



The impact of education, social, and healthcare expenditures on the human development index (HDI) in bireuen regency

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Abstract

This research examines the influence of education, social, and healthcare expenditures on the Human Development Index (HDI) in Bireuen Regency. Using quantitative analysis and regression techniques, data from official government records were analyzed to investigate the relationships between these variables. The findings reveal that education expenditure has a significant negative impact on the HDI, indicating the need for improved allocation and utilization of funds in the education sector. Social expenditure, however, does not show a significant positive effect on the HDI, suggesting the necessity for enhanced policies and programs in this domain. Conversely, healthcare expenditure demonstrates a significant positive influence on the HDI, emphasizing the importance of allocating sufficient resources to healthcare services. When considering these expenditures collectively, a significant positive impact on the HDI is observed, emphasizing the importance of a comprehensive approach to resource allocation. Based on the results, recommendations include optimizing education expenditure by focusing on quality improvement initiatives and enhancing the effectiveness of social expenditure programs to address population needs. Adequate funding for healthcare services is also crucial for improving overall human development outcomes.

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1. Introduction

Development should be understood as a multidimensional process that involves the reorganization and reorientation of all existing social and economic systems (Todaro and Smith, 2011) ^[13]. The government has significant authority in fiscal management, particularly in spending for human resource development, specifically in the field of (Santoso *et al.*, 2013) ^[7]. Human development, encompassing health and education, has positioned humans at the center of development, both as actors and targets of development. The government must provide adequate funding for human development through targeted budgetary expenditure policies (Stewart, 2010) ^[11]. Government spending can be utilized to finance public sectors such as education, health, and social protection (Muliza *et al.*, 2017). Expenditure on education and health has a positive and significant impact on the formation of the Human Development Index (HDI) (Mahulauw, 2016; Santoso *et al.*, 2013) ^[7] in Aceh Province.

Kabupaten Bireuen is one of the districts in Aceh Province, where government spending in the fields of education, social affairs, health, and the Human Development Index (HDI) in Kabupaten Bireuen fluctuates. However, during the period from 2015 to 2019, the HDI in Kabupaten Bireuen showed an increase. In 2015, the HDI in Kabupaten Bireuen was 69.77, in 2016 it was 70.21, in 2017 it was 71.11, in 2018 it was 71.37, and in 2019 it reached 72.27. Therefore, it is necessary to analyze the influence of education and health expenditure on the HDI in Kabupaten Bireuen.

2. Literature Review

Development is an activity of adding, improving, repairing, or expanding (Sirojuzilam and Mahalli, 2010) ^[9]. A region is a collection of contiguous areas as a geographic unit in its form and size. According to Law Number 26 of 2007 concerning Spatial Planning, a region is a space that represents a geographic unit along with all related elements, with its boundaries and systems determined based on administrative and/or functional aspects. Sirojuzilam and Mahalli (2010) ^[9] describe a region as a group of areas located close together and inhabited by a certain population within a specific territory or space. In brief, the concept of space/region is characterized by absolute location and the areal distribution of specific features on the Earth's surface.

2.1 Government Expenditure

Regional expenditure classified by expenditure groups, based on Minister of Home Affairs Regulation Number 77 of 2020 concerning Guidelines for Regional Financial Management Techniques, consists of: a) regional spending; and b) regional financing expenditure. Mardiasmo (2002) ^[4] states that regional spending is classified into four groups: Regional Apparatus Expenditure, Public Service Expenditure, Revenue Sharing and Financial Assistance Expenditure, and Unexpected Expenditure. According to Halim (2004) ^[2], regional spending is categorized into four groups: regional apparatus expenditure, public service expenditure, revenue sharing and financial assistance expenditure, and unexpected expenditure. Regional apparatus expenditure is further classified into three categories: general administrative expenditure, operational and maintenance expenditure, and capital/development expenditure. Public service expenditure is divided into three categories: general administrative expenditure, operational and maintenance expenditure, and capital expenditure.

2.2 Education Expenditure

The theory of human capital can be applied with the condition of efficient high-level technology and the existence of human resources capable of utilizing existing technology. This theory believes that investment in education is an investment in enhancing societal productivity (Bastias in Azizah, 2016). One important area of financing is derived from government expenditure, specifically in the education system (Sukirno, 2011). Fahrur in Adisasmita (2013) states that the government can enhance human resource capabilities and the nation's productive capacity through broad and diverse general education. The government can demonstrate its attention to human resource quality development through the extent of government expenditure in the education and health sectors (Sumarsono, 2009) ^[12].

According to the Minister of Finance Regulation No. 48 of 2008, Article 1, paragraph (3), Education Function Expenditure budgeted in the Regional Budget (APBD) is allocated to finance the implementation of education, which is the responsibility of the local government, including teacher salaries, but excluding civil service education budget. If well managed and allocated appropriately, a substantial education budget is expected to increase literacy rates and years of schooling. With the increased capacity of individuals due to education, it is expected that they will be able to obtain better employment, thereby achieving higher income levels. Furthermore, with better income levels, improved healthcare services can be accessed, thereby increasing life expectancy.

2.3 Social Expenditure

In general, social protection can be defined as any form of public policy and intervention aimed at responding to physical, economic, and social risks and vulnerabilities, particularly experienced by those living in poverty. The main goal of social protection is to prevent population risks and avoid prolonged suffering, while enabling the poor and vulnerable groups to have a decent standard of living, thus breaking the cycle of intergenerational poverty (Bappenas, 2014) ^[1].

Development financing in Indonesia consists of two sources: government funding allocated in the State Budget (APBN) and Regional Budget (APBD), as well as funding from the private sector. So far, the funding for social protection programs in Indonesia still heavily relies on government funding, both from the national and local budgets (Bappenas, 2014) ^[1].

2.4 Health Expenditure

Health expenditure refers to the type of local expenditure used to finance the implementation of government affairs under the authority of provinces or regencies/cities in the field of health. Based on Law No. 36 of 2009, Article 171, paragraph (1), it is stated that the government's health budget allocation should be at least 5% (five percent) of the state budget, excluding salaries. Paragraph (2) mentions that the provincial and regency/city government's health budget should be allocated at least 10% of the Regional Budget (APBD), excluding salaries.

Basic needs provided by the government include health, primary education, and essential commodities for the community. Health is one of the fundamental needs of society, and therefore, it is the right of every citizen protected by the Constitution. Improving healthcare services is essentially an investment in human resources to achieve a welfare society.

The level of community health greatly affects the level of well-being, as health is closely related to poverty. Meanwhile, poverty is associated with well-being. Therefore, health should be the primary focus of the government as a provider of public services.

2.5 Human Development Index (HDI)

According to UNDP, there are four main aspects to consider in human development:

Productivity: The community must be able to enhance their productivity and fully participate in income generation and wage employment. Therefore, economic growth is an essential component of human development.

Equity: Access to opportunities must be ensured for all members of society. Barriers to economic and political opportunities should be removed so that individuals can participate and benefit from these opportunities.

Sustainability: Access to opportunities should not be limited to future generations alone. Physical, human, and environmental resources must be adequately supported.

Empowerment: Development should be carried out by and for the community. Communities should have full participation in decision-making processes that affect their lives.

The measurement of human development was introduced by the United Nations Development Programme (UNDP) in 1990 through the Human Development Index (HDI). Since then, the HDI has been published annually in the Human

Development Report.

2.6 Previous Research

Several studies have examined the relationship between regional expenditure and the HDI in Indonesia, including: Harjunadhi and Rahmawati (2020) ^[3] conducted a study on "The Influence of Education Expenditure, Health Expenditure, and Regional Minimum Wage on the HDI in Indonesia from 2014 to 2018." The findings showed that education expenditure and the Regional Minimum Wage had significant partial effects on the Human Development Index (HDI) in 34 provinces of Indonesia.

Mongan (2019) ^[5] conducted a study on "The Influence of Government Expenditure in the Education and Health Sectors on the Human Development Index in Indonesia." The study used panel data regression for 32 provinces over a period of seven years from 2000 to 2016. The results indicated that central government expenditure on education did not have a significant effect on the HDI. However, central government expenditure on the health sector and regional government expenditure on education had a positive and significant impact on the HDI, while regional government expenditure on the health sector had a negative and significant effect.

Siregar *et al.* (2018) ^[8] conducted a study on "The Influence of Government Expenditure in the Health and Education Sectors on the Human Development Index (HDI) in North Sumatra Province." The results showed that government expenditure in the health sector had a partial effect on the human development index. However, government expenditure in the education sector did not have a partial effect on the human development index. Both government expenditure in the health sector and government expenditure in the education sector had a simultaneous significant impact on the human development index.

Pake *et al.* (2018) ^[6] conducted research on "The Influence of Government Expenditure in the Education and Health Sectors on the Human Development Index in North Halmahera Regency." The results showed that government expenditure in the education sector had a positive but not significant effect on the Human Development Index in North Halmahera Regency. On the other hand, government expenditure in the health sector had a positive and significant effect on the Human Development Index in North Halmahera Regency. The study also found that combined government expenditure in the education and health sectors had a positive and significant effect.

Soleha and Fathurrahman (2017) ^[10] conducted a study on

"Analysis of the Influence of Government Expenditure in the Health Sector, Government Expenditure in the Education Sector, Foreign Direct Investment (FDI), and Domestic Direct Investment (DDI) on the Growth of the Human Development Index (HDI)." The results of this research showed that the growth variable of Government Expenditure in the Health Sector had a significant positive effect on the HDI, Government Expenditure in the Education Sector had a significant negative effect on the HDI, FDI had a significant negative effect, and Domestic Direct Investment (DDI) had a significant positive effect on the growth of the HDI.

3. Research Method

The research was conducted in Bireuen Regency by collecting data from the report of the Regional Revenue and Expenditure Budget of Bireuen Regency obtained from the Central Bureau of Statistics of Bireuen Regency.

Data collection in this study used secondary data, which included the collection of materials and data related to the research topic cited from historical records or reports that were compiled in archives (published and unpublished documentary data). In this case, the data on education expenditure, social expenditure, health expenditure, and the HDI of Bireuen Regency from 1995 to 2020 were obtained from the library of the Central Bureau of Statistics (BPS) of Bireuen Regency.

The analysis used in this study was multiple linear regression with the formula:

$$Y = a + b_1EP + b_2SE + b_3HE + e$$

Explanation:

Y = HDI

EP = Education Expenditure (in millions of Indonesian Rupiah)

SE = Social Expenditure (in millions of Indonesian Rupiah)

HE = Health Expenditure (in millions of Indonesian Rupiah)

a = Constant

b₁, b₂, b₃ = Regression coefficients

4. Results

The data obtained during the 10-year observation period included the number of data points (n), mean, standard deviation, minimum value, and maximum value for the research variables. These variables include Education Expenditure, Health Expenditure, Social Expenditure, and the Human Development Index (HDI), as shown in Table 1

Table 1: Descriptive Statistics of Education Expenditure, Social Expenditure, Health Expenditure (in Billion Indonesian Rupiah), and HDI

		BP	BS	BK	IPM
N	Valid	10	10	10	10
	Missing	0	0	0	0
Mean		387.5310	17.4380	189.8250	69.2690
Median		430.8750	14.2750	187.9350	69.2400
Std. Deviation		143.03292	10.88334	121.87367	1.98199
Range		500.73	38.02	298.43	5.85
Minimum		41.68	4.19	47.60	66.42
Maximum		542.41	42.21	346.03	72.27

Source: BPS Bireuen Regency, Data Processed 2021

The results of the data observation during the period of 2010-2019 on the variable of education expenditure by the Government of Bireuen Regency indicate that the mean education expenditure studied is Rp. 387.5310 billion. The

lowest achieved education expenditure by the Government of Bireuen Regency is Rp. 41.68 billion, while the highest achieved is Rp. 542.41 billion. Therefore, the range between the maximum and minimum education expenditure is Rp.

500.73 billion (Rp. 542.41 - Rp. 41.68). These findings suggest that there is a significant range in education expenditure by the Government of Bireuen Regency during the observed period, which could potentially result in slow growth in the Human Development Index (HDI). Similarly, the results of the data observation on the variable of social expenditure by the Government of Bireuen Regency during the period of 2010-2019 show that the mean social expenditure studied is Rp. 17.4380 billion. The lowest achieved social expenditure is Rp. 4.19 billion, while the highest achieved is Rp. 42.21 billion. The range between the maximum and minimum social expenditure is Rp. 38.02 billion (Rp. 42.21 - Rp. 4.19). These findings suggest that there is a significant range in social expenditure by the Government of Bireuen Regency during the observed period, which could potentially result in slow growth in the HDI. Furthermore, the results of the data observation on the variable of health expenditure by the Government of Bireuen Regency during the period of 2010-2019 indicate that the

mean health expenditure studied is Rp. 189.8250 billion. The lowest achieved health expenditure is Rp. 47.60 billion, while the highest achieved is Rp. 346.03 billion. The range between the maximum and minimum health expenditure is Rp. 298.43 billion (Rp. 346.03 - Rp. 47.60). These findings suggest that there is a significant range in health expenditure by the Government of Bireuen Regency during the observed period, which could potentially result in slow growth in the HDI.

Lastly, the results of the data observation on the HDI variable by the Government of Bireuen Regency during the period of 2010-2019 indicate that the mean HDI studied is 69.2690. The lowest achieved HDI is 66.42, while the highest achieved is 72.27. The range between the maximum and minimum HDI is 5.85 (72.27 - 66.42). These findings suggest that the HDI of the Government of Bireuen Regency during the observed period has shown slow growth.

The results of the regression analysis, aligned with the research objective, are as follows:

Table 2: Partial Test Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	17.052	.094		181.407	.000
	Education Expenditure	-.007	.001	-.513	-5.732	.000
	Social Expenditure	.014	.019	.077	.728	.471
	Health Expenditure	.018	.002	1.105	8.536	.000

a. Dependent Variable: IPM

$$Y = 17,052 - 0,007 X_1 + 0,014 X_2 + 0,018 X_3$$

The research findings indicate that government expenditure on education has a significant positive effect on the Human Development Index (HDI) of Bireuen Regency. Education expenditure refers to the allocation of funds by regional governments to finance educational activities within their jurisdiction. According to Law No. 20 of 2003, education funding, excluding teacher salaries and administrative costs, should constitute a minimum of 20% of the National Budget (APBN) and 20% of the Regional Budget (APBD).

These findings align with the studies conducted by Habeahan (2015) and Nikmah (2020), which also showed a negative relationship between government spending on education and HDI. The negative impact of education expenditure on HDI can be attributed to the suboptimal implementation of educational programs, such as free education for primary and secondary schools, and the high cost of scholarships for economically disadvantaged students. Additionally, the increasing population poses a challenge for the government in providing quality education services on a large scale. Moreover, government spending on education tends to focus more on infrastructure development rather than improving the quality of education and training for teachers and students.

Soleha and Fathurrahman's study (2017) ^[10] also demonstrated a significant negative relationship between government spending on education and the Human Development Index. International standards indicate that Indonesia's allocation of funds for early childhood education, upper secondary education, and higher education is still relatively low, resulting in a lack of improvement in the quality of education.

On the other hand, the research findings show that social expenditure has a non-significant positive effect on the HDI

of Bireuen Regency. This result aligns with Nikmah's study (2020), which concluded that social protection spending has a positive impact on the HDI. Another study by Mailassa'adah (2017) revealed that government expenditure on social protection has a positive effect on the Human Development Index in Central Kalimantan. Higher government spending on social protection correlates with a higher human development index.

Social protection is an essential aspect of development that aims to alleviate poverty and reduce inequality in a country. The Indonesian Constitution, as stated in the 1945 Constitution, mandates the government to protect the entire nation and promote the general welfare, as well as enhance the intellectual life of the nation (Bappenas, 2014) ^[11]. In general, social protection can be defined as policies and public interventions aimed at addressing physical, economic, and social risks and vulnerabilities, particularly for those living in poverty. The primary goal of social protection is to prevent individuals from experiencing prolonged hardship, enable the poor and vulnerable groups to have a decent standard of living, and break the intergenerational cycle of poverty (Bappenas, 2014) ^[11].

In terms of healthcare expenditure, the research findings indicate a significant positive effect on the HDI of Bireuen Regency. Healthcare expenditure refers to the allocation of funds by regional governments to finance healthcare services within their jurisdiction. Based on Law No. 36 of 2009, a minimum of 10% of the regional budget (APBD) should be allocated to healthcare, excluding salaries.

Overall, funding for development in Indonesia comes from two sources: the government through the National Budget (APBN) and Regional Budget (APBD), and private funding. Currently, funding for social protection programs in Indonesia heavily relies on government sources, including both APBN and APBD (Bappenas, 2014) ^[11].

Healthcare expenditure has a significant positive impact on the Human Development Index (HDI) of Bireuen Regency. Healthcare expenditure refers to the allocation of funds by regional governments to finance healthcare activities within their jurisdiction. According to Article 171, paragraph (2) of Law No. 36 of 2009, the government is required to allocate a minimum of 10% of the Regional Budget (APBD) to healthcare, excluding salaries.

Research conducted by Rukiah and Siregar (2019) has demonstrated that fiscal health policies have a positive and significant impact on the Human Development Index from an Islamic perspective in Indonesia. Fiscal policies, especially the absorption of healthcare sector budgets, have a highly positive effect on improving the Human Development Index from an Islamic perspective in each province.

These findings are also supported by the research of Habeahan (2015), which showed a positive impact of government spending on the healthcare sector on the HDI. This aligns with the theories of Adolf Wagner, Rostow, and Musgrave, which link government expenditure with government activities. Government spending on the healthcare sector is an effort to fulfill one of the fundamental rights of the people, namely the right to access healthcare services, as stated in Article 28 H, paragraph (1) of the 1945 Constitution and Law No. 23 of 1992 concerning Health (Kuncoro, 2013). According to Tjiptoherijanto as cited in Astri (2013), health is seen as a factor that influences human resources, and thus, the aspect of health also affects human quality. The lack of calories, nutrition, or low levels of health among the population will result in low human quality and retarded mental development.

Todaro and Smith (2013) argue that government spending on healthcare, which aims to fulfill the basic right to access healthcare facilities and services, is a prerequisite for increasing the productivity of the population. In Indonesia, healthcare expenditure is regulated by Law No. 36 of 2009, which states that the central government should allocate a minimum of 5% of the National Budget (APBN), excluding salaries, to healthcare. Additionally, regional governments at the provincial and district/city levels should allocate a minimum of 10% of the Regional Budget (APBD), excluding salaries, to healthcare (Rumate, 2015).

5. Conclusion and Recommendations

Based on the analysis and hypothesis testing conducted, it can be concluded that education expenditure has a significant negative impact on the Human Development Index (HDI) of Bireuen Regency, while social expenditure does not have a significant positive impact on the HDI. On the other hand, healthcare expenditure has a significant positive impact on the HDI. Moreover, when education expenditure, social expenditure, and healthcare expenditure are considered together, they have a significant positive impact on the HDI of Bireuen Regency.

In light of these findings, several recommendations can be proposed. First, the government of Bireuen Regency should prioritize and optimize education expenditure towards activities that focus on improving the quality of human resources, such as implementing free education initiatives.

Additionally, efforts should be made to increase the allocation of education expenditure in the Regional Budget (APBD) to further support educational development in the region.

Furthermore, it is crucial for the government to recognize that investing in healthcare expenditure yields positive outcomes for the HDI. Therefore, continued emphasis should be placed on allocating sufficient funds for healthcare services and facilities.

In conclusion, the government of Bireuen Regency should address the challenges identified in the education sector, including the uneven distribution of educational services, the low quality of education, and suboptimal management practices. By implementing these recommendations, it is hoped that the quality of human resources can be improved, leading to a more productive workforce and overall enhancement of the Human Development Index in Bireuen Regency.

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