Pamong Praja
Volume 2, Number 1, 2023

The Effect of Education Budget Expenditure on the Human Development Index in Sulawesi Island Province

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Abstract

Article history:
Received: January 17, 2023
Revised: February 25, 2023
Accepted: April 19, 2023
Published: June 30, 2023

Keywords:
Education Expenditure,
Human Development Index,
Pearson Correlations,
SPSS,
Sulawesi Island.

Identifier:
Zera Open
Page: 19-34
https://zeraopen.com/journal/pp

This study aims to analyze the effect of education budget expenditure on the Human Development Index (HDI) in the provinces of Sulawesi Island, namely South Sulawesi, Southeast Sulawesi, Central Sulawesi, West Sulawesi, and North Sulawesi. The approach used is quantitative using secondary data until 2022. The analysis was carried out by Pearson correlation test through the SPSS program to determine the direction, strength, and significance of the relationship between education budget expenditure and HDI. The results showed a fairly strong positive correlation between education budget expenditure and HDI, with a coefficient value of 0.705, but statistically insignificant ($p = 0.183$), which was likely influenced by the limited sample size. These findings emphasize the importance of efficient and targeted allocation of education budgets and the need for further research with larger amounts of data to produce more valid empirical evidence. This research is expected to be a reference for the formulation of education budgeting policies at the provincial level.

1. Introduction

Human development is the main objective of national development, which is directed toward improving the quality of life of society in a sustainable manner. The success of human development is commonly measured using the Human Development Index (HDI), a composite indicator that reflects achievements in three fundamental dimensions, namely education, health, and a decent standard of living. HDI is widely used by policymakers because it not only reflects the level of public welfare, but also indicates the quality of human resources within a region. Consequently, improving HDI has become a major concern for both central and local governments in formulating development strategies, particularly in the context of reducing regional disparities and enhancing long-term development outcomes.

Education is recognized as one of the most strategic sectors in human development, as it directly influences knowledge, skills, and productivity (Baharin et al., 2020). Government expenditure in the education sector is therefore considered a key policy instrument for improving HDI. According to Nainggolan et al. (2021), education spending plays a crucial role in increasing HDI because education constitutes a core component of the index. Increased allocation to education is expected to improve access to educational services, enhance learning quality, and reduce inequality in educational attainment, which ultimately contributes to higher human development outcomes. This perspective underlines the importance of education-oriented fiscal policies in strengthening the overall quality of human capital.

Within the framework of fiscal decentralization, local governments are granted substantial authority to manage their budgets, including determining the allocation of expenditure for the education sector. Education budgets are viewed as an essential mechanism for improving the availability, quality, and equity of education services at the regional level. Hasibuan and Syahbudi (2022) emphasized that government spending on education has a positive relationship with HDI across regions, indicating that increased education budget allocations tend to enhance the quality of human resources. These findings suggest that regional fiscal policies focusing on education can generate tangible benefits for human development, particularly when resources are allocated efficiently and aligned with local needs.

Despite this general consensus, empirical findings regarding the impact of education spending on HDI remain inconsistent across regions. Hendri (2020) found that education expenditure has a significant effect on HDI in West Nusa Tenggara, highlighting the effectiveness of education investment in improving human development outcomes. Similarly, Utami (2020) reported a positive influence of education spending on HDI in Aceh, although the magnitude of the effect was influenced by additional variables such as health conditions and poverty levels. These results indicate that education spending alone may not be sufficient to improve HDI without support from other development sectors. Furthermore, Sukmawati et al. (2022), using panel data from 2018–2022, demonstrated that education expenditure significantly increases HDI, underscoring the importance of methodological approaches and observation periods in analyzing the relationship between fiscal variables and human development.

The island of Sulawesi exhibits diverse development characteristics among its provinces. South Sulawesi generally records a higher HDI compared to West Sulawesi and Central Sulawesi, while education budget allocations also vary considerably across regions. This variation raises empirical questions regarding whether education budget expenditure consistently exerts a positive influence on HDI across all provinces in Sulawesi. Mahendra (2020) found that in Yogyakarta, the effect of education spending on HDI becomes insignificant when controlled for economic growth and poverty, reinforcing the need for region-specific analysis to better understand the true impact of education expenditure.

Based on previous research, several gaps remain. First, studies focusing specifically on Sulawesi provinces are still limited. Second, differences in empirical findings indicate the need for further examination using recent data. Third, many prior studies do not include observations up to 2022. Therefore, this study aims to analyze the influence of education budget expenditure on HDI in Sulawesi provinces, identify the direction and significance of the relationship, and provide policy recommendations. The hypotheses proposed are H_0: education budget expenditure has no significant effect on HDI, and H_1: education budget expenditure has a positive and significant effect on HDI in the provinces of Sulawesi.

2. Literature Review

2.1. Effect of Education Budget Expenditure on HDI

Education budget expenditure is one of the main instruments of local governments to improve the quality of human development (Hendrati & Perdana, 2021). The budget allocated to education can include teacher spending, educational infrastructure, training, and education quality improvement programs. This concept is similar to "Return on Equity" in the financial context, where education expenditure is expected to generate a "return" in the form of an increase in HDI.

A number of empirical studies show a positive relationship between education spending and HDI. SNainggolan et al. (2021) found that the increase in education spending in Indonesian provinces correlates with an increase in HDI. This is also supported by Hasibuan and Syahbudi (2022) who emphasized that adequate budget allocation in the education sector has a significant effect on the quality of human resources at the regional level. Sukmawati et al. (2022) research in East Kalimantan used panel data from 2018–2022 and showed that increased education spending directly contributes to the increase in HDI.

However, these influences are not always uniform between regions. Hendri (2020) emphasized that contextual factors such as bureaucratic effectiveness, budget distribution, and regional capacity affect the extent to which education expenditure can have an impact on HDI. In addition, research by Mahendra (2020) shows that the influence of education spending can be insignificant when combined with other variables such as poverty and economic growth. This phenomenon shows the need for empirical analysis that focuses on the specific context of Sulawesi province to ensure that education budget expenditure actually impacts HDI. Based on this description, the hypothesis proposed for this sub-chapter is: **H_0**: Budget expenditure in the education sector has no significant effect on HDI.

2.2. The Effect of Quality of Education Spending on HDI

In addition to the amount of budget allocation, the quality of education expenditure is also an important factor in determining its effectiveness on HDI. This concept can be analogous to the Net Profit Margin (NPM) in a company, where the efficiency of the use of funds determines how much of an impact it has on the final result. The efficient, targeted, and transparent use of the budget is expected to make a positive contribution to human development, reflected through the increase in HDI.

Several empirical studies have shown that efficient budget allocation and focus on priority education programs have a positive effect on HDI. Utami (2020) found that the effectiveness of education spending in Aceh has a significant impact on increasing HDI, while Nainggolan et al. (2021) emphasizes the importance of using funds that are right on target, not just the size of the budget. Sukmawati et al. research (2022) also emphasizes that the increase in HDI is more visible when the education budget is used for programs that are measurable and have clear performance indicators.

In addition, other control variables such as equitable distribution of education between regions and the availability of teachers also affect the effectiveness of education spending on HDI (Hasibuan & Syahbudi, 2022). This emphasizes that not only the size of the budget, but how the allocation is managed efficiently will determine its contribution to HDI. The study of Mahendra (2020) shows that the efficiency of the use of the education budget has a significant positive influence on HDI when other factors such as poverty and economic growth are controlled, which supports the importance of quality of spending as a key variable. Based on this description, the hypothesis proposed for this sub-chapter is: **H_1**: Budget expenditure in the education sector has a positive and significant effect on HDI.

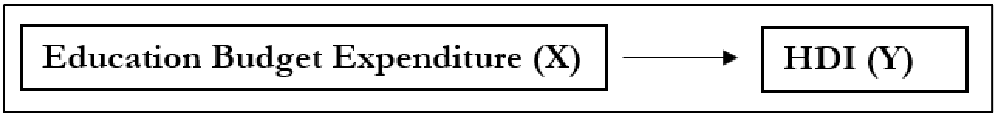

Figure.1 Conceptual Framework

The figure 1 illustrates the causal relationship between education budget expenditure as an independent variable (X) and the Human Development Index (HDI) as a dependent variable (Y). The direction of the arrow indicates that an increase or change in education budget expenditure is assumed to affect the HDI rate. Conceptually, the larger and more effective the use of the education budget, the higher the quality of education, health, and people's living standards, which ultimately increases HDI. Thus, the picture confirms that HDI is a result that is influenced by the amount of allocation and effectiveness of education budget expenditure carried out by local governments.

3. Methods

This study adopts a quantitative approach to examine the influence of education budget expenditure on the Human Development Index (HDI) in the provinces of Sulawesi Island, namely South Sulawesi, Southeast Sulawesi, Central Sulawesi, West Sulawesi, and North Sulawesi. The quantitative approach is selected because it enables objective, systematic, and statistically measurable analysis of the relationship between variables. The main objective of the study is to test the proposed hypotheses, namely H_0, which states that education budget expenditure does not have a significant effect on HDI, and H_1, which states that education budget expenditure has a positive and significant effect on HDI.

The study uses secondary data obtained from official government sources. Education budget expenditure data are derived from provincial government financial reports, such as Regional Government Financial Statements (LKPD), while HDI data are obtained from publications issued by the Central Statistics Agency (BPS) and other official documents related to human development indicators. The observation period is limited to the year 2022 to ensure that the data reflect the most recent development conditions in the provinces of Sulawesi and remain relevant to current policy discussions.

The research variables consist of an independent variable and a dependent variable. The independent variable is education budget expenditure, measured in rupiah and representing the total amount of education-related spending allocated by each provincial government. The dependent variable is the Human Development Index, which is measured using official HDI indicators that encompass education, health, and standards of living. These variables are selected to capture the relationship between fiscal policy in the education sector and human development outcomes at the provincial level.

Data analysis is conducted using Pearson correlation analysis with the assistance of the SPSS software. The Pearson correlation method is employed to identify the direction and strength of the linear relationship between education budget expenditure and HDI. This method is appropriate because the study aims to determine whether higher levels of education spending are associated with higher HDI values and whether such a relationship is statistically significant. The use of SPSS facilitates accurate data processing and generates correlation coefficients (r) and significance values (p-values) required for hypothesis testing.

Prior to conducting the correlation analysis, the data are examined through classical assumption tests, including tests of normality and linearity, to ensure that the data meet the requirements for Pearson correlation analysis. Once these assumptions are satisfied, the Pearson correlation coefficient is calculated. Hypothesis testing is performed by comparing the resulting p-value with the predetermined significance level of 0.05. A p-value below 0.05 indicates acceptance of the alternative hypothesis (H_1), while a p-value above 0.05 leads to acceptance of the null hypothesis (H_0). Overall, this quantitative correlation approach enables the study to identify the empirical relationship between education budget expenditure and HDI in the provinces of Sulawesi, while providing statistical evidence that can support more effective and development-oriented education budgeting policies.

4. Results

Table presents the results of the Pearson correlation analysis between education budget expenditure and the Human Development Index (HDI) in the provinces of Sulawesi, which aims to describe the direction, strength, and statistical significance of the relationship between the two variables examined in this study like:

Table 1. Correlation Test Results

Correlations			
		IPM	BILLION
IPM	Pearson Correlation	1	.705
	Sig. (2-tailed)		.183
	N	5	5
BILLION	Pearson Correlation	.705	1
	Sig. (2-tailed)	.183	
	N	5	5

The results of table 1. Pearson's correlation test show that there is a fairly strong positive relationship between education budget expenditure (BILLION) and HDI with a correlation value of 0.705. This means that an increase in the budget tends to be followed by an increase in HDI. However, the significance value of 0.183 is greater than 0.05, so this relationship is not statistically significant. This is likely influenced by the small sample size (N = 5), so the results need to be interpreted carefully. In conclusion, although the correlation is high, the relationship between education budget and HDI has not been statistically ascertained; Larger amounts of data are required for more robust analysis.

Based on the results of data analysis conducted using the Pearson correlation test through the SPSS program, the correlation coefficient between the variables of education budget expenditure (BILLION) and the Human Development Index (HDI) was 0.705 with a significance value (Sig. 2-tailed) of 0.183. These results show that the relationship between the two variables is positive and quite strong, meaning that an increase in education budget expenditure tends to be followed by an increase in HDI in the provinces of Sulawesi Island. Nevertheless, a significance value greater than 0.05 indicates that the association is not statistically significant at a 95% confidence level. In other words, empirically the relationship between education budget expenditure and HDI has not been strongly proven in the population.

A positive correlation of 0.705 shows that in general, the direction of the relationship between variables is in accordance with the research hypothesis, namely that increased education spending has the potential to improve the quality of human development. This is in line with human development theory which emphasizes the importance of investment in education to strengthen the education dimension in HDI. However, the significance that is not achieved can be due to the very limited number of samples (N = 5) so that the strength of the statistical test becomes weak and vulnerable to variations in data between provinces. Other factors such as differences in the effectiveness of budget use, the quality of education policies, and regional socio-economic conditions can also affect the strength of the observed relationship (Tatiana et al., 2018).

These results show that although there are indications of a positive relationship between the amount of education budget and the increase in HDI, there is not yet strong enough evidence to conclude that there is a statistically significant influence. Thus, the alternative hypothesis (H_1) that states that education budget expenditure has a positive and significant effect on HDI is not acceptable, and the zero hypothesis (H_0) is accepted. This means that statistically, education expenditure in Sulawesi provinces during the study period has not been shown to have a significant influence on the increase in HDI.

However, the relatively high correlation results ($r = 0.705$) still show that education expenditure has the potential to play an important role in improving the quality of human development if managed more effectively and accompanied by an increase in the efficiency of budget use. Improving the quality of education spending, equitable distribution of facilities, and strengthening regional institutional capacity are factors that can strengthen this positive relationship in the future (Muttaqin, 2018). Therefore, further research is recommended to use a larger amount of data and add control variables such as poverty, economic growth, and efficiency of public spending to obtain more comprehensive and accurate results in explaining the influence of education expenditure on HDI at the regional level.

5. Discussion

The correlation analysis shows a positive but statistically insignificant relationship between education budget expenditure and the Human Development Index (HDI) in the provinces of Sulawesi. The correlation coefficient of 0.705 indicates that higher education spending tends to be followed by higher HDI, yet the significance value of 0.183 suggests that this relationship cannot be generalized statistically. This finding implies that although education expenditure aligns with human development theory, its impact on improving HDI has not been sufficiently consistent across provinces.

One factor influencing this result is the variation in the efficiency and effectiveness of education budget utilization among provinces. As noted by Utami (2020), the impact of education spending on HDI depends not only on the amount allocated, but also on how effectively the funds are used. Disparities in educational infrastructure, access, and service quality between more developed provinces such as South Sulawesi and less developed ones such as West Sulawesi contribute to uneven development outcomes, thereby weakening the overall relationship.

The limited sample size of this study (N = 5) also affects the results. With only five provincial observations, the statistical power of the analysis is low, making the correlation highly sensitive to data fluctuations. Ghozali (2018) explains that small sample sizes may fail to detect significant relationships even when they exist. Therefore, future studies are recommended to use time-series or panel data to obtain more robust and reliable results. In addition, human development is influenced by multiple factors beyond education. Mahendra (2020) highlight that the effect of education spending on HDI becomes insignificant when variables such as poverty and economic growth are considered. This indicates that education policies must be supported by improvements in health services, economic empowerment, and poverty reduction programs (Wei et al., 2021).

From a policy perspective, these findings emphasize the importance of improving the quality and effectiveness of education spending rather than merely increasing budget allocations. As emphasized by Sukmawati et al. (2022), education budgets should be directed toward programs with clear performance indicators and direct societal impact. Overall, education expenditure has positive potential for human development, but its effectiveness depends on regional conditions and integrated policy implementation.

6. Conclusion

Based on the results of the research that has been conducted, it can be concluded that there is a positive relationship between education budget expenditure and Human Development Index (HDI) in the provinces of Sulawesi Island with a correlation value of 0.705. This suggests that an increase in education spending tends to be followed by an increase in HDI, but the relationship is not statistically significant because the significance value is 0.183, which is greater than the confidence level of 0.05. Thus, the alternative hypothesis (H_1) is rejected, and the null hypothesis (H_0) is accepted.

These findings indicate that the increase in education budget has not been fully able to have a real impact on the increase in HDI in the Sulawesi region, which can be caused by differences in the efficiency of budget use, policy quality, and limited data and sample size. Nevertheless, the positive direction of the relationship still shows that education expenditure has the potential to be an important factor in improving the quality of human development if managed more effectively, equitablely, and results-oriented. Therefore, local governments need to increase the effectiveness of education budget allocation and supervision in order to make an optimal contribution to increasing HDI in the future.

References

Baharin, R., Syah Aji, R. H., Yussof, I., & Mohd Saukani, N. (2020). Impact of human resource investment on labor productivity in Indonesia. *Interdisciplinary Journal of Management Studies*, *13*(1), 139-164.

Hasibuan, S. A., & Syahbudi, M. (2022). Pengaruh pengeluaran pemerintah bidang pendidikan terhadap indeks pembangunan manusia. *Jurnal Masharif al-Syariah: Jurnal Ekonomi dan Perbankan Syariah/Vol*, *7*(4), 1159.

Hendrati, I. M., & Perdana, P. (2021). Education Budget Through Central or Local Government Spending: Which Is More Effective in Improving the Quality of Human Life?. *JASF: Journal of Accounting and Strategic Finance*, *4*(2), 242-255.

Hendri, W. (2020). Kajian Desentralisasi Fiskal Dan Kesejahteraan Masyarakat Di Provinsi Nusa Tenggara Barat. *JISIP (Jurnal Ilmu Sosial Dan Pendidikan)*, *4*(2).

Mahendra, A. (2020). Analisis Pengaruh Pengeluaran Pemerintah Sektor Pendidikan Dan Kesehatan, Inflasi Dan Kemiskinan Terhadap Indeks Pembangunan Manusia Dengan Pertumbuhan Ekonomi Sebagai Variabel Moderating Di Indonesia. *Jurnal Manajemen Dan Bisnis*, 174-186.

Muttaqin, T. (2018). Determinants of unequal access to and quality of education in Indonesia. *Jurnal Perencanaan Pembangunan: The Indonesian Journal of Development Planning*, *2*(1), 1-23.

Nainggolan, L. E., Lie, D., Nainggolan, N. T., Sembiring, L. D., & Sudirman, A. (2021). Path Analysis of Economic Growth and Government Spending on Education Impact on the Human Development Index in Indonesia. *Valid: Jurnal Ilmiah*, *19*(1), 51-60.

Sukmawati, U. S., Ana, P., & Trisna, D. (2022). Analisis Faktor-Faktor Yang Memengaruhi Indeks Pembangunan Manusia Dalam Pembangunan Ekonomi Di Kalimantan Barat. *Shar-E: Jurnal Kajian Ekonomi Hukum Syariah*, *8*(1), 188-201.

Tatiana, S., Natalia, F., & Irina, Z. (2018, December). The Research on the Effectiveness of Budgetary Instruments of the Regional Socio-economic Systems Development. In *4th International Conference on Economics, Management, Law and Education (EMLE 2018)* (pp. 50-55). Atlantis Press.

Utami, F. P. (2020). Pengaruh indeks pembangunan manusia (IPM), kemiskinan, pengangguran terhadap pertumbuhan ekonomi di Provinsi Aceh. *Jurnal Samudra Ekonomika*, *4*(2), 101-113.

Wei, W., Sarker, T., Żukiewicz-Sobczak, W., Roy, R., Alam, G. M., Rabbany, M. G., ... & Aziz, N. (2021). The influence of women's empowerment on poverty reduction in the rural areas of Bangladesh: Focus on health, education and living standard. *International journal of environmental research and public health*, *18*(13), 6909.