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The Effect of Government Expenditure Effectiveness in Health, Environmental, and Social Protection Function on the Achievement of Sustainable Development Goal 3 in Indonesia

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Abstract: This study aims to analyze the influence of government functional expenditure in the health, environment, and social protection sectors on the achievement of Sustainable Development Goals (SDG) 3 which focuses on health and welfare aspects. This study uses panel data from 2020-2022 with a purposive sampling approach. Data was obtained from 526 district/city governments in Indonesia, resulting in a total final sample of 1,578 observations. Using multiple linear regression analysis, the results show that government functional expenditure in the health and environment sectors has a positive and significant influence on the achievement of SDG 3. However, expenditure on social protection functions has a significant negative influence. These findings indicate that the increase in government functional expenditure in the three sectors is followed by changes in the achievement of SDG 3. Although there have been many studies examining the relationship between government functional expenditure and public welfare, research integrating these three strategic sectors simultaneously is still relatively limited. Therefore, this research implies that the achievement of health and well-being requires meaningful investment and effective governance. This emphasizes the importance of improving the quality of transparent, efficient, and targeted public expenditure to support the optimal achievement of SDG 3. Further research is recommended to add other variables and extend the study period to obtain more comprehensive results.

Keywords: Environmental Function, Expenditure, Health Function, SDG 3, Social Protection Function.

INTRODUCTION

Sustainable development as embodied in the Sustainable Development Goals (SDGs) places health and well-being (SDG 3) as one of the top global priorities. The health and well-

being of communities are influenced by various factors, including social, economic, and environmental factors (Nazira & Nurdin, 2024). However, in many developing countries, the challenges in achieving SDG 3 remain considerable. This is marked by high maternal and infant mortality rates, as well as low access to adequate health services. Not only that, hundreds of millions of adults and children still do not have access to safe drinking water, and many of them still suffer from malnutrition (Küfeoğlu, 2022; Rizal & Galih, 2025). The Covid-19 pandemic has enhanced global awareness of the importance of health system resilience. Limited capacity and unpreparedness in dealing with health emergencies have led to a spike in mortality rates and had a widespread impact on the economic, social, political, and security sectors (WHO, 2021). This situation shows that health resilience is highly dependent on system capacity supported by adequate funding.

The Indonesian government requires substantial funding to support the national health system. Funding for this sector comes from various sources, both from the central government and local governments (Dewi, 2017). The government, as an agent, has a responsibility to carry out the mandate given to the community in providing effective and equitable health services. Imbalances in allocation or inefficiencies in fund management indicate problems of asymmetric information and misaligned incentives, which can hinder the achievement of optimal health outcomes. To achieve optimal health and welfare, significant investment in the health sector and the implementation of good governance are required. Thus, it is important for the government to not only allocate adequate budgets to the health, environment, and social protection sectors, but also to ensure that management is carried out in a transparent, efficient, and targeted manner in order to achieve the goal of enhancing the welfare of the community as a whole (Rahman et al., 2025).

All countries need to enhance investment in health systems to expand services if they want to achieve SDG 3 targets. This principle is rooted in the belief that health is a human right and also an investment (Fazriyah et al., 2024). Therefore, expenditure on health, the environment, and social protection is very important because these three functions finance programs that contribute directly to improving public health services and protecting vulnerable groups. Adequate budget allocations in these three sectors reflect the government's commitment to ensuring equitable access to health services, maintaining environmental quality, and reducing social and economic risks that can affect public health. Research conducted by (Cholily, 2024; Goli et al., 2021; Rahmi & Putera, 2019; Wardhana et al., 2022) shows that health expenditure can increase life expectancy. Therefore, there needs to be an increase in the health expenditure budget so that inequalities in access and quality of services can be overcome, thereby supporting the achievement of health levels. On the other hand, environmental expenditure also contributes to improving air quality and provides psychological benefits from exposure to the natural environment (Chen et al., 2021; Onofrei et al., 2020; Silva et al., 2018). Public expenditure on environmental protection has a significant impact on increasing life expectancy. This means that improvements in environmental quality driven by fiscal interventions have a direct impact on human health (Onofrei et al., 2020). Similarly, social protection expenditure has great potential to strengthen social, economic, and health resilience in communities (Cluver et al., 2016; Reynolds & Avendano, 2019). However, its effectiveness is highly dependent on the accuracy of the targets and government governance (Setiawan & Fikriah, 2020; ul Mustafa et al., 2022).

Although there have been many studies discussing the impact of health, environmental, and social protection expenditure on community welfare, there has been no study that integrates these three types of strategic expenditure into a single analytical framework to assess the achievement of health as one of the Sustainable Development Goals to be achieved by 2030. Therefore, the researchers wanted to simultaneously analyze how the effectiveness of health,

environmental, and social protection expenditure affects the achievement of SDG 3 in Indonesia.

The author provides empirical evidence of the simultaneous relationship between these three public expenditures and life expectancy as an indicator of public health. These findings show that improvements in welfare and health are determined not only by health expenditure, but also by a healthy environment and a strong social protection system. The results of this study provide input for central and local governments in planning and managing public budgets to be more effective and targeted. The author emphasizes the importance of balanced budget allocation across sectors and transparent governance in order to strengthen the national health system and accelerate the achievement of sustainable development goals (SDGs) in Indonesia.

Agency Theory

Agency Theory discusses the relationship between principals (owners) and agents (representatives) in an organization (Jensen & Meckling, 1976). The principal delegates authority to the agent to act on their behalf and in their interests (Herianti et al., 2024). In the public sector, local government bureaucracies act as agents that manage public budgets on behalf of the community as the principal (Novitasari & Sugianto, 2024). In practice, agency problems often arise in the form of a mismatch between the interests of the community and government policies. This phenomenon is reflected in the low effectiveness of public sector expenditure, such as disparities in health services between regions, low access to clean water, and social protection programs that are not yet on target. This inefficiency can be caused by weak accountability, transparency, and coordination between government agencies (Gunawan & Arifin, 2023). The government is expected to carry out its public mandate efficiently by allocating expenditure to strategic sectors such as health, the environment, and social protection. When government expenditure enhances the quality of life and welfare of the community, this demonstrates the success of the agent in carrying out the principal's mandate.

Sustainable Development Goals

Sustainable Development Goals (SDGs) are a global agreement that encompasses the concept of development by maintaining economic prosperity and social life in a sustainable manner, preserving and maintaining environmental quality, and ensuring justice and a better quality of life from one generation to the next (Witta et al., 2022). The SDGs have 4 pillars, 17 goals, 169 targets, and 241 indicators on a global scale. One of the main goals of the United Nations' sustainable development goals is to create healthy living conditions and ensure well-being at every stage of human life.

The Relationship between Health Function Expenditures and SDG 3

Health is a primary need of a country's people, therefore health is the right of every citizen protected by the Constitution (Rahmi & Putera, 2019). Health is a sector with a large budget in many developed countries (La Milia et al., 2017). With large budgets, developed countries can use their budgets efficiently to address many health issues. Therefore, government expenditure such as health expenditure is important because it has a significant impact on health outcomes such as reducing mortality rates and enhancing life expectancy (Arthur & Oaikhenan, 2017).

Health expenditure is a type of regional expenditure used to fund the implementation of government affairs that are under the authority of provinces or districts/cities in the field of health. Based on Article 171 of Law No. 36 of 2009, the Indonesian government allocates a budget for health of at least 5% of the State Revenue and Expenditure Budget (APBN) and 10% of the Regional Revenue and Expenditure Budget (APBD) excluding salaries. (Nafiah, 2020). The WHO (2014) states that an increase in health funding allocation has a positive relationship with the degree of public health.

Previous research conducted by Rahmi & Putera (2019) shows that government expenditure in the health sector affects life expectancy. Wardhana et al. (2022) show that government expenditure in the health sector can reduce infant mortality rates in West Java. Research conducted by Nafiah (2020) shows that the realization of health funding allocation has a significant relationship with indicators of maternal health service utilization in Indonesia. Thus, government expenditure on more effective and inclusive health programs contributes directly to the achievement of SDG 3. Therefore, health expenditure is thought to play a role in achieving SDG 3, namely Good Health and Well-being, so that the first hypothesis (H1) in this study is as follows.

H1: Health expenditure affects the achievement of SDG 3 in Indonesia

The Relationship between Environmental Expenditure and SDG 3

The World Health Organization (WHO) states that health is a state of physical, mental, and social well-being, not merely the absence of disease. Based on research by Chen et al. (2021), life expectancy is influenced by environmental, social, economic, and lifestyle factors. In the context of sustainable development, government expenditure plays an important role in promoting public welfare. Government expenditure in the environmental sector not only preserves nature but also serves as a long-term investment in enhancing public health. Onofrei et al. (2020) show that in countries with low per capita income, a decline in government expenditure has a negative impact on environmental quality. Conversely, in high-income countries, this relationship is more complex. This study also explains that a good environment can increase life expectancy. These findings are in line with research by Halkos & Paizanos (2016), which states that cuts in government expenditure worsen environmental conditions, and research by Adewuyi (2016), which shows that enhanced public expenditure has a positive impact on environmental quality. Thus, the government's commitment to strengthening budget allocations in the environmental sector is essential in order to increase life expectancy and quality of life. Thus, the government's commitment to strengthening budget allocation in the environmental sector is essential in order to enhance life expectancy and quality of life for the community in a sustainable manner. Therefore, the second hypothesis (H2) in this study is as follows.

H2: Environmental Function Expenditures Affect the Achievement of SDG 3

The Relationship between Social Protection Function Expenditures and SDG 3

Social protection expenditures are expenditures in the form of goods/services or money provided by the government to the poor, with the aim of protecting the community from potential social risks and enhancing economic capacity or welfare (Setiawan & Fikriah, 2020). According to Minister of Home Affairs Regulation No. 13 of 2006 concerning government expenditure, social protection or social security expenditure is expenditure used for community protection, such as disaster management and social and environmental issues. Government expenditure on social functions is used to finance social protection activities and programs to enhance welfare (Ruslan et al., 2024). Social protection programs in Indonesia that target economically, educationally, and health-wise vulnerable groups need to be accompanied by a comprehensive data collection system so that they are targeted and equitable (Hasan et al., 2019).

Previous research according to Rindiani et al., (2025) shows that social protection expenditure has a positive effect on social inequality. Artyukhov et al., (2024) state that public social expenditure has a positive and significant impact on increasing life expectancy in high-income countries. Cluver et al. (2016) found that social protection expenditure affects the health and welfare of adolescents in South Africa in achieving sustainable development.

Therefore, the researchers wanted to see whether social protection expenditure affects the level of public health, so the third hypothesis (H3) in this study is as follows.
H3: Social Protection Expenditures Affect the Achievement of SDG 3

METHODS

Data

This study uses panel data, which is a combination of time series data and cross-sectional data. The sample selection was conducted using a purposive sampling approach, adjusted to the criteria of availability and completeness of relevant data. The initial data covered 548 local government entities (regencies/cities) in Indonesia for the period 2020 to 2022. However, six regencies/cities within the administrative scope of DKI Jakarta Province were excluded because they were included in the provincial reporting entity. In addition, 16 other local governments were not included in the analysis because they did not have data on expenditure realization in the areas of health, social protection, and the environment. After the selection process, the final number of observation units per year consisted of 526 local governments, or approximately 97.04 percent of the observations. With a coverage of three years of observations, the total data analyzed in this study amounted to 1,578 observations.

Table 1. Variable Operationalization Measuring

Name	Operasionalisasi Variabel	Data source
SDG3It	This variable reflects the achievement of Sustainable Development Goals (SDGs) measured based on life expectancy. A higher value indicates an improvement in the quality of public health and an increase in the average life expectancy of the population in a region.	Central Statistics Agency (BPS
ln_kesit	Variable of local government health function in regencies/cities/provinces in Indonesia, measuring the natural logarithm of health function expenditure.	Directorate General of Fiscal Balance (DJPK)
ln_lingkit	Variable of local government environmental expenditure in regencies/cities/provinces in Indonesia, measured using the natural logarithm of environmental expenditure.	Directorate General of Fiscal Balance (DJPK)
ln_sosit	Variable of social protection function expenditure of district/city/provincial governments in Indonesia, measured by the natural logarithm of social protection function expenditure.	Directorate General of Fiscal Balance (DJPK)
island	Geographical location of local governments, measured by dummy, namely for the island of Java “1” and for the opposite (0)	Ministry of Home Affairs (KEMENDAGRI)

Source: Researcher (2025)

Empirical and Operational Variable Models

In order to examine the issues that have been formulated and test the hypotheses empirically, the following models are used as the basis for analysis in this study.

$$SDG3_{It} = \beta 0 + \beta 1 ln_kes_{it} + \beta 2 ln_lingk_{it} + \beta 3 ln_sos_{it} + \beta 4_island + \varepsilon t \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

This study uses the Generalized Least Squares (GLS) model. This model was chosen because it can overcome the problems of heteroscedasticity and autocorrelation in panel data, thereby producing more efficient estimates. All analyses were performed using Stata 17 statistical software.

SDG3It is a variable for achieving Sustainable Development Goals (SDGs), which uses life expectancy as a measurement indicator. Life expectancy is commonly used to measure the level of health and welfare in a region, both nationally and globally. ln_kesit is a variable for government health expenditure at the district/city/provincial level in Indonesia. It is measured

using the natural logarithm of health function expenditure. ln_lingkit is a variable for the environmental function expenditure of local governments in regencies/cities/provinces in Indonesia, which is measured using the natural logarithm of environmental function expenditure. ln_sosit is a variable representing local government social protection expenditure at the district/city/provincial level in Indonesia, measured using the natural logarithm of social protection expenditure. The control variable in this study is island, which represents the geographical location of the local government and is measured using a dummy variable, with a value of "1" for regions located on the island of Java and "0" for regions outside Java. These variables were selected based on the assumption that the geographical location of a region can affect the achievement of Sustainable Development Goals (SDGs), particularly in the field of health.

To provide a more systematic explanation of the operationalization of variables and the data sources used in this study, the information is presented in tabular form. Information on local government expenditure on health, environment, and social protection functions was obtained from the Directorate General of Fiscal Balance (DJPK). Meanwhile, data on Sustainable Development Goals (SDGs) 3 indicators, represented by life expectancy figures, were obtained from official publications by the Central Statistics Agency (BPS).

Table 2. Lagrange Multiplier

Random Effect GLS Regression	Number of obs= 1.578
Variable group: Year	Number of group= 3
R-squared:	Obs per grup:
Within=0.3235	Min= 526
Between=0.6555	Avg= 526.0
Overall=0.3226	Max= 526
	Wald chi2(4)= 748.97
Corr(u_i,x) = 0 (assumed)_	Prob > chi2 = 0.0000

Source: STATA-17 (2025)

RESULTS AND DISCUSSION

Descriptive Statistic

The descriptive statistical testing of variables in this study can be seen in full in Table 3 below:

Table 3. Descriptive Statistic Results

Variable	Mean	Std. Dev.	Min	Max
SDG3It	69.63	3.36	55.23	77.96
ln_kesit *	26.26	0.66	24.42	30.01
ln_lingkit*	23.84	1.07	15.75	29.22
ln_sosit*	23.61	0.73	21.33	28.99
Islandit	0.21	0.41	0	1
Number of obs= 1.578				
*) In Billion IDR				

Source: STATA-17 (2025)

Table 2 presents the results of descriptive statistical analysis for all variables used in this study. The SDG3It variable, which represents the achievement of Sustainable Development Goals (SDGs) 3 through life expectancy, has an average value of 69.63, with a standard deviation of 3.36. These results indicate that the local governments sampled in this study show that most regions still have low values that do not meet the national life expectancy standard. The minimum and maximum values range from 55.23 to 77.96, indicating that there are significant disparities between regions in terms of health indicator achievement. This

distribution shows that some regions still face challenges in enhancing the quality of basic health services.

The variable ln_kesit (logarithm of per capita health expenditure) has an average value of 26.26, meaning that the average allocation of health expenditure by local governments is only 26.26 billion rupiah per year, with a standard deviation of 0.67. The minimum and maximum values are 24.42 and 30.01, respectively, indicating that health expenditure between regions is relatively homogeneous, although there are some regions that allocate more funds to health than others. The variable ln_lingkit (logarithm of environmental expenditure) shows that the average allocation of environmental expenditure by local governments was recorded at 23.84 billion rupiah with a standard deviation of 1.07. The range of values between 15.75 and 29.22 indicates disparities between regions in their attention to environmental issues. This may be due to differences in pollution levels, potential natural disasters, or environmental awareness in each region. The variable ln_sosit (logarithm of social expenditure) has an average allocation of social protection expenditure of 23.61 billion rupiah with a standard deviation of 0.73, and minimum and maximum values of 21.33 and 28.99, respectively. These results indicate that social expenditure, which includes social protection and community empowerment programs, still varies between regions, although in general it has a moderate level of distribution. As for the control variable, the average location of the local government areas (islands) sampled in this study shows that around 21 percent of the total observations came from Java, while the remaining 79 percent came from outside Java. The results of the analysis of each variable are presented in Table 4 below.

Table 4. Correlation of Variable

Variabel	SDG3It	ln_kesit	ln_lingkit	ln_sosit	apipit
SDG3It	1.000				
ln_kesit	0.449***	1.000			
	0.000				
ln_lingkit	0.395***	0.570***	1.000		
	0.000	0.000			
ln_sosit	0.232***	0.631***	0.506***	1.000	
	0.000	0.000	0.000		
islandit	0.489***	0.535***	0.334***	0.319***	1.000
	0.000	0.000	0.000	0.000	

Number of obs = 1.578
Operationalization of Variable on Table 1
***, ** = P-value significant 1% & 5%

Source: STATA-17 (2025)

Table 4 shows a positive and significant relationship between the achievement of Sustainable Development Goals in the health sector (SDG3It) and the independent variables studied. Expenditure on health, environment, and social functions collectively contributes positively to the achievement of sustainable health targets. The significant relationship between ln_kesit, ln_lingkit, ln_sosit, and SDG3It indicates synergy in the management and allocation of expenditure across these various functions. This can be used to support further hypothesis testing.

Overall, the results of this correlation test confirm that optimal expenditure management in the health, environment, and social sectors is an important factor in enhancing the achievement of SDG 3 at the local government level. These findings illustrate that achieving SDG3 requires not only adequate health spending but also the integration of a governance framework that ensures resources are used effectively and fairly.

Hypothesis Testing

Hypothesis testing in this study was conducted using the Moderated Regression Analysis (MRA) method to evaluate the effect of independent variables on dependent variables, taking into account the interaction effect between moderating variables and independent variables. The analysis process used STATA 17 software. To enhance the reliability of the results, testing was conducted using the Generalized Least Squares (GLS) approach. Details of the hypothesis testing results are presented in the following table.

Table 5. Hypothesis Testing

SDG3It = β0 + β1ln_kesit + β2ln_lingkit + β3ln_sosit + β4Bpkspipit + β5islandit + εt……....(1)

Variable	Expected Sign	Full Model Test
		SDG3it
Cons		36.708
		0
ln_kesit	H1: (+)	1.132***
		0
ln_lingkit	H2: (+)	0.682***
		0
ln_sosit	H3: (-)	-0.580***
		0
island	+/-	2.740***
		0
Prov > F		0
Adj R-Square		0. 320
Obs		1.578
Mean Vif		1.77

Operationalization of Variable on Table 1
*** = P-value significant 1%

Source: STATA-17 (2025)

In general, the test results show that the Adjusted R-Square has a value of 0.320, which means that this model is able to explain 32 percent of the variability in the achievement of SDG 3. This indicates that the model is quite good, although there are still other factors outside the model that affect the achievement of SDG 3. The Prob > F value shows ($p < 0.01$) and the mean vif is 1.77, meaning that overall, this research model does not have multicolinearity issues and is reliable and capable of explaining the effectiveness of health, environmental, and social protection expenditure on the achievement of Sustainable Development Goal (SDG) 3 in Indonesia.

The table above shows that expenditure on health and environmental functions can enhance the achievement of SDG 3 with coefficients of 1.132 and 0.682 percent and a significance level of 1 percent, which means that the data used in this study supports H1 and H2. However, the test results for social protection expenditure show a decline in the achievement of SDG 3 with a coefficient of (-0.580) percent but a significance level of 1, which means that social protection expenditure has a significant and negative effect, so the data used in this study does not support H3. Regarding the control variable, namely the location of the government, it shows a coefficient of 2.740 percent and a significance level of 1 percent.

Discussion

The first finding is broadly consistent with the results of previous studies conducted by N. Ma. A. Aditia & Dewi, (2018); Rahmi & Putera, (2019); Goli et al., (2021) and Wardhana et al., (2022); Sari et al., (2022); Purnomoratih & Ramadhani, (2023) and Khan et al., (2024), which consistently show that an increase in health expenditure contributes positively to the achievement of Sustainable Development Goals (SDGs), particularly SDG 3. In this case, government expenditure in the health sector plays a strategic role as a fiscal policy instrument to enhance quality of life, extend life expectancy, and expand access to inclusive and sustainable health services. Research by Kruk et al. (2018) shows that expenditure allocations integrated with public health programs can strengthen the national health system and significantly enhance life expectancy. This study emphasizes the importance of transparent and data-driven budget management to achieve optimal results.

The second finding also supports previous research conducted by Chen et al. (2021), which empirically shows that environmental factors have a significant influence on increasing life expectancy, which is a key indicator of Sustainable Development Goal 3 (Good Health and Well-being). A cleaner and healthier environment, supported by public budgets, can reduce air pollution, prevent land degradation, reduce the risk of infectious diseases, and improve the quality of life of the community (Hermawan, 2017). Thus, adequate budget allocation for environmental functions can be a strategic fiscal instrument in promoting the achievement of SDG 3 at the national and regional levels. Research by Silva et al. (2018) shows that exposure to natural environments, such as green open spaces, parks, urban forests, and natural waterways, has a significant positive effect on individuals' physical and mental health and subjective well-being. This reinforces that government investment in environmental functions that create and preserve natural spaces can have a positive impact on the overall health of the community.

Furthermore, the third finding shows that social protection expenditure has a significant and negative effect on the achievement of SDG 3. These results are not in line with the research conducted by Cluver et al. (2016) and Reynolds & Avendano (2019), which shows that social protection expenditure has an effect on health and welfare in achieving sustainable development. Rindiani et al. (2025) and Artyukhov et al. (2024) state that social protection expenditure directly supports enhancing the quality of life of citizens by reducing social inequality and ensuring access to social security and basic services. This can enhance life expectancy in a country, which supports the achievement of SDG 3, namely health and well-being. In line with the distributional approach, Popova (2023) emphasizes that fair and evenly distributed social spending is more effective in reducing poverty and income inequality, making the social protection system a key instrument in achieving sustainable welfare.

Unlike previous researchers, Setiawan & Fikriah (2020) argue that if the budget for social protection continues to increase every year, this may indicate an ineffectiveness in program implementation. This is because some beneficiaries tend to rely on assistance rather than striving to enhance their economic independence (Haliim & Muhammad, 2025). In addition, targeting inaccuracy is one of the obstacles, where economically capable people continue to receive assistance, while those who really need it are neglected. The main causes are weaknesses in social databases and coordination between government agencies (Purba et al., 2025). According to Mustafa et al. (2022), the success of social protection implementation is largely determined by institutional quality, particularly in terms of loyalty, accountability, and efficiency. Therefore, improvements are needed in the data collection system, increased transparency, and the integration of social assistance with economic empowerment programs so that recipients become more independent (Purba et al., 2025; Saragih, 2024). With better strategies, social protection programs can contribute significantly to poverty alleviation and support the achievement of SDG 3, which focuses on public health and welfare.

The existence of control variables in this study shows that the achievement of SDGs in the field of health and welfare is influenced by the geographical location of local governments, both those located on Java Island and outside Java Island. Infrastructure development on Java Island is relatively more evenly distributed, making access to health services easier. This condition has an impact on increasing life expectancy and the quality of public health. In addition, better institutions make government spending in the Java region more effective in supporting the achievement of SDG 3. Conversely, regions outside Java still face various obstacles in basic development and governance.

The positive impact of health and environmental expenditure on the achievement of SDG 3 shows that the government has implemented policies that are in line with the interests of the community. Conversely, the negative impact of social protection expenditure indicates the existence of an agency problem, namely a mismatch between government policy and public needs due to weak accountability and transparency in program implementation. Therefore, government efforts to enhance public welfare and achieve these goals need to be carried out through efficient financial management, infrastructure development that supports public needs, and the provision of equitable and effective services throughout the region (Aswar, 2019). Overall, the results of this study confirm that the effectiveness of public expenditure based on function plays an important role in strengthening the national health system and enhancing the welfare of the community.

CONCLUSION

This study shows that the effectiveness of local government expenditure on health and environmental functions has a significant positive effect on the achievement of SDG 3 (Good Health and Well-being) in Indonesia, as measured by the life expectancy indicator. This confirms that enhancing budget allocations to the health and environmental sectors can enhance the quality of public health. However, unlike expenditure on social protection, it actually has a significant negative impact on the achievement of SDG 3. This finding indicates the ineffectiveness of social protection program implementation, particularly in terms of targeting, quality of governance, and institutional coordination. Geographical factors also proved to be influential, with regions outside Java tending to have lower SDG 3 achievements than regions on Java.

The results of this study provide important input for policymakers in designing a more effective and strategic APBD. In addition, it provides a basis for improving the design of social protection programs so that they truly contribute to the welfare of the community. The government needs to enhance the quality of performance-based budgeting so that it is not only large in nominal terms but also effective in achieving sustainable development goals, particularly SDG 3.

This study has limitations because it only uses three main variables, namely health expenditure, environment, and social protection expenditure, as well as a short data period from 2020 to 2022, so it is not yet able to describe the long-term effects and other factors such as governance, health infrastructure, service accessibility, education, and poverty. Therefore, further research is recommended to add institutional variables such as APIP capabilities, budget transparency, and community participation, as well as extending the study period to make the results more comprehensive. Local governments need to enhance the effectiveness of health and environmental expenditure through needs-based planning, monitoring of results, and capacity building of human resources. Meanwhile, social protection expenditure needs to be evaluated to ensure it is more targeted and integrated with economic empowerment programs. The central government also needs to strengthen support for regions outside Java through increased fiscal transfers, technical assistance, and infrastructure strengthening, accompanied

by transparency and public oversight to ensure that the budget has a real impact on the achievement of SDG 3.

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