1. Regional economic capability (Gross Regional Domestic Product/GDP at current prices) 2. Income Per Capita, 3. Population Density, 4. Health Level (Life Expectancy) 5. Education Level (School Old Years) 6. Level of Consumption (expenditure)
2	Territory Determination	1. Based on Province (Banten, DKI Jakarta, West Java, Central Java, DI Yogyakarta, East Java) 2. According to Regional Status (Region and City) 3. Based on geographical zones (north, central, south, and outside of the main island of Java).

Data Analysis

The data or variables obtained are analyzed through 3 (three) stages and analysis techniques as follows:

1. An analysis of changes in poverty, both the number of residents and the percentage of poor population. Changes are made either in the form of absolute or relative numbers and the trend of changes in poverty each year (%/year). Time series analysis of changes was carried out in two time periods, namely between 2010-2019 (before the COVID-19 Pandemic era) and 2019-2020 (Pandemic Covid19)
2. Analysis of regional cluster variations to strengthen the differential area analysis of the phenomenon of poverty in 3 types of regions, namely between provinces, between regencies and cities and between regional zones of Java Island. The One Way ANOVA technique is used to ensure that there are similarities or differences between types of regions
3. Correlation and Regression Analysis. This study uses Correlation and Multiple Linear Regression to analyze the relationship between variables and the poverty variation prediction model based on cross-sectional data from 119 districts/cities. This research developed a model of the relationship between poverty and regional characteristics. In this model, the poor population is placed as the affected variable (Y), and the influence variables originating from the regional characteristic variables (X) are six. Analysis was performed using correlation and regression techniques with the following formulation:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 ..... \beta_n X_n$$

Explanation:

Y	Number of Poor Population (Person)
α	Intercept coefficient
$\beta_{1...}\beta_n$	Variable coefficients for X1...Xn
X_1	Regional economic capability (Gross Regional Domestic Product/GDP at current prices) (Rupiahs)
X_2	Regional per capita income (Rupiahs)
X_3	Population Density (Person/kilometer square)
X_4	Health Level (Life Expectancy) (Index)
X_5	Education Level (Old School Years) (Index)
X_6	Level of Consumption (Expenditure) (Rupiahs)

FINDINGS AND DISCUSSION

Poverty Dynamics in Java Island

This study looks at poverty in two dimensions, namely the dynamics of the number of poor population and the proportion of poor population. In the 2010–2019 observation period, there was a decrease in the number of poor population by -4.47 million, where the composition of the largest decrease (> 32%) was in the Provinces of Central Java and East Java, followed by West Java. This reduction in the poor population accounted for 75.52% of the decrease inpoor population in Indonesia. This shows that compared to regions outside Java, the decline in the poor population in Java is the highest.

Table 2: The dynamics of the decline in the number of poor population in Java for the 2010-2019

No	Province	Changes in the Poor Population (2010-2019)			JK	Classification Change of Poor Population (Decrease) (%)			
		Number in thousand	(%)	(%/ year)		increase	Low (<-3)	Medium (3-4)	High (>-4)
1	Banten	-96,540	2.16	-1.61	8	12.5	75.0	0.0	12.5
2	Jakarta Special Region	-23,150	0.52	-0.74	6	16.7	83.3	0.0	0.0
3	West Java	-1,317,740	29.47	-3.49	27	0.0	34.6	26.9	38.5
4	Central Java	-1,475,470	32.99	-3.53	35	0.0	28.6	40.0	31.4
5	Yogyakarta Special Region	-92,030	2.06	-2.13	5	0.0	100.0	0.0	0.0

6	East Java	-1,467,150	32.81	-3.29	38	2.6	36.8	47.4	13.2
	Java Island	-4,472,080	100.00	-3.04	119	3	49	39	27
	(% Java Island)	75,52		100		2.5	41.5	33.1	22.9
	Indonesia	-5921370		-2.38	514				

Note: JK = Number of Regencies/Cities

This is also supported by an analysis of the reduction in the annual poverty rate, where if Indonesia decreases by -2.38% per year, the decline in Java is higher at -3.04% per year. Among the four provinces, the highest reduction in the number of poor population was in Central Java (-3.35%/year), followed by West Java and East Java. Meanwhile, the lowest poverty reduction achievement was in DKI Jakarta Province (-0.74), which was made possible due to the high in-migration of people characterized by the lower middle class. Details can be seen in Table 2.

Table 2 above also shows the grouping or classification of changes in the poor population in 119 urban regencies on the island of Java, namely 41.5% low decline and 22.9% high decline. There are 4 City regions with anomalous occurrences where there is an increase in the poor population, which generally occurs in cities, including the City of Surabaya, the City of Mojokerto, the City of Tangerang, and Jakarta. This is because the rate of in-migration is quite high, exceeding the decline rate in the number of poor population. The complete spatial distribution of the Classification of Changes in the Poor Population 2010–2019 in Java Island is shown in the following map (Figure 1).

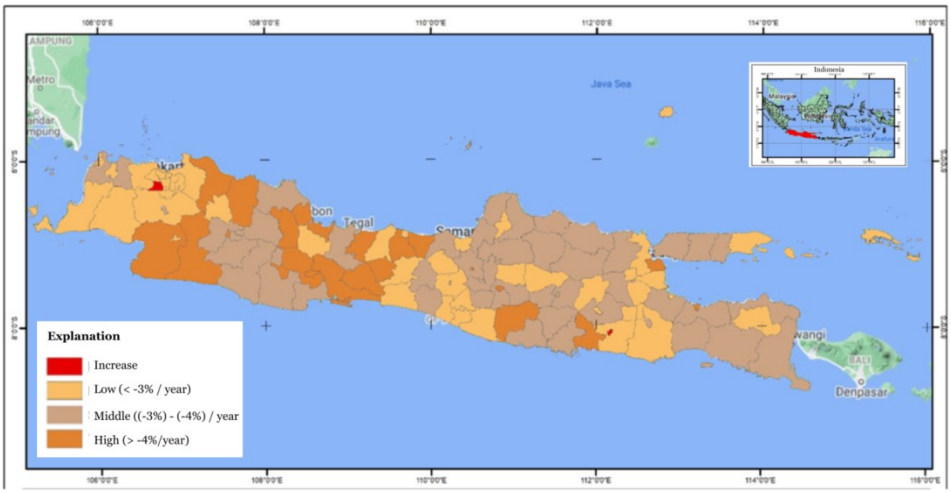

Figure 1: Map of the Rate of Decline in the Number of Poor Population in Java for the 2010-2019 Period (%/year)

Based on the map above (Figure 1), the decline in the number of poor population has occurred in areas that have so far been known as pockets of poverty, such as West Java, Central Java, and the southern part of East Java, as well as parts of the north. This phenomenon shows that the priorities for addressing poverty in these areas are relatively successful.

Poverty during the COVID-19 pandemic

The COVID-19 pandemic has had an impact on many sectors, which has implications for poverty. The social restriction policy implemented to minimise the spread of the COVID-19 virus has an impact on people with lower middle incomes. In other cases, many people have lost their jobs, decreased wages, and decreased turnover. This has an impact on changes in the number of poor people, based on the results of an analysis of changes in the poor population in Java Island in 2019-2020 saw an increase of 1,329,680 or around 10.45% (higher than Indonesia (5.09%), where the highest percentage change in poor people occurred in DKI Jakarta Province with a percentage change of 31.54%, then followed by the Province of Banten (18.57%), West Java (15.33%), East Java (7.46), Central Java (6.35%) and the smallest percentage change, namely the Province of Yogyakarta (6, 08%). For more details, see Table 3.

Table 3: Changes in the Number of Poor Population During the COVID-19 Pandemic (2019-2020) in Java Island

No	Province	Changes in Poor Population 2019-2020 (COVID 19 period)			JK	Classification of Changes in Poor Population 2019-2020 (COVID-19 Period) (Increase) (%)		
		Number	(%)	(%/year)		low (<7,5)	middle (7,5—15)	high (>15)
1	Banten	121,530	9.14	18.57	8	12.5	12.5	75.0
2	Jakarta Special Region	115,310	8.67	31.54	6	0.0	0.0	100.0
3	West Java	521,070	39.19	15.33	27	0.0	55.6	44.4
4	Central Java	237,670	17.87	6.35	35	77.1	22.9	0.0
5	Yogyakarta Special Region	27,250	2.05	6.08	5	80.0	20.0	0.0
6	East Java	306,850	23.08	7.46	38	47.4	50.0	2.6
	Java Island	1,329,680	100.00	10.45	119	50	44	25
	(%Java Island)			100.0%		42.0	37.0	21.0
	Indonesia	1,279,410		5.09	514			

Note: JK = Number of Regencies/Cities

Table 3 above also shows the grouping or classification of Changes in the Poor Population during the COVID-19 pandemic period (2019-2020) in 119 Regencies and Cities on the Island of Java. IN. Yogyakarta (80%) was then followed by Central Java Province (77.1%), for the moderate category, most cases occurred in West Java Province (55.6%), followed by East Java Province

(55.6%), while for the highest category occurred in DKI Jakarta Province (100%), followed by Banten Province (75%). The complete spatial distribution of the Classification of Changes in the Poor Population during the COVID-19 pandemic on Java Island is shown in the following map.

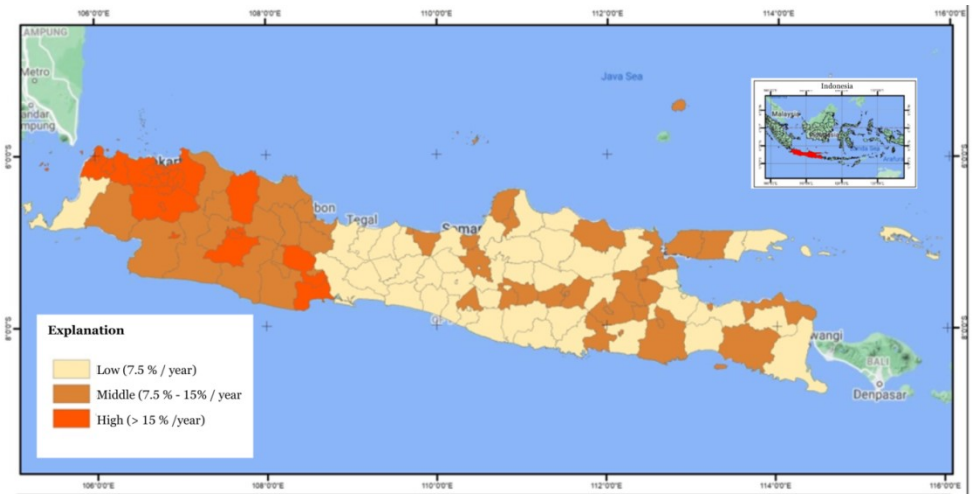

Figure 2: Map of the Rate of Increase in the Number of Poor Population in Java Island in the COVID-19 period (2019-2020 (%/year)

Spatially, the increase in the number of poor people can be seen in locations close to DKI Jakarta Province, namely several regencies in Banten Province (Tangerang, Serang, Tangerang City, Cilegon City, Serang City, South Tangerang City, and Bogor Regency). Spatially, the distribution of the rate of increase in the number of poor people during the COVID-19 pandemic was mostly in the low category. In addition to the dimensions of population size, a more precise comparison of poverty between regions is to look at the proportion of poor people. Taking into account the number of poor people during the COVID-19 pandemic as in the previous table, during 2019–2010 there was a change in the percentage of poor people by 10.45% (higher than Indonesia (5.09%), if seen from changes in the proportion of poor people in 2019–2010, the average The highest absolute average occurred in DKI Jakarta (1.35), followed by other provinces in Java, namely West Java (1.02), Banten (.78), East Java (.72), Central Java (.58), and DI Yogyakarta (.56). The percentage change in the proportion of poor people during the COVID-19 pandemic in Java was 10.21%, or higher than Indonesia's 6.07%.

Poverty Differences Between Regions

Based on the previous analysis, poverty in Java Island has a unique spatial pattern that differs between districts and cities. The determination of the area of Java

Island is expanded into three categories, namely between Provinces, between Regencies and Cities, and between zones. ANOVA analysis is used to test whether there are differences in poverty indicators between regions. The results of the ANOVA analysis show real (significant) differences in poverty indicators between Provinces and between Regencies and Cities (see table 4 below for details).

Table 4: Results of One Way ANOVA Analysis of Poverty in Java Island

No	Indicator	Differences Between Provinces		Differences Between Cities and Regencies		Differences Between Zones	
		F	Sig	F	Sig	F	Sig
A	**Total And Proportions**						
1	Number of Poor Population	1.239	.296	53.012	.000	1.839	.144
2	Proportion of Poor Population	5.421	.000	70.147	.000	11.522	.000
B	**Changes Every Year**						
1	Changes in the Number of Poor Population	5.573	.000	55.516	.000	2.774	.045
2	Changes in the Proportion of Poor Population	11.711	.000	5.747	.018	.711	.548
C	**Changes During Covid 19**						
1	Changes in the Number of Poor Population	8.284	.000	4.076	.046	1.042	.377
2	Changes in the Proportion of Poor Population	55.027	.000	23.082	.000	2.475	.065

Source: Results of ANOVA analysis

Among the six aspects of poverty, there are five indicators that have significant differences, as indicated by sig values <0.05 between city and district area types and between provinces, namely the proportion of poor people, changes in the number and proportion of poor people, and changes in poverty during the COVID-19 pandemic. Only the number of poor people is spread evenly and there are no differences between regions. Among the three regional groups, the determination of Java Island into four zones, namely North, Central, South, and Outer Java Island, did not show a significant difference in the phenomenon of poverty; in other words, poverty is spread relatively evenly between zones. During the COVID-19 pandemic, between 2019 and 2020, there were differences in changes in the number of poor people and the proportion of poor people between Provinces and Cities, where there has been an increase in the number of poor people due to the COVID-19 Pandemic.

Relationships and Determinants of Poverty

Poverty Relationship Model and Regional Capability Variables

The relationship between the variables determining the variation of poverty in Java was investigated by statistical correlation analysis, specifically looking for the strength of the relationship between the number of poor people and regional

economic capacity (GDP), per capita income, population density, education level, health level, and consumption level. The results of the Pearson correlation analysis are presented in Table 5.

The analysis results in the table above show a close relationship between the regional capacity variable and the population and percentage of poor people in regencies and cities on the island of Java. Among the six variables of regional capability, only economic capacity (GRDP) does not have a close relationship. Meanwhile, the other five variables have a very strong relationship (sig > 0.05) and are negative, where poverty is higher if per capita income, population density, education level, health level, and consumption level are lower. Regional characteristics indicate that regions with a high level of regional development and characterized by developed regions tend to have a lower poverty rate.

The absence of a relationship between regional economic capacity (GRDP) and the amount of poverty indicates that the number of poor people is spread evenly and does not follow economic capacity. However, economic capacity has a close (negative) relationship with the percentage of poor people. Based on the analysis above, regional characteristics, both economic and social, are strongly related to the variable number and proportion of poor people in Java. This is shown by the strong relationship between variables (see Table 8). The complete relationship between poverty variables can be seen in the table 5 below.

Table 5: Relationship Patterns Between Poverty Research Variables in Java Island

	Y1	Y2	X1	X2	X3	X4	X5	X6
Y1	1	.419**	.064	-.254**	-.313**	-.221*	-.438**	-.381**
		.000	.491	.005	.001	.016	.000	.000
Y2		1	-.396**	-.297**	-.568**	-.190*	-.433**	-.593**
			.000	.001	.000	.040	.000	.000
X1			1	.712**	.608**	.117	.126	.636**
				.000	.000	.208	.172	.000
X2				1	.480**	.075	.199*	.497**
					.000	.418	.030	.000
X3					1	.251**	.424**	.785**
						.006	.000	.000
X4						1	.326**	.335**
							.000	.000
X5							1	.621**
								.000
X6								1

a. Predictors: (Constant), Consumption Level (Expenditure), Health Level (Life Expectancy), Per Capita Income, Education Level (School Years), Population Density (Person/Km2), Economic Potential (GDP Current Prices)

Regression Models of Factors Influencing Poverty

Based on the theoretical basis, poverty is closely related to regional characteristics, which are translated into variables of economic potential and per capita income, human resources (education and health), urban level (population

density), and consumption level. A regression analysis was carried out using cross-sectional data on the distribution of poverty in 119 urban regencies in Java. The results of multiple regression analysis show that the six regional variables together contribute 68.10% (R Square value) to variations in the number of poor people on Java Island; the remaining 31.9% is determined by other variables (Table 6).

Table 6: Results of Multiple Linear Regression Analysis, Factors Affecting Variation of Poor Population in Java Island

Code	Variables	Unstandardized Coefficients	Standardized Coefficients	Sig
	Model contribution			
	R square = .681			
Enter method				
	Constant	457399.874		.005
X1	Economic Potential (GDP at current prices)	.001	.830	.000
X2	Income per capita	-439.222	-.533	.000
X3	Population Density (Person/Km2)	-2.818	-.156	.159
X4	Health Level (Life Expectancy)	-1977.407	-.068	.363
X5	Education Level (Old School Rate)	-3490.818	-.047	.647
X6	Consumption Rate (Expenditure)	-12.899	-.462	.002
Stepwise Method				
	Constant	316660.893		.000
X2	Income per capita	-448.112	-.544	.000
X1	Economic Potential (GDP at current prices)	.001	.839	.000
X6	Consumption Rate (Expenditure)	-17.742	-.636	.000

The results of the t-significance test on the partial regression coefficients for poverty show that out of the six X variables, three show T counts with high confidence levels, namely X3, X4, and X5, which are greater than 0.01, while the other three variables have a t count with a high confidence level, namely X1, X2, and X6. On the basis of the results of this analysis, the factors that are considered to have a significant influence (with a degree of trust of more or equal to 95%) on poverty in Java (Y) in the order of the greatest influence include: economic potential (X1), income per capita (X2), and consumption level (X6). From these results, it is strongly proven that economic factors greatly influence poverty in urban districts on the island of Java. This fact also shows that the variables, which individually have a strong and influential correlatio also collectively have a convincing and consistent influence. By removing the insignificant variables (X3, X4, and X5), further analysis with a stepwise model was conducted to obtain the following regression model of the determinants of poverty in Java Island:

Y = 0,839X1 - 0,544X2 - 0,636X6

In multiple linear regression line equation, it can be interpreted that each variable X has varying effect values. For example, the regional economic potential variable (GDP) (X1) has a Beta value of 0.839, meaning that if the values of other variables (X2 and X6) are constant, then for every 1 increase in the standardized GRDP index, it will result in an increase in poverty of 0.839. Likewise, with other variables. Thus, it can be concluded that the three X variables influence the occurrence of variations in poverty levels on the island of Java. However, each variable has a different magnitude of effect. Therefore, to determine the strength or weakness of this influence, a T-significance test was carried out for each coefficient.

CONCLUSION

The number of poor people on Java Island is 53.18% of the total poor population in Indonesia, or as many as 14.05 million. Most are in three major provinces: East Java, Central Java, and West Java. During the 2010–2019 period, there was a decrease in the number of poor people by -4.47 million, at a rate of decline of -3.04% per year, faster than the decline in Indonesia's poor population. The rate of decline has stopped since the COVID-19 pandemic, which has increased the number and percentage of poor people at a rate of 10%, so it is as if the handling of poverty has been pushed back 5 years (2016). Considering the concentration of poverty in certain areas, it is clear that more focused measures to alleviate poverty are required.

Spatially, changes in the reduction of high poverty on the island of Java form a clustered pattern in the western part of the island and are also random in the central and eastern parts, especially in the south and north zones. There are significant differences in poverty between Provinces and between districts and cities. Spatially, the impact of the COVID Pandemic, which increased the number of poor people, is mostly clustered in the western part, especially around DKI Jakarta, Banten, and West Java, while urban districts in Central and East Java are relatively few and random in nature. The western region of Java Island displayed a clustered pattern as a result of the reduction in Java's high levels of poverty, as seen from a spatial perspective. On the other hand, the patterns in the central and eastern areas, particularly in the southern and northern zones, appeared to be more random. Concentrations of increasing poverty were identified around DKI Jakarta, Banten, and West Java as a result of the COVID-19 epidemic. On the other hand, Central and East Java had comparatively less afflicted metropolitan areas with more random patterns.

Moreover, the variation in poverty between regencies in Java Island is collectively 68.10% determined by six regional variables: level of consumption (expenditure), level of health (life expectancy), income per capita, level of education (years of schooling), population density (life expectancy/km2), economic potential (GRDP at current prices). Three variables have the highest

significant level and are used as determinants of the poverty variation model in Java, namely per capita income, GRDP, and the level of public consumption.

The study reveals that substantial gaps in the levels of poverty exist between Java's various provinces, districts, and cities. These geographical differences highlight the significance of customizing measures for poverty reduction to match different locations' distinct needs and constraints.

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