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ANALYSIS OF THE EFFECT OF SOCIOECONOMIC FACTORS ON POVERTY IN CENTRAL JAVA PROVINCE

Moh. Nur Khaqiqi[1*]
Lilik Sugiharti[1]

[1] Department of Economics, Universitas Airlangga, Surabaya, Indonesia

ABSTRACT

Central Java, despite experiencing robust economic growth, continues to grapple with significant poverty, reflecting a broader national challenge of uneven wealth distribution. The poverty rate as of 2023 stands at 10.77%, highlighting persistent economic disparities. The study aims to analyze how socioeconomic factors like economic growth, HDI, and wage levels contribute to poverty alleviation within the region. The research uses a quantitative approach, employing regression random effect models to understand the dynamics between these variables and poverty rates over the years 2014-2023. Data were processed using Stata 17. The analysis indicates that economic growth in Central Java has an insignificant direct impact on reducing poverty. The research highlights a significant negative correlation between HDI and poverty levels. This study found that wage increases have not significantly impacted poverty reduction. Simultaneously, GDRP growth, HDI, and wages affect poverty in Central Java province. The findings suggest that merely focusing on economic growth and wage increases is not enough to reduce poverty. Comprehensive strategies that also improve human development indices and address income distribution are crucial for effective poverty alleviation.

Keywords: *Poverty, Economic Growth, HDI, Wages*

JEL: C40; I32; O11

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*Correspondence:
Moh. Nur Khaqiqi

E-mail:
moh.nur.khaqiqi-2022@feb.unair.ac.id

Introduction

Poverty remains a complex and widespread challenge in Indonesia, particularly in the region of Central Java. Despite Indonesia's fairly robust economic growth over the past decade, wealth distribution remains uneven, leading to significant disparities in economic well-being (Prasetyo & Kistanti, 2020). Central Java, with its diverse economic characteristics encompassing agriculture, manufacturing, and services, reflects this national issue and serves as a unique case study for understanding poverty dynamics in the region. The poverty rate in Central Java Province stands at 10.77%, positioning it second in Java after Yogyakarta Province (11.34%) in terms of a high percentage of impoverished population (BPS, 2023).

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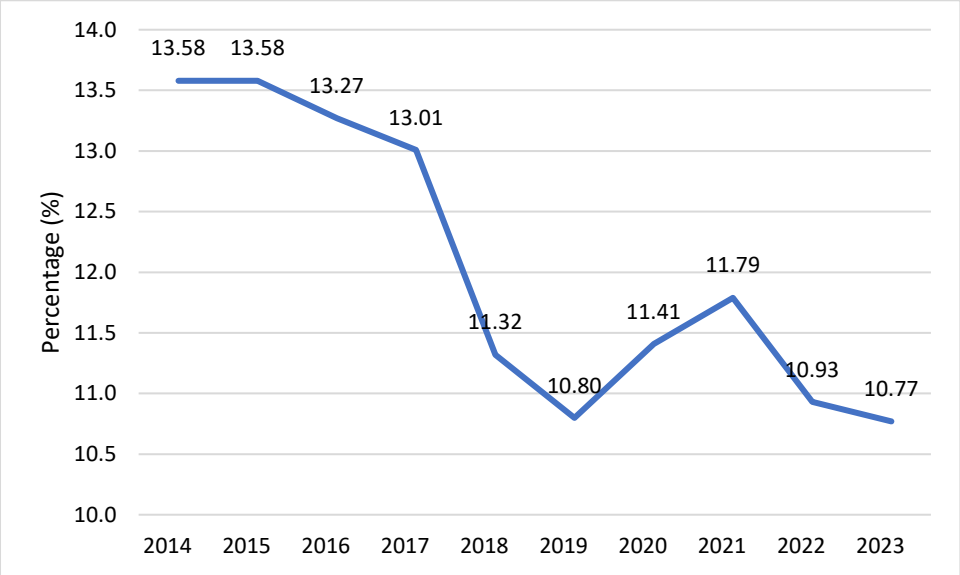

Figure 1: Percentage of Poverty in Central Java Province 2014-2023

Source: BPS (2023)

The percentage of poverty in Central Java Province is depicted in the graph above. According to BPS, the percentage of impoverished residents in Central Java Province from 2014 to 2023 exhibits a downward trend. Although it tends to decrease, the percentage remains above 10%. The graph shows that in 2014, there were 4.56 million (13.58%) impoverished residents in Central Java, and this number continued to decrease over the years, reaching 3.79 million (10.77%) by 2023. In 2020 and 2021, there was a continuous spike in the number of impoverished residents, peaking at 8.75 million (11.79%) in Central Java, which represents an increase of 0.99% from 2019. This surge occurred due to the Covid-19 pandemic, which impacted the world, including Indonesia, in 2020. The pandemic led to widespread layoffs and economic stagnation, preventing many people from meeting their basic needs. Consequently, this triggered a financial and economic crisis in Indonesia, exacerbating poverty in various regions, including Central Java Province.

Despite many industries in the region that would have helped in poverty reduction, still poverty rate remains high and this motivate the researcher to conduct the study and come up with recommendations that will help alleviate poverty in the region. Understanding the factors influencing poverty in Central Java is essential for developing effective policies to reduce poverty. Central Java is one of the provinces with the second highest poverty rates in Java Island, making it a critical area for study. This regional relevance provides a deep context regarding the economic and social conditions that contribute to poverty, which is not solely an issue of income deprivation but also involves education, health, and overall living standards.

Poverty is a complex and multidimensional issue. This study utilizes the Human Development Index (HDI) as one of the main variables to provide a more comprehensive picture of human well-being. HDI captures various dimensions of poverty that traditional economic analyses often overlook. By including HDI, this study aims to understand the broader impacts of socioeconomic factors on poverty.

Research on the causes, impacts, and potential solutions to poverty in Central Java is crucial. Previous studies, such as by Novianto & Sudarsono (2018), found a negative relationship between economic growth and poverty, indicating that increased economic growth can

reduce the number of impoverished individuals. Additionally, the study revealed a negative correlation between HDI and poverty, suggesting that improvements in HDI could potentially reduce poverty levels. However, contradictory findings by Azmi (2019) suggest that HDI may have a positive relationship with poverty, highlighting the need for further investigation.

The study of wages reveals a complex interplay of factors influencing wage dynamics, from economic cycles and employer differentials to technological changes and policy frameworks, all of which are essential for understanding wage impacts on poverty (Sullivan & Hickel, 2023). Similarly, broader discussions on economic growth and human development indices provide crucial perspectives on the structural and systemic elements that can facilitate or hinder poverty reduction strategies (Olopade et al., 2019).

By integrating these diverse insights, this study aims to provide a holistic understanding of the factors that contribute to poverty dynamics and suggest practical and effective solutions for policy and practice. This research aims to bridge the gap in the literature by providing an in-depth analysis of the poverty dynamics in Central Java, contributing valuable insights that could inform policy and practice. Academically, it will enrich the body of knowledge on regional poverty in Indonesia. Practically, it will provide evidence-based recommendations to policymakers and stakeholders working to alleviate poverty in Central Java.

The primary objective of this study is to analyze the socioeconomic factors that contribute to poverty reduction within a specific regional context. Given that HDI encompasses a broad and multidimensional concept with economic growth and poverty subsumed under it, the focus will be on understanding how these socioeconomic variables interact and influence poverty rates. By examining these variables, the study seeks to offer evidence-based recommendations for effective poverty alleviation strategies that are tailored to the specific regional context of Central Java.

The methodology of this study involves the use of quantitative analysis with panel regression models to examine the relationship between the socioeconomic factors and poverty rates in Central Java from 2014 to 2023 using annual data. The data will be sourced from BPS (Central Statistics Agency). The following sections are as follows: The Literature Review discusses previous studies and theoretical frameworks related to poverty and the socioeconomic factors. The Methodology section outlines the data collection process and analytical methods used. The Results section presents the findings of the regression analysis. The Discussion interprets the results in the context of existing literature and policy implications. Finally, the Conclusion summarizes the key findings and provides recommendations for policymakers and future research.

Literature Review

Poverty is a complex phenomenon characterized not only by economic deprivation but also by a lack of capabilities such as education, health, and employment, which are essential for human well-being. The capability approach highlights these dimensions as more crucial than mere income measures (Silva-Laya et al., 2020). In urban settings, educational opportunities for the poor are often compromised by material deprivation and socio-territorial challenges, which stratify access to education and hinder social mobility (Addae-Korankye, 2019). Theories on poverty attribute its causes to a range of factors including individual deficiencies, cultural beliefs, economic and political distortions, and geographical disparities, suggesting that alleviating poverty requires multi-faceted strategies such as promoting self-help, improving infrastructure, and developing comprehensive support programs (Obayelu

& Edewor, 2022). Additionally, the relationship between economic inequality and poverty is dynamic and complex, indicating that growth alone is not sufficient for poverty reduction; it must also consider structural factors and growth patterns. Furthermore, the psychological and behavioral impacts of poverty, such as stress and reduced cognitive capacity, underscore the need for interventions informed by behavioral economics and psychology, which can provide deeper insights into effective poverty alleviation strategies (Anand & Lea, 2011).

Theories of poverty are often framed within the perspectives of neoliberalism and social democracy. From a neoliberal viewpoint, addressing poverty involves expanding market forces and driving economic growth. In contrast, the social democratic perspective sees poverty as a structural issue, emphasizing the importance of equitable access to resources such as education, healthcare, and fair wages to mitigate poverty. These differing viewpoints illustrate the varied approaches to poverty alleviation, each with distinct implications for policy and practice (Suharto, 2009).

Economic growth is a multi-dimensional phenomenon shaped by various factors including theoretical models, human capital, policies, governmental spending, technological innovations, and environmental considerations (Ahn & Hemmings, 2000). Classical and modern economic theories provide foundational frameworks, highlighting the pivotal role of human capital as a driver of growth through education and skills development (Piętak, 2014). These theories suggest that investments in education and health can enhance individual productivity and, in turn, reduce poverty. Economic growth, if distributed equitably, can result in increased incomes that help lift individuals out of poverty.

Policy influences, particularly in OECD countries, stress the significance of macroeconomic stability and competitive trade policies. The impact of government spending on economic growth is debated, with evidence suggesting both positive and conditional effects depending on the economic context (Osiobe, 2019). Technological change is a crucial determinant, with historical and empirical studies underscoring the role of innovation and sectoral performance in sustaining long-term growth. Moreover, the relationship between economic growth and environmental sustainability remains a critical area of study, dividing opinions between those who believe in technological solutions and those advocating for growth limits to protect the environment (Rensman, 1996).

According the study by Sinaga (2020) indicates that GDRP per capita has a negative but not significant effect on poverty, implying that higher GDRP per capita does not significantly reduce poverty in Batu Bara Regency and Medan City. Similarly, study by Misini & Mustafa (2022) finds that economic growth within nominal GDP has a negative relationship with poverty, although this growth does not significantly reduce poverty rates in Kosovo. However, the study by Hassan (2015) contradicts and demonstrates a weak and positive relationship between GDP growth and unemployment, suggesting that GDP growth has not effectively reduced poverty in Nigeria.

The Human Development Index (HDI), initially developed by the UNDP, has been subject to various critiques and suggestions for improvement (Noorkabakhsh, 1998). Critics argue that despite its expansion beyond GDP, the HDI still focuses too narrowly on national performance without integrating global development perspectives or ecological considerations (Sagar & Najam, 1998). Methodological refinements, especially in the 2010 revision, have addressed some concerns by changing variable measurements and aggregation procedures, yet issues persist particularly in how educational achievements and income variables are treated (Herrero et al., 2012). Statistical justifications support the equal weighting of life expectancy, education,

and income through principal component analysis, affirming the structure's effectiveness in capturing significant variability in development data (Nguefack-Tsague et al., 2011). Further enhancements have been proposed, such as incorporating more rational components and employing advanced statistical techniques like Principal Component Analysis and Multiple Regression Analysis to improve the HDI's accuracy and reflectivity of human development more accurately (Banjade & Gautam, 2022).

According to Syam & Sapriyadi (2023), HDI has a negative and significant effect on poverty in Pangkajene Islands Regency, implying that higher HDI levels correlate with lower poverty levels. Another study by Jamaliah & Elyta (2022), also finds a negative relationship between HDI and poverty, indicating that as HDI increases, poverty decreases in West Kalimantan. Similarly, study by Hutabarat & Arka (2023) suggests that HDI negatively affects income disparity, which indirectly implies a reduction in poverty while Machmud & Sidharta (2023) highlight that increased HDI leads to reduced poverty.

Wage theory, on the other hand, emphasizes the complexity of wage dynamics influenced by economic cycles, industry-specific conditions, the presence of labor unions, and technological changes (Abraham & Haltiwanger, 1995). According to wage distribution theory, increases in minimum wages can reduce poverty if accompanied by job creation and skill development. The literature on wages reveals a complex interplay of factors influencing wage dynamics across different economic contexts. Cyclical behavior of real wages shows variability based on the business cycle, with studies indicating that the impact of the cycle depends on whether production or consumption wages are analyzed, as well as on the methodological approaches employed. Employer-based wage differentials highlight industry-specific conditions, union presence, and firm size as key influencers of wage variations among similar workers.

Technological changes contribute significantly to wage structures, affecting wage inequality and economic productivity, yet this influence is intertwined with institutional factors that govern the distribution of industry rents (Abraham & Haltiwanger, 1995). Historical and theoretical perspectives on wage theories trace the evolution of wage determinants through various economic schools, emphasizing the role of labor market dynamics, bargaining powers, and policy interventions in shaping wage levels. Furthermore, the concept of rent sharing suggests that firms share profits with employees through wages, a factor substantiated by econometric analyses with implications for wage-setting practices and economic policy (Groshen, 1991).

According to Wardani et al. (2022), an increase in minimum wages leads to a reduction in poverty levels in Yogyakarta, while, the study by Burkhauser et al. (2023) suggests that increases in the minimum wage do not significantly reduce long-term poverty rates. Additionally, study by Feriyanto et al. (2020) indicates that while higher wages can contribute to poverty reduction, the effect is intertwined with unemployment and economic growth. Meanwhile, a study by Lustig & Mcleod (1996) finds that higher minimum wages are associated with lower levels of poverty, though this comes at the cost of higher unemployment.

Based on the above, the following hypotheses are formulated:

H1. GDRP contributes to reducing the level of poverty in Central Java.

H2. Human Development Index contributes to reducing the level of poverty in Central Java.

H3. Wage contributes to reducing the level of poverty in Central Java.

Data and Research Methods

The primary objective of this study was to analyze the socioeconomic factors, specifically economic growth, the Human Development Index (HDI), and wage rates, in reducing poverty in Central Java. The study aimed to understand how economic growth, the HDI, and wage rates impacted poverty reduction in the region. To achieve this, the research employed a quantitative design, focusing on statistical analysis to evaluate the relationships between these variables. Wooldridge (2019) stated that the ordinary least squares (OLS) method is used when creating econometric regression models. The statistical analysis involved using OLS on panel data, which allowed for an examination of how these socioeconomic variables influenced poverty over time.

The study relied on secondary data sourced from BPS Central Java (the Central Statistics Agency of Central Java) for the years 2014 to 2023. This dataset included annual GDP growth rates to measure economic growth, annual HDI scores to reflect the human development index, data on minimum wage rates, and official statistics on poverty rates in Central Java. To analyze these data, Stata 17 software was employed. The data was first cleaned by handling missing values and outliers, and variables were transformed as needed for analysis. OLS regression was then used to identify the relationship between the socioeconomic variables and poverty reduction. This analysis was complemented by diagnostic tests to ensure robustness, including checks for multicollinearity, heteroscedasticity, and autocorrelation.

The analytical technique used in this research is panel data regression analysis. Panel data are characterized by having both time-series and cross-sectional structure (Hsiao, 2022). The general form of panel data estimation is as follows:

$$Y_{it} = \beta_0 + \beta_1 X1_{it} + e_{it}\ i = 1,2,...,\mathrm{N}; t = 1,2,...,\mathrm{T} \quad (1)$$

where:

N : number of observations

T : number of time

N x T : number of panel data

The formulation of the model in this research is similar to the one used by Suryandari (2017) to study the impact of economic growth, education, and health on poverty levels in the Province of DIY from 2004 to 2014. With a slight modification to the model she used, the model applied in this research becomes:

$$POV_{it} = \beta_0 + \beta_1 GDRP_{it} + \beta_2 HDI_{it} + \beta_3 WAGES_{it} + \mu_{it} \quad (2)$$

where:

POV : Poverty rate (poverty headcount)

GDRP : Gross Domestic Regional Product (growth in millions)

HDI : Human Development Index (yearly)

WAGE : Wages (minimum wages per year)

β0 : Intercept

β1, β2, β3 : Regression coefficients

μit : Error component at time t for cross-sectional unit i

i : 1-35 cross-sectional data of districts/cities

t : 1-10 time series data from 2014 to 2023

Finding and Discussion

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
pov	350	122.6635	71.01072	9.1	367.9
gdrp	350	2.52e+07	2.34e+07	4755092	1.45e+08
hdi	350	71.04695	4.661689	61.81	83.6
wages	350	1523124	407390.6	830000	2810025

Table 1 presents the descriptive statistics of the variables used in the study. These descriptive statistics include the number of observations (350) for each variable, the mean value, standard deviation, minimum value, and maximum value. For instance, the mean value of poverty is 122.6635 with a standard deviation of 71.01072, indicating a relatively wide spread of data. The minimum value for poverty is recorded at 9.1, while the maximum value is 367.9. For the variable gdrp, the mean value is 2.52e+07 with a standard deviation of 2.34e+07, indicating significant variation in the GRDP data for the studied regions.

Table 2: Correlation Matrix

	pov	gdrp	hdi	wages
pov	1.0000			
gdrp	0.1138	1.0000		
hdi	-0.6301	0.3170	1.0000	
wages	-0.2019	0.3406	0.4319	1.0000

Table 2 above shows the correlation between the variables under observation. The results show that poverty and HDI are negatively correlated and poverty and wages are also negatively correlated. All the remaining variables show a positive correlation.

Table 3: Unit Root Tests

	LLC		IPS	
Variable	**Level**	**First Difference**	**Level**	**First Difference**
Pov	-5.2615***	-10.9682***	-1.4775*	-2.7830***
Gdrp	-9.2196***	6.5921	0.8700	-4.7331***
Hdi	-23.7494***	-6.9345***	-1.0678	-3.4944***
Wages	-16.9331***	4.0217	-1.3750*	-3.7837***

*** p<0.01, ** p<0.05, * p<0.1

Table 3 shows the unit root test using LLC (Levin-Lin-Chu) and IPS (Im, Pesaran, and Shin) methods to check whether the data are stationary. The LLC result shows that all the variables are stationary at level at 1% but at first difference only poverty and HDI are stationary at 1%. Similarly, the results for IPS show that only poverty and wages are stationary at 10% for level while for the first difference, all variables are stationary at 1%.

Table 4: F-Restricted Test Results

	Coef.
F(34, 277)	273.53
Prob > F	0.0000

Based on the data processing mentioned above, the table from the Chow/F-restricted test shows a probability value of 0.0000, which is less than the significance level of 0.05. Therefore, it can be concluded that the null hypothesis (H0) is rejected and the alternative hypothesis (H1) is accepted, indicating that the fixed effect model is the appropriate choice. When the fixed effect model is selected, a Hausman test is required. The purpose of the Hausman test is to determine whether a fixed effect model (FEM) or a random effect model (REM) should be used.

Table 5: Hausman Test Results

	Coef.
Chi-square test value	2.761
P-value	0.097

Based on the results of the Hausman test mentioned above, it is known that the probability value is 0.097, which is greater than the significance level of 0.05. Therefore, it is concluded that the null hypothesis (H0) is accepted, and the best model to be used in this study is REM.

Table 6: Lagrangian Multiplier (LM) Test Results

	Coef.
chibar2(01)	1144.35
Prob > chibar2	0.0000

Based on the results of the LM test above, it is found that the probability value is 0.0000, which is smaller than the alpha value of 0.05. Therefore, it is concluded that the null hypothesis (H0) is rejected, and the best model to be used in this study is REM.

According to Gurka et al. (2012) in the context of regression analysis using REM, there are several reasons why classical assumption tests typically applied to ordinary linear regression may not be necessary. The REM is generally used in panel data or data that have a grouped structure. One primary reason is the different data structure. Classical assumptions of linear regression, such as homoscedasticity, no autocorrelation, and multicollinearity, generally focus on cross-sectional data. Meanwhile, the random effect model is designed to handle data with hierarchical or group structures (for example, data taken over several times or from the same entities), where random variables accommodate unobserved influences that may vary across units but are constant over time.

Additionally, the random effect model assumes that there are specific unobserved effects that vary randomly and are uncorrelated with the independent variables. This contrasts with the fixed effect model, which assumes that unobserved effects are correlated with the independent variables. In the random effect model, since these unobserved effects are accounted for as part of the model, some classical assumptions become less relevant. Furthermore, in the random effect model, the existence of group or panel structures allows for autocorrelation and heteroscedasticity within groups or among the same individuals over time. However, the model uses estimators that are robust to both issues. For example, the use of estimators like generalized least squares (GLS) can address heteroscedasticity and autocorrelation in the data. Lastly, in the context of the random effect model, concerns about multicollinearity are often minimized because the model considers random variables that absorb some of the variation that might previously have been attributed to collinear predictor variables.

Table 7: Regression Results

	PLS	FEM	REM
Variables	**pov**	**pov**	**pov**
gdrp	1.06e-06***	-2.45e-07	7.80e-09
	(1.31e-07)	(2.06e-07)	(1.84e-07)
hdi	-11.28***	-6.223***	-7.414***
	(0.687)	(1.339)	(1.131)
wages	-1.77e-07	2.23e-06	4.64e-06
	(7.93e-06)	(5.32e-06)	(4.50e-06)
Constant	897.5***	567.5***	642.2***
	(45.10)	(87.99)	(74.63)
Observations	350	350	350
R-squared	0.506	0.514	0.510
Number of regency	35	35	35

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Based on the analysis results, an r-squared value of 0.4031 was obtained. This means that 40.31%t of the poverty in Central Java can be explained by the variables GDP, HDI, and wages. The remaining 59.69% is explained by other variables outside the model or other factors not considered in this study.

The F-statistic is used to determine whether all independent variables have a joint or simultaneous impact on the dependent variable. From the regression results of the influence of GDP, HDI, and wages on the poverty level in Central Java Province, a probability value of 0.000000 was obtained, which is smaller than the significance level of 0.05. Therefore, it can be concluded that all independent variables (GDP, HDI, and wages) have a significant simultaneous effect on the dependent variable (poverty).

The t-test, or partial test, is conducted to examine whether the independent variables (GDP, HDI, and wages) have a partial effect on the dependent variable (poverty). Based on the results of the t-test, it is shown that individually, among the three independent variables, only the HDI variable has a significant impact on poverty in Central Java. The other two independent variables, GDP and wages, do not significantly affect poverty.

The analysis of the GDP variable reveals that it has a t-value of 0.04 with a p-value of 0.966, which is greater than the alpha level of 0.05. Therefore, it can be concluded that the GDP variable does not have a significant effect on the poverty level. The analysis of the HDI variable shows a t-value of -6.55 with a p-value of 0.000, which is less than the alpha level of 0.05. Thus, it can be concluded that the HDI variable significantly affects the poverty level. The analysis of the wages variable indicates that it has a t-value of 1.03 with a p-value of 0.302, which is greater than the alpha level of 0.05. Therefore, it can be concluded that the wages variable does not significantly affect the poverty level. The t-test results indicate that, among the independent variables examined, only HDI has a significant impact on poverty in Central Java, while GDP and wages do not show a significant effect.

Based on the data processed using the fixed effect model, the following equation was derived:

$$POV_{it} = 8.60 + 0.04GDRP_{it} - 6.55HDI_{it} + 1.03WAGES_{it} + \mu_{it} \quad (3)$$

From the regression equation above, it can be observed that the constant coefficient of 8.60 indicates that, assuming the variables of GDP, HDI, and wages are constant, the average poverty rate is 8.60.

The regression coefficient value for the economic growth variable of 0.04 means that each 1%increase in GDP can raise the poverty level by 4%, assuming other variables remain constant (ceteris paribus). According to the regression analysis conducted using the random effect model, the variable of economic growth (GDP) individually has a positive impact on poverty in Central Java Province with a probability value of 0.966. The regression results indicate that economic growth has an insignificant effect on poverty in Central Java Province. This result is similar to the study by Hassan (2015) that demonstrates a weak and positive relationship between GDP growth and unemployment, suggesting that GDP growth has not effectively reduced poverty in Nigeria. This could be due to fluctuations in economic growth. High economic growth does not guarantee a reduction in poverty rates if economic turnover only circulates among the wealthy or a select few. Such scenarios contribute to social inequality, akin to a cake that is not distributed evenly and fairly. Economic development should not be measured solely by the overall GDP but must consider how far income distribution has spread across social strata and who has benefited from it.

Based on the theory presented by Kuznets, where economic growth is closely related to developmental inequality, in this case poverty, this relationship forms the hypothesis of an "Inverted U Curve." According to this hypothesis, in the early stages of development, income inequality tends to increase due to significant declines in income distribution within the economy. Subsequently, in later stages of development, income inequality tends to decrease as income distribution becomes more equitable. In the long run, the level of economic growth has a negative correlation with income inequality; that is, if economic growth increases, productivity also rises. Increased productivity will lead to a decrease in income inequality (Tambunan, 2014).

However, a regression analysis of Central Java's economic growth indicates that this growth does not significantly reduce poverty and may even exacerbate it through increased income disparity. This finding aligns with previous studies highlighting the channels through which disparity occurs, where the benefits of economic growth are not evenly distributed. As a result, greater income inequality and higher poverty rates ensue (Tambunan, 2014). Therefore, it is crucial for policymakers in Central Java Province to focus on inclusive growth strategies that ensure the benefits of economic growth are widely shared across all socioeconomic groups. This approach aims to achieve equitable income distribution and effectively reduce poverty, consistent with the later stages of the "Inverted U-Curve" hypothesis proposed by Kuznets.

The regression coefficient value for the HDI variable of -6.55 means that each 1%increase in the HDI variable can lead to a decrease in poverty by 6.55%. The results of hypothesis testing indicate that the HDI variable significantly affects the poverty level in Central Java Province. This is evident from the probability value of 0.000, which is smaller than the alpha value of 0.05. These findings are consistent with the research conducted by Novianto & Sudarsono (2018) which showed that HDI has a negative impact on poverty. Syam & Sapriyadi (2023) confirm that HDI has a negative and significant effect on poverty in Pangkajene Islands Regency, implying that higher HDI levels correlate with lower poverty levels. Another study by Jamaliah & Elyta (2022) also finds a negative relationship between HDI and poverty, indicating

that as HDI increases, poverty decreases in West Kalimantan. Similarly, a study by Hutabarat & Arka (2023) suggests that HDI negatively affects income disparity, which indirectly implies a reduction in poverty while Machmud & Sidharta (2023) highlight that increased HDI leads to reduced poverty. The results are consistent with result of this study which stated that HDI has a negative relationship with poverty. A high HDI coefficient indicates that it has a significant impact on poverty. From this, it can be inferred that the role of quality human resources can enhance productivity. Good and high-quality education increases an individual's capabilities and helps in exploring various opportunities in life. Additionally, good public health can enhance productivity. A person in good physical and mental condition is capable of performing well at work. Thus, they are able to meet their needs and improve their standard of living.

The regression coefficient value for the wages variable of 1.03 means that each 1%increase in wages can increase the poverty level by 1.03%. The results of the regression analysis conducted using the random effect model show that the wage variable individually has a positive impact on poverty in Central Java Province with a probability value of 0.302. This research indicates a positive relationship between wages and poverty. This is contrary to the hypothesis this study which states that an increase in the minimum wage would reduce poverty. This result is similar to the study by Burkhauser et al. (2023) which suggests that increases in the minimum wage do not significantly reduce long-term poverty rates. Additionally, study by Feriyanto et al. (2020) indicates that while higher wages can contribute to poverty reduction, the effect is intertwined with unemployment and economic growth while Lustig & McLeod (1996) find that higher minimum wages are associated with lower levels of poverty, though this comes at the cost of higher unemployment.

Contrary to the expectation that wage increases would reduce poverty, the analysis indicates a positive relationship between wages and poverty rates. This phenomenon can be attributed to labor market dynamics where higher minimum wages lead to increased unemployment among low-skilled workers. Studies have shown that while higher wages are intended to uplift the poor, they can result in job losses and higher unemployment, thereby contributing to poverty (Burkhauser et al., 2023 ; Lustig & McLeod, 1996). Consequently, it is crucial for wage policies to be balanced with measures that support job creation and skill development to mitigate these adverse effects.

The positive relationship between wages and poverty is further explained by the fluctuation of both variables over the last decade. Although the poverty variable shows a declining trend, there have been increases in certain years, such as in 2019 when the number of people in poverty rose by 9,500. This increase was influenced by factors such as higher inflation rates that were not matched by corresponding wage increases. This suggests that the minimum wages in various districts and cities in Central Java Province need to be adjusted. In nominal terms, wages have indeed always increased, but they have fluctuated in percentage terms. Additionally, lifestyle choices, installments, debts, and other expenses that are disproportionate to the income received contribute to the positive relationship between wages and poverty. Therefore, good financial management is necessary to avoid difficulties when problems occur.

To address these issues effectively, it is essential for policymakers to ensure that wage adjustments are in line with inflation and economic conditions, and to implement comprehensive policies that promote job creation and skill development. This approach will help to balance the intended benefits of higher wages with the need to prevent increased unemployment and poverty.

The results of this study can be observed in the regression output which shows that the variables of economic growth, HDI, and wages simultaneously affect poverty in Central Java Province. This is evident from the probability value of 0.000, which is smaller than the alpha of 0.05, indicating a significant impact of the independent variables on the dependent variable. The overall R-squared value is 0.403, indicating that the variables of economic growth, HDI, and wages explain 40.3% of the variance in poverty. Poverty itself is one of the main challenges in development. Therefore, to achieve sustainable development, it is crucial to reduce poverty levels. Previous points explained that only the variables of economic growth and wages were not significant in influencing poverty in Central Java Province. However, in a simultaneous regression, they have an effect amounting to 40.3%. This is because economic growth and wages are not the only factors that can influence the development of a region. Development is multidimensional, encompassing social aspects and the structural facets of community life. A reduction in poverty can indicate development in a region or country. Thus, this explains why the simultaneous regression of these three variables has a significant impact on poverty in Central Java Province.

Conclusion

This paper explores the relationship between the GDRP growth, HDI, wages, and poverty in Central Java, Indonesia. This study found that economic growth in Central Java has an insignificant direct impact on reducing poverty. This suggests that while the economy may be growing, the benefits of this growth are not sufficiently reaching the poorer segments of the population. The research highlights a significant negative correlation between HDI and poverty levels. Improvements in HDI, which include better education and health standards, are strongly associated with poverty reduction. This underlines the importance of investing in human capital to combat poverty. The analysis indicates that wage increases have not significantly impacted poverty reduction. This could be attributed to the fact that wage increments may not be keeping pace with inflation or might be unevenly distributed across different sectors and demographics.

The findings suggest that merely focusing on economic growth and wage increases is not enough to reduce poverty. Comprehensive strategies that also improve human development indices and address income distribution are crucial for effective poverty alleviation. The study provides a detailed examination of the socioeconomic factors affecting poverty in Central Java and offers evidence-based recommendations for policymakers aimed at reducing poverty through multi-faceted approaches that include economic, educational, and health improvements. These insights are crucial for formulating targeted interventions that not only foster economic growth but also ensure it translate into tangible benefits for all socioeconomic groups, particularly the impoverished.

However, this study has several limitations that should be considered. First, the study uses data from 2014 to 2023, which may not capture the long-term dynamics of the factors influencing poverty. Second, the study uses aggregate data at the provincial level, which may not capture local variations and contextual differences at the district/city level. Third, the study does not account for external factors such as government policies and global economic conditions that may also affect poverty.

For future research, it is recommended to extend the time frame of the data used to better capture long-term dynamics. Additionally, a more in-depth analysis at the district/city level can provide more specific insights into the factors affecting poverty at the local level. Future studies should also consider the impact of government policies and global economic conditions in the analysis to obtain a more comprehensive picture.

Furthermore, for future research, it is suggested that HDI be decomposed into its individual components, such as education and health. This will allow for a more detailed analysis of how each component of HDI affects poverty. Additionally, future studies could compare two or three provinces to understand the dynamics of poverty in different regional contexts. By addressing these limitations, future research is expected to provide stronger and more relevant recommendations for poverty alleviation.

Declaration

Conflict of Interest

The author has disclosed that there are no conflicts of interest pertaining to the research, findings, or conclusions presented in this article regarding the impact of GDP growth, HDI, and wages in Central Java Province.

Availability of Data and Materials

The data and resources employed in this article, which examines the influence of GDRP growth, HDI, and wages in Central Java Province, were gathered from BPS Jawa Tengah. This ensures that the data are easily accessible and dependable for researchers to verify and authenticate the findings of the study.

Author's Contribution

Conception or conceptualization: Moh. Nur Khaqiqi and Lilik Sugiharti. Methodology, analysis, investigation, data findings, writing original draft preparation: Moh. Nur Khaqiqi. Writing review and editing: Lilik Sugiharti. All authors were involved in the discussiom of results and contributed to the preparation of the final manuscript.

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References

Abraham, K. G., & Haltiwanger, J. C. (1995). Real wages and the business cycle. *Journal of Economic Literature*, *33*(3), 1215-1264.

Addae-Korankye, A. L. E. X. (2019). Theories of poverty: A critical review. *Journal of Poverty, Investment and Development*, *48*(1), 55-62. 10.7176/JPID/48-08

Ahn, S., & Hemmings, P. (2000). Policy influences on economic growth in OECD countries: an evaluation of the evidence. *ECD Economics Department Working Papers, No. 246, OECD Publishing, Paris*

Anand, P., & Lea, S. (2011). The psychology and behavioural economics of poverty. *Journal of Economic Psychology*, *32*(2), 284-293. 10.1016/j.joep.2010.11.004.

Azmi, R. (2019). *Pengaruh Jumlah Pengangguran, Indeks Pembangunan Manusia Dan PDRB Terhadap Tingkat Kemiskinan di Kabupaten Labuhanbatu* (Doctoral dissertation, Universitas Islam Negeri Sumatera Utara). http://repository.uinsu.ac.id/6989/

Badan Pusat Statistik Provinsi Jawa Tengah (2023). https://jateng.bps.go.id/.

Banjade, I. P., & Gautam, S. (2022). Human Development Index and Its Enhancement with Selection Procedure of Its Components. *Journal of Advanced College of Engineering and Management*, *7*(01), 59-65. 10.3126/jacem.v7i01.47333

Burkhauser, R. V., McNichols, D., & Sabia, J. J. (2023). *Minimum Wages and Poverty: New Evidence from Dynamic Difference-in-Differences Estimates*. NBER Working Papers 31182, National Bureau of Economic Research, Inc. Social Science Research Network. 10.2139/ssrn.4433861

Feriyanto, N., El Aiyubbi, D., & Nurdany, A. (2020). The impact of unemployment, minimum wage, and real gross regional domestic product on poverty reduction in provinces of Indonesia. *Asian Economic and Financial Review*, *10*(10), 1088-1099. 10.18488/JOURNAL.AEFR.2020.1010.1088.1099

Groshen, E. L. (1991). The structure of the female/male wage differential: Is it who you are, what you do, or where you work? *Journal of Human Resources*, *26*(3), 457-472. 10.2307/146021

Gurka, M. J., Kelley, G. A., & Edwards, L. J. (2012). Fixed and random effects models. *Wiley Interdisciplinary Reviews: Computational Statistics*, *4*(2), 181-190. 10.1002/wics.201

Hassan, O. M. (2015). The impact of the growth rate of the gross domestic product (GDP) on poverty reduction in Nigeria. *Journal of Emerging Trends in Economics and Management Sciences*, *6*(3), 221-230. 10.5430/IJBA.V6N5P90

Herrero, C., Martínez, R., & Villar, A. (2012). A newer human development index. *Journal of Human Development and Capabilities*, *13*(2), 247-268. 10.1080/19452829.2011.645027

Hsiao, C. (2022). *Analysis of panel data* (No. 64). Cambridge University Press.

Hutabarat, W. B., & Arka, S. (2023). The Effect of HDI, Open Unemployment Rate, and Poverty on Income Disparity in Riau Islands Province in 2011-2022. *Jurnal Simki Economic*, *6*(1), 316-327. 10.29407/jse.v6i1.375

Jamaliah, J., & Elyta, E. (2022). The Effect of Human Development Index (HDI) on Poverty and Crime in West Kalimantan, Indonesia. *Khazanah Sosial*, *4*(1), 119-130. 10.15575/ks.v4i1.17159

Lustig, N., & McLeod, D. (1996). *Minimum Wages and Poverty in Developing Countries: Some Evidence* (No. 125). Research Papers in Economics.

Machmud, S., & Sidharta, I. (2023). The relationship between regional development, human development and poverty: A perspective from the Indonesian province. *Nurture*, *17*(3), 157-165. 10.55951/nurture.v17i3.283

Misini, S., & Mustafa, B. (2022). The relationship between economic growth, unemployment and poverty. *Corporate Governance and Organizational Behavior Review*, *6*(4), 57-63. 10.22495/cgobrv6i4p5

Nguefack-Tsague, G., Klasen, S., & Zucchini, W. (2011). On weighting the components of the human development index: a statistical justification. *Journal of Human Development and Capabilities*, *12*(2), 183-202. 10.1080/19452829.2011.571077

Noorbakhsh, F. (1998). The human development index: some technical issues and alternative indices. *Journal of International Development: The Journal of the Development Studies Association*, *10*(5), 589-605. 10.1002/(SICI)1099-1328(199807/08)10:5<589::AID-JID484>3.0.CO;2-S

Novianto, S., & Sudarsono, H. (2018). Analysis of poverty level in districts/cities of Central Java. *Jurnal Ekonomi Pembangunan*, *16*(1), 1-12. 10.22219/jep.v16i1.8181

Obayelu, A. E., & Edewor, S. E. (2022). Economic Inequality and Poverty Dynamics: What does Literature tell us? *Innovation Journal of Social Sciences and Economic Review*, *4*(4), 21-31. 10.36923/ijsser.v4i4.166

Olopade, B. C., Okodua, H., Oladosun, M., & Asaleye, A. J. (2019). Human capital and poverty reduction in OPEC member-countries. *Heliyon*, *5*(8). 10.1016/j.heliyon.2019.e02279

Osiobe, E. U. (2019). A literature review of human capital and economic growth. *Business and Economic Research*, *9*(4), 179-196. 10.5296/ber.v9i4.15624

Piętak, Ł. (2014). Review of theories and models of economic growth. *Comparative Economic Research. Central and Eastern Europe*, *17*(1), 45-60. 10.2478/cer-2014-0003

Prasetyo E., & Kistanti, N.R. (2020). Entrepreneurship and Sustainability Issues Publisher Human Capital Institutional Economics and Entrepreneurship as a Driver for Quality Sustainable Economic Growth. *Journal of Entrepreneurship and Sustainability Issues*, *7*(4), 2575-2589. 10.9770/jesi.2020.7.4(1)

Rensman, M. (1996). Economic growth and technological change in the long run: a survey of theoretical and empirical literature. *The Annual Research Report*. Sagar, A. D., & Najam, A. (1998). The human development index: a critical review. *Ecological Economics*, *25*(3), 249-264. 10.1016/S0921-8009(97)00168-7

Sagar, A.D. and Najam, A. (1998) The Human Development Index: A Critical Review. *Ecological Economics*, 1, 249-264. http://dx.doi.org/10.1016/S0921-8009(97)00168-7

Silva-Laya, M., D'Angelo, N., García, E., Zúñiga, L., & Fernández, T. (2020). Urban poverty and education. A systematic literature review. *Educational Research Review*, *29*, 100280. 10.1016/j.edurev.2019.05.002

Sinaga, M. (2020). Analysis of effect of grdp (gross regional domestic product) per capita, inequality distribution income, unemployment and hdi (human development index) on poverty. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*, *3*(3), 2309-2317. 10.33258/BIRCI.V3I3.1177

Suharto, Edi. (2009). *Membangun Masyarakat memberdayakan Rakyat*. Bandung: PT. Refika Aditama.

Sullivan, D., & Hickel, J. (2023). Capitalism and extreme poverty: A global analysis of real wages, human height, and mortality since the long 16th century. *World Development*, *161*, 106026. 10.1016/j.worlddev.2022.106026

Suryandari, A. N. (2017). Pengaruh Pertumbuhan Ekonomi, Pendidikan, Dan Kesehatan

Terhadap Tingkat Kemiskinan Di Provinsi Daerah Istimewa Yogyakarta Tahun 2004-2014. *Universitas Negeri Yogyakarta*, 8-9.

Syam, S. F., & Sapriyadi, S. (2023). Determinan Kemiskinan di Kabupaten Pangkajene Kepulauan Tahun 2012-2021. *Jurnal Ilmiah Universitas Batanghari Jambi*, *23*(1), 125-128. 10.33087/jiubj.v23i1.2988

Tambunan, T. (2014). *Perekonomian Indonesia: Kajian Teoritis dan Analisis Empiris.* Jakarta*:* Ghalia Indonesia.

Wardani, D. T. K., Prayoga, R. D., & Hartarto, R. B. (2022). The Effect of City/District Minimum Wages on Poverty Levels: A Case Study of the Special Region of Yogyakarta in 2010-2019. *Journal of Economics Research and Social Sciences*, *6*(2), 93-97. 10.18196/jerss.v6i2.14401

Wooldridge, J. M. (2019). Correlated random effects models with unbalanced panels. *Journal of Econometrics*, *211*(1), 137-150. 10.1016/j.jeconom.2018.12.010