



ANALYSIS OF THE FACTORS THAT INFLUENCE POVERTY IN THE DISTRICTS/CITIES OF YOGYAKARTA SPECIAL REGION

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ABSTRACT

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This study aims to identify the key factors influencing poverty in the districts/cities of Yogyakarta from 2010 to 2019 using panel data regression analysis. The Fixed Effect Model was determined to be the most appropriate for this analysis. The findings reveal that the Human Development Index (IPM), average years of schooling, open unemployment rate, and minimum wage are significant determinants of poverty in the region. The model explains 99.54% of the variation in poverty levels ($R^2 = 0.9954$). These results underscore the importance of targeted policy interventions in education, employment, and wage regulation to effectively reduce poverty in Yogyakarta.

JEL classification

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1. INTRODUCTION

Poverty is a persistent challenge that significantly affects the socio-economic development of many countries, especially in the developing world. The reduction of poverty is not only a critical goal for enhancing the quality of life but also serves as a key indicator of a nation's development progress. According to (Suripto & Subayil, 2020), successful economic development is often measured by the reduction of unemployment and poverty rates. In many developing countries, however, poverty remains a complex and multifaceted issue, influenced by a variety of economic, social, and environmental factors. While some developing nations have managed to increase production and national income, leading to successful development outcomes, others continue to grapple with high poverty levels (Sartika et al., 2016).

Indonesia, as one of the largest developing countries in Southeast Asia, faces numerous social and economic challenges, with poverty being one of the most significant. Despite various efforts by the government to alleviate poverty, the problem persists, as evidenced by the rising number of poor people. In March 2020, the Central Bureau of Statistics (BPS) reported that 26.42 million people in Indonesia were living in poverty, representing 9.78% of the total population. This figure marked an increase of 1.63 million people or 0.56% from September 2019, and an increase of 1.28 million people or 0.37% compared to March 2019 (Badan Pusat Statistik, 2020). These statistics highlight the ongoing struggle to reduce poverty in Indonesia and underscore the need for a comprehensive understanding of the factors contributing to this issue.

Within Indonesia, the Yogyakarta Special Region (DIY) presents a particularly interesting case for studying poverty. Despite its status as a cultural and educational hub, DIY has a poverty rate higher than the national average. According to the BPS in July 2019, DIY was among the 16 provinces with a poverty rate exceeding the national average. The poverty rate in DIY was 11.81% in September 2018 and slightly decreased to 11.70% in March 2019. However, this decrease was insufficient to bring DIY below the national average poverty rate of 9.66% (Badan Pusat Statistik, 2019). This suggests that while there has been some progress in reducing poverty in DIY, the region continues to face significant challenges that set it apart from the rest of the country.

The disparity in poverty rates within DIY can be further understood by examining the variations among its regencies and cities. According to BPS data, the regencies of Bantul and Gunungkidul consistently have the highest numbers of poor people in the province. For instance, in 2018, Gunungkidul Regency had 125.76 thousand poor people, a figure that slightly decreased to 123.08 thousand in 2019. Similarly, Bantul Regency had 134.84 thousand poor people in 2018, which decreased to 131.15 thousand in 2019. In contrast, Yogyakarta City, the province’s urban center, had the lowest number of poor people, with 29.75 thousand in 2018 and a slight decrease to 29.45 thousand in 2019 (Badan Pusat Statistik, 2020a).

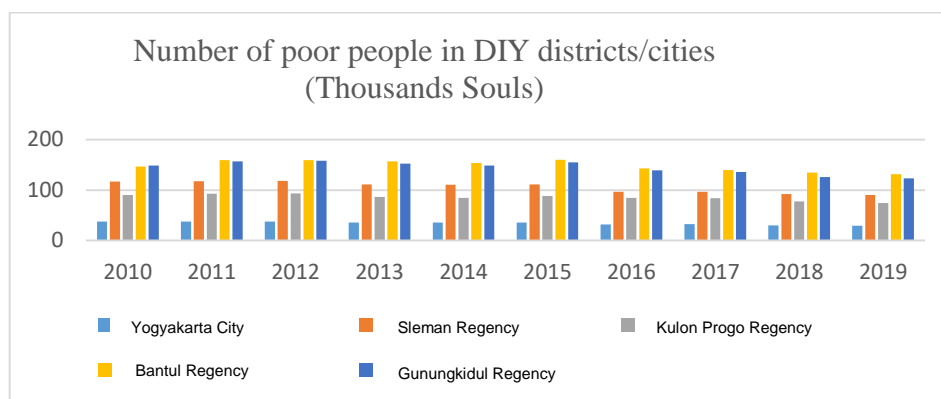


Figure 1. Number of poor people in DIY districts/cities 2010-2019
Source: Processed (2020)

Figure 1 provides a visual representation of the number of poor people in the districts/cities of DIY from 2010 to 2019. This figure clearly shows that urban areas, such as Yogyakarta City, tend to have a smaller number of poor people compared to more rural areas like Gunungkidul and Bantul regencies. The concentration of economic activities and educational institutions in urban areas contributes to lower poverty rates, as these factors provide better employment opportunities and access to services that improve quality of life.

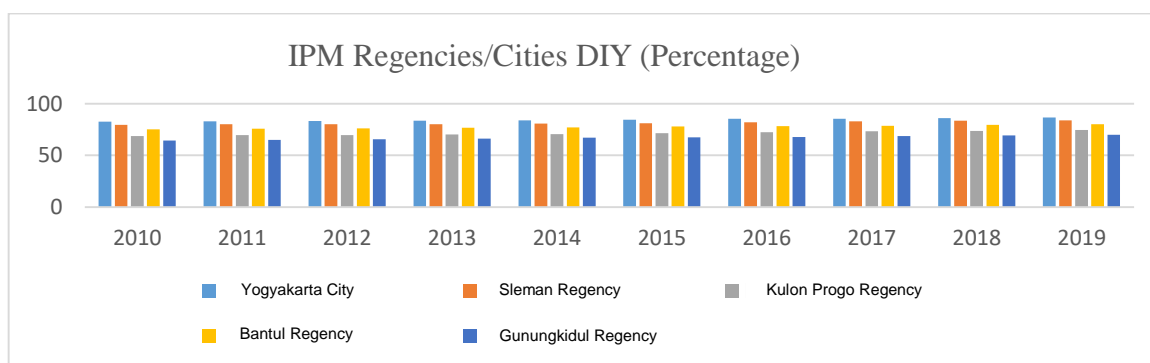


Figure 2. IPM Regencies/Cities DIY 2010-2019
Source: Processed data (2020)

Figure 2 on the previous page illustrates the Human Development Index (IPM) trends from 2010 to 2019 across the regencies and cities of DIY. IPM is a composite measure that reflects a region’s achievements in health, education, and standard of living. Yogyakarta City consistently ranks highest in IPM, followed by Sleman Regency. Sleman’s position as a center of education, with 41 public and private universities, significantly contributes to its higher IPM (Sleman Badan Pusat Statistik, 2017b, 2017a). In contrast, Gunungkidul and Kulon Progo regencies, which have lower IPM scores, also face higher poverty rates. This correlation between IPM and poverty rates suggests that improving human development indicators is crucial for poverty reduction in the region.

Education, as an integral component of IPM, plays a vital role in poverty alleviation. Kurniawan (2017) argues that improving the quality and number of human resources through education can effectively reduce poverty. Higher educational attainment enhances individuals’ ability to secure better-paying jobs, which in turn increases income and reduces poverty (Todaro, 2000). The average years of schooling is a key indicator of educational attainment and reflects the number of years spent by individuals in formal education.

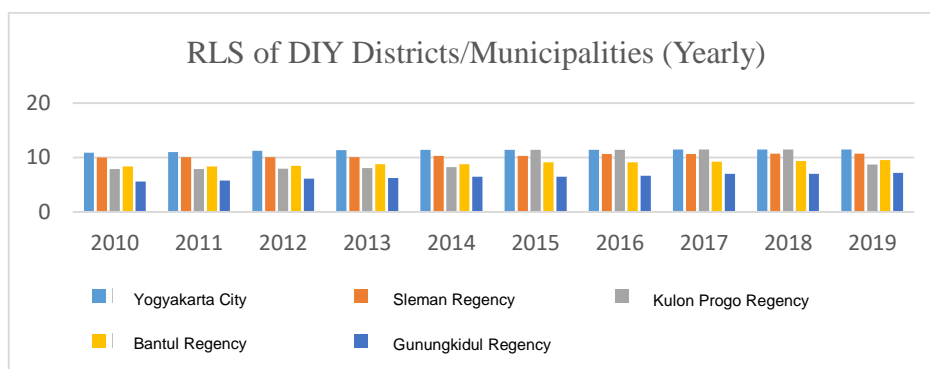


Figure 3. RLS of DIY Districts/Municipalities 2010-2019
Source: Processed data (2020)

Figure 3 above shows the average years of schooling in the districts/cities of DIY from 2010 to 2019. The figure reveals that Yogyakarta City and Sleman Regency consistently record the highest average years of schooling, while Gunungkidul and Kulon Progo regencies have the lowest. This disparity in educational attainment has significant implications for poverty levels. Areas with lower average years of schooling face greater challenges in accessing employment opportunities, which contributes to higher poverty rates. This reinforces Todaro's (2000) argument that education is a key determinant of income and economic mobility.

Unemployment is another critical factor that influences poverty levels in DIY. Unemployment, particularly open unemployment, represents the percentage of the labor force that is actively seeking but unable to find work. In DIY, the highest open unemployment rates between 2017 and 2019 were recorded in Yogyakarta City and Sleman Regency, despite their high levels of educational attainment. For example, the open unemployment rate in Yogyakarta City was 5.08% in 2017, rising to 6.22% in 2018 before decreasing to 4.8% in 2019 (Badan Pusat Statistik, 2020c).

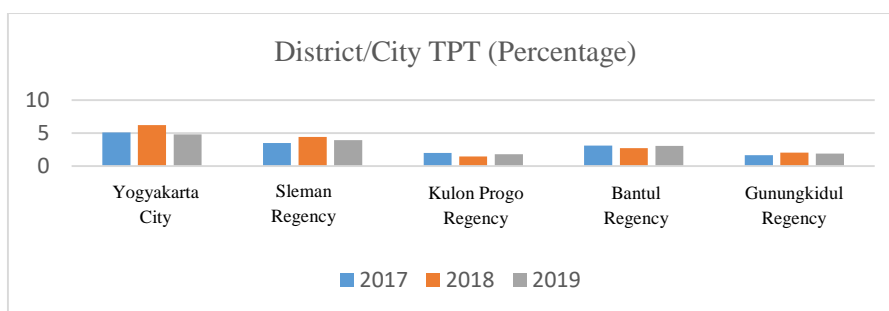


Figure 4. District/City TPT 2017-2019
Source: Processed data (2020)

Figure 4 on the previous page provides a graphical representation of the open unemployment rates in the districts/cities of DIY from 2017 to 2019. This figure highlights the paradox of educated unemployment, where regions with higher average years of schooling, such as Yogyakarta City and Sleman Regency, also experience higher unemployment rates. This phenomenon can be attributed to a mismatch between the skills of the educated workforce and the available job opportunities, leading to a surplus of educated individuals who are unable to find employment that matches their qualifications (Badan Pusat Statistik, 2019b). The regional minimum wage (UMR) also plays a significant role in shaping poverty and unemployment dynamics. The UMR sets the minimum wage standard in a given region, influencing the livelihood of the working population.

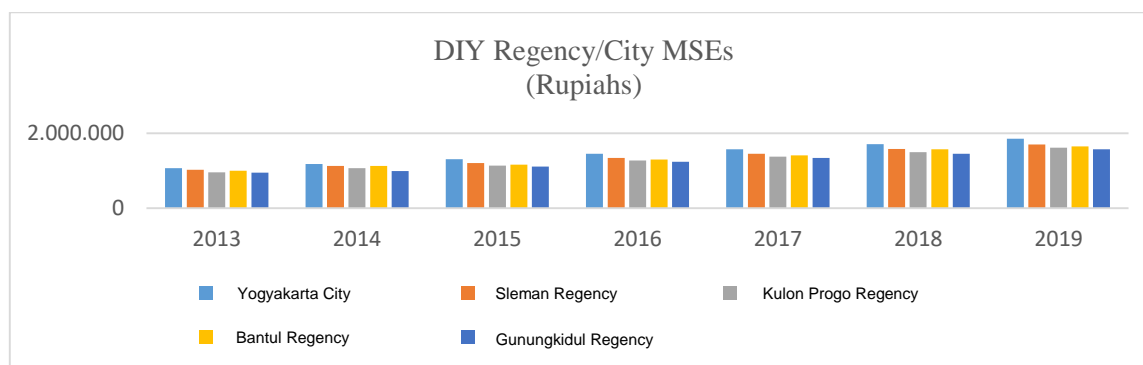


Figure 5. DIY Regency/City MSEs 2013-2019
Source: Processed data (2020)

Figure 5 illustrates the trends in regional minimum wages across the districts/cities of DIY from 2013 to 2019. The figure shows that Yogyakarta City consistently has the highest UMR, while Gunungkidul Regency has the lowest. While higher minimum wages can improve the standard of living for workers, they can also lead to higher unemployment rates if businesses cannot afford to pay these wages, potentially exacerbating poverty.

Given the complex interplay of these factors—IPM, education, unemployment, and regional minimum wages—this study aims to analyze the simultaneous and partial influence of these variables on the number of poor people at the DIY regency/city level. By examining these determinants, this research seeks to provide insights into the specific economic challenges faced by DIY, offering valuable considerations for policymakers in formulating effective poverty alleviation strategies. Through a more focused analysis that integrates recent studies and considers different perspectives on poverty determinants, this paper contributes to the broader discourse on poverty reduction in developing regions.

In summary, the persistent poverty in Yogyakarta Special Region, despite its status as an educational and cultural center, underscores the need for a deeper analysis of the factors influencing poverty. This study aims to address this need by examining the role of IPM, education, unemployment, and regional minimum wages in shaping the poverty landscape in DIY. The findings of this research are expected to inform policy decisions aimed at reducing poverty and promoting sustainable economic development in the region.

2. RESEARCH METHODS

This study employs a quantitative research approach, utilizing secondary data obtained from the Central Statistics Agency (BPS) to explore the factors influencing poverty in the districts/cities of Yogyakarta Special Region (DIY). The secondary data used is panel data, which combines time series data and cross-sectional data from the period 2010 to 2019 across the five districts in DIY. This approach allows for a more comprehensive analysis by capturing both temporal and spatial variations in the variables of interest. The selection of the independent variables (Human Index Development (IPM), Average Years of Schooling (RLS), Open Unemployment Rate (TPT), and District Minimum Wage (UMK)) was based on their theoretical and empirical relevance to poverty.

IPM encompasses critical dimensions of human development (education, health, and income) that directly impact poverty levels. It provides a composite measure of these dimensions, reflecting overall well-being (UNDP (United Nations Development Programme), 2010). Educational attainment significantly influences employment opportunities and income, thereby affecting poverty reduction. Higher education levels correlate with better job prospects and economic stability (Barro & Lee, 2013).

Unemployment rates are indicative of labor market conditions, where higher unemployment leads to increased poverty due to loss of income and insufficient social safety nets (Beegle et al., 2012). Therefore, TPT is included as a crucial factor affecting poverty. Minimum wage policies aim to enhance earnings for low-wage workers, reducing poverty by elevating incomes above the poverty threshold (Neumark & Wascher, 2008).

The study utilizes a fixed effects panel data regression model to analyze the impact of the selected variables on poverty levels. The fixed effects model is preferred over the random effects model as it effectively controls for unobserved heterogeneity across districts by accounting for time-invariant characteristics such as cultural and historical factors, ensuring more robust and reliable estimates.

The panel data regression equation used in this study is specified as follows:

$$\ln PM_{it} = \beta_0 + \beta_1 \ln IPM_{it} + \beta_2 \ln RLS_{it} + \beta_3 \ln TPT_{it} + \beta_4 \ln UMK_{it} + e_{it} \dots \dots \dots (1)$$

Where as:

- PM : Poor Population (people)
- IPM : Human Development Index (percent)
- RLS : Average Years of Schooling (years)
- TPT : Open Unemployment Rate (percent)
- UMK : District Minimum Wage (rupiah/month)
- β_0 : Constant
- $\beta_1 \beta_2 \beta_3$: Regression Coefficient
- e : Variable Outside the Model
- i : ith entity
- t : t-period

Data analysis is conducted using Eviews 10 software, chosen for its robust capabilities in handling panel data and facilitating complex econometric analyses. Eviews 10 provides advanced features for precise estimation and comprehensive diagnostic testing, ensuring the reliability of the model's results.

Despite the rigorous methodology, potential limitations include endogeneity issues where independent variables may correlate with the error term, leading to biased estimates. While the fixed effects model addresses some concerns by controlling for unobserved time-invariant factors, it may not fully eliminate biases from omitted time-variant factors or reverse causality. Additionally, reliance on secondary data may limit the inclusion of other relevant variables influencing poverty, such as informal economic activities and comprehensive social safety net measures.

3. RESULTS AND DISCUSSION

3.1. RESULTS

The results of this study indicate that the factors influencing poverty in the districts and cities of the Yogyakarta Special Region (DIY) were analyzed using a fixed effect model, as determined through the Chow Test and the Hausman Test. From the Chow Test obtained the value of Prob. Cross-section F 0.0000 < α (0.10) then reject Ho. This means that there is a difference in intercept in the model or in other words, the right model is the fixed effect model.

Then, from the Hausman Test, the Prob value is obtained. Cross-section random $0.0000 < \alpha$ (0.10) then reject H_0 . This means that the right model is the fixed effect model. The regression results are detailed in Table 1, and the findings demonstrate both expected and unexpected relationships between the variables and poverty levels in the region.

Table 1. Fixed Effect Model Regression Results

Independent Variables	Coefficient	Prob.
C	14.97	0.00
LOG(IPM)	-1.90	0.05
LOG(RLS)	0.25	0.01
LOG(TPT)	-0.03	0.13
LOG(UMK)	-0.19	0.00
R ²		0.99
Adjusted R ²		0.99
Prob (F-statistic)		0.00

Source: Processed data (2020)

The regression equation derived from the fixed effect model is as follows:

$$PM = 14.97 - 1.90_{\text{LOG(IPM)}} + 0.25_{\text{LOG(RLS)}} - 0.03_{\text{LOG(TPT)}} - 0.19_{\text{LOG(UMK)}}$$

From the table 1, the coefficient of determination R² is 0.9954, indicating that 99.54 percent of the variation in the poverty rate is explained by the independent variables included in the model, with only 0.46 percent being explained by other factors not accounted for.

3.2. DISCUSSION

The Human Development Index (IPM) has a statistically significant negative coefficient of -1.90. This indicates that an increase in IPM by 1 percent is associated with a decrease in the number of poor people by 1.90 percent in the districts and cities of DIY. This finding aligns with the theoretical expectations and previous studies, such as those by Priyadi and Asmoro (2011) and Susanti (2013), which suggest that improvements in human development—through better access to education, health services, and higher standards of living—lead to reductions in poverty levels. As IPM encompasses essential aspects of human development, including life expectancy, education, and per capita income, its positive impact on poverty reduction is understandable. When individuals have greater access to these resources, they are more likely to move out of poverty. This result underscores the importance of continuing to invest in human development as a means of poverty alleviation in the region. The finding is also consistent with the general understanding that human development is crucial for enhancing overall welfare, as people who are healthier, better educated, and have access to economic opportunities are less likely to remain in poverty.

The regression coefficient for the Average Years of Schooling (RLS) is 0.25, which is both statistically significant and positive, suggesting that an increase in average years of schooling is associated with an increase in poverty levels by 0.25 percent. This result is counterintuitive, as it contradicts the conventional wisdom and findings of previous studies, such as those by Qurratu'ain and Ratnasari (2016), Manoppo et al. (2018), and Jacobus et al. (2018), which typically report a negative relationship between education and poverty. A deeper exploration of this anomaly is necessary. One possible explanation could be related to the structure of the local economy and the nature of employment opportunities available in DIY. The region has a significant agricultural sector, where a large portion of the population is employed. Despite higher levels of education, many individuals may not find employment that matches their qualifications, leading to underemployment or employment in low-wage sectors. For example, many farmers in DIY may have higher levels of schooling, but they still engage in subsistence farming, where income is not stable or sufficient to lift them out of poverty.

Another consideration is the phenomenon of "educated unemployment," where individuals with higher levels of education are unable to find suitable employment, particularly in regions where the economy is not sufficiently diversified or dynamic to absorb these workers. This is supported by data from the national labor force survey (SAKERNAS), which indicates that the majority of the unemployed in DIY are educated, with at least a high school education. This situation could lead to a paradox where increased education does not translate into immediate poverty reduction. Furthermore, issues with the implementation of educational policies, such as the Indonesia Smart Card (KIP), which is intended to support education for poorer families, might exacerbate this problem. Reports of KIP cards being received by relatively well-off families suggest that the benefits of such programs are not always reaching the intended recipients. This misallocation of resources could contribute to the observed positive relationship between RLS and poverty in the region. Given these complexities, it is essential to approach the relationship between education and poverty with caution. The positive association observed in this study does not necessarily imply that education increases poverty, but rather it highlights the multifaceted nature of poverty and the need for comprehensive policies that address not only education but also job creation and income distribution.

The Open Unemployment Rate (TPT) was found to have no significant effect on poverty in the districts and cities of DIY. This finding is consistent with previous studies by Zuhdiyaty and Kaluge (2017), Giovanni (2018), and Probosiwi (2016), but it contradicts the general expectation that higher unemployment would lead to increased poverty.

The lack of a significant relationship may be due to the unique characteristics of the unemployment population in DIY. As mentioned earlier, many of the unemployed individuals in the region are educated and may come from relatively well-off families. Consequently, their unemployment status may not lead to immediate poverty, as they may still receive financial support from their families. Additionally, the high proportion of elementary school graduates in the workforce suggests that those with lower education levels are more likely to be employed, albeit in low-paying jobs, which might not significantly affect the overall poverty rate. Moreover, the structure of the local economy, where many people are engaged in informal or seasonal work, could mean that unemployment figures do not fully capture the economic realities of the population. People who are classified as unemployed might not be the most economically vulnerable, as they may have other sources of income or support.

The District Minimum Wage (UMK) has a negative and statistically significant coefficient of -0.19, indicating that an increase in the minimum wage is associated with a decrease in the number of poor people in DIY by 0.19 percent. This result aligns with theoretical expectations and previous studies, such as those by Kurniawati et al. (2017), which demonstrate that higher wages can reduce poverty by increasing the income of workers, thus allowing them to better meet their basic needs.

The minimum wage policy in DIY appears to be effective in raising the income levels of the working population, thereby contributing to poverty reduction. Higher wages mean that workers have more disposable income, which can be used for consumption, saving, and investment in human capital, further improving their standard of living. This finding suggests that policies aimed at increasing wages should be considered as a tool for poverty alleviation, especially in regions where a significant portion of the population is employed in low-wage sectors. However, it is important to note that while raising the minimum wage can reduce poverty, it must be done carefully to avoid potential negative effects, such as unemployment or inflation. Ensuring that wage increases are sustainable and do not lead to job losses is crucial for maintaining the positive impact on poverty reduction.

The cross-section effects from the fixed effect model highlight the differences in poverty levels across the various districts and cities in DIY. Yogyakarta City has the lowest poverty rate, while Bantul Regency has the highest. This spatial variation in poverty can be attributed to several factors, including economic opportunities, access to services, and the structure of local economies. Based on the estimation results using the fixed effect model, the cross-section value of each DIY Regency / City is obtained in figure 6 on the next page.

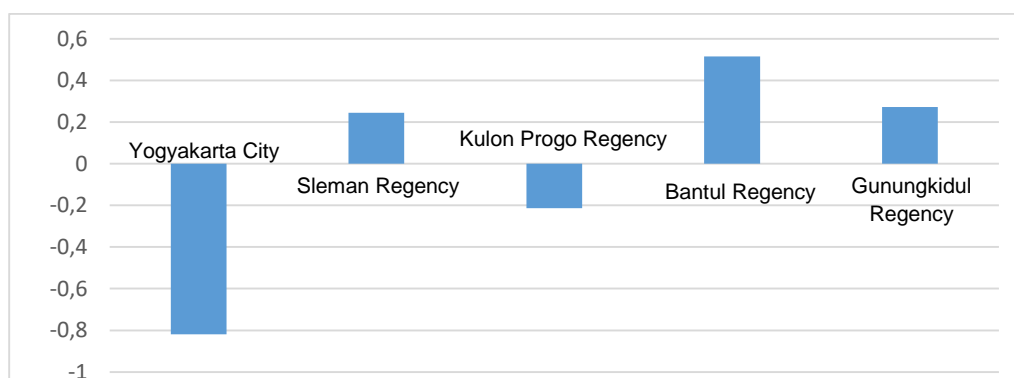


Figure 6. Cities/Regencies Intercept
Source: Processed data (2020)

Based on the figure 6, the lowest poverty rate is in Yogyakarta City and the highest poverty rate is in Bantul Regency. Yogyakarta City has a low number of poor people because Yogyakarta City is the center of the economy in Yogyakarta, so that access to health and education is very easy for the people of Yogyakarta City, in addition to this, the wage standards applied in Yogyakarta City are also the highest among other DIY Regency / City, this means that the income of the people of Yogyakarta City is also high.

Bantul Regency has a high number of poor people because in Bantul Regency there is the poorest sub-district in Yogyakarta, namely Sedayu Sub-district with the majority of jobs being farmers who do not own land, so that people only work the land for agriculture and get wages or get a portion of the agricultural products. Yogyakarta City, as the economic center of the region, offers more opportunities for employment, higher wages, and better access to education and health services, which contribute to lower poverty levels. In contrast, Bantul Regency, which has a large agricultural sector and includes the poorest sub-district in DIY (Sedayu Sub-district), experiences higher poverty levels. The predominance of subsistence farming and landless laborers in Bantul means that many residents have low and unstable incomes, making poverty more prevalent.

These findings highlight the importance of targeted poverty alleviation strategies that consider the specific characteristics and needs of different districts and cities within the region. For example, in areas like Bantul, policies that support agricultural productivity, provide land access, and diversify income sources could be more effective in reducing poverty than a one-size-fits-all approach. The analysis of poverty in the districts and cities of the Yogyakarta Special Region using a fixed effect model reveals complex relationships between poverty and various socioeconomic factors. While the Human Development Index and District Minimum Wage are found to have negative and significant effects on poverty, the Average Years of Schooling shows a positive and significant relationship, which requires further investigation. The Open Unemployment Rate does not have a significant impact on poverty, which may reflect the unique economic and social conditions of the region.

4. CONCLUSION

The findings of this study highlight that the number of poor people in the districts and cities of Yogyakarta is significantly influenced by changes in the Human Development Index (IPM), average years of schooling (RLS), and district minimum wage (UMK). A rise in IPM correlates with a decrease in poverty, indicating that improving quality of life through better health and education is essential in combating poverty. However, the increase in RLS paradoxically raises poverty levels, potentially due to the financial burden of education on families with irregular incomes, exacerbated by the misallocation of educational assistance like the KIP policy. The open unemployment rate (TPT) appears to have no direct impact on poverty, as unemployment in Yogyakarta largely consists of educated individuals from affluent backgrounds. Higher UMK effectively reduces poverty, emphasizing the role of fair wage policies in alleviating poverty.

Policy implications of these findings suggest that efforts to reduce poverty should focus on increasing access to education and healthcare, particularly in underserved districts. Additionally, ensuring that educational assistance targets truly needy populations could mitigate the adverse effects of extended schooling on poverty. There is also a need to enhance vocational training to address the issue of educated unemployment. The government should consider infrastructure improvements and economic development in regions like Bantul to tackle regional poverty disparities. Future research should continue to explore the unexpected findings related to education and poverty, potentially examining the role of underemployment, job mismatch, and the effectiveness of social assistance programs in the region. Understanding these dynamics will be crucial for designing policies that effectively reduce poverty and promote inclusive development in the Yogyakarta Special Region.

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