THE EFFECT OF HEALTH SPENDING AND SOCIAL PROTECTION SPENDING ON POVERTY LEVELS IN ACEH PROVINCE

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Abstract

Poverty remains one of the development challenges faced by local governments, including Aceh Province, which continues to record a high poverty rate. Local governments allocate health expenditure and social protection expenditure as fiscal policy instruments to improve public welfare and reduce poverty. However, previous studies have reported inconsistent findings regarding the effects of these expenditures on poverty. Therefore, this study aims to examine the effect of health expenditure and social protection expenditure on the poverty rate in Aceh Province during 2020–2024. This study employed a quantitative approach with an explanatory associative research design. The population consisted of all 23 regencies and municipalities in Aceh Province, using a total sampling technique. Secondary data were obtained from Directorate General of Fiscal Balance (DJPK) and Statistics Indonesia (BPS). Data were analyzed using panel data regression with EViews 13. The results show that health expenditure has a negative but insignificant effect on the poverty rate, with a t-statistic of -1.240 and a significance value of 0.217. Social protection expenditure has a positive and significant effect, with a t-statistic of 3.848 and a significance value of 0.000. Simultaneously, expenditures significantly affect the poverty rate, with an F-statistic of 8.172 and a significance value of 0.000. The R^2 of 0.127349 indicates that 12.73% of the variation in poverty is explained by the variables, while the remaining variation is explained by other factors. These findings indicate that the effectiveness of public expenditure depends not only on budget allocation but also on targeting accuracy and program implementation quality.

Keywords: *Health Expenditure, Social Protection Expenditure, Poverty Rate, Panel Data Regression, Aceh Province.*

1. Introduction

Poverty is a multidimensional development challenge and a primary concern on both global and national development agendas. The Sustainable Development Goals (SDGs)—specifically Goal 1 (No Poverty)—position poverty alleviation as a key target of sustainable development (Nations, 2023). Poverty is not merely a matter of limited income; it also encompasses restricted access to essential services such as healthcare, education, and social protection. In developing nations, poverty remains a structural issue influenced by economic conditions, the quality of human capital, and the effectiveness of public policy (Bank, 2022). Consequently, governments must implement appropriate policies through the management and allocation of public expenditure to enhance societal well-being.

Under fiscal decentralization, local governments possess the authority to manage the Regional Budget (APBD) as a policy instrument for delivering public services and driving regional development. Local government spending is expected not only to support administrative operations but also to improve human capital quality and provide protection for economically vulnerable populations. Aceh Province presents a compelling case for study. Aceh possesses unique fiscal characteristics, as it receives Special Autonomy Funds (Dana Otonomi Khusus Aceh/DOKA) in addition to standard central government transfers—such as the General Allocation Fund (DAU), Special Allocation Fund (DAK), and Revenue-Sharing Fund (DBH). These conditions provide the local government with the fiscal capacity to finance various development programs, including expenditures on healthcare and social protection.

Despite this fiscal support, poverty levels in Aceh remain relatively high. Based on data from Statistics Indonesia (BPS, 2024), the poverty rate in Aceh Province stood at 14.99% in 2020 and rose to 15.33% in 2021. Subsequently, the poverty rate declined to 14.64% in 2022, 14.45% in 2023, and 14.43% in 2024. Although a downward trend was observed toward the end of the period, the situation indicates that poverty remains an issue requiring the local government's attention. This phenomenon also raises questions regarding the extent to which government spending—particularly expenditure related to basic services and social protection—contributes to poverty reduction.

Health expenditure is a component of government spending that can theoretically contribute to poverty reduction. It supports the provision of health facilities and services, the procurement of medicines, disease prevention, and the enhancement of human capital within the health sector.

From a human capital theory perspective, health represents an investment that boosts productivity and the population's income-generating capacity. Improved access to healthcare services can also alleviate the burden of health-related expenses on households, particularly among the poor and vulnerable. Gupta et al. (2002) demonstrated that increased government health spending is associated with reductions in poverty and inequality, especially in areas with high levels of social vulnerability. Consequently, health expenditure is expected to serve as a fiscal policy instrument for improving public welfare.

In addition to health expenditure, social protection spending plays a crucial role in safeguarding the poor and vulnerable. Social protection spending—comprising social assistance, subsidies, and social security—acts as a social safety net, helping communities cope with economic pressures and shocks. From a welfare state perspective, social protection aims to maintain minimum living standards and prevent vulnerable populations from falling into deeper poverty (Barr, 2021). Suresh et al. (2024) showed that increased social protection spending can contribute to poverty reduction, particularly among groups vulnerable to economic stress. Therefore, the effectiveness of social protection spending is vital to local government efforts to reduce poverty.

However, empirical evidence regarding the relationship between health expenditure, social protection spending, and poverty remains inconsistent. Increases in government spending do not always result in lower poverty rates, as effectiveness can be influenced by targeting accuracy, program implementation quality, local socio-economic conditions, and the specific fiscal policy characteristics of each region. Furthermore, previous studies have largely examined government spending in the aggregate or across broader geographical areas; research specifically analyzing the impact of health and social protection expenditures on poverty levels within the regencies and cities of Aceh Province remains limited. This situation indicates the existence of a research gap that requires further investigation.

The novelty of this study lies in the simultaneous examination of the impact of health and social protection expenditures on poverty levels, utilizing panel data from 23 regencies and cities in Aceh Province covering the 2020–2024 period. This research offers a more specific empirical context by accounting for Aceh's fiscal characteristics and analyzing two expenditure components directly linked to basic services and social protection. Consequently, the study is expected to enrich the empirical evidence regarding the relationship between local government expenditure and poverty from a public finance perspective.

This study aims to analyze the impact of health and social protection expenditures on poverty levels in Aceh Province, examining both partial and simultaneous effects. Theoretically, the study is expected to contribute to the literature on development economics, public finance, and social welfare policy—specifically regarding the effectiveness of local government spending in poverty alleviation. Practically, the findings are intended to serve as a basis for local government evaluation in setting priorities and enhancing the effectiveness of health and social protection expenditures.

2. Research Methodology

This study employs a quantitative approach with an explanatory-associative research design. This approach is used to analyze the impact of health expenditure and social protection expenditure on poverty levels in Aceh Province. The research data comprises both cross-sectional dimensions (regencies/cities) and time-series dimensions (annual periods); consequently, panel data regression is the chosen method of analysis. The analysis was conducted using EViews 13 software. The study population consists of all 23 regencies and cities in Aceh Province. A total sampling technique was applied, meaning the entire population served as the unit of analysis. The observation period spans the years 2020–2024, resulting in 115 observations derived from the 23 regencies/cities over the five-year period. This study also utilizes secondary data obtained from official sources. Data regarding the realization of health expenditure and social protection expenditure were obtained from the Directorate General of Fiscal Balance (DJPK), while poverty level data were obtained from Statistics Indonesia (BPS). Data collection was carried out through documentation—gathering realized regional budget (APBD) figures and poverty statistics from relevant agencies—as well as a literature review involving the examination of scientific journals, research reports, and relevant policy documents.

The independent variables in this study are Health Expenditure (X1) and Social Protection Expenditure (X2), while the dependent variable is the Poverty Level (Y). Health expenditure is measured based on the total realized health spending over one year, and social protection expenditure is measured based on the total realized social protection spending over one year. Both expenditure variables were transformed into natural logarithms (Ln) to mitigate significant disparities in data scales. The poverty level is measured using the percentage of the poor population as published by BPS. The panel

data regression model used in this study is formulated as follows: $Y_{it} = \alpha + \beta_1 LnX1_{it} + \beta_2 LnX2_{it} + \varepsilon_{it}$

Notation:

Y_{it} = Poverty level

α = Constant

β_1, β_2 = Regression coefficients

$LnX1_{it}$ = Natural logarithm of health expenditure

$LnX2_{it}$ = Natural logarithm of social protection expenditure

ε_{it} = Error term

The selection of the panel data regression model was conducted by comparing the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) using the Chow test, Hausman test, and Lagrange Multiplier (LM) test. The Chow test was used to determine the more appropriate model between CEM and FEM, the Hausman test was used to choose between FEM and REM, and the LM test was used to determine the model between CEM and REM. Hypothesis testing was performed using the t-test, F-test, and the coefficient of determination (R^2). The t-test was used to assess the partial effect of each independent variable on the poverty rate, while the F-test was used to assess the simultaneous effect of health expenditure and social protection expenditure on the poverty rate. A significance level of 5% ($\alpha = 0.05$) was applied. The coefficient of determination was used to measure the ability of health expenditure and social protection expenditure variables to explain the variation in the poverty rate.

4. Results and Discussion

This study utilizes panel data comprising 23 regencies/cities in Aceh Province over the 2020–2024 period, resulting in 115 observations. Descriptive statistics are employed to provide an overview of the variables: health expenditure, social protection expenditure, and the poverty rate. The descriptive statistics results are presented in Table 1.

Table 1 Descriptif Statistict

	n	Mean	Maximum	Minimum	SD
Health Expenditure (X1)	115	25.36975	26.90917	23.62210	0.616595
Social Protection Expenditure (X2)	115	22.33154	23.79117	19.71894	0.795517
Poverty level (Y)	115	15.25704	20.36000	6.900000	3.351305

Source: Research findings, 2026

Based on Table 1, the average health expenditure is 25.36975, with a maximum value of 26.90917 and a minimum of 23.62210. Social protection expenditure has an average of 22.33154, with a maximum of 23.79117 and a minimum of 19.71894. Meanwhile, the poverty rate averages 15.25704%, with a maximum of 20.36% and a minimum of 6.90%. These figures indicate significant disparities in poverty rates among regencies and cities in Aceh Province during the study period.

Model selection was conducted to determine the most appropriate panel data regression model. The Chow test result shows a cross-section F probability value of 0.0000, indicating that the fixed effect model is more suitable than the common effect model. Subsequently, the Hausman test yielded a probability value of 0.3995, suggesting that the random effect model is more appropriate than the fixed effect model. The Lagrange Multiplier test result shows a cross-section Breusch-Pagan probability of 0.0000, indicating that the random effect model is more appropriate than the common effect model. Based on this series of tests, the model employed in this study is the Random Effect Model (REM). The estimation results using the Random Effects Model are presented in Table 2.

Table 2 Panel Data Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.99895	4.135011	2.659956	0.0090
LOGX1?	-0.167758	0.135184	-1.240965	0.2172
LOGX2?	0.381258	0.099075	3.848191	0.0002
Random Effects (Cross)				
_ACEH_BARAT--C	2.711300			
_ACEH_BARAT_DAYA—C	0.451506			
_ACEH_BESAR--C	-1.879919			
_ACEH_JAYA--C	-2.263876			
_ACEH_SELATAN--C	-2.670193			
_ACEH_SINGKIL--C	4.222512			
_ACEH_TAMIANG--C	-1.155409			
_ACEH_TENGAH--C	-0.568031			
_ACEH_TENGGARA--C	-2.480301			
_ACEH_TIMUR--C	-1.486593			
_ACEH_UTARA--C	1.602501			

_BANDAACEH--C	-8.242284
_BENER_MERIAH--C	3.371384
_BIREUEN--C	-2.541439
_GAYO_LUES--C	3.745131
_LANGSA--C	-4.540443
_LHOKSEUMAWE--C	-4.390343
_NAGAN_RAYA--C	1.980902
_PIDIE--C	3.728065
_PIDIE_JAYA--C	3.385505
_SABANG--C	2.517883
_SIMEULUE--C	2.756144
_SUBULUSSALAM--C	1.745997

Effects Specification	S.D.	Rho
Cross-section random	3.328749	0.9575
Idiosyncratic random	0.701716	0.0425

Weighted Statistics			
R-squared	0.127349	Mean dependent var	1.432004
Adjusted R-squared	0.111766	S.D. dependent var	0.744008
S.E. of regression	0.701199	Sum squared resid	55.06823
F-statistic	8.172269	Durbin-Watson stat	1.542150
Prob(F-statistic)	0.000486		

Unweighted Statistics			
R-squared	0.012579	Mean dependent var	15.25704
Sum squared resid	1264.256	Durbin-Watson stat	0.067173

Source: Research findings, 2026

Based on Table 2, the study's regression equation can be written as follows: Poverty Rate = 10.99895 – 0.167758 X1 + 0.381258 X2. The test results indicate that health expenditure has a negative coefficient of -0.167758 with a probability value of 0.2172. Since the probability value exceeds 0.05, health

expenditure has a negative but insignificant effect on the poverty rate; thus, the first hypothesis is not supported. Social protection expenditure has a positive coefficient of 0.381258 with a probability value of 0.0002. As this value is less than 0.05, social protection expenditure has a positive and significant effect on the poverty rate; thus, the second hypothesis is supported. Simultaneously, the F-statistic value of 8.172269, with a probability of 0.000486, indicates that health expenditure and social protection expenditure jointly exert a significant effect on the poverty rate in Aceh Province; thus, the third hypothesis is supported. The R-squared value of 0.127349 indicates that the two independent variables explain 12.73% of the variation in the poverty rate, while the remaining 87.27% is explained by factors outside the research model.

The Effect of Health Expenditure on the Poverty Rate

The research results indicate that health expenditure has a negative but insignificant effect on the poverty rate in Aceh Province. The coefficient of -0.167758 suggests that an increase in health expenditure tends to be accompanied by a decrease in the poverty rate, though this relationship is not statistically strong. These findings indicate that increasing the health budget has not directly resulted in poverty reduction during the 2020–2024 period. While health expenditure can yield benefits—such as improvements in facilities, services, healthcare infrastructure, and the quality of human resources—some of these benefits are realized only in the medium to long term. Therefore, changes in health expenditure during the study period did not exert a significant influence on poverty levels. These findings align with those of Demak et al. (2020), who found that health expenditure had a negative but insignificant impact on poverty in Manado City. Aisyah et al. (2026) similarly found that health-related factors had a negative but insignificant effect on poverty in South Sulawesi. These consistent results indicate that a high level of health expenditure does not necessarily lead to an immediate reduction in poverty unless accompanied by equitable access to and effective delivery of health services. In the context of Aceh, these findings highlight the importance of the local government not only increasing health expenditure allocations but also ensuring the effective use of funds, the equitable distribution of health facilities and personnel, and the affordability of services for the poor and for areas with limited access.

The Impact of Social Protection Spending on Poverty Rates

Social protection spending shows a positive and significant influence on poverty rates, with a coefficient of 0.381258 and a probability of 0.0002. These results indicate a positive correlation between social protection spending and poverty rates; thus, an increase in social protection spending in the research data tends to be accompanied by an increase in poverty rates. This finding differs from the theoretical view that social protection acts as a social safety net intended to help the poor alleviate their economic burdens. However, the observed positive relationship does not necessarily imply that increased social protection spending causes poverty to rise. Instead, the relationship may reflect the government's response to high poverty levels, where spending is increased in areas with larger poor populations. Furthermore, social protection benefits are generally aimed at reducing household expenditure burdens and ensuring the fulfillment of basic needs; such impacts do not necessarily lead to a direct, sustainable increase in community income or productivity. Effectiveness also depends on accurate targeting, the quality of beneficiary data, and program implementation. These results align with Rossa and Ananda (2024), who demonstrated that social protection spending has not yet succeeded in optimally reducing poverty rates. Studies by Suyasa et al. (2024) and Salsabila et al. (2024) also highlight that accurate targeting and beneficiary data quality remain challenges in the implementation of social protection programs. These findings reinforce the argument that budget increases must be accompanied by improvements in governance and program targeting accuracy. Consequently, local governments should direct social protection spending not only toward short-term aid but also integrate it with programs for economic empowerment, skills development, and job creation, enabling communities to sustainably enhance their economic capacity.

The Impact of Health and Social Protection Spending on Poverty Levels

Simultaneous testing results indicate that health spending and social protection spending jointly exert a significant influence on poverty levels in Aceh Province. An F-statistic of 8.172269, with a probability of 0.000486, demonstrates a significant collective association between these two variables and poverty levels. These findings suggest that poverty alleviation requires a multidimensional policy approach. Health spending plays a role in enhancing human capital quality and community productivity, while social protection spending serves as a safety net for the poor and vulnerable. These two

policies can complement each other if planned and implemented in an integrated manner. However, the R-squared value of 12.73% indicates that health and social protection spending are not the sole factors associated with poverty levels; 87.27% of the variation in poverty levels is influenced by factors outside the model, such as education, employment opportunities, income, productivity, economic growth, and other socioeconomic factors. The study implies that the Aceh provincial government needs to improve the quality of planning and implementation regarding health and social protection spending, focusing on more than just the size of the budget. Policies should also prioritize the equitable distribution of health services, accurate targeting of social assistance, improved quality of beneficiary data, and the integration of social protection with economic empowerment programs. Consequently, government spending is expected not only to provide short-term protection but also to enhance the community's capacity to escape poverty sustainably.

Biblyography

Aisyah, A. A. S., Astuty, S., & Irwandi. (2026). Pendidikan, kesehatan, bantuan sosial terhadap kemiskinan dalam pencapaian SDGs Sulawesi Selatan. *Jurnal E-Bis, 10*(1), 283–303. https://doi.org/10.37339/e-bis.v10i1.3016

Al-Jubouri, H. S., & Ali, O. S. (2024). Spending on social protection and its impact on reducing poverty: An analytical study in a sample of developing countries. *TANMIYAT AL-RAFIDAIN, 43*(141), 278–292. https://doi.org/10.33899/tanra.2024.182591.1337

Alfath, N. D., Nurlina, & Safuridar. (2025). Pengaruh belanja bantuan sosial, subsidi, dan dana hibah terhadap kemiskinan di Provinsi Sumatera Utara. *PESHUM: Jurnal Pendidikan, Sosial dan Humaniora, 5*(1), 1742–1753. https://doi.org/10.56799/peshum.v5i1.14527

Demak, S. N. K., Masinambow, V. A. J., & Londa, A. T. (2020). Pengaruh belanja pendidikan, belanja kesehatan, belanja modal dan inflasi terhadap kemiskinan di Kota Manado. *Jurnal Berkala Ilmiah Efisiensi, 20*(1).

Falah, M. A., & Rahmawati, F. (2024). The GRDP per capita, human development index, open unemployment rate, regional expenditure, and poverty in East Java Province. *Jurnal Ekonomi & Studi Pembangunan, 25*(1). https://doi.org/10.18196/jesp.v25i1.21327

Ghozali, I., & Ratmono, D. (2017). *Analisis multivariat dan ekonometrika: Teori, konsep, dan aplikasi dengan EViews 10*. Badan Penerbit Universitas Diponegoro.

Gupta, S., Verhoeven, M., & Tiongson, E. R. (2002). The effectiveness of government spending on education and health care in developing and transition economies. *European Journal of Political Economy, 18*(4), 717–737. https://doi.org/10.1016/S0176-2680(02)00116-7

Kementerian Dalam Negeri Republik Indonesia. (2020). *Peraturan Menteri Dalam Negeri Republik Indonesia Nomor 77 Tahun 2020 tentang pedoman teknis pengelolaan keuangan daerah*. Kementerian Dalam Negeri Republik Indonesia.

Mardiasmo. (2021). *Otonomi dan manajemen keuangan daerah*. Andi.

Ningsih, I. R., & Kara, M. (2023). Pengaruh belanja pemerintah di bidang kesehatan, pendidikan dan inflasi terhadap indeks pembangunan manusia dan kemiskinan di Sulawesi Selatan. *ICOR: Journal of Regional Economics, 4*(1), 40–54.

Nur, A., Arfanita, I., & Suhab, S. (2023). Disaggregated approach of regional government expenditure and poverty eradication in South Sulawesi, Indonesia. *EcceS: Economics, Social and Development Studies, 10*(1), 1–22. https://doi.org/10.24252/ecc.v10i1.36899

Nurias, N., Johari, S. M., Muljarijadi, B., & Wardhana, A. (2023). Reducing the provincial poverty rate in Indonesia: The impact of local government expenditure. *Jurnal Ekonomi & Studi Pembangunan, 24*(2), 297–315. https://doi.org/10.18196/jesp.v24i2.18618

Pemerintah Aceh. (2010). *Qanun Aceh Nomor 4 Tahun 2010 tentang kesehatan*. Pemerintah Aceh.

Pemerintah Republik Indonesia. (2014). *Undang-Undang Republik Indonesia Nomor 23 Tahun 2014 tentang pemerintahan daerah*. Lembaran Negara Republik Indonesia Tahun 2014 Nomor 244.

Pemerintah Republik Indonesia. (2019). *Peraturan Pemerintah Republik Indonesia Nomor 12 Tahun 2019 tentang pengelolaan keuangan daerah*. Lembaran Negara Republik Indonesia Tahun 2019 Nomor 42.

Pemerintah Republik Indonesia. (2023). *Undang-Undang Republik Indonesia Nomor 17 Tahun 2023 tentang kesehatan*. Lembaran Negara Republik Indonesia Tahun 2023 Nomor 105.

Potale, A., Dai, S. I. S., & Santoso, I. R. (2024). Analisis struktur belanja pemerintah daerah terhadap kemiskinan di kawasan Timur Indonesia. *Oikos-Nomos: Jurnal Kajian Ekonomi dan Bisnis, 17*(2), 92–105. https://doi.org/10.37479/jkeb.v17i2.27313

Rahyono. (2023). The impact of fiscal policy on improving social welfare in Indonesia. *COSTING: Journal of Economic, Business and Accounting, 7*(1), 2815–2828.

Rarung, N., Saerang, I. S., & Tasik, H. H. D. (2025). Belanja pemerintah dan perangkap kemiskinan: Analisis wilayah Timur dan Barat Indonesia. *Proceeding National Conference Business, Management, and Accounting (NCBMA)*, 120–135.

Ravallion, M. (2021). Poverty in the richer world. *Journal of Economic Inequality, 19*(3), 529–556.

Rossa, A., & Ananda, C. F. (2024). Pengaruh pertumbuhan ekonomi, belanja bantuan sosial, dan belanja pendidikan terhadap kemiskinan. *Journal of*

Development Economic and Social Studies, 3(3), 803–813. https://doi.org/10.21776/jdess.2024.03.3.11

Salsabila, N., Muna, N., Pradana, V. H., & Nurcahya, W. F. (2024). Analisis efektivitas bantuan sosial (bansos) dalam mengatasi kemiskinan di Indonesia. *Journal of Macroeconomics and Social Development, 1*(4), 1–13. https://doi.org/10.47134/jmsd.v1i4.317

Suyasa, I. M. G., Retnosari, L., & Taufiq, N. (2024). Tepatkah program bantuan sosial dalam pengentasan kemiskinan di Indonesia? *Salus Cultura: Jurnal Pembangunan Manusia dan Kebudayaan, 4*(1), 42–52. https://doi.org/10.55480/saluscultura.v4i1.156

Todaro, M. P., & Smith, S. C. (2020). *Economic development*. Pearson Education.

United Nations. (2023). *Goal 1: End poverty in all its forms everywhere*. https://www.un.org/sustainabledevelopment/poverty/

Witta, S. R., Yulianita, A., Igamo, A. M., & Imelda. (2022). Pengaruh belanja fungsi pendidikan, belanja fungsi kesehatan dan pengangguran terhadap kemiskinan dalam pencapaian Sustainable Development Goals (SDGs) di Provinsi Sumatera Barat. *Jurnal Dinamika Ekonomi Pembangunan, 5*(3), 195–209. https://doi.org/10.14710/jdep.5.3.195-209

World Bank. (2022). *Poverty and shared prosperity 2022: Correcting course*. World Bank.

Zein, A. W., Gusvi, S. N., Islam, U., & Sumatera, N. (2025). Ekonomi publik pada analisis dampak program perlindungan sosial terhadap penurunan angka kemiskinan di perkotaan.