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The GRDP per capita, human development index, open unemployment rate, regional expenditure, and poverty in East Java Province

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Abstract: Poverty is one of the goals of Indonesia's development program, as stated in the first point of the Sustainable Development Goals (SDGs). East Java Province has one of the largest poor populations in Indonesia, making poverty reduction a major component of improving people's welfare. This study aims to ascertain the effect of GRDP per capita, Human Development Index (HDI), Open Unemployment Rate, and regional expenditure in East Java Province from 2012 to 2022. The findings are expected to be a reference or policy-making decision in poverty alleviation efforts. This study makes use of panel data from East Java Province's 38 districts and cities from 2012 to 2022. Quantitative analysis method is utilized with an error correction model (ECM) regression analysis technique. The results showed that GRDP per capita, HDI, unemployment, and regional expenditure simultaneously affect poverty in East Java Province. Partially, GRDP per capita and HDI have a negative effect on poverty both in the long and short-term. In the long term, unemployment has a positive effect on poverty, but shows no effect in the short term . Meanwhile, regional expenditure has no effect on poverty, either in the long or short term in East Java Province. Reducing poverty can be achieved by increasing economic output to increase per capita income, improving the quality of human resources through investment in education and health, providing broad employment opportunities to reduce unemployment, and increasing the allocation of regional expenditure and allocation of regional expenditure with the right target.

Keywords: Poverty; GRDP per capita; Human Development Index; Open Unemployment Rate; Regional Expenditure
JEL Classification: I32; O11; O15' E24; H72

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Introduction

One of Indonesia's main goals in its national development agenda is poverty alleviation. Poverty is a universal challenge, as many countries grapple with poverty-issues (Xiao et al., 2022). Poverty poses a societal challenge as individuals categorized as individual living poverty struggle to fulfil their basic needs and responsibilities, engaging in social functions, accessing quality education, maintaining a decent standard of living, obtaining adequate healthcare, and accessing other essential

services (Maipita, 2014). Limited access can lead to various social problems such as crime, robbery, and other social challenges, potentiallycausing economic, social, and political turmoil that can threaten domestic security and stability (Xiao et al., 2022).

Poverty is also a global issue and an important point in the sustainable development program where poverty reduction is included in the first point in the 17 goals of the SDGs. In Indonesia, poverty remains a complex issue in the development process. It is still relevant to be studied continuously because overcoming it is still a challenge for the government. According to data from the Central Statistics Agency (BPS) in 2022, East Java Province had the highest number of people living in poverty, at 4.18 million. West Java followed with 4.07 million, and Central Java with 3.83 million. While East Java has the second-largest population in Indonesia after West Java, it has the highest number of people living in poverty. The poverty rate in East Java decreased from 11.40% in 2021 to 10.38% in 2022. However, this remains above the target of 9.76% set by the 2019-2024 East Java Provincial Development Plan (RPJMD).

Table 1 Percentage and Number of Poor People in East Java Province

Year	Percentage of Poor Population (percent)	Number of Poor People (in thousand people)
2018	10.98	4.332.59
2019	10.37	4.112.25
2020	11.09	4.419.10
2021	11.4	4.572.73
2022	10.38	4.181.29

Source: Central Statistics Agency (BPS)2023

One of the priorities of the development plan in East Java province is poverty alleviation as stated in the 2019-2024 East Java RPJMD based on the SDGs goal to end all forms of poverty everywhere. While the poverty rate has decreased, East Java Province still has a high percentage of its population living in poverty (over 10%) and the highest number of poor people compared to other Indonesian provinces (Ristika et al., 2021). Economic inequality is a major contributor to high poverty rates, making it a pressing challenge that requires immediate attention (Rifa'i & Listiono, 2021). Poverty in East Java creates significant barriers to accessing education, health, social security, and social assistance (Mellyndawati & Yuhertiana, 2023). Therefore, the East Java Provincial government plays an important role in maintaining stability and actively works to reduce the poverty rate each year by focusing on the decision-making process related to programs aimed at alleviating poverty (Amami & Asmara, 2022).

Many factors can cause poverty, one of which is the Gross Regional Domestic Product (GRDP) per capita, which is a reflection of the economy in a region. Research by Mahendra (2017) suggests that GRDP per capita is a more accurate measure of a region's economic welfare than GRDP alone. Per capita income serves as an indicator of purchasing capacity in a particular region, providing a general picture of people's income. Therefore, a high GDRP in a region indicates that its residents have the ability to fulfil their needs (Rahmawati & Intan, 2020). In addition, the GRDP is a useful tool for analyzing a region's annual economic growth. According to Todaro (2011), poverty may rise due to a number

of factors, including slow economic growth brought on by population growth. Economic growth has the potential to improve economic capacity, create jobs, increase per capita income (thereby reducing poverty), stimulate increased demand and supply, and harmonize with various economic mechanisms (Maipita, 2014).

The poverty cycle theory, proposed by Nurkse (1953), suggests that poverty can hinder future development (Arsyad, 2010). In terms of capital supply, low levels of community income due to low levels of productivity limit people's ability to save. Conversely, higher community income allows people to meet their basic needs, potentially reducing poverty and improving overall welfare. This is supported by research from Rahman et al. (2021) who found a negative relationship between GRDP per capita and poverty. In other words, an increase in individual production or real income can lead to a higher standard of living and a lower risk of poverty. However, other research offers contrasting findings. Wau (2022) studied the impact of economic growth (measured by GRDP per capita) on poverty in Indonesia's lagging regions. The study found no significant effect, suggesting that development in these regions has not necessarily translated to poverty reduction.

In addition to GRDP per capita, one of the factors determining the poverty rate comes from the quality of human resources (Handalani, 2019). According to Kuncoro (2010), citing Sharp, a high poverty rate can be attributed to inadequate human resources from an economic perspective. The Human Development Index (HDI) serves as an important parameter to gauge the effectiveness of raising the quality of human life (Rahmawati & Intan, 2020). It incorporates three important indicators: education level, health, and a decent standard of living. When these three indicators are met, a community can be considered prosperous (Fadila & Marwan, 2020). A high HDI reflects an enhanced quality of human resources, contributing to the development of a skilled and effective workforce capable of fulfilling their requirements (Setiadi & Mafruhat, 2023).

Nurkse (1953) stated a region's HDI score affects the labor productivity of the population. A lower HDI is associated with lower labor productivity. Improving living standards, health, and education can be crucial strategies for breaking the cycle of poverty. Previous research has shown that poverty reduction can be achieved through improving the standard of human resources including health, education, and living standards as measured by HDI (Fitriady et al., 2022; Nainggolan, Sembiring, & Nainggolan, 2021; Purnomo, 2019). However, according to research by (Ipmawan et al., 2022), poverty is not significantly affected by HDI, and therefore an increase in HDI is not invariably accompanied by a decline in poverty. This is further highlighted by the case of East Java Province, where the HDI increased between 2012 and 2015, yet the number of poor people also rose. This contrasting evidence underscores the need for further research on the influence of HDI on poverty in East Java.

The quality of human resources is related to employment since good quality resources create a qualified workforce and are able to meet their needs. When a person works, they earn income to fulfil their basic needs and avoid poverty. For most people, losing a job lowers living standards and increases psychological suffering (Mankiw, 2006). Unemployment hinders economic development as it does not contribute to the economy

(Feriyanto et al., 2020). The real form of high unemployment is a decrease in income, accompanied by a decrease in the level of community welfare, subsequently causing poverty (Prayoga et al., 2021). Loka (2022) supports this, arguing that unemployment leads to poverty as people without jobs lack income to meet basic needs. On the other hand, in the research of Rahman et al. (2021), unemployment has no effect on poverty because unemployed people are not necessarily poor and cannot fulfil their needs. In this case, one of the solutions to overcoming poverty is to provide adequate wages and employment opportunities for the poor. As Arsyad (2010) emphasizes, increasing employment is a key element in development plans aimed at poverty elimination.

Government intervention plays a critical role in achieving poverty reduction goals. According to Maipita (2014), citing Mankiw, fiscal policy is one way governments can influence regional economies. A key driver of a region's economic growth is regional expenditure, which is a government expenditure allocated in the regional budget (APBD). Regional expenditure is a crucial component of the APBD as it allows the government to invest in enhancing community welfare (Fitriyanti & Handayani, 2020). Effective allocation of regional expenditure is an indication of successful regional development. Local governments manage regional budgets and expenditures to achieve economic development, which ultimately creates prosperity for the community and reduces poverty (Risdiyanto et al., 2023). Research by Masduki et al. (2022) suggests a positive correlation between increased local government spending and regional development, which can in turn contribute to poverty reduction.

Research indicates that poverty in East Java Province remains high, ranking first among Indonesian provinces with the largest poor population. Furthermore, previous studies on the impact of four macroeconomic factors (GRDP per capita, Human Development Index (HDI), unemployment rate, and regional expenditure) on poverty yield inconsistent results. While extensive research explores the relationship between regional expenditure and poverty in Indonesia (Evita & Primandhana, 2022; Fitriyanti & Handayani, 2020; Huda & Karsudjono, 2021; Solikah et al., 2022), there is a gap in research on how regional spending affects poverty specifically in East Java Province. Additionally, the influence of GRDP per capita, HDI, unemployment rate, and regional expenditure on poverty in East Java Province, particularly over the last 11 years, remains unclear in existing research. To address this knowledge gap, this study investigates the aforementioned variables (GRDP per capita, HDI, unemployment rate, and regional expenditure) and their influence on poverty in East Java Province over the past 11 years. The findings aim to inform policy-making for more effective poverty alleviation efforts in the region.

This study on the influence of GRDP per capita, Human Development Index (HDI), unemployment rate, and regional expenditure on poverty in East Java offers several benefits. It contributes to the advancement of knowledge, expands the body of research on the topic, and provides valuable data for policymakers tackling poverty in the region. This aligns with existing research suggesting that poverty reduction can be achieved through strategies like income growth, improved human capital (as measured by HDI), lower unemployment rates, and increased regional spending.

Research Method

This study employs a quantitative research methodology, as defined by Creswell (Kusumastuti et al., 2020). Quantitative research tests theories by examining relationships between variables measured through research instruments and analyzed using numerical data. The study focused on the 38 districts and cities of East Java Province, which has the highest poverty rate in Indonesia. The chosen timeframe is 2011-2022 to capture the dynamics of poverty in East Java Province, considering the potential gap between theoretical understanding and real-world conditions. This 11-year period also reflects the fluctuations in poverty levels within the province. Panel data was collected from the Central Statistics Agency (BPS), the Directorate General of Fiscal Balance (DPJK), and other relevant institutions. The data was then processed using E-views 12 software.

In this research, one dependent variable and four independent variables are employed. The dependent variable in this study is poverty, defined as the inability of individuals or groups to meet basic needs and live below the poverty line. Poverty is measured using the number of poor people in East Java Province, expressed in thousands. Meanwhile, the independent variables in this study are GRDP per capita, Human Development Index (HDI), unemployment rate, and regional expenditure. GRDP per capita, measured in thousands of rupiah, represents the average income earned by individuals in a region during a specific period. It is calculated by dividing the total value of goods and services produced (GRDP) by the region's population. The Human Development Index is an indicator of the success of a region in the field of human development as measured through three basic dimensions, namely education, health, and decent living standards. The unit in HDI is points.

The open unemployment rate is a measure of the proportion of the labor force that is unemployed and actively seeking work. It is expressed as a percentage. Regional expenditure, measured in billions of rupiah using allocations from the regional budget (APBD), represents government spending on activities and functions aimed at meeting community needs.

This study employs the error correction model (ECM) with a dynamic panel regression to analyze the data. The ECM method is based on cointegration between a model's variables and stationarity tests on stationary research data at the same level of difference tested using a variety of techniques, including Philips Perron, Augmented Dickey Fuller (ADF), and Levin, Lin, and Chu (Wau, 2022). The choice of ECM aimed to prevent spurious regression, which indicates that research variables do not relate to one another, even though the regression results produce sizable coefficients and a high coefficient of determination (Ekananda, 2014). Numerous prior investigations have demonstrated that this methodology is suitable for examining how independent and dependent variables are related to one another over both in the short and long terms (Payapo et al., 2023; Setiadi & Mafruhat, 2023; Wau, 2022). Therefore, to avoid spurious regression between variables in the model, ECM analysis was conducted based on the cointegration test to observe the influence in the short and long run.

The ECM regression panel equation model in the long run is as follows:

$$logKM_{it} = \beta_0 + \beta_1 logPDRB_{it} + \beta_2 logIPM_{it} + \beta_3 logTPT_{it} + \beta_4 logBD_{it} + \varepsilon_{it} \quad (1)$$

Where, Y_1 is the number of poor people; β_0 is a constant; $logPDRB_{it}$ is GDRP per capita; $logIPM_{it}$ is the human development index; $logTPT_{it}$ is open unemployment rate; $logBD_{it}$ regional expenditure, ε_{it} residuals.

All variables were converted into logarithmic form due to differences in units and quantities in the research variables and therefore not meeting classical assumptions, or the presence of outliers. Data transformation was therefore carried out to ensure that it fulfils the assumptions of the analysis and the data approaches a normal distribut
ion.
Meanwhile, the short-term ECM regression panel equation model is as follows:

$$\Delta logKM_{it} = \beta_0 + \beta_1 \Delta logPDRB_{it} + \beta_2 \Delta logIPM_{it} + \beta_3 \Delta logTPT_{it} + \beta_4 \Delta logBD_{it} + \mathrm{ECT}(-1) + \varepsilon it \quad (2)$$

ECT_{it} is an error correction term as the value of unbalance in the short term, and can be formulated as follows:

$$ECT_{it} = logKM_0 - \beta_0 - \beta_1 logPDRB_{it} - \beta_2 logIPM_{it} + \beta_3 logTPT_{it} + \beta_4 logBD_{it} \quad (3)$$

Since this study uses panel data, equation models (1) and (2) were estimated using three approaches to obtain the best model, including: common effect model (CEM); fixed effect model (FEM); and random effect model (REM). In addition, to select the best model, model specification tests were conducted, including: Chow test; Hausman test; and Lagrange multiplier test (Widarjono, 2018). The validity of the model equation's outcomes was subsequently assessed through the t-statistic, F-statistic, and coefficient of determination (R^2) to evaluate the hypothesis's correctness.

Result and Discussion

Poverty in a region can illustrate the level of development success in the region. Table 2 presents descriptive data, including 418 observations from 38 districts and cities in East Java Province across an 11-year period (2012-2022). In East Java Province, poverty is measured by the number of people living below the poverty line. GRDP per capita reflects average income, while the Human Development Index (HDI) captures the state of human resources. The open unemployment rate indicates unemployment levels, and regional expenditure represents government spending. In East Java Province, the average number of poor people from 2012 to 2022 was 120.48 thousand, with Malang City having the highest number of poor people in 2016, at 293.74 thousand.

Table 2 Descriptive Statistics

Statistic	Variable				
	KM (thousand people)	PDRB (thousand rupiah)	IPM (point)	TPT (percent)	BD (billion rupiah)
Mean	120.48	37043.66	70.22	4.45	2.224.643
Median	119.36	21311.45	69.85	4.27	1.935.070
Maximum	293.74	312824	82.74	10.97	19573.8
Minimum	6.63	9.653.900	55.78	0.85	105.9
Std.Dev.	72.664	45505.03	5.522	1.757	1.882.857
Observation	418	418	418	418	418

To ensure reliable regression results, all research variables were tested for stationarity using the Augmented Dickey-Fuller, Phillips-Perron, and Levin-Lin-Chu tests. Non-stationary data can produce significant regression results despite no actual relationship occurring between research variables. The stationarity tests were utilized to prevent spurious regression results.

Table 3 Data Stationarity Test Results

Variable	Stationary at Level			Stationary at 1st Difference		
	ADF	PP	LLC	ADF	PP	LLC
$logKM$	0.8056	0.4103	0.0000	0.0000	0.0000	0.0000
$logPDRB$	0.9186	0.0000	0.0008	0.1665	0.0000	0.0000
$logIPM$	1.0000	0.0002	0.0000	0.0000	0.0000	0.0000
$logTPT$	0.3595	0.0008	0.0628	0.0000	0.0000	0.0000
$logBD$	0.0000	0.0000	0.0000	0.0012	0.0000	0.0000

The unit root test, including the Phillips-Perron test presented in Table 3, revealed that the poverty variable was not stationary at the level (p-value = 0.4103 > 0.05). However, all variables became stationary after differencing at the first level. This satisfies a key requirement for the ECM approach, as it indicates a long-term equilibrium relationship between the variables.

To select the most appropriate estimation method for the panel data, specification tests were conducted using the Chow test, Hausman test, and Lagrange multiplier test.

Table 4 Specification Results of Long-Run Panel Model

Result	Chow Test	Hausman Test	LM Test
Statistic	1949.370519	342.276818	526.5644
Prob.	0.0000	0.0000	0.0000

Table 4 presents the results of the specification tests for the long-run model selection. The Chow test statistic (p-value < 0.0000) indicates that the fixed effects model (FEM) is more accurate than the common effects model (CEM). Furthermore, the Hausman result shows a probability value of 0.0000 < 0.05, which further supports that the fixed effects model (FEM) is more accurate than the random effects model (REM). In this case, when

estimating long-run models, the fixed effect model (FEM) is the most suitable model to utilize.

Table 5 Long-Term Estimation Results (Fixed Effect Model)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.25198	0.495712	22.69863	0.0000
$logPDRB$	-0.250239	0.044978	-5.563576	0.0000
$logIPM$	-1.041630	0.197315	-5.279026	0.0000
$logTPT$	0.031342	0.009332	3.358618	0.0009
$logBD$	0.016912	0.009074	1.863800	0.0631
Effect Specifications				
R-squared	0.998077		F-Statistic	4760.852
Adjusted R-Squared	0.997868		Prob (F-statistic)	0.000000

Table 5 presents the estimation outcomes for the long-term equation at 5% significance level using the FEM approach, indicating the R^2 value of 0.9980, or 99.80%. This means that the GRDP per capita, HDI, unemployment rate, and regional expenditure, may account for 99.80% of the variation in poverty. The remaining 0.2% is likely due to factors not included in the study. Furthermore, the F-statistic value of 4760.852 and a probability value of 0.0000 < 0.05 confirm a joint influence between the independent variables, namely GRDP per capita, HDI, unemployment rate, and regional expenditure on the dependent variable, namely poverty. The long-term estimation model's output yields the following equation model:

$$logKM_{it} = 11{,}25 - 0{,}250logPDRB_{it} - 1{,}041logIPM_{it} + 0{,}031logTPT_{it} + 0{,}016logBD_{it} + \varepsilon_{it}$$

The results show that GRDP per capita in the long run have a negative effect on poverty, with a regression coefficient of -0.250, the t-statistic value of 5.563 > 1.965 from t-table value with a probability value of 0.0000 < 0.05. Accordingly, poverty drops by 0.250% if GRDP per capita rises by 1%. The HDI variable shows a long-term negative effect on poverty with a regression coefficient value of -1.041 and a t-statistic value of 5.279 > 1.965 from t-table value of with a probability value of 0.0000 < 0.05. Accordingly, poverty drops by 1.041% if HDI rises by 1%. The TPT variable in the long-term shows a positive effect on poverty with a regression coefficient of 0.031, the t-statistic value of 3.358 > 1.965 from t-table value with a probability value of 0.0009 < 0.05. Accordingly, poverty rises by 0.031% with every 1% growth in the unemployment rate. Meanwhile, in long-run estimate, the regional expenditure variable has no meaningful impact on poverty as shown by the positive regression coefficient value of 0.016, the t-statistic value of 1.863 < t-table value of 1.965 with a probability value of 0.0631 > 0.05. Accordingly, poverty rises by 0.016% with every 1% growth in regional expenditure, but no discernible change in poverty overall.

Table 6 Cointegration Test

Result	Augmented Dickey-Fuller	Philips-Perron
Statistic	142.100	158.520
Prob.	0.0000	0.0000

Source: Data processed, 2023

Table 6 presents the results of the cointegration test using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests on the residuals from the long-term panel model (at a 5% significance level) to see whether the residual values are stationary or not. The findings show that the probability value in the ADF and Phillips Perron tests is 0.0000 <0.05, indicating that the residuals are stationary at the level. This suggests cointegration among the variables, justifying the use of the error correction model (ECM) which is appropriate when data series are integrated at the same degree.

Table 7 Specification of Short-Run Panel Model Results

Result	Chow Test	Hausman Test	LM Test
Statistic	21.452440	13.661711	4.562335
Prob.	0.9807	0.0179	0.0327

Table 7 presents the results of the short-term model specification tests using the Chow, Hausman, and Lagrange multiplier (LM) tests. The Chow test resulted in probability value of 0.9807 > 0.05, indicating that the CEM model is superior to the FEM model. The Hausman test resulted in probability value of 0.0179 > 0.05, suggesting that the FEM model outperforms the REM model. As the results of the Chow test and Hausman test did not provide the right decision, the Lagrange Multiplier (Breusch-Pagan) test was carried out and resulted in probability value of 0.0327 < 0.05, indicating that the REM model is better than the CEM model. Therefore, the REM is chosen as the most suitable model for short-term estimations.

Table 8 Short-Term Estimation Results (Random Effect Model)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$\boldsymbol{C}$	0.020747	0.004515	4.594861	0.0000
$\boldsymbol{D(logPDRB)}$	-0.360936	0.061672	-5.852553	0.0000
$\boldsymbol{D(logIPM)}$	-2.926701	0.514424	-5.689283	0.0000
$\boldsymbol{D(logTPT)}$	0.010841	0.006862	1.579726	0.1150
$\boldsymbol{D(logBD)}$	0.003781	0.005102	0.726837	0.4678
ECT(-1)	-0.569039	0.046702	-12.18443	0.0000
Effect Specifications				
R-squared	0.517875		F-Statistic	80.34643
Adjusted R-Squared	0.511429		Prob (F-statistic)	0.000000

Table 8 shows the short-term model estimates using the random effects model (REM) at a 5% significance level, leading to R^2 value of 0.517875, or 51.78%. This means that the GRDP per capita, HDI, unemployment rate, and regional expenditure may account for 51.78% of the variation in poverty. The remaining 48.2% is likely due to factors not included in the study. Furthermore, the F-statistic value of 80.3464 with a probability value of 0.0000 < 0.05 indicates that there is a joint influence between the independent

variables, namely GRDP per capita, HDI, unemployment rate, and regional expenditure on the dependent variable, namely poverty in short-term. The short-term estimation model's output yields the following equation model:

D($logKM_{it}$) = 0,020 – 0,3609D($logPDRB_{it}$) – 2,926D($logIPM_{it}$) + 0,010D($logTPT_{it}$) + 0,003D(($logBD_{it}$) – 0,569ECT(-1) + ε_{it}

The results show that GRDP per capita has a negative effect on poverty in the short-term with a regression coefficient of -0.360, the t-statistic value of 5.852 > 1.966 from t-table value with a probability value of 0.0000 <0.05. Accordingly, poverty drops by 0.360% if GRDP per capita rises by 1%. The HDI variable shows a in short-term negative effect on poverty with a regression coefficient value of -2.92, the t-statistic value of 5.689 > the t-table value of 1.966 with a probability value of 0.0000 < 0.05. Accordingly, poverty drops by 2.92% if HDI rises by 1%. The unemployment rate variable shows no impact on poverty in the short-term with a regression coefficient of 0.010, the t-statistic value of 1.579 < t-table value of 1.966 with a probability value of 0.1150 > 0.05. This indicates that while there is no discernible impact on poverty, poverty rises by 0.010% with every 1% growth in unemployment rate. Meanwhile, in short-term estimate, the regional expenditure variable has no meaningful impact on poverty as shown by the positive regression coefficient value of 0.003, the t-statistic value of 0.726 < t-table value of 1.966 with a probability value of 0.4678 > 0.05. Accordingly, poverty rises by 0.003% with every 1% growth in regional expenditure but has no appreciable impact on poverty. On the other hand, the ECT variable shows a negative coefficient regression value of -0.569 and is significant with a probability value of 0.0000 < 0.05. This means that the estimation in the short term has met the community and the ECM panel model can be applied.

Table 9 Long-term and Short-term Estimates

Variable	Coefficient (Prob.)	
	Long Term (FEM)	**Short Term (REM)**
$\boldsymbol{C}$	11.25198 (0.0000)	0.020747 (0.0000)
$\boldsymbol{logPDRB}$	-0.250239 (0.0000)	-0.360936 (0.0000)
$\boldsymbol{logIPM}$	-1.041630 (0.0000)	-2.926701 (0.0000)
$\boldsymbol{logTPT}$	0.031342 (0.0009)	0.010841 (0.1150)
$\boldsymbol{logBD}$	0.016912 (0.0631)	0.003781 (0.4678)
$\boldsymbol{ECT(-1)}$	-	-0.569039 (0.0000)

Table 9 presents the results of a long and short-term data analyses. In both timeframes, GRDP per capita has a negative impact on poverty in East Java Province. This suggests that increasing GRDP per capita could be a contributing factor to poverty reduction in the region. These findings align with previous studies by Rahman et al. (2021) and Sinaga et al. (2023), which also reported a negative association between GRDP per capita and

poverty. Generally, higher per capita income is associated with improved welfare, as it increases purchasing power and allows individuals to meet their basic and non-essential needs. Policymakers in East Java may consider strategies to enhance economic output across districts and cities to achieve sustained growth in per capita income.

This finding aligns with Nurkse's (1953) poverty cycle theory, which suggests that low income due to low productivity traps individuals in poverty. Limited capital formation further hinders their ability to meet basic needs and improve well-being (Arsyad, 2010). Therefore, increasing productivity to raise incomes is crucial to break the poverty cycle. The positive growth in East Java's GRDP per capita from 2021 to 2022 (43.717,44 thousand rupiah in 2022) signifies a rise in income levels and potential economic recovery post-COVID-19. This income growth empowers individuals to fulfill their needs and improve overall wellfare, potentially leading to poverty reduction.

The Human Development Index (HDI), which is a composite measure of education, health, and living standards, serves as an indicator of a region's human resource quality, alongside GRDP per capita. Our long-term and short-term analyses show that HDI has a negative impact on poverty in East Java Province. This suggests that improving HDI can contribute to poverty reduction in the region. An increase in HDI increases labor productivity and therefore the ability of the community due to improved capabilities of community and individuals. These findings are consistent with the previous research by (Fitriady et al., 2022; Rohmi et al., 2021), which also found a negative association between HDI and poverty. The components of HDI are directly linked to community productivity. Good health and education equip individuals with the skills and capacity to be productive members of the workforce. Education enhances individuals' ability to adopt new technologies, while good health allows them to participate fully in the labor market and potentially secure better jobs and higher incomes. Higher incomes, in turn, improve access to education and healthcare (Setiadi & Mafruhat, 2023).

The poverty cycle theory posits that underdevelopment of human resources is a factor trapping individuals in poverty. HDI reflects human resource capacity, with a higher HDI indicating a more qualified and efficient workforce. Conversely, a low HDI leads to low productivity, low income, and a higher prevalence of poverty (Kartika et al., 2021). East Java Province's HDI data from 2012 to 2022 suggests a possible correlation between rising HDI and decreasing poverty rates. This aligns with the notion that investing in human capital development, as measured by HDI, can contribute to poverty reduction. Improvements in health and education, key components of HDI, can equip individuals with the skills and knowledge necessary to be productive members of the workforce.

The estimation results on the open unemployment rate (OUR) variable show that unemployment has a positive and significant effect on poverty in the long term. This means that an increase in unemployment leads to a rise in poverty in East Java Province. These findings are consistent with previous studies by Fahrizal et al. (2021) and Loka (2022), which also reported a positive association between unemployment and poverty. Unemployed individuals have no or limited income, leading to a decrease in purchasing power and overall welfare. This can contribute to poverty, as demonstrated by Sinaga et

al. (2023). Several factors contribute to unemployment, including job-labor force mismatch, wage levels, and skills gaps (Adriyanto et al., 2020). Efforts to reduce unemployment, such as job creation initiatives, are crucial to address poverty (Fahrizal et al., 2021). Interestingly, East Java Province experienced a decline in both the unemployment rate (4.88% in 2022) and poverty levels between 2021 and 2022. In this case, a decline in poverty can be caused by a decline in unemployment.

In addition, the findings in the short-term show that in East Java poverty is not affected by the open unemployment rate. This aligns with studies by Farida et al. (2022) and Rahman et al. (2021) that reported an insignificant association between these variables in the short term. There are several reasons why unemployment might not immediately translate to poverty. Unemployed individuals may have savings, receive support from family members, or engage in informal work to supplement their income. This is evidenced by the fact that in 2022 the largest contributor to the unemployment rate in East Java Province based on education level was high school graduates at 8.46% (BPS, 2022). Not all high school graduates are fully unemployed, and therefore it is not closely related to poverty. Most fresh high-school graduates are in the process of looking for work or preparing a business, thereby relying on the help of parents or families to meet their needs. These findings are consistent with a study by (Prayoga et al., 2021), which found that unemployed high school graduates are supported by their parents.

Government intervention through fiscal policy, such as regional expenditure, is a crucial tool for tackling poverty. However, our findings show that regional expenditure has no statistically significant impact on poverty in East Java Province, in either the long or short term. This aligns with previous research by Fitriyanti & Handayani (2020) and Solikah et al. (2022) which found no significant association between regional expenditure and poverty levels.. These findings suggest that current regional spending strategies may not be effectively addressing the root causes of poverty in East Java. The findings contradict Adolf Wagner's theory which states that increased role of the government in economic activity affects the increase in per capita income and government spending, which is expected to reduce poverty in the area. The intended purpose of regional expenditure, as outlined in the regional budget (APBD), is to improve public services and overall wellfare, ultimately aiming to reduce poverty (Nany et al., 2022).

Our findings show that high levels of regional expenditure realization do not necessarily translate to poverty reduction. In East Java Province, for instance, while expenditure realization fluctuated and even declined in 2022, poverty also decreased. Furthermore, the allocation of regional expenditure varies across districts and cities, reflecting their differing financial situations. A significant portion of regional expenditure in East Java is allocated to personnel costs, exceeding expenditures on capital projects, goods and services, and other categories such as grants, subsidies, social assistance, and unexpected expenses Malang District exemplifies this trend. Despite having a high poverty rate (252.88 thousand people in 2022, BPS, 2023), a larger share of its regional expenditure went towards personnel costs (1,399.10 billion rupiah) compared to capital expenditure (575.71 billion rupiah), goods and services (1,191.29 billion rupiah), and other expenditures (982.42 billion rupiah) (Kemenkeu, 2023). Investments in capital projects,

goods and services, and social programs are generally considered more impactful for promoting economic growth and improving community welfare (Fitriyanti & Handayani, 2020).

Our analysis also reveals potential inefficiencies in allocating regional expenditures for social programs in East Java Province. For example, a study by Islamiyah et al. (2023) in Sawo Village, Gresik Regency, found that social assistance distribution to beneficiary families (KPM) was inaccurate and insufficient. Similarly, the National Team for the Acceleration of Poverty Reduction (TNP2K) reported misallocation of social assistance, with a significant portion reaching ineligible recipients (Fadhli & Nazila, 2023). These findings suggest that current expenditure allocation practices may not be effectively targeting those most in need. To improve the effectiveness of poverty reduction efforts, district and city administrations in East Java Province should prioritize more targeted and efficient allocation of regional funds for social programs.

Conclusion

Based on our regression analysis with the ECM approach for the 2012-2022 data of East Java Province, GRDP per capita, Human Development Index (HDI), unemployment rate, and regional expenditure have a simultaneous influence both in the long and short term. GRDP per capita and HDI significantly influence poverty in both the short and long term. The unemployment rate has a significant long-term impact on poverty but not a statistically significant short-term effect. Regional expenditure does not have a statistically significant impact on poverty in either the short or long term.

The study suggests several policy recommendations to address poverty in East Java Province. The regional government needs to increase GDRP per capita, improve the quality of human capital, and reduce the unemployment rate. These factors influence the income of community members, enabling them to fulfill their basic needs and achieve decent living standards. In addition, the government may increase the portion of the allocation of goods and services expenditure, capital expenditure, and other expenditures to improve the welfare of the community, as well as allocating more appropriate and efficient regional expenditure toward poverty alleviation in East Java Province.

This study has limitations. Firstly, our finding that regional expenditure does not significantly impact poverty suggests a need for further research using more specific expenditure categories, such as regional expenditure by function. Secondly, the study does not explore specific strategies or programs for long-term and short-term poverty reduction. Future research can address these limitations by expanding on expenditure analysis and evaluating poverty reduction strategies. By addressing these limitations, future research can provide broader and more detailed information to assist policymakers in formulating more effective development programs and poverty reduction strategies for East Java Province.

Author Contributions

Conceptualisation, Methodology, Analysis, Original draft preparation, M.A.F and F.R.; Review and editing, M.A.F.; Supervision, F.R.

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Conflicts of Interest

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

References

Amami, R., & Asmara, K. (2022). Analisis Pengaruh PAD, DAU, DAK, dan Belanja Modal terhadap Kemiskinan di Kabupaten Ngawi. *Jurnal Ekobistek*, *11*, 48–54. https://doi.org/10.35134/ekobistek.v11i2.297

Arsyad, L. (2010). *Ekonomi Pembangunan* (5th ed.). UPP STIM YKPN.

BPS. (2022). *Keadaan Angkatan Kerja Provinsi Jawa Timur 2022*. Badan Pusat Statistik.

Choir, Z., & Hapsari, M. T. (2023). Pengaruh Tingkat Pengangguran Terbuka, Tingkat Pendidikan Dan Belanja Pemerintah Terhadap Kemiskinan Di Gerbangkertasusila Tahun 2015-2022. *Jurnal Mirai Management*, *8*(2), 94–105. https://doi.org/https://doi.org/10.37531/mirai.v8i2.4547

Ekananda, M. (2014). *Analisis Data Time Series* (Pertama). Mitra Wacana Media.

Evita, M. J., & Primandhana, W. P. (2022). Analisis Pengaruh Pertumbuhan Ekonomi, Indeks Pembangunan Manusia Dan Belanja Pemerintah Terhadap kemiskinan Di Kabupaten Blora. *Ekombis Review: Jurnal Ilmiah Ekonomi Dan Bisnis*, *10*(S1), 79–88. https://doi.org/10.37676/ekombis.v10is1.1998

Fadila, R., & Marwan, M. (2020). Pengaruh Indeks Pembangunan Manusia (IPM) dan Pertumbuhan Ekonomi terhadap Tingkat Kemiskinan di Provinsi Sumatera Barat periode tahun 2013-2018. *Jurnal Ecogen*, *3*(1), 120. https://doi.org/10.24036/jmpe.v3i1.8531

Feriyanto, N. et al. (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. https://doi.org/10.18488/journal.aefr.2020.1010.1088.1099

Firmani, I., & Aif, M. T. (2021). Pengaruh Globalisasi Ekonomi, IPM, Dan Populasi Terhadap Tingkat Kemiskinan Di Tujuh Negara Anggota OKI. *Jurnal Ekonomi Dan Bisnis*, *24*(1), 8–16. www.jurnal.unikal.ac.id/index.php/jebi

Fitriady, A. et al. (2022). Does Economic Growth Mediate Investment, Inflation, and Human Development Investment on Poverty in Indonesia? *Signifikan: Jurnal Ilmu Ekonomi*, *11*(2), 437–456. https://doi.org/10.15408/sjie.v11i2.26145

Fitriyanti, N. I., & Handayani, H. R. (2020). Pengaruh Pendapatan Asli Daerah (Pad), Dana

Alokasi Khusus (Dak), Dan Belanja Daerah Terhadap Tingkat Kemiskinan (Studi Kasus 35 Kabupaten/Kota Di Provinsi Jawa Tengah Tahun 2012-2016). *Diponegoro Journal of Economics*, *9*(2), 76–90. https://ejournal2.undip.ac.id/index.php/dje

Handalani, R. T. (2019). Determinant of Poverty in Indonesian's Province: A Review of Public Policy. *Jurnal Borneo Administrator*, *15*(1), 59–80. https://doi.org/10.24258/jba.v15i1.373

Huda, I. U., & Karsudjono, A. J. (2021). Belanja Daerah Sebagai Upaya Mengatasi Kemiskinan dan Pengangguran di Kota Banjarmasin. *Al-KALAM JURNAL KOMUNIKASI, BISNIS DAN MANAJEMEN*, *8*(2), 50. https://doi.org/10.31602/al-kalam.v8i2.5298

Ipmawan, H. et al. (2022). The Influence of The Human Development Index, Unemployment Rate, and Illiteracy Population on Poverty Level in Indonesia for the Period 2015-2020. *MUHARRIK: Jurnal Dakwah Dan Sosial*, *5*(1), 89–103. https://doi.org/10.37680/muharrik.v5i1.1372

Irvanie, D. B. N., & Panjawa, J. L. (2023). Pengaruh Investasi Dan Pembangunan Manusia Dalam Pengentasan Kemiskinan Di Indonesia. *Bina Ekonomi*, *27*(1), 30–43. https://doi.org/10.26593/be.v27i1.6001.30-43

Kartika, D. A. F. C. et al. (2021). Impact of Government Expenditure on Poverty Rate Reduction in East Java Province. *Jurnal Penelitian Ilmu Ekonomi*, *11*(2), 120–127. http://ejournal.itbwigalumajang.ac.id/index.php/wiga/article/view/606

Kuncoro, M. (2010). *Dasar-Dasar Ekonomika Pembangunan* (5th ed.). UPP STIM YKPN.

Kusumastuti, A. et al. (2020). *Metode Penelitian Kuantitatif*. Deeppublish.

Loka, R. D. P. (2022). the Effect Unemployment, Education and the Number of Population on the Poverty Level in Bali. *Jurnal Ekonomi Kuantitatif Terapan*, 317. https://doi.org/10.24843/jekt.2022.v15.i02.p10

Mahendra, A. (2017). Analisis Pengaruh Pertumbuhan Ekonomi, Pendapatan Perkapita, Inflasi dan Pengangguran terhadap Jumlah Penduduk Miskin. *Jurnal Riset Akutansi Dan Keuangan*, *3*(1), 113–138. https://doi.org/10.1234/akuntansi.v3i1.443

Maipita, I. (2014). *Mengukur Kemiskinan dan Distribusi Pendapatan* (Fitrawaty (ed.); 1st ed.). UPP STIM YKPN.

Mankiw, N. G. (2006). *Makroekonomi Edisi Keenam* (W. Hardani et al. (eds.); 6th ed.). Erlangga.

Masduki, U. et al. (2022). How Can Quality Regional Spending Reduce Poverty and Improve Human Development Index? *Journal of Asian Economics*, *82*, 101515. https://doi.org/10.1016/j.asieco.2022.101515

Mellyndawati, V., & Yuhertiana, I. (2023). Government Expenditure and Poverty in East Java Province. *International Journal of Current Science Research and Review*, *06*(08). https://doi.org/10.47191/ijcsrr/V6-i8-41

Nainggolan, L. E. et al. (2021). Analisis Pengaruh Pertumbuhan Ekonomi Terhadap Indeks Pembangunan Manusia Yang Berdampak Pada Kemiskinan di Provinsi Sumatera Utara. *Media Bina Ilmiah*, *15*(10), 5457–5474. https://doi.org/https://doi.org/10.33758/mbi.v15i10.827

Nany, M. et al. (2022). Pengaruh Pad, Dbh, Dau, Dak Dan Belanja Daerah Terhadap Kemiskinan Di Jawa Tengah. *Jurnal Ekonomi Dan Kewirausahaan*, *22*(3), 247–261. https://ejurnal.unisri.ac.id/index.php/Ekonomi/article/view/8274%0Ahttps://ejurnal.unisri.ac.id/index.php/Ekonomi/article/download/8274/4938

Ningrum, J. W. et al. (2020). Pengaruh Kemiskinan, Tingkat Pengangguran, Pertumbuhan Ekonomi dan Pengeluaran Pemerintah Terhadap Indeks Pembangunan Manusia (IPM) di Indonesia Tahun 2014-2018 dalam Perspektif Islam. *Jurnal Ilmiah Ekonomi Islam*, *6*(2), 212. https://doi.org/10.29040/jiei.v6i2.1034

Payapo, R. W. et al. (2023). Kemiskinan dan Faktor-Faktor yang Mempengaruhinya di Indonesia. *Ekonomis: Journal of Economics and Business*, *7*(1), 79. https://doi.org/10.33087/ekonomis.v7i1.1032

Prayoga, M. L. et al. (2021). Faktor Kemiskinan Di Kabupaten Sidoarjo. *Jambura Economic Education Journal*, *3*(2), 135–142. https://doi.org/10.37479/jeej.v3i2.11058

Purnomo, S. D. (2019). Determinan Kemiskinan di Provinsi Daerah Istimewa Yogyakarta. *Forum Ekonomi*, *21*(2), 217–225. https://doi.org/10.30872/jfor.v21i2.5171

Rahman, A. et al. (2021). Analysis of Factors Affecting Poverty in the North Sumatra Province. *Economics Development Analysis Journal*, *10*(2), 174–183. https://doi.org/10.15294/edaj.v10i2.44164

Rahmawati, F., & Intan, M. N. (2020). Government Spending, Gross Domestic Product, Human Development Index (Evidence from East Java Province). *KnE Social Sciences*. https://doi.org/10.18502/kss.v4i6.6641

Rifa'i, A., & Listiono, L. (2021). STRUCTURAL TRANSFORMATION AND POVERTY ERADICATION IN EAST JAVA (A PANEL DATA APPROACH OF 38 COUNTIES). *Journal of Developing Economies*, *6*(1), 114. https://doi.org/10.20473/jde.v6i1.23080

Risdiyanto, E. et al. (2023). Analisis Kemandirian Fiskal Dan Belanja Daerah Terhadap Kemiskinan Di Provinsi Papua. *Jurnal Ekombis Review - Jurnal Ekonomi Dan Bisnis Review*, *11*(2), 1813–1822. https://doi.org/https://doi.org/10.37676/ekombis.v11i2.4851

Ristika, E. D. et al. (2021). Analisis Pengaruh Jumlah Penduduk, Tingkat Pengangguran Terbuka Dan Indeks Pembangunan Manusia Terhadap Tingkat Kemiskinan Di Provinsi Jawa Timur. *Eksis: Jurnal Ilmiah Ekonomi Dan Bisnis*, *12*(2), 129. https://doi.org/10.33087/eksis.v12i2.254

Rizkina, A. (2023). Analisis Faktor-Faktor yang Mempengaruhi Pengentasan Kemiskinan di Aceh Periode 2012-2022. *JEMSI (Jurnal Ekonomi, Manajemen, Dan Akuntansi)*, *9*(4), 1691–1695. https://doi.org/10.35870/jemsi.v9i4.1477

Rohmi, M. L. et al. (2021). Pengaruh Pembiayaan Syariah dan Indeks Pembangunan Manusia (IPM) Terhadap Tingkat Kemiskinan Di Provinsi Aceh: Analisis Data Panel. *Jurnal Ilmiah Ekonomi Islam*, *7*(03), 1409–1415. http://jurnal.stie-aas.ac.id/index.php/jiedoi:http://dx.doi.org/10.29040/jiei.v7i3.2602

Setiadi, A. D., & Mafruhat, A. Y. (2023). Optimization Of Poverty Reduction Through Human Development Index Schemes And Indirect Spending At Belitung Regency. *Nuansa Akademik: Jurnal Pembangunan Masyarakat*, *8*(2), 223–236. https://doi.org/10.47200/jnajpm.v8i2.1651

Solikah, N. M. et al. (2022). Pengaruh Pertumbuhan Ekonomi, Inflasi, Upah Minimum, Dan Pengeluaran Pemerintah Terhadap Kemiskinan Daerah Istimewa Yogyakarta Tahun 2013-2019. *Jurnal Ilmiah Ekonomi Bisnis*, *27*(2), 259–273. https://doi.org/10.35760/eb.2022.v27i2.4149

Todaro, M. P. (2011). *Pembangunan Ekonomi (Edisi Kesebelas)*. Erlangga.

Wau, T. (2022). Economic Growth, Human Capital, Public Investment, and Poverty in Underdeveloped Regions in Indonesia. *Jurnal Ekonomi & Studi Pembangunan*, *23*(2), 189–200. https://doi.org/10.18196/jesp.v23i2.15307

Widarjono, A. (2018). *Ekonometrika Pengantar Dan Aplikasinya Disertai Panduan Eviews* (Kelima). UPP STIM YKPN.

Xiao, H. et al. (2022). Promoting pro-poor growth through infrastructure investment: Evidence from the Targeted Poverty Alleviation program in China. *China Economic Review*, *71*(December 2021), 101729. https://doi.org/10.1016/j.chieco.2021.101729