P-ISSN 2089-3566
JESI
E-ISSN 2503-1872

Jurnal Ekonomi Syariah Indonesia (JESI)
ISSN: 2503-1872 (e) & 2089-3566 (p)
Vol. 15, No. 3, 2025, 240-259
DOI : 10.21927/jesi.3124.3483

Sharia Investment and Zakat Distribution Effects on Poverty Reduction in Indonesian Provinces (2020-2024)

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ABSTRACT

Introduction: This study aims to analyze the effects of Islamic investment, zakat distribution, gross regional domestic product (GRDP) per capita, and unemployment on poverty levels across Indonesian provinces. The objective is to assess how Islamic finance and macroeconomic indicators contribute to welfare improvement.
Methodology: The method applies a static panel data regression using the Random Effect Model (REM) for the 2020–2024 period. Panel estimation captures both cross-sectional and time variations, while the Hausman test confirms the appropriateness of REM. Data are sourced from OJK, BAZNAS, BPS, and the Ministry of Manpower. The data are sourced from the Financial Services Authority of Indonesia (OJK), the National Board of Zakat (BAZNAS), the Central Statistics Agency (BPS), and the Ministry of Manpower.
Result: The results show that Islamic investment significantly reduces poverty, emphasizing its role as an effective instrument for welfare. GRDP per capita also has a negative impact on poverty, highlighting the importance of regional economic growth. In contrast, zakat distribution and unemployment are not statistically significant in this model.
Conclusion: The novelty of this study lies in combining Islamic social finance and investment variables with conventional macroeconomic factors in a single panel framework. This integration offers a more comprehensive perspective on poverty alleviation, particularly in the Indonesian context after 2020.

ARTICLE INFO

Keywords:
GRDP; islamic investment; panel data; poverty; zakat distribution

Article History:
Received June 23, 2025
Revised July 15, 2025
Accepted November 19, 2025
Published December 26, 2025

JEL Code:
D13, I31, J22, K31

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INTRODUCTION

Poverty is a global problem that has yet to be solved. According to a World Bank report, World Bank (2024) around 2 billion people in the world still live below the poverty line and almost 1 billion of them are in the very poor category. The condition of poverty in Indonesia is still a significant challenge despite various alleviation efforts made by the government and the community. According to data from the Central Statistics Agency (BPS) in September 2024, the percentage of poor people in Indonesia reached 8.57%, indicating that around 25.4 million people live below the poverty line (BPS, 2024). This statistic indicates the urgent need for a more innovative and effective approach in overcoming the problem of poverty. One approach that can be taken is through Islamic investment and zakat distribution, both of which have great potential to contribute to poverty reduction. The concern for welfare distribution through zakat and other Islamic instruments emphasizes the urgency of solutions that are in line with sharia principles to tackle structural poverty. As the Islamic economy develops, various studies show the significant role of Islamic investment and finance in improving socio economic welfare.

Islamic microfinance institutions play a crucial role in empowering low-income communities, particularly micro, small, and medium enterprises. The implementation of zakat programs has been shown to reduce the poverty rate of beneficiaries by 15–25%. Furthermore, the efficiency of zakat fund distribution through BAZNAS and LAZNAS, with an average technical efficiency score of 80.30%, significantly affects poverty levels. These findings suggest that enhancing the efficiency of zakat distribution can contribute more effectively to poverty reduction (Herianingrum et al., 2019, 2023, 2024).This finding suggests that increasing the efficiency of zakat distribution can contribute more effectively in reducing poverty. Similarly, Agustina et al. (2022) noted that Islamic banking is effective in channeling funds to productive investments, which encourages real sector growth and in turn contributes to poverty reduction. Shariah-based investment in the capital market is also linked to inclusive growth, a study conducted by (Indra & Ibrahim, 2023) found evidence that the development of Islamic stocks has a significant effect in reducing poverty and unemployment rates in Indonesia. These findings confirm that Islamic investment and financial institutions can be a motor of inclusive growth that favors the poor. In addition to the role of Islamic investment and financing, Islamic philanthropic instruments such as zakat hold a key function in poverty alleviation efforts. Various empirical studies have shown the effectiveness of zakat in improving the welfare of. *Mustahik (beneficiaries of zakat)*

In this study, Islamic investment is defined as capital allocation that complies with sharia principles through Islamic banking finance, sukuk, and Islamic equity. These instruments are backed by assets, prohibit *riba, gharar, and maysir,* and emphasize the sharing of risk. By channelling funds to the real sector and to micro, small, and medium enterprises, Islamic investment is expected to reduce poverty through several channels: easing capital constraints for small producers, stimulating job creation, increasing productivity and incomes, and stabilizing vulnerable households through the sharing of profit and loss rather than fixed debt obligations (Fajri et al., 2023; Novreska & Arundina, 2024; Parewangi & Iskandar, 2020).

Gross regional domestic product (GRDP) per capita and the unemployment rate are included as control variables because they represent core macroeconomic conditions associated with poverty (BPS, 2024; World Bank, 2024) . Higher GRDP per capita generally reflects stronger regional income and fiscal capacity, which support welfare improvement. In contrast, higher unemployment suppresses household earnings and increases both the incidence and depth of poverty(Fajri et al., 2023). Including these controls makes it possible to identify the marginal contribution of Islamic investment and zakat distribution beyond the effects of overall growth and slack in the labor market (Parewangi & Iskandar, 2020).

The relationship with zakat is bidirectional. Stronger growth, reflected in higher GRDP per capita, enlarges the pool of potential zakat payers and expands fiscal space for social programs, whereas higher unemployment increases the number of mustahik who require assistance. On the intervention side, zakat, whether consumptive or productive, provides immediate relief and can finance skills, tools, and seed capital that enable beneficiaries to access opportunities generated by Islamic investment. Accordingly, Islamic investment and zakat are complementary instruments: investment increases productive activity, whereas zakat secures inclusion at the last mile and supports graduation from poverty (Herianingrum et al., 2024b; Syauqi Beik & Arsyianti, 2016).

This study integrates Islamic investment and zakat distribution with macro controls, namely GRDP per capita and the unemployment rate, within one provincial panel for the period from 2020 to 2024. This design allows the estimation of their distinct and joint effects on poverty during the recovery after 2020. The findings provide evidence that is relevant for policy on how Islamic finance instruments interact with macroeconomic conditions to accelerate poverty reduction in Indonesia (Novreska & Arundina, 2024; OJK, 2023).

The period 2020–2024 was selected because it captures both the Covid-19 pandemic and the subsequent economic recovery. During this period, Indonesia witnessed a significant increase in zakat mobilisation despite economic contraction, reflecting the resilience and countercyclical role of Islamic social finance. Empirical evidence shows that zakat collection continued to rise during 2020–2021 as institutions adopted digital fundraising platforms and maintained operational efficiency (Piliyanti et al., 2022; Prakoso et al., 2023). This phenomenon demonstrates how Islamic financial instruments, particularly zakat and sharia-compliant investment, can act as stabilising mechanisms that support social protection and economic recovery during and after crises. This design allows the estimation of their distinct and joint effects on poverty during the recovery after 2020.

Empirical evidence suggests that zakat plays a pivotal role in advancing the welfare of mustahik beyond short-term relief toward sustainable economic empowerment. Prior studies emphasize that zakat functions not merely as a consumption-oriented transfer but as an instrument for enhancing productive capacity and social inclusion. In this regard,Herianingrum et al. (2023) demonstrate that zakat distribution programs implemented through BAZNAS and LAZNAS significantly reduce poverty and foster livelihood improvements among mustahik households in Indonesia.

Evidence indicates that zakat can play a crucial role in poverty alleviation by functioning not only as direct financial assistance but also as an instrument for economic empowerment. Herianingrum et al. (2024) show that zakat distribution through BAZNAS and LAZNAS reduces poverty among recipients by up to 25% through productive utilization schemes. Similarly, Mawardi et al. (2023) find that productive zakat significantly improves the economic welfare of mustahik (beneficiaries of zakat) by supporting entrepreneurial activities and micro-business development. Taken together, these studies confirm that zakat contributes to sustainable poverty reduction through capacity building, asset ownership, and income generation rather than short-term consumption support.

Consistent with that, analysis of national data shows that an increase in zakat distribution has a significant negative correlation with a decrease in poverty. Zakat not only provides material assistance, but also contains spiritual aspects and capacity building that can empower recipients; the combination of these aspects makes zakat a strategic intervention to overcome multidimensional poverty. It is no wonder that zakat is seen as playing an important role in economic development and overcoming social problems. Previous research even confirms that zakat can be used as a tool to reduce economic inequality and alleviate the suffering of the poor (Suprayitno et al., 2024).

Most previous studies have analyzed the roles of Islamic finance and zakat separately, rather than within an integrated framework. Lestari & Auwalin (2022) found that the distribution of zakat, as reflected by the BAZNAS Welfare Index, has not had a significant impact on reducing income inequality in Indonesia. This highlights the need to improve zakat management in order to truly empower the mustahik (beneficiaries of zakat) and effectively reduce welfare disparities. More recently, scholars have attempted to integrate Islamic social finance components such as zakat, waqf, and Islamic microfinance with macroeconomic indicators of poverty. Aida et al. (2025) andRusydiana et al. (2025), for instance, have investigated the collective role of these instruments in addressing poverty. However, their studies do not account for inter provincial economic variation or disparities in Islamic financial inclusion. To date, there has been no research that simultaneously examines the impact of Islamic investment (e.g., Islamic real sector financing) and zakat distribution on poverty reduction at the provincial level. Considering the diversity in regional economic conditions and Islamic financial access across Indonesia, a more detailed and localized analysis is necessary. In the broader global context, several Islamic countries have demonstrated the effective use of zakat as a tool to combat poverty. For example, a study by Ayuniyyah et al. (2022) that zakat can reduce income inequality and improve people's welfare in West Java. In addition, a study by Choiriyah et al. (2020) also indicated that zakat has a positive impact on poverty reduction in various provinces in Indonesia. However, the effectiveness of zakat distribution in Indonesia still needs to be improved in order to have a more significant impact.

The purpose of this study is to analyze the impact of Islamic investment and zakat on poverty reduction using static panel data. This study aims to provide a better understanding of how the two variables interact and contribute to poverty alleviation in Indonesian provinces. By using relevant data and appropriate methodology, this study is expected to provide meaningful insights for decision makers and stakeholders. Islamic investment in this study denotes sharia-compliant financing and capital-market instruments that channel funds to the real sector through asset-backed and risk-sharing contracts while prohibiting *riba, gharar, and maysir.* In this study, Islamic investment refers to provincial level data on sharia-compliant financing and capital-market instruments reported by the Financial Services Authority (OJK), representing real sector funding aligned with risk-sharing principles.

Zakat is a mandatory redistribution instrument that provides immediate relief and can also finance productive activities for eligible beneficiaries. Because poverty is jointly shaped by macroeconomic conditions, we consider gross regional domestic product (GRDP) per capita as a proxy for regional income and fiscal capacity, and the unemployment rate as an indicator of labor-market slack that directly constrains household earnings. Establishing this conceptual and macroeconomic context motivates the research objective set out below.

This study examines the effects of Islamic investment and zakat distribution on provincial poverty rates in Indonesia using static panel data for 2020–2024. GRDP per capita and the unemployment rate are included as control variables to account for growth and labor-market conditions. We estimate a random-effects specification selected on the basis of the Hausman test, using data compiled from data are sourced from the Financial Services Authority of Indonesia (Otoritas Jasa Keuangan, OJK), the National Board of Zakat (Badan Amil Zakat Nasional, BAZNAS), the Central Statistics Agency (Badan Pusat Statistik, BPS), and the Ministry of Manpower.

The analysis clarifies the separate and joint contributions of Islamic investment and zakat to poverty reduction and derives policy implications for scaling effective interventions. The study's novelty lies in jointly modelling Islamic investment and zakat alongside macro controls within a single provincial panel in the post 2020 period, whereas prior work typically considered these determinants in isolation. Therefore, this study is directed to bridge the gap by analyzing the effect of of islamic investment and zakat distribution on poverty levels in various Indonesian provinces, considering Gross Regional Domestic Product (GRDP) and unemployment as control variables. A static panel data approach is used to comprehensively capture the inter-temporal and inter- regional influences. It is hoped that the findings of this study will make an empirical contribution to the literature of Islamic development economics and provide input for the formulation of poverty alleviation policies that optimally utilize Islamic investment and zakat instruments.

Islamic investment

Islamic Investment, which includes instruments such as sukuk and Islamic stocks, plays an important role in economic development. Indra & Ibrahim (2023) explain that Islamic investments not only provide financial returns but also support inclusive economic growth. In the Indonesian context, Islamic investment can attract capital used to finance social and infrastructure projects, potentially reducing poverty. The growth of the Islamic financial sector is expected to enhance community participation in economic activities. Previous studies have highlighted the role of Islamic financial institutions such as Islamic banking, Islamic capital markets, and Islamic microfinance in poverty alleviation. Ayu et al. (2019), through empirical analysis covering 32 Indonesian provinces from 2014 to 2018, emphasized the significant contribution of Islamic financing toward achieving Sustainable Development Goals (SDGs), particularly poverty alleviation. Similarly, Agustina et al. (2022) demonstrated that Islamic banking significantly contributes to Indonesia's economic growth and poverty reduction by channeling funds into productive sectors. Muflih (2019), using a poverty cluster correlation approach, found a strong negative correlation between Islamic bank assets and poverty rates across provinces in Indonesia, suggesting that regions with greater Islamic banking assets experience lower poverty rates. This underscores the potential of Islamic banking expansion to reduce poverty by providing better financial access for lower-income populations, consistent with the principles of Islamic finance emphasizing fairness and inclusion, such as through usury-free microfinance targeting small enterprises (Muflih, 2019). However, the impact of investment on poverty alleviation also depends on the quality of the resulting economic growth. Investment-driven growth will significantly reduce poverty if it effectively generates employment opportunities and increases real wages (Fajriyah, 2022). Conversely, if investments are concentrated in sectors that do not directly benefit the poor, their contribution to poverty reduction might be minimali(Saputri & Zamrudi, 2023).

H1: Islamic investment has a significant negative effect on the poverty rate in Indonesia.

This hypothesis assumes that an increase in sharia investment will reduce the poverty rate through improved access to Islamic financing and productive capital.

Zakat distribution

Zakat, as one of the pillars of Islam, has a clear purpose in income redistribution and poverty alleviation. Lestari & Auwalin (2022) noted that zakat can be a significant source of funding for poverty alleviation programs. In this context, zakat functions not only as a religious obligation, but also as an economic instrument that can improve people's welfare. The targeted distribution of zakat can reduce income disparity and improve the quality of life of zakat recipients.

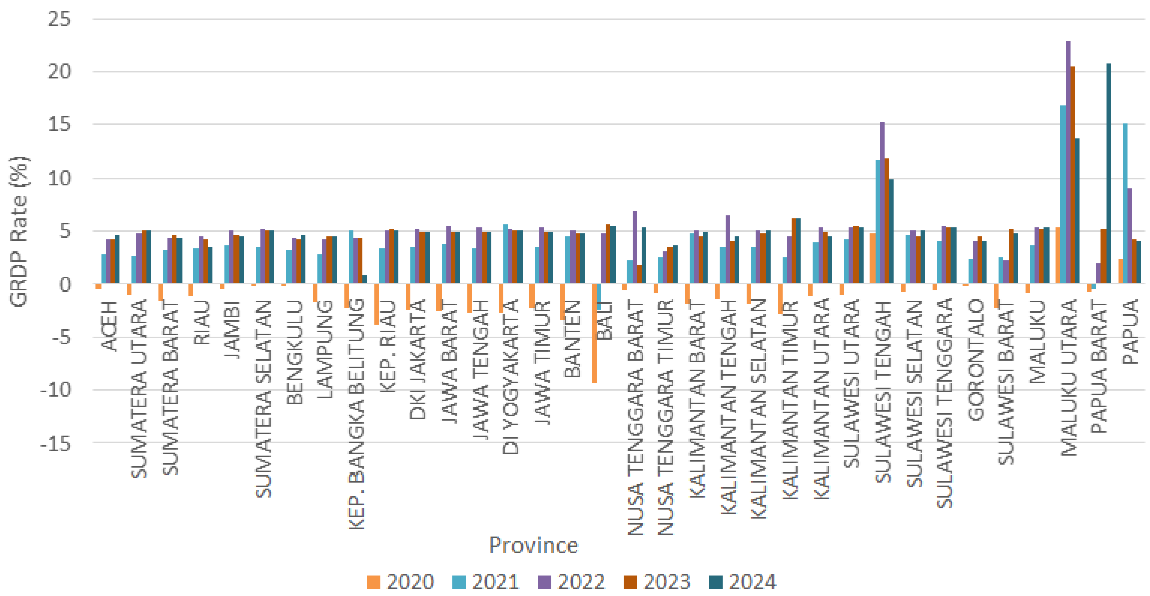
In terms of Islamic economics, zakat is a wealth distribution instrument that aims to directly reduce poverty. Theoretically, zakat acts as an income transfer mechanism from the wealthy to the *mustahik* (eligible zakat recipients) to fulfill their basic needs. Mustahik refers to individuals or groups who are entitled to receive zakat, as outlined in the Qur'an, namely the eight ashnaf (categories): the poor (*al-fuqara'*), the needy *(al-masakin*), zakat collectors (*amil)*, those whose hearts are to be reconciled (*mu'allaf)*, slaves seeking freedom (riqab), debtors (gharimin), those striving in the path of Allah *(fisabilillah*), and stranded travelers (ibn sabil). Zakat differs from conventional fiscal instruments because it is religiously obligatory for Muslims and is regulated to be distributed among these eight groups, with the primary goal of poverty alleviation (Sulaeman et al., 2021). In the short term, zakat increases the consumption and welfare of recipients by covering income shortfalls. In the long term, Islamic economic theory states that zakat can empower mustahik through productive programs, helping them escape poverty (Athoillah, 2018). Previous research shows that an increase in national zakat distribution will reduce poverty if managed effectively (Ayuniyyah et al., 2022). This indicates the theoretical basis that zakat is a public policy instrument (mandatory philanthropy) that has an economic and social multiplier effect in reducing poverty, in line with the objectives of Islamic law to realize social justice. Herianingrum et al. (2023) mentioned that well-planned zakat empowerment programs can increase mustahik productivity and in turn reduce the number of mustahik who are below the poverty line. Therefore, theoretically, effective zakat distribution will have an impact on reducing poverty levels and improving the welfare of recipient communities.

Several previous studies have highlighted the role of Islamic investment and zakat in contributing to poverty reduction in Indonesia. Siregar & Hidayat (2024) for instance, emphasized that optimizing zakat distribution can play a significant role in alleviating poverty. Similarly, Suprayitno et al. (2024) demonstrated that the integration of digital technology and the involvement of Islamic banking institutions enhance access to financial services, which ultimately helps lower poverty rates. Collectively, these findings reinforce the empirical support for the relevance of Islamic financial instruments in poverty alleviation strategies. Overall, previous literature supports the theory that zakat is effective as a poverty alleviation tool, especially when its distribution is well-targeted and sustainable. However, some studies also note that the effect of zakat can be limited if the amount is relatively small compared to the total poor population or if it has not been optimally managed (Athoillah, 2018; Sulaeman et al., 2021). Therefore, the institutional context and the proportion of zakat to poverty needs are the determining factors for the success of zakat in various studies.

H2: Zakat distribution has a significant negative effect on the poverty rate in Indonesia.

Gross regional domestic product (GRDP)

Economic growth as measured by Gross Regional Domestic Product (GRDP) per capita has a close relationship with the poverty rate. Junaidi (2024) states that an increase in GRDP per capita tends to reduce the poverty rate by generating employment opportunities and improving household income. However, it is important to note that economic growth must be accompanied by equitable distribution so that the benefits can be felt by all levels of society.



Source: BPS – Statistic Indonesia (2025)

Figure 1. Indonesia's GRDP 2020-2024

Figure 1 shows the trend of Gross Regional Domestic Product (GRDP) per capita across 34 provinces in Indonesia from 2020 to 2024. Overall, the data illustrates a relatively stable pattern, with some provinces such as DKI Jakarta and East Kalimantan, consistently recording higher GRDP per capita compared to others. Notable fluctuations occurred in several regions, especially in provinces dependent on natural resources, indicating potential sensitivity to external economic shocks.

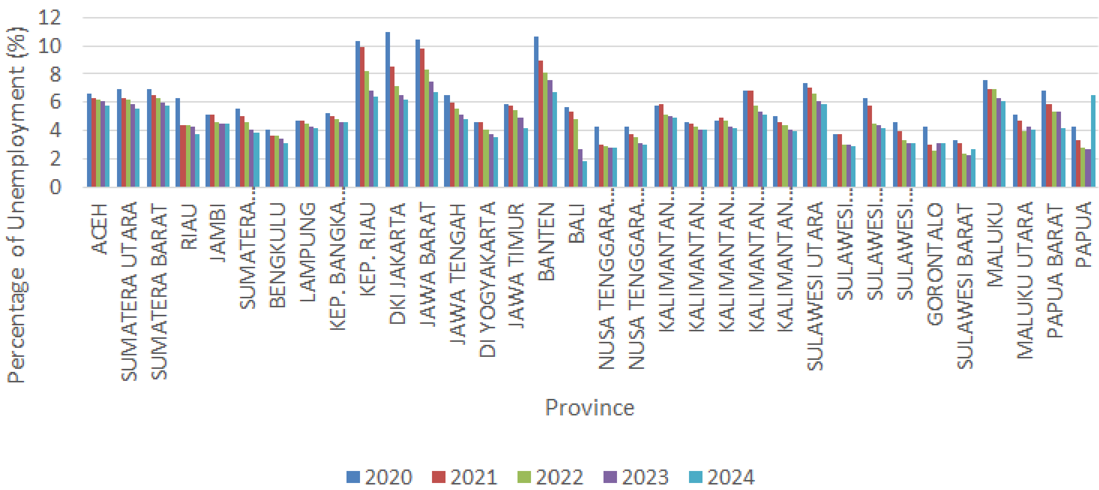
In addition to investment and zakat, the macroeconomic factors of GRDP (Gross Regional Domestic Product) per capita and unemployment also affect poverty. GRDP reflects the level of output and income in a region; according to inclusive growth theory, an increase in GRDP per capita is usually accompanied by a decrease in poverty due to increased average income and employment opportunities (Purwono et al., 2021). The study by Purwono et al. (2021) indicates that Indonesia's high economic growth has played a significant role in lowering poverty rates over time, although the impact is also influenced by how income is distributed across the population. Economic growth serves as a useful indicator for assessing poverty reduction, based on the assumption that sustained and robust growth enhances the effectiveness of poverty alleviation efforts (Al Badri, 2025).

H3: GRDP has a significant negative effect on the poverty rate in Indonesia.

This hypothesis indicates that higher regional income levels are associated with lower poverty rates due to increased economic activity and job opportunities.

Unemployment and poverty

Unemployment is recognized as one of the main contributors to poverty. According to Syahrir et al. (2023), high unemployment rates are closely linked to increased poverty, as unemployed individuals are unable to meet their basic needs. Therefore, efforts to reduce unemployment, such as providing vocational training and expanding job opportunities, play a crucial role in poverty alleviation strategies.

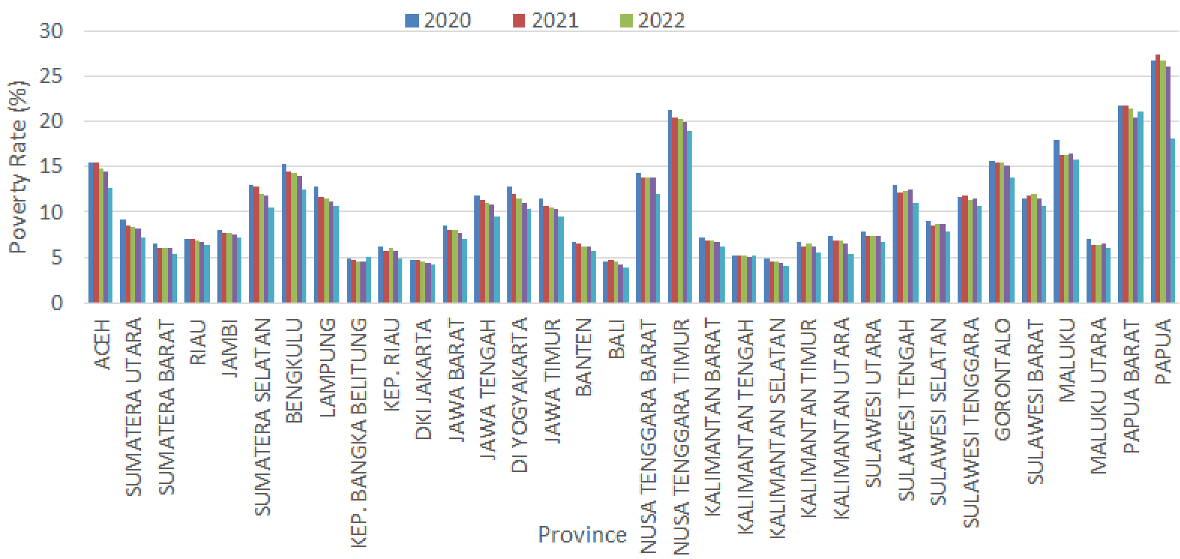


Source: BPS – Statistic Indonesia (2025)

Figure 2. Unemployment in Indonesia 2020-2024

Figure 2 illustrates the unemployment rate across Indonesian provinces from 2020 to 2024. The data shows that certain regions such as West Java, Banten, and DKI Jakarta experienced consistently higher unemployment rates compared to other provinces. In contrast, areas like Bali and West Nusa Tenggara maintained relatively lower unemployment levels throughout the period. Overall, the national unemployment trend fluctuated slightly but remained above pre-pandemic levels, indicating ongoing challenges in labor absorption. The open unemployment rate reflects the percentage of the labor force that is not absorbed in the job market. Theoretically, unemployment is positively correlated with poverty: the higher the unemployment, the more people are without income and thus vulnerable to poverty. When a person is unemployed, they lose their source of income to fulfill their needs. As a result, if there is no social safety net, poverty increases (Anggraini et al., 2023).

Meanwhile, a high unemployment rate tends to increase poverty because many members of the labor force do not earn a steady income. Conceptually, a 1% decrease in unemployment will increase the aggregate income of poor households and reduce poverty, and conversely, an increase in unemployment will worsen poverty (Athoillah, 2018). Therefore, in the empirical analysis, it is necessary to include GRDP and unemployment rate as control variables to capture the effect of economic growth and labor market on poverty.



Source: BPS – Statistic Indonesia (2025)

Figure 3. Poverty in Indonesia 2020-2024

Figure 3 illustrates the poverty rate trends across 34 provinces in Indonesia from 2020 to 2024. The data shows that provinces in eastern Indonesia particularly Papua and West Papua, consistently recorded the highest poverty rates, with percentages exceeding 20%. Meanwhile, provinces such as DKI Jakarta, Bali, and Kepulauan Riau had the lowest poverty levels, remaining under 10% throughout the observed period. Although there was a slight overall decline in poverty from 2020 to 2024, several regions experienced fluctuations due to economic shocks and uneven recovery. These disparities highlight the persistent inequality between regions and the need for targeted poverty reduction strategies. Poverty can be defined as the inability of individuals or households to fulfill the basic needs for a decent life. According to the National Development Planning Agency

(Bappenas), poverty occurs when a person is unable to fulfill basic rights such as food, clothing, shelter, education, and health that are necessary to maintain a dignified life. The impact of poverty is not only in the form of low levels of welfare, but it can also hamper human and economic development as a whole. Therefore, poverty alleviation has become the main focus of development policy in Indonesia and globally. Classical development economics theory states that high economic growth will help reduce poverty through the trickle-down effect, which refers to the creation of jobs and an increase in the income of the poor as Gross Domestic Product (GDP) increases (Purwono et al., 2021). However, economic growth must be inclusive to be effective in reducing poverty; the distribution of the benefits of growth needs to be equitable across all income layers, including poor households. In other words, the quality of growth is critical: high economic growth without equity may fail to reduce poverty significantly (Agustina et al., 2022; Al Badri, 2025).

Although many studies have been conducted on the impact of zakat and Islamic investment on poverty, there are still some gaps that need to be filled. First, many studies have not comprehensively examined the interaction between Islamic investment and zakat distribution in the context of poverty alleviation. Second, there is a need to explore the impact of control variables such as GRDP and unemployment rate more deeply in the context of this study. This gap provides an opportunity to conduct further research that can provide new insights into poverty alleviation strategies in Indonesia.

H4 : The unemployment rate has a significant positive effect on the poverty rate in Indonesia.

This hypothesis proposes that an increase in unemployment will lead to a higher poverty rate, as more people lose their sources of income. Based on economic theory and empirical evidence, GRDP per capita is expected to have a negative relationship with poverty; that is, higher economic output per person should lead to lower poverty levels. Conversely, the unemployment rate is hypothesized to have a positive relationship with poverty, where higher unemployment corresponds to higher poverty rates (Lestari & Auwalin, 2022; Mongkito et al., 2025; Purwono et al., 2021). Guided by this theoretical framework, the present study aims to analyze the effect of Islamic investment and zakat distribution on poverty in Indonesia, while controlling for GRDP and unemployment at the provincial level.

METHODOLOGY, DATA, AND ANALYSIS

This study uses secondary data in the form of panel data covering 34 provinces in Indonesia during the 2020–2024 period. The data is structured as panel (pooled data) to combine both cross-sectional (province) and time-series (year) dimensions simultaneously, which increases the number of observations and enhances the accuracy of estimation (Baltagi, 2005; Gujarati, 2015). The main data sources include the Central Bureau of

Statistics (BPS) for poverty, GRDP per capita, and unemployment rate; the Financial Services Authority (OJK) for Islamic bank financing; and the National Amil Zakat Agency (BAZNAS) for zakat distribution. All variables are annual data.

The analysis employs a static panel regression model estimated using EViews 13 software. The selection of the model (Fixed Effect vs Random Effect) is determined using the Chow Test and Hausman Test. The final model used is the Random Effect Model (REM), as it best fits the data based on the statistical testing outcomes.

Thus, the total number of observations in this panel data is 170 (34 provinces × 5 years), since the data set consists of annual observations for 34 provinces over a 5-year period (2020–2024). This balanced panel structure allows for more robust estimation and greater variability in the dataset. Mathematically, the regression model can be written as follows:

$$POV_{it} = \alpha + \beta_1 INV_{it} + \beta_2 ZKT_{it} + \beta_3 GRDPpc_{it} + \beta_4 ONR_{it} + \mu_i + \epsilon_{it}$$

Explanation :

POV : Poverty Rate (percentage of poor population below the poverty line *i* at year *t)*

INV : Islamic Investment (Islamic bank financing as a proxy for Islamic investment in province *i* at year *t*)

ZKT : Zakat Distribution (as a proxy for zakat in province *i* at year *t*)

GRDP : Gross Regional Domestic Product per capita (as a proxy for regional economic growth)

ONR : Open Unemployment Rate (proxy for labor market conditions)

α : Intercept

β : Regression Coefficients

μ : Unobserved province-specific effect (heterogeneity across provinces)

ε : Idiosyncratic error term (random error specific to province *i* and time *t*)

This panel data approach increases the number of observations and data variation so that the coefficient estimation becomes more efficient.

RESULT AND DISCUSSION

Descriptive analysis

Descriptive statistics of each variable in this study are listed in Table 1 which contains the mean value, minimum value, maximum value, and standard deviation. The variables analyzed in this study include poverty level (Poverty), Islamic Investment, Zakat Distribution, Gross Regional Domestic Product (GRDP), and Unemployment level. This descriptive analysis aims to provide an overview of the characteristics of the panel data used during the period 2020 to 2024 in 34 provinces in Indonesia.

Table 1 . Descriptive Statistics

Variable	Mean	Min	Max	Std. Dev.	Obs.
Poverty	10.15776	3.8	27.38	5.133686	170
Islamic Investment	6.203706	0	11.34307	2.214757	170
Zakat Distribution	3.522615	-0.771396	7.918349	1.755768	170
GRDP	3.945824	-9.34	22.94	4.169185	170
Unemployment	5.114235	1.79	10.95	1.734131	170

Source: Data processed (2025)

Table 1 summarises the descriptive statistics of the 170 observations across 34 Indonesian provinces from 2020 to 2024. Poverty shows substantial variation, ranging from 3.80% to 27.38% with a mean of 10.16%, indicating wide inter-provincial welfare disparities. Islamic investment varies from 0 to 11.34%, with an average of 6.20%, reflecting unequal access to sharia-based financing across regions. Zakat distribution ranges from –0.77% to 7.92%, with a mean of 3.52%; the negative minimum value suggests reporting adjustments in specific provinces.

GRDP per capita exhibits pronounced fluctuations (–9.34% to 22.94%), highlighting provinces experiencing either severe contraction or strong economic expansion. Unemployment ranges from 1.79% to 10.95%, with a mean of 5.11%, underscoring differences in labour-market conditions. Overall, the descriptive statistics reveal substantial socio-economic heterogeneity across provinces, supporting the use of panel data techniques in subsequent analysis.

Model Selection Test Results

As part of the panel data analysis stage, a series of tests were conducted to determine the most appropriate model to use in this study. The tests conducted include the Chow Test and the Hausman Test. The results of these two tests are displayed in the Model Selection Test Results Table. The following is an explanation of the test results:

Table 2 . Model Selection Test Results

Testing	Results	Decision
Chow Test	Prob. 0.0000 < 0.05	FEM
Hausman Test	Prob. 0.8841 > 0.05	REM

Source: Data processed (2025)

According to **Table 2**, the results of the model specification tests. The Chow Test shows a probability value of 0.0000 < 0.05, indicating that the Fixed Effect Model (FEM) is preferred over the Common Effect Model. However, the subsequent Hausman Test yields a probability value of 0.8841 > 0.05, implying that the Random Effect Model (REM) is more appropriate because the individual effects are not significantly correlated with the regressors. This is consistent with Baltagi (2005), who notes that REM should be selected when the Hausman p-value exceeds 0.05. Therefore, based on the sequential testing procedure, REM is chosen as the most suitable estimator for this study.

Panel data results

Based on the model selection results, the Random Effect Model (REM) is used as the most appropriate model to analyze the effect of independent variables on the poverty rate in Indonesia in the period 2020-2024. This analysis aims to find out how sharia investment, zakat distribution, GRDP, and unemployment rate affect the poverty rate in 34 provinces in Indonesia. The estimation results of the regression equation are shown and explained as follows:

Table 3 . Summary of Estimated Models

	Dependent Variable: Poverty				
	Coefficient	**Std. Error**	**t-Statistic**	**Prob.**	**Hypothesis**
Islamic Investment	-0.863147	0.13902	-6.208791	0.0000	Accepted
Zakat Distribution	-0.044187	0.143442	-0.308047	0.7584	Rejected
GRDP	-0.082003	0.025591	-3.204387	0.0016	Accepted
Unemployment	-0.217073	0.110605	-1.9626	0.0514	Rejected
R-Squared	0.24155				
Adjs R-Squared	0.223163				
F-statistic	13.13724			0.0000	
Observation (n)	170				

Source: Data processed (2025)

According to **Table 3**, the regression results show that islamic investment has a coefficient of -0.863 with a probability value of 0.0000 (<0.05). This means that sharia investment has a negative and significant effect on the poverty rate, so that any increase in sharia investment tends to significantly reduce the poverty rate. Furthermore, zakat distribution has a coefficient of -0.044 with a probability of 0.7584 (> 0.05), meaning that zakat distribution negatively affects poverty but is not statistically significant.

The GRDP variable shows a coefficient of -0.082 with a probability of 0.0016 (<0.05). This indicates that GRDP has a negative and significant effect on poverty; in other words, an increase in GRDP can help reduce poverty. Meanwhile, Unemployment has a coefficient of -0.217 with a probability of 0.0514, so the effect is negative but not significant at the 5% significance level, although the value is close to the significance limit.

The R-squared value of 0.2416 indicates that 24.16% of the variation in poverty can be explained by the independent variables in this model. The F-statistic value of 13.137 with a probability of 0.0000 indicates that the regression model used is significant overall at the 95% confidence level.

The effect of islamic investment on poverty rate

Based on the panel estimates in **Table 3**, Islamic investment is negatively and significantly associated with poverty H1 Accepted. This result is consistent with evidence in Indonesia that links Islamic finance to inclusive economic opportunities and higher household income (Agustina et al., 2022; Herianingrum et al., 2023; Indra & Ibrahim, 2023).

Substantively, productive financing enlarges micro, small, and medium enterprises (MSMEs), stimulates job creation, and strengthens local value chains so that growth is more widely shared. In Indonesia, Islamic banks widely implement musyarakah and mudharabah contracts for MSME development, providing risk-sharing capital that supports business resilience and expansion (Annizar & Junarsin, 2025). In addition, the musyarakah mutanaqisah (MMQ) scheme has become a key mode of Islamic financing, particularly in property and home ownership programs offered by Bank Syariah Indonesia (OJK, 2023; PT Bank Syariah Indonesia, 2023). These programs reflect how profit-and-loss sharing contracts promote inclusive growth through financing accessibility and productive capacity enhancement. Differences in absorptive capacity, sectoral composition, and the pipeline of bankable MSME projects can explain why the strength of the relationship varies across provinces. These patterns suggest that policy should increase scale and improve targeting toward labor-intensive and productivity-enhancing activities.

The effect of zakat distribution on poverty rate

Based on the panel estimates in **Table 3**, zakat distribution is negative but not statistically significant H2 Rejected. This finding differs from studies that show a clear poverty reducing role for well managed zakat programs (Ayuniyyah et al., 2022; Choiriyah et al., 2020) yet aligns with arguments that operational constraints can mute impacts at an aggregate level (Ben Jedidia & Guerbouj, 2021). Possible reasons include timing gaps between disbursement and measurable welfare gains, a larger share of consumptive assistance relative to productive programs, and aggregation that does not capture targeting accuracy. Accordingly, governance and reporting should be strengthened, the share of empowerment-oriented programs increased, and zakat integrated with local business development and social services. For instance, BAZNAS has implemented the Zakat Community Development (ZCD) program, which integrates productive zakat distribution with entrepreneurship training, local business mentoring, and cooperative development in several Indonesian provinces. This program has proven effective in improving mustahik income and reducing dependency on consumptive aid (Herianingrum et al., 2024a; Widiastuti et al., 2022).

The effect of GRDP per capita on poverty rate

Based on the panel estimates in **Table 3**, GRDP per capita is negatively and significantly related to poverty H3 accepted. This supports the inclusive growth view that stronger regional economic capacity tends to lower deprivation (Satyatama, 2025; Tru, 2022). Even so, growth alone is not sufficient. Without improvements in productivity, logistics, and access to decent work, provinces can experience unequal or jobless growth. Policy should connect GRDP expansion to local value chains, infrastructure that reduces logistics costs, and programs that crowd in private investment and employment, consistent with the caution raised by Mawardi et al. (2023).

The effect of open unemployment rate on poverty rate

Based on the panel estimates in **Table 3**, the open unemployment rate is not statistically significant and its sign does not follow the theoretical expectation H4 rejected. In the Indonesian context, many poor households are engaged in informal low productivity work, so poverty can remain high even when measured unemployment is low; a discouraged worker effect can also depress measured unemployment during downturns. This pattern contrasts with evidence that usually finds a positive link between unemployment and poverty (Murjani, 2019; Satyatama, 2025). The result should be interpreted with caution and motivates the use of alternative labor indicators such as the employment to population ratio, underemployment, or job quality measures, alongside programs for skills upgrading and job matching.

CONCLUSION AND SUGGESTION

This study shows that Islamic investment and regional economic growth are associated with lower provincial poverty rates in Indonesia. Although the estimated directions align with theory, several coefficients are statistically insignificant, indicating heterogeneous effects across provinces and instruments. These results highlight the need to couple financial deepening with real sector capacity so that growth is translated into poverty reduction, particularly through MSME financing and employment creation.

From a managerial and policy standpoint, priorities include widening access to Islamic financial services, especially productive MSME oriented schemes, and directing investment toward underdeveloped regions. Provincial governments can raise GRDP per capita via infrastructure provision, support for local value chains, and programs that crowd in private investment and jobs. Collaboration between zakat management bodies and social welfare institutions should also be strengthened to ensure that zakat distribution is well targeted, timely, and integrated with empowerment programs, thereby amplifying the poverty reducing impact of Islamic investment and growth.

This study has limitations. It relies on secondary data and a panel specification that may not fully capture local institutional and sociocultural factors, and some covariates may be measured with error. Future research should evaluate the implementation quality and effectiveness of zakat programs using micro or program level data, examine labor market mechanisms more explicitly, and test alternative measures of Islamic investment, for example distinguishing profit and loss sharing from mark up financing. Extending the time horizon and conducting province specific case studies would help explain interregional differences in impact.

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