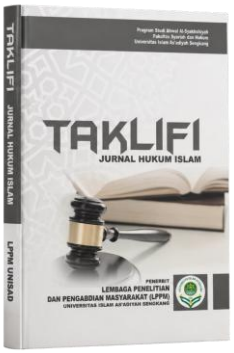
Vol. 3 | No. 1 | 2026



TAKLIFI
Jurnal Hukum Islam
e-ISSN: 3047-4736
Available online at https://journal.unisad.ac.id/index.php/taklifi
Email: taklifi@unisad.ac.id

Analysis of the Relationship Between the Distribution and Utilization of BAZNAS ZIS-DSKL Funds Categorized by Program Area and Poverty Levels in South Sulawesi Using Panel Data Regression

Analisis Hubungan Jumlah Pendistribusian dan Pendayagunaan Dana ZIS-DSKL BAZNAS Berdasarkan Bidang Program dengan Tingkat Kemiskinan di Sulawesi Selatan Menggunakan Regresi Data Panel

Author Name	Author Affiliation
Nur Hikmah Auliana	Institut Agama Islam Negeri Bone
Nurhidayanti	Institut Agama Islam Negeri Bone

Corresponding Author: nurhikmahauliana@iain-bone.ac.id

Abtstract

Poverty is one of the socioeconomic issues that requires sustainable community empowerment tools. One such tool with the potential to support poverty alleviation efforts is the Zakat, Infak, and Sedekah funds, as well as other religious social funds (ZIS-DSKL), which are distributed and utilized through various BAZNAS programs. This study aims to identify the relationship between the amount of ZIS-DSKL funds distributed and utilized by BAZNAS across all program areas and the poverty rate in South Sulawesi. The research data covers 24 regencies/cities during the 2023–2025 period, which were analyzed using panel data regression. Model selection was conducted using the Chow, Hausman, and Lagrange Multiplier tests, while the final inference utilized robust standard errors to address issues related to the panel residual structure. The results of the study indicate that the Random Effects Model (REM) is the most appropriate model. The estimation results using robust standard errors show that the coefficient for ZIS-DSKL funds is -0.143 with a p-value of 0.0006. The findings indicate a significant negative correlation between the amount of ZIS-DSKL funds distributed and utilized and the poverty rate. Quantitatively, every Rp1 billion increase in the total ZIS-DSKL funds distributed and utilized across all BAZNAS program areas is associated with a 0.143 percentage point decrease in the poverty rate. These results indicate that the increased distribution and utilization of ZIS-DSKL funds

Article History
Received: 10 Februari 2026 | Revised: 9 Maret 2026 | Accepted: 10 April 2026

through various BAZNAS programs are associated with a decline in poverty rates in the regencies and cities of South Sulawesi during the study period.

Keywords: ZIS-DSKL, BAZNAS, Poverty, Panel Data Regression

Abstrak

Kemiskinan merupakan salah satu permasalahan sosial-ekonomi yang memerlukan instrumen pemberdayaan masyarakat secara berkelanjutan. Salah satu instrumen yang berpotensi mendukung upaya pengentasan kemiskinan adalah dana Zakat, Infak, dan Sedekah serta Dana Sosial Keagamaan Lainnya (ZIS-DSKL) yang didistribusikan dan didayagunakan melalui berbagai bidang program BAZNAS. Penelitian ini bertujuan untuk mengidentifikasi hubungan antara jumlah pendistribusian dan pendayagunaan dana ZIS-DSKL BAZNAS berdasarkan keseluruhan bidang program dengan tingkat kemiskinan di Sulawesi Selatan. Data penelitian mencakup 24 kabupaten/kota selama periode 2023–2025 dan dianalisis menggunakan regresi data panel. Pemilihan model dilakukan melalui uji Chow, Hausman, dan Lagrange Multiplier, sedangkan inferensi akhir menggunakan robust standard error untuk mengatasi permasalahan pada struktur residual panel. Hasil penelitian menunjukkan bahwa Random Effect Model (REM) merupakan model yang paling sesuai. Hasil estimasi dengan robust standard error menunjukkan koefisien dana ZIS-DSKL sebesar -0,143 dengan p-value 0,0006. Temuan tersebut menunjukkan adanya hubungan negatif dan signifikan antara jumlah pendistribusian dan pendayagunaan dana ZIS-DSKL dengan tingkat kemiskinan. Secara kuantitatif, setiap peningkatan sebesar Rp1 miliar pada total dana ZIS-DSKL yang didistribusikan dan didayagunakan melalui seluruh bidang program BAZNAS berkaitan dengan penurunan tingkat kemiskinan sebesar 0,143 poin persentase. Hasil ini mengindikasikan bahwa peningkatan pendistribusian dan pendayagunaan dana ZIS-DSKL melalui berbagai bidang program BAZNAS memiliki keterkaitan dengan penurunan tingkat kemiskinan di kabupaten/kota Sulawesi Selatan selama periode penelitian.

Kata-kata Kunci: *ZIS-DSKL, BAZNAS, Kemiskinan, Regresi Data Panel*

Introduction

Poverty is one of the development issues that remains a major concern in Indonesia. Poverty not only reflects economic limitations but is also a multidimensional issue related to people's ability to meet their basic needs and gain access to education, health care, employment, housing, and various social and economic resources (Rahman et al., 2019; Firdausy, 2016; Saniah & Afrizal, 2024) These conditions make poverty reduction one of the key indicators for assessing the success of a region's economic development (Alviannor & Fahrati, 2021).

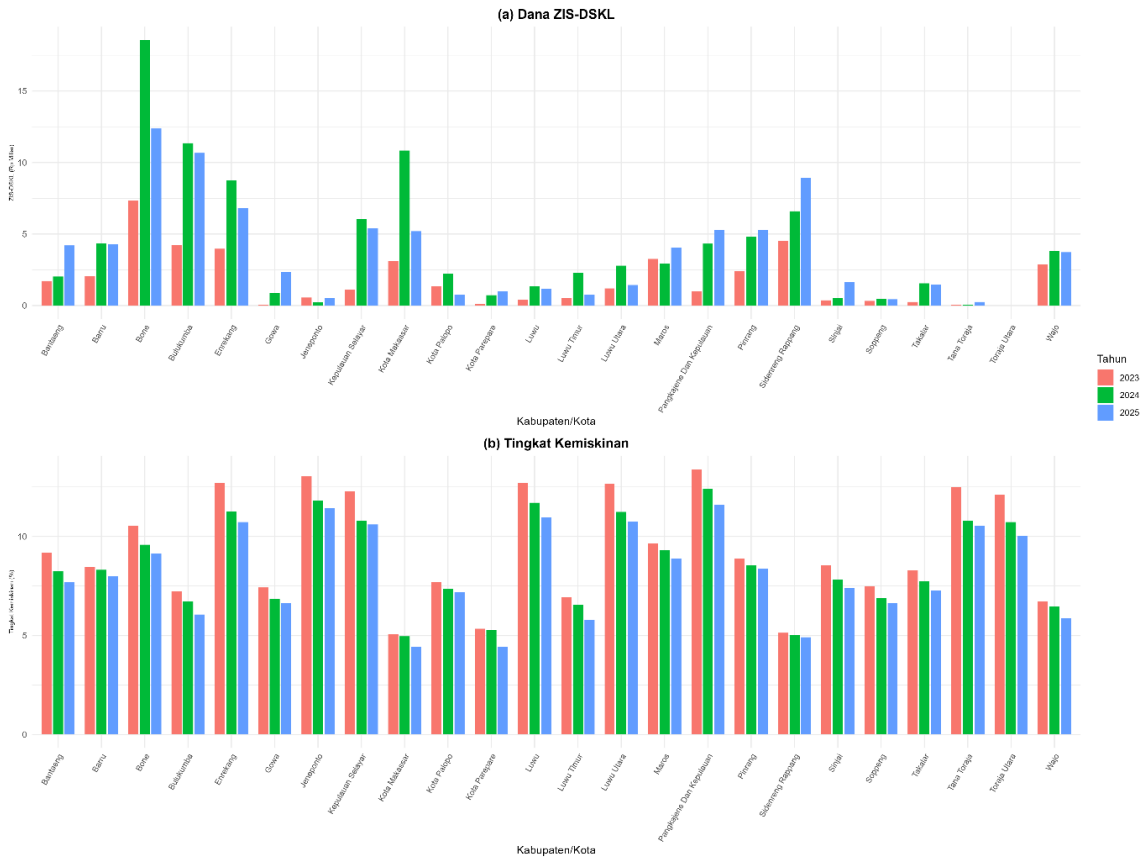
In the context of regional development, poverty rates also reflect economic disparities among regions (Purnama et al., 2024). Regencies and cities with different economic characteristics, employment structures, resources, and development policies may exhibit varying levels of poverty. Therefore, poverty reduction efforts require policies that are not only focused on economic growth but also take into account mechanisms for distributing resources to vulnerable groups in society. One of the instruments that serves both social and economic functions in this context is zakat, infaq, and sadaqah (ZIS). The organized and productive management of zakat can be directed not only toward meeting consumption needs but also toward supporting community empowerment through various priority sectors, such as the economy and education (Makhrus, 2019). Thus, the management of ZIS funds has the potential to serve as one of the supporting instruments in poverty reduction efforts (Herianingrum et al., 2024).

From the perspective of Islamic economics, zakat serves to redistribute wealth from those with economic means to those who are entitled to receive it. This function means that zakat has not only a religious dimension but also social and economic dimensions (Hidayati et al., 2024). Institutional management of zakat allows the funds collected to be distributed in a more targeted manner based on the needs of the community.

In Indonesia, the National Zakat Agency (BAZNAS) plays a role in the management of zakat at the national level, including the distribution and utilization of ZIS funds. These funds can be channeled through various program areas, such as humanitarian aid, health, education, the economy, as well as da'wah and the agency's operational expenses (Badan Amil Zakat Nasional, 2025). The diversity of these program areas demonstrates that the use of ZIS funds has a broad scope and is not limited to direct assistance to the community. Programs focused on economic empowerment, for example, can be designed to enhance the productive capacity of beneficiaries. Meanwhile, education and health programs can help reduce various barriers that affect people's quality of life. Thus, the

cumulative distribution and utilization of ZIS-DSKL funds across various program areas can be a relevant aspect to examine in relation to poverty levels.

South Sulawesi is a region with diverse socioeconomic characteristics. The province consists of various regencies and cities that differ in terms of economic structure, community characteristics, and poverty levels. These differences mean that each region's capacity and needs in addressing poverty are also not uniform. Under these circumstances, the management of ZIS-DSKL funds at the regency/city level is worth examining, as the amount of funds distributed and utilized may vary across regions and over time. Research data indicate that the total ZIS-DSKL funds distributed and utilized across various program areas underwent changes during the 2023–2025 period (Badan Amil Zakat Nasional, 2023; 2024; 2025). At the same time, poverty rates in most regions also showed year-over-year changes (Badan Pusat Statistik Provinsi Sulawesi Selatan, 2023)(Badan Pusat Statistik Provinsi Sulawesi Selatan, 2024)(Badan Pusat Statistik Provinsi Sulawesi Selatan, 2025) An overview of the trends in ZIS-DSKL funds and poverty rates during the observation period is presented in Figure 1.



Source: BAZNAS and BPS; compiled by the researcher.

Figure 1. Trends in ZIS-DSKL Funds and Poverty Rates in Regencies and Cities in South Sulawesi, 2023–2025

Figure 1 shows dynamics in the distribution and utilization of ZIS-DSKL funds as well as poverty rates during the observation period. However, changes in these two variables are not sufficient to determine whether there is a consistent relationship between ZIS-DSKL funds and poverty rates after accounting for differences in regional characteristics and changes across periods. Therefore, a statistical approach capable of considering both dimensions simultaneously is required.

The use of panel data regression is relevant to this study because the data used have both spatial and temporal dimensions. The panel data approach allows for the observation of 24 regencies and cities in South Sulawesi over a three-year period: 2023, 2024, and 2025. The advantage of this approach lies in its ability to account for interregional heterogeneity that may not be directly observable. Each regency and city has distinct socioeconomic characteristics, and these characteristics can influence poverty rates. Using a panel data model, these individual differences can be accounted for through an individual effects approach. This study estimates three models: the Common Effects Model (CEM), the Fixed Effects Model (FEM), and the Random Effects Model (REM). Model selection was based on data characteristics using the Chow test, the Breusch-Pagan Lagrange Multiplier test, and the Hausman test. This approach allowed us to identify a model better suited to describing the relationship between total ZIS-DSKL funds and poverty rates. Thus, the analysis was not based solely on simple relationships between variables but also took into account the structure of the panel data used.

Based on the above description, this study was conducted to identify the relationship between the amount of ZIS-DSKL funds distributed and utilized by BAZNAS, by program area, and the poverty rate in South Sulawesi during the 2023–2025 period. The study focused on the total ZIS-DSKL funds from all program areas that were distributed and utilized in each regency and city. The

findings of this study are expected to provide empirical evidence regarding the relationship between the management of ZIS-DSKL funds and poverty conditions at the regency/city level in South Sulawesi. This study is expected to enrich the body of research on the role of ZIS-DSKL funds in regional socioeconomic development.

Research Method

Types and Sources of Research Data

This study employs a quantitative approach using panel data regression analysis. The analysis was conducted to identify the relationship between the amount of ZIS-DSKL funds distributed and utilized by BAZNAS across all program areas and the poverty rate in the regencies and cities of South Sulawesi Province during the 2023–2025 period.

The data used consists of secondary data in the form of a balanced panel, which combines a cross-sectional dimension comprising 24 regencies/cities in South Sulawesi and a time-series dimension comprising three observation periods: 2023 and 2024. Thus, the total number of observations in this study is 24 × 3 = 72. The data for this study consists of two main components, namely:

1. BAZNAS ZIS-DSKL Data. This data covers all funds allocated for the distribution and utilization of Zakat, Infak, Sedekah, and Other Religious Social Funds (ZIS-DSKL) across various program areas in each regency/city. The data source is officially obtained from the Zakat Management Report—PPID BAZNAS RI (https://ppid.baznas.go.id/laporan/laporan-pengelolaan-zakat). In this study, ZIS-DSKL funds from all program areas were aggregated into a single total value for each regency/city per year. Thus, the study did not estimate the impact of each program area separately. The analysis focused on identifying the relationship between the total distribution and utilization of ZIS-DSKL funds as a whole and the poverty rate.
2. Poverty Rate Data. The poverty data used represents the percentage of the poor population in each regency/city in South Sulawesi. This data is

sourced from the Central Statistics Agency (BPS) of South Sulawesi Province through its official release of regency/city-level poverty figures for the 2023–2025 period (https://sulsel. bps.go.id/id/statistics-table/2/NDQwIzI=/persentase-penduduk-miskin--p0--menurut-kabupaten-kota-se-sulawesi-selatan--persen-.html).

Research Variables

This study uses two main variables: the independent variable and the dependent variable.

Table 1. Operational Definitions of Variables

Variable	Symbol	Operational Definition	Unit
Total distribution and utilization of ZIS-DSKL funds	(X)	Total ZIS-DSKL funds distributed and utilized through all BAZNAS program areas in each regency/city and year	Billion rupiah
Poverty rate	(Y)	Percentage of the poor population in each regency/city and year	Percent (%)

The independent variable X represents the total distribution and utilization of ZIS-DSKL funds across all BAZNAS program areas. To facilitate the interpretation of the regression coefficients, the ZIS-DSKL fund values are converted from rupiah to billions of rupiah using the following equation:

$$ZIS_{Billion} = \frac{ZIS_{DISKL}}{1.000.000.000} \quad (1)$$

The dependent variable Y is the poverty rate in each regency/city.

Data Analysis Methods

Descriptive Analysis

Descriptive analysis was used to provide an overview of the characteristics of the total ZIS-DSKL funds and the poverty rate during the study period. The analysis was conducted using the minimum, maximum, and mean values. In

addition, trends in both variables during the 2023–2025 period are presented in tables and graphs.

Panel Data Regression Model Estimation

Panel data regression is used because the research data has two dimensions: region and time. The general model used in this study is (Baltagi, 2005):

$$Y_{it} = \alpha + \beta X_{it} + \varepsilon_{it} \quad (2)$$

Keterangan:

Y_{it} : poverty rate in district/city i in year t;

X_{it} : total ZIS-DSKL funds in billions of rupiah in district/city i in year t;

α : intercept

β : regression coefficient for total ZIS-DSKL funds;

ε_{it} : error term;

i :1,...,24;

t : 2023,2024,2025.

In panel data regression, estimates are calculated using three approaches: the Common Effect Model (CEM), the Fixed Effect Model (FEM), and the Random Effect Model (REM)(Amaliah et al., 2020).

Common Effect Model (CEM)

CEM assumes that there are no specific differences in characteristics between districts/cities or across periods that influence the relationship between the research variables. The CEM model is formulated as follows:

$$Poverty_{it} = \alpha + \beta ZIS_{it} + \varepsilon_{it} \quad (3)$$

This model treats all observations as a single unit without taking into account the individual effects of regencies and municipalities.

Fixed Effect Model (FEM)

The FEM allows for specific characteristics that differ across each regency/city and are assumed to remain constant throughout the study period. The model can be written as:

$$Poverty_{it} = \alpha_i + \beta ZIS_{it} + \varepsilon_{it} \quad (4)$$

Where α_i denotes the individual effect of each regency/city.

Random Effect Model (REM)

REM assumes that differences in individual characteristics across districts/cities form part of the random component. The model is formulated as follows:

$$Poverty_{it} = \alpha + \beta ZIS_{it} + u_i + \varepsilon_{it} \quad (5)$$

Where u_i is a random individual effect. REM is used when individual effects are uncorrelated with the explanatory variables in the model.

Selection of a Regression Model for Panel Data

Pemilihan model dilakukan menggunakan tiga pengujian, yaitu Uji Chow, Uji Hausman, dan Uji Breusch-Pagan Lagrange Multiplier (LM).

Chow Test

The Chow test is used to determine the choice between the Common Effects Model (CEM) and the Fixed Effects Model (FEM). The hypotheses used are:

$$H_0: CEM\ is\ a\ better\ fit$$
$$H_1: FEM\ is\ a\ better\ fit$$

The decision is based on the p-value. If the p-value is less than 0.05, then H_0 is rejected, meaning that FEM is a better fit.

Hausman Test

The Hausman test was used to determine which model—FEM or REM—was more appropriate. The hypotheses used were as follows:

$$H_0: REM\ is\ a\ better\ fit$$
$$H_1: FEM\ is\ a\ better\ fit$$

If the p-value is greater than 0.05, then H_0 is not rejected and FEM is selected. Conversely, if the p-value is less than 0.05, REM is selected.

Breusch-Pagan Lagrange Multiplier Test

The Breusch-Pagan LM test is used to determine whether the Random Effects Model is a better fit than the Common Effects Model. The hypotheses used are:

$$H_0: CEM\ is\ a\ better\ fit$$

$$H_1: REM\ is\ a\ better\ fit$$

If the p-value is less than 0.05, then there are individual effects and therefore REM is a better fit than CEM.

Model Diagnostic Tests

Once the panel model has been selected, diagnostic tests are carried out to determine whether there are any issues with the residuals that could affect the accuracy of statistical inferences.

Heteroscedasticity Test

A heteroscedasticity test is carried out to determine whether the variance of the residuals is constant. A model is said not to suffer from heteroscedasticity if there is insufficient evidence that the variance of the residuals differs across observations.

Autocorrelation Test

An autocorrelation test is carried out to determine whether there is a correlation between residuals across periods within a regency or city. The presence of serial correlation may mean that conventional standard errors no longer provide accurate inferences.

Cross-Sectional Dependence Test

A cross-sectional dependence test is used to determine whether there is a relationship between residuals across regencies and cities within the same period. This test is relevant because the socio-economic conditions of a regency

or city may be linked to developments in other regions. If problems are identified in the error structure, robust standard errors are used to obtain more reliable standard errors when testing the significance of parameters.

Significance Test for the Coefficient

The significance of the relationship between the total distribution and utilisation of ZIS-DSKL funds and the poverty rate was tested using a partial test of the β coefficient. The hypotheses used were:

$$H_0: \beta = 0$$

$$H_1: \beta \neq 0$$

Decision criteria:

- If the p-value is < 0.05, then H0 is rejected and there is a significant relationship between the total distribution and utilisation of ZIS-DSKL funds and the poverty rate.
- If the p-value is ≥ 0.05, then H0 is not rejected, meaning there is not yet sufficient evidence of a significant relationship.

The direction of the relationship is determined by the sign of the regression coefficient. A negative coefficient indicates that an increase in the total distribution and utilisation of ZIS-DSKL funds is associated with a decrease in the poverty rate, whilst a positive coefficient indicates a positive correlation.

Coefficient of Determination

The coefficient of determination (R^2) is used to provide information on the proportion of variation in poverty levels that can be explained by the variables relating to the distribution and utilisation of ZIS-DSKL funds in the model. However, as the study uses only one explanatory variable, the R^2 value is not interpreted as a measure of all the factors determining poverty. The poverty rate is a multidimensional phenomenon influenced by various other economic and social factors that are not included in the model.

Results and Discussion

Descriptive Analysis

This study utilises panel data comprising 24 regencies and cities in South Sulawesi Province over the period 2023–2025. Consequently, there are 72 observations forming a balanced panel, as all regencies and cities have observations for all three study periods. The variables analysed comprise the total ZIS-DSKL funds distributed and utilised across various BAZNAS programme areas as the independent variable, and the poverty rate as the dependent variable. The total ZIS-DSKL funds are expressed in billions of rupiah.

Table 2. Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Mean
Total ZIS-DSKL (billion rupiah)	72	0,00	18,56	3,17
Poverty Rate (%)	72	4,43	13,40	8,69

Source: Data processed using R.
Note: The standard deviation of the poverty rate was calculated based on all 72 observations.

Based on Table 2, the total ZIS-DSKL funds distributed and utilized through various BAZNAS program areas averaged Rp3.17 billion per regency/city per year. The lowest value is Rp0, while the highest reaches Rp18.56 billion. The minimum value of Rp0 was recorded in North Toraja Regency during the observation period, indicating that no distribution or utilization of ZIS-DSKL funds was recorded in that region. Meanwhile, the average poverty rate was 8.69%, with the lowest rate at 4.43% and the highest at 13.40%. This range indicates significant differences in poverty conditions among the regencies and cities in South Sulawesi.

Table 3. Trends in the Average Total ZIS-DSKL and Poverty Rates

Year	Average ZIS-DSKL (billion rupiah)	Average Poverty Rate (%)
2023	1,79	9,33
2024	4,06	8,60
2025	3,67	8,14

Source: Data processed using R.

Table 3 shows that the average total ZIS-DSKL funds increased from Rp1.79 billion in 2023 to Rp4.06 billion in 2024, then decreased to Rp3.67 billion in 2025.

At the same time, the average poverty rate showed a consistent downward trend, falling from 9.33% in 2023 to 8.60% in 2024 and 8.14% in 2025.

This pattern provides an initial indication of a potential negative relationship between total ZIS-DSKL funds and the poverty rate. However, this descriptive pattern alone is insufficient to conclude the existence of a statistically significant relationship, as changes in the poverty rate may also be influenced by other social and economic factors. Therefore, the relationship between the two variables was further analyzed using panel data regression.

Panel Data Regression Model Estimation

To identify the relationship between total ZIS-DSKL funds and the poverty rate, three panel data regression models were first estimated: the Common Effect Model (CEM), the Fixed Effect Model (FEM), and the Random Effect Model (REM).

Table 4. Estimation Results for CEM, FEM, and REM

Variable	CEM	FEM	REM
Constant	9,0194***	–	9,1465***
Total ZIS-DSKL	−0,1034	−0,1472**	−0,1434***
R^2	0,0216	0,1917	0,1410
Model Probability	0,2175	0,0017	0,0007

Source: Data processed using R.

The estimation results show that the coefficient for total ZIS-DSKL funds is negative in all three models. In the CEM, the coefficient is −0.1034 with a p-value of 0.2175, indicating no statistically significant relationship. In the FEM, the coefficient is −0.1472 with a p-value of 0.0017, while in the REM, the coefficient is −0.1434 with a p-value of 0.0007. The similar direction of the coefficients across the three approaches indicates a tendency toward a negative relationship between the amount of ZIS-DSKL funds and the poverty rate. However, the most appropriate model must still be selected through panel model specification testing.

Panel Data Regression Model Selection

Table 5. Model Selection Test Results

Test	Statistic	p-value	Decision
Chow	F = 46,781	< 0,001	FEM is better than CEM
Breusch-Pagan LM	χ^2 = 63,065	< 0,001	REM is better than CEM
Hausman	χ^2 = 0,0931	0,7603	REM is better than FEM

Source: Data processed using R.

The results of the Chow test yielded an F-value of 46.781 with a p-value of 2.2e-16 < 0.001. Since the p-value is less than 0.05, the null hypothesis is rejected. Thus, there is an individual effect that makes FEM more appropriate than CEM. Furthermore, the Breusch-Pagan LM test yielded a χ^2 value of 63.065 with a p-value of 2e-15 < 0.001. These results indicate the presence of individual effects, suggesting that REM is more appropriate than CEM. To choose between the FEM and REM, a Hausman test was conducted. The test results yielded a χ^2 value of 0.0931 with a p-value of 0.7603. Since the p-value is greater than 0.05, the null hypothesis is not rejected. Thus, the REM is more appropriate than the FEM. Based on these three tests, the model selected to identify the relationship between total ZIS-DSKL funds and the poverty rate is the Random Effect Model (REM).

Model Diagnostic Tests

After the REM was selected as the model of choice, diagnostic tests were conducted to determine the error characteristics in the model.

Table 6. Diagnostic Test Results

Test	Statistic	p-value	Conclusion
Heteroscedasticity	BP = 0,0644	0,7996	No heteroscedasticity
Serial correlation	χ^2 = 40,129	< 0,001	Serial correlation present
Cross-sectional dependence	z = 17,039	< 0,001	Cross-sectional

Source: Data processed using R.

The Breusch-Pagan test yielded a BP value of 0.0644 with a p-value of 0.7996. Since the p-value is greater than 0.05, there is no evidence of heteroscedasticity in the model. However, the serial correlation test yielded a χ^2 value of 40.129 with a p-value < 0.001, indicating the presence of serial correlation

in the residuals. In addition, the CD test yielded a z-value of 17.039 with a p-value < 0.001, indicating the presence of cross-sectional dependence among districts and cities.

The findings indicate that the model residuals are not entirely independent, either over time or across regions. Therefore, the use of conventional standard errors could potentially lead to inaccurate inferences. To address this issue, the final estimates were calculated using robust standard errors based on the Arellano method and clustering by regency/city groups.

Final Model Results

Based on the results of model selection and diagnostic tests, the final estimation uses the Random Effects Model with robust standard errors.

Table 7. REM Estimation Results with Robust Standard Errors

Variable	Coefficient	Robust Std. Error	t	p-value
Constant	9,1465	0,5494	16,647	<0,001
Total ZIS-DSKL (billion rupiah)	−0,1434	0,0399	−3,599	<0,001

Source: Data processed using R.

Based on Table 7, the coefficient for total ZIS-DSKL funds is −0.1434 with a p-value of 0.000593. A p-value less than 0.05 indicates that there is a statistically significant relationship between total ZIS-DSKL funds and the poverty rate. The final model equation can be written as:

$$\widehat{Kemiskinan}_{it} = 9{,}1465 - 0{,}1434 ZIS_{it}$$

A negative coefficient indicates that the relationship between total ZIS-DSKL funds and the poverty rate is inversely proportional. Quantitatively, every Rp1 billion increase in total ZIS-DSKL funds distributed and utilized through various BAZNAS programs is associated with a decrease in the poverty rate of approximately 0.1434 percentage points, taking into account the individual characteristics of each regency/city in the model.

Based on Table 4, the R^2 value for the REM model is 0.1410. This indicates that approximately 14.10% of the variation in poverty levels in the model can be

explained by the total ZIS-DSKL funds and the individual effect components included in the model, while approximately 85.90% of the remaining variation is associated with other factors not included in the research model. The model test results show a Chi-square value of 11.4928 with a p-value of 0.000699 for the REM estimate. After applying robust standard errors, the coefficient for total ZIS-DSKL funds remained significant with a p-value of 0.000593. This strengthens the statistical evidence that the negative relationship between total ZIS-DSKL funds and the poverty rate remains evident after the standard errors are adjusted for error characteristics in the panel data.

Discussion

The research results indicate a significant negative relationship between the total ZIS-DSKL funds distributed and utilized through various BAZNAS program areas and the poverty rate in regencies and cities in South Sulawesi during the 2023–2025 period. A coefficient of −0.1434 indicates that regions with larger amounts of ZIS-DSKL funds tend to have lower poverty rates after regional-specific characteristics are accounted for in the model.

This finding can be substantively understood in light of the role of ZIS-DSKL funds as an instrument for the distribution and utilization of funds for the benefit of the community. Funds channeled through various program areas can support the fulfillment of community needs, economic empowerment, education, health, humanitarian efforts, and other programs. If these funds are targeted effectively and are able to enhance the economic capacity of the beneficiaries, then an increase in income or the ability to meet basic needs can contribute to a reduction in the poverty rate.

Nevertheless, the results of this study cannot be interpreted as causal evidence that an increase in ZIS-DSKL funds directly leads to a reduction in poverty. The study only included total ZIS-DSKL funds as an explanatory variable, whereas poverty rates are also influenced by various other factors, such as economic growth, employment opportunities, unemployment rates, education,

inflation, economic structure, government spending, and the socioeconomic conditions of the community.

The R^2 value of 14.10% also supports this interpretation. This means that total ZIS-DSKL funds account for only a portion of the variation in poverty levels in the model, while the majority of the remaining variation stems from factors not included in the study.

Furthermore, the presence of serial correlation and cross-sectional dependence indicates that changes in poverty conditions in a regency or city are not entirely independent. Changes in poverty rates may be linked to conditions in previous periods as well as developments in other regions. Therefore, the use of robust standard errors is important to ensure that tests of coefficient significance are more reliable.

Overall, this study provides empirical evidence that the total amount of ZIS-DSKL funds distributed and utilized through various BAZNAS programs has a significant negative relationship with poverty rates in South Sulawesi during 2023–2025. In other words, an increase in the amount of ZIS-DSKL funds distributed is associated with a tendency toward lower poverty rates. However, these findings should be understood as empirical correlations, not as cause-and-effect relationships, given that there are still various other factors that influence poverty dynamics at the regency/city level.

Conclusion

Based on the results of a panel data regression analysis of 24 regencies and cities in South Sulawesi during the 2023–2025 period, it can be concluded that the amount of ZIS-DSKL funds distributed and utilized by BAZNAS across various program areas has a significant negative relationship with the poverty rate. In this study, the amount of ZIS-DSKL funds represents the total funds distributed and utilized across all BAZNAS program areas, rather than funds analyzed separately for each program area.

The results of the model selection indicate that the Random Effects Model (REM) is the model to be used. The Chow test revealed a significant individual effect with a p-value < 0.001, while the Hausman test yielded a p-value of 0.7603. Furthermore, the Lagrange Multiplier test yielded a p-value < 0.001, indicating the presence of an individual effect in the panel data. Based on this series of tests, the Random Effects approach was deemed appropriate for estimating the relationship between total ZIS-DSKL funds and the poverty rate.

The REM estimation results show a total ZIS-DSKL coefficient of -0.1434. After estimating with robust standard errors using clustering by district/city, the coefficient remains at -0.1434 with a p-value of 0.000593. The negative sign of the coefficient indicates that as the amount of ZIS-DSKL funds distributed and utilized increases, poverty rates tend to decrease. Numerically, every additional Rp1 billion in ZIS-DSKL funds is associated with a decrease in the poverty rate of approximately 0.143 percentage points, noting that this interpretation reflects a statistical relationship within the model and does not constitute evidence of a direct cause-and-effect relationship.

The results of the diagnostic tests indicate that the model does not exhibit heteroscedasticity, with a p-value of 0.7996 for the Breusch-Pagan test. However, there is serial correlation and cross-sectional dependence among units. Serial correlation indicates a relationship between residuals across periods within the same regency/city, while cross-sectional dependence indicates a relationship between residuals across regencies/cities. Therefore, the use of robust standard errors is important for obtaining more reliable inferences.

Overall, this study provides empirical evidence of a significant negative relationship between the amount of distribution and the total utilization of ZIS-DSKL funds across various BAZNAS program areas and the poverty rate in South Sulawesi during 2023–2025. Thus, the increase in the amount of ZIS-DSKL funds distributed through various BAZNAS programs is associated with lower poverty rates in regencies and cities during the study period.

However, these results do not imply that the increase in ZIS-DSKL funds directly caused a decrease in poverty rates. This study uses only the total ZIS-DSKL funds as an explanatory variable; therefore, the relationship found may still be influenced by other factors not included in the model.

References

Alviannor, & Fahrati, E. (2021). Analisis Faktor-Faktor yang Mempengaruhi Tingkat Kemiskinan. *JIEP: Jurnal Ilmu Ekonomi Dan Pembangunan*, *4*(1), 75–87. http://journal.unilak.ac.id/index.php/JIEB/article/view/3845%0Ahttp://dspace.uc.ac.id/handle/123456789/1288

Amaliah, E. N., Darnah, & Sifriyani. (2020). Analisis Regresi Data Panel Dengan Pendekatan Common Effect Model (CEM), Fixed Effect Model (FEM) dan Random Effect Model (REM) (Studi Kasus: Persentase Penduduk Miskin Menurut Kabupaten/Kota di Kalimantan Timur Tahun 2015-2018). *Estimasi: Journal of Statistics and Its Application*, *1*(2), 106–115. https://doi.org/https://doi.org/10.20956/ejsa.v1i2.10574

Badan Amil Zakat Nasional. (2023). *Lampiran Laporan Pengelolaan Zakat Nasional Tahun 2023*.

Badan Amil Zakat Nasional. (2024). *Laporan Pengelolaan Zakat Nasional Tahun 2024*.

Badan Amil Zakat Nasional. (2025). *Lampiran Pengelolaan Zakat Nasional Akhir Tahun 2025*.

Badan Pusat Statistik Provinsi Sulawesi Selatan. (2023). *Jumlah dan persentase penduduk miskin menurut kabupaten/kota di Provinsi Sulawesi Selatan, 2023*.

Badan Pusat Statistik Provinsi Sulawesi Selatan. (2024). *Jumlah dan persentase penduduk miskin menurut kabupaten/kota di Provinsi Sulawesi Selatan, 2024.*

Badan Pusat Statistik Provinsi Sulawesi Selatan. (2025). *Jumlah dan persentase penduduk miskin menurut kabupaten/kota di Provinsi Sulawesi Selatan, 2025*.

Baltagi, B. H. (2005). *Econometric Analysis of Panel Data*. Wiley.

Firdausy, C. M. (2016). ONE METHOD TO IMPROVE THE OFFICIAL POVERTY LINE

IN INDONESIA. *Journal of Indonesian Social Sciences and Humanities (JISSH)*, *6*(1), 39–52.

Herianingrum, S., Supriani, I., Sukmana, R., Effendie, E., Widiastuti, T., Fauzi, Q., & Shofawati, A. (2024). Zakat as an instrument of poverty reduction in Indonesia. *Journal of Islamic Accounting and Business Research*, *15*(4), 643–660. https://doi.org/10.1108/JIABR-11-2021-0307

Hidayati, S. N., Nurhayati, & Haryanti, M. (2024). ANALISIS ZAKAT SEBAGAI INSTRUMEN REDISTRIBUSI KEKAYAAN UNTUK MENGURANGI KESENJANGAN SOSIAL. *EKSYDA Jurnal Studi Ekonomi Syariah*, *5*(1), 12–29. https://doi.org/https://doi.org/10.51226/eksyda.v5i1.730

Makhrus. (2019). PENGELOLAAN ZAKAT PRODUKTIF DALAM UPAYA PENGENTASAN KEMISKINAN DI INDONESIA. *Jurnal Hukum Ekonomi Syari'ah*, *2*(1), 37–50.

Purnama, H. R., Rahman, Z., Ibrahim, F. N., & Tajuddin, I. (2024). Dampak Pertumbuhan Ekonomi dan Kemiskinan Terhadap Ketimpangan Wilayah di Sulawesi Selatan (Tahun 2017-2022). *Jesya Jurnal Ekonomi & Ekonomi Syariah*, *7*(1), 171–183. https://doi.org/10.36778/jesya.v7i1.1474

Rahman, P. A., Firman, F., & Rusdinal Rusdinal. (2019). Kemiskinan dalam perspektif ilmu sosiologi. *Jurnal Pendidikan Tambusai*, *3*(3), 1542–1548. https://doi.org/https://doi.org/10.31004/jptam.v3i3.399

Saniah, S., & Afrizal, S. (2024). Transformasi Sosial Penerima Bantuan Sosial Terhadap Tingkat Kemiskinan Di Desa Cipayung. *EDU SOCIATA (JURNAL PENDIDIKAN SOSIOLOGI)*, *7*(1), 829–836. https://doi.org/https://doi.org/10.33627/es.v7i1.2224