Efficiency of the Use of Special Allocation Funds and Their Implications for Improving the Quality of Human Resources in Eastern Indonesia (Study: East Nusa Tenggara, North Maluku, Maluku, West Papua, and Papua Provinces)

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Abstract
This budget allocation is aimed at improving public services, especially in the education and health sectors. This study aims to: (1) measure the level of efficiency of DAK use during the period 2014–2023; and (2) analyse the implications of the use of DAK and the Human Development Index (HDI) on the quality of human resources in 2014–2023. The research method used was Data Envelopment Analysis (DEA) and simultaneous regression with secondary data sourced from the fund transfer report of the Ministry of Finance and the Central Statistics Agency. The results of the study show that there are still many inefficiencies in the use of DAK by local governments in these provinces. Furthermore, the regression results in the first equation model revealed that the number of accredited libraries had an effect on increasing the DAK budget. In the second equation model, it was found that DAK and literacy level had a significant influence on increasing HDI. Thus, the effectiveness of DAK is not only determined by the amount of allocation, but also by the quality of management of the education sector, literacy, and other supporting facilities in encouraging human development in the eastern region of Indonesia.

1. Introduction

1.1 Introduce the Problem

The special allocation fund (DAK) budget in Indonesia has experienced a substantial increase over the years. Based on data from the Ministry of Finance in 2023, the total budget allocation

for special allocation funds reaches around Rp 90 trillion, with a significant portion allocated to the education and health sectors (Ministry of Finance of the Republic of Indonesia, 2023). This funding is not just a financial injection but is aimed at encouraging sustainable development and bridging the gap between urban and rural areas. The budget for special allocation funds targeted at specific sectors underscores the government's commitment to improving the quality of life and education in historically underserved areas. In particular, the provinces of East Nusa Tenggara, North Maluku, Maluku, West Papua, and Papua have been identified as areas where the effective use of the special allocation budget can significantly affect human resource development. Data from the Central Statistics Agency (BPS) reveals that these provinces often rank lower in key indicators of human resource development such as literacy rates and access to health services compared to provinces in Indonesia. For example, East Nusa Tenggara has a literacy rate of only 87.5%, far below the national average of 96.3% (BPS, 2022). This difference highlights the critical need for efficient use of special allocation funds to improve human resource development. In addition, the use of special allocation funds is designed to support the implementation of specific programs that are aligned with national goals, such as the Sustainable Development Goals (SDGs). For example, a focus on the education sector through special allocation funds has led to the establishment of new schools, the provision of training for teachers, and the improvement of educational infrastructure in remote areas. For example, the West Papua provincial government, where through the use of special allocation funds, is targeted to result in an increase in the elementary school enrollment rate by 20% over the last three years (Papua Provincial Education Office, 2023).

1.2 Explore Importance of the Problem

Special allocation funds play an important role in financing development projects in Indonesia, especially provinces in eastern Indonesia, such as East Nusa Tenggara, North Maluku, Maluku, West Papua, and Papua. The budget allocation is intended to improve public services, especially in the education and health sectors. However, the efficiency of the use of special allocation funds has become a concern especially in light of growing issues such as corruption, lack of transparency and project delays. These challenges not only undermine the effectiveness of the use of the budget but also have significant implications for human resource development in these areas. Pambudi et al. (2021) point out that in some cases, local governments fail to meet project deadlines, resulting in wasted resources and unmet development goals. These inefficiencies not only hinder the outcomes of direct projects but also affect long-term human resource development, as education and health services remain underfunded and inadequately implemented. Ben David-Hadar (2018), effective funding allocation is very important to improve the quality of education outcomes. However, in the absence of a transparent process, stakeholders are often unaware of how the funds are being used, leading to distrust and disengagement from local communities. This lack of transparency not only affects the credibility of local governments but also reduces community participation, which is essential for the successful implementation of the project. Lin and Lu (2024), optimizing public sector resources is essential to achieve effective co-input allocation. In the context of the current use of special allocation funds, a more strategic approach to fund allocation can lead to improved educational

facilities, trained educators, and better health services, all of which are important components of human resource development. In summary, the misuse of the special allocation fund budget in Indonesia poses a significant challenge to human resource development.

Based on the above statement, the objectives of this study are: 1) measuring the level of efficiency in the use of the special allocation fund budget from 2014 to 2023; 2) analyze and investigate the implications of the use of special allocation funds and human development indices on improving the quality of human resources in 2010-2023 in the provinces of East Nusa Tenggara, North Maluku, Maluku, West Papua, and Papua.

1.3 Describe Relevant Scholarship

Budget Efficiency

Budget efficiency refers to the comparison between the output (output) achieved and the input (resource) used. Efficiency is closely related to the concept of productivity, where efficiency measurement is carried out by comparing the output produced to the input used. Efficiency is closely related to productivity, and efficiency measurement is done by comparing the output produced to the input used (cost of output). Operational processes are considered efficient if a certain product or work result can be achieved at the lowest possible cost (spending well). Thus, budget efficiency can be understood as an effort to maximize the results achieved with the use of resources to the minimum, thereby reducing waste and increasing productivity in budget management.

In a democratic country, the government represents the interests of the people, the money that the government has is the people's money and the budget shows the government's plan to spend the people's money. The budget is a blueprint for the existence of a country and a direction in the future. New demands have emerged for public sector organizations to pay attention to value for money in carrying out their activities. The goals desired by the community include accountability regarding the implementation of value for money, namely economical in the procurement and allocation of resources, efficient (useful) in the use of resources in the sense that their use is minimized and the results are maximized (maximizing benefits and minimizing), and effective (successful) in the sense of achieving goals and targets. Budget absorption and efficiency is one of the indicators that show the success of programs or policies that have been carried out by a government. The ratio to realization to budget proves that the budget has been absorbed in various programs that have been set. Budget absorption efficiency is a form of success of the Regional Government in realizing the budget in accordance with what has been determined in the APBD (Yansih, 2022). For this reason, the Regional Government, in attracting the necessary financial resources, must ensure that regional socio-economic development can be achieved with the efficiency of the budget used (Dekhtyar et al., 2020).

Previous research from Iris Ben David-Hadar in 2018 on "Funding Education: Developing A Method Of Allocation For Improvement" using the ordinary least squares (OLS) regression

model, which aims to develop a funding mechanism for education improvement, has suggested that variations in student performance are explained by the learning process and characteristics of students' backgrounds. Therefore, it is said that the allocation method should include the IEAD (Improvement in schools' Educational Achievement Distribution) award component. In addition, it is said that a composite funding formula is necessary if one aims to improve EAD (Educational Achievement Distribution). The literature on school financial policy links the distribution of funds to EAD (Educational Achievement Distribution); However, the focus in the literature is to compensate students for a low starting point i.e. a needs-based component. In their comprehensive survey of school finance programs in all 50 states found that "Consistent with court decisions, states appear to be taking a more active role in the design of public school finance programs that recognize the differences in the needs of students, schools, and school districts" (BenDavid-Hadar, 2018).

Budget efficiency in Indonesia itself based on research from Putri Yansih in 2022 on "Analysis of the Efficiency and Effectiveness of Budget Absorption of the Bogor Regency Education Office in 2014-2018" revealed that the level of efficiency and effectiveness of the budget absorption of the Bogor Regency Education Office from 2014-2018 was declared efficient and effective. Where the average level of budget efficiency is 34.43 percent where the criteria are declared very efficient and the average level of budget effectiveness is 96.06 percent with very effective criteria (Yansih, 2022).

The Role of the Government in Human Resource Development

Local government is a public institution or institution that has the authority and power to carry out various actions and efforts to achieve state goals. Meanwhile, in the explanation of Law Number 23 of 2014 concerning Regional Government, it is explained that local government is the implementation of government affairs by local governments and regional people's representative councils according to the principle of autonomy and assistance duties with the principle of autonomy as widely as possible in the system and principles of the Unitary State of the Republic of Indonesia as referred to in the Constitution of the Republic of Indonesia in 1945. One of the main achievements of local governments is the achievement of economic development in their regions. Good regional economic development is greatly influenced by the quality of human resources owned by the region. Basically, humans are the actors and goals of development itself. Indonesia as a country with a high population density, is still known to the world as a country that has a large quantity of human resources, but still lacks in quality. This is what the government, the private sector, and the community are concerned about how to improve the quality of human resources, especially the workforce so that they are able and ready to compete in the national and even world labor market.

Research from Irawan Abae, Abdul Chalid Ahmad, Aziz Hasyim in 2024 on "Dynamics Of Economic Growth And Quality Of Human Resources In The Archipelago North Maluku Province" using the Two Stage Least Square analysis method, stated that the variables HDI, Government Expenditure, and Investment have a significant effect on GDP, while the Labor

variable is optional. Meanwhile, the GDP variable did not have a significant effect on HDI, but the variables Life Expectancy Figure, School Life Expectancy Rate, and Per Capita Expenditure had a significant effect on HDI. The conclusion that can be drawn is that economic growth does not necessarily guarantee an improvement in the quality of human resources in North Maluku (Ahmad, 2024).

Research from Jude Edeh and Frederic Prevot in 2024 on "Beyond funding: The moderating role of firms' R&D human capital on government support and venture capital for regional innovation in China" using a panel of model analysis and fixed-effects models stated that government support for firms and venture capital does not have a significant direct impact on regional innovation performance. These effects are greatly moderated by human capital R&D. The findings of this study offer practical implications for policymakers and private investors, guiding them on how to maximize the efficiency of their R&D investments for regional economic growth. The findings also show the importance of investing in human capital in R&D for technology management and innovation at the enterprise level (Edeh & Prévot, 2024)

1.4 State Hypotheses and Their Correspondence to Research Design

Based on the purpose of the research, the type of research used in this study is descriptive research using a quantitative approach (Adani et al., 2023; Febriani et al., 2023; Handajani, 2019; Handajani et al., 2019; Iskandar et al., 2022; Nur Fitriyah et al., 2021; Nurabiah, 2018; Nurabiah Pusparini et al., 2019; Pudza, 2023; Pusparini et al., 2022; Sari et al., 2016), where this study conducted, 1) the calculation of the efficiency of the use of the special allocation fund (DAK) budget for the development of educational facilities from 2014-2023. Meanwhile, 2) conducted a dynamic analysis between the use of special allocation funds (DAK) and the achievement of the human development index (HDI) on improving the quality of human resources in 2014-2023. Based on the purpose of the research, there are two analysis methods used in this study, namely Data Envelopment Analysis (DEA) and simultaneous regression with secondary data sourced from the fund transfer report of the Ministry of Finance and the Central Statistics Agency.

2. Method

Based on the purpose of the research, the type of research used in this study is descriptive research using a quantitative approach (Adani et al., 2023; Febriani et al., 2023; Handajani, 2019; Handajani et al., 2019; Iskandar et al., 2022; Nur Fitriyah et al., 2021; Nurabiah, 2018; Nurabiah Pusparini et al., 2019; Pudza, 2023; Pusparini et al., 2022; Sari et al., 2016), where this study conducted, 1) the calculation of the efficiency of the use of the special allocation fund (DAK) budget for the development of educational facilities from 2014-2023. Meanwhile, 2) conducted a dynamic analysis between the use of special allocation funds (DAK) and the achievement of the human development index (HDI) on improving the quality of human resources in 2014-2023. Based on the purpose of the research, there are two analysis methods used in this study:

Data Envelopment Analysis (DEA)

This study uses a nonparametric Data Envelopment Analysis (DEA) approach to calculate the level of efficiency in the use of the special allocation budget for the development of educational facilities from 2014 to 2023. Data is sourced from the Central Statistics Agency (BPS) and the Ministry of Finance. In addition, researchers also use Microsoft Excel software as a tool.

Table 1. Variable Data

Types of Variables	Variable	Unit
Input	Special allocation funds	Billion
Output	Number of accredited libraries	Unit
	Number of schools (elementary, junior high, and high school) accredited by the Ministry of Education	Unit

Source: Writer, 2024

The efficiency value results will show a scale of 0-1 (zero to one), where if the efficiency results show a number of "0" indicates that the tested business unit is very inefficient, while the value of "1" indicates that the business unit is very efficient. The efficiency value is relative (not absolute) and the value produced is by comparing each business unit on the data set to be analyzed (Tanjung and Devi, 2017) In other words, an OPZ is said to be very efficient if the value reaches 100%. The farther away from the 100% figure or the closer to the 0% number, the more inefficient the OPZ will be. This method does not require an equation function and the results of the calculation are relative. (Tanjung and Devi, 2013). Efficiency calculations are simply done by calculating the ratio between output and input. However, this formula is inadequate due to the large number of inputs and outputs associated with various resources, activities, and environmental factors. Therefore, commonly used relative measures are:

$Min, \lambda \Theta$
st $\quad -yt + Y\lambda \geq 0$
$\Theta xt - X\lambda \geq 0$
$\lambda \geq 0$...................................(1)
Where:
Equation $Y = y_1 + y_2 + ... + y_n$
Determine the value $x_1 = x_2 + ... + x_n$
N = Number of units observed
x_1 = Input X for Units 1
y_1 = output y for Units 1
λ = Vector Constant

Unlike parametric analysis in general, DEA is a nonparametric analysis technique so it does not require the assumption of functional equations between the observed variables. Relative efficiency can be achieved if the units compared/observed in the DEA method are homogeneous

(se-level). In addition, in practice, the DEA method can use variable data (input and output) with different units. Stolp (1990) explained that the DEA method is quite informative and useful, especially in answering problems. Therefore, not a few DEA studies examine the problem of banking efficiency. Considering that the banking industry has many units, the analysis can be compared.

Estimation of the Simultaneous Regression Model

This quantitative research uses secondary data with a data panel method covering five provinces in Indonesia which include, East Nusa Tenggara, North Maluku, Maluku, West Papua, and Papua Provinces. As for the Time Series unit, it is an observation period from 2014 to 2023. All research data is sourced from the publication of the Central Statistics Agency (BPS) and the financial statements of the Ministry of Finance of the Republic of Indonesia. This research applies the simultaneous equation model, mangacu, to the empirical model developed by Evy Sulistianingsih (2019) and Arba, Muhammad Rasyid, Supriyanto (2021). The model at that time was modified and adjusted to the variables in the purpose of this study. Then the model in the equation on the variable of special allocation funds is the development of the model of. (Soraya & Qibthiyyah, 2021); (Apriliani & Khoirunurrofik, 2020); (Pambudi et al., 2021); and the Human Development Index (HDI) equation model is a development of the model from, (Irawan Abae, Abdul Chalid Ahmad, 2024); (Anekawati et al., 2024); (Fauzy et al., 2021); (Maulana et al., 2019); and (Mohanty & Dehury, 2012), the deep equation model in the empirical model then developed in this study, is presented as follows:

$$\text{Ln(DAKit)} = \beta 0 + \beta 1 \ln(\text{IPMit}) + \beta 2 \ln(\text{JPTit}) + \beta 3 \ln(\text{IPDIKit}) + \varepsilon it \ldots\ldots\ldots\ldots\ldots..(2)$$
$$\text{Ln(IPMit)} = \alpha 0 + \alpha 1 \ln(\text{DAKit}) + \alpha 2 \ln(\text{AMHit}) + \alpha 3 \ln(\text{AHHit}) + \mu it \ldots\ldots\ldots\ldots.(3)$$

Data transformation is carried out because of different units through the ln method. Ln is a natural logarithmic notation; i = 1, 2, 3, ..., 5 is the cross-sectional unit of 5 provinces in Indonesia; t = 2014, 2015, ..., 2023 is the unit of time series; DAK-it is a fund allocated by the central government to regions to fund special activities in accordance with national priorities in the five provinces and the tenth period; HDI is the Human Development Index as an indicator of the quality of human resources in the ith district/city and the tenth period; JPT-it is the number of accredited libraries in the five provinces and the tenth period; IPDIK-it is the number of school facilities starting from elementary, junior high, and high school accredited by the Ministry of Education and Culture in the five provinces and the tenth period; AMH-it is the literacy rate in the five provinces of the ith and tenth period; AHH-it is the life expectancy in the five provinces of the ith and tenth period; β_o = interception coefficient; $\beta\_1, ... , \beta\_5$ = regression coefficient; μ_it = error term.

Equations 1 and 2) are structural equations. Estimating these two equations uses the Least Square of Two Stages through the model identification stage. The two methods used in model identification are using the Order Condition and Rank conditions. The criteria for determining identification are based on several notations, namely: M = number of endogenous variables in

the model; m = the number of endogenous variables in the equation; K = number of exogenous variables in the model; and k = the number of exogenous variables in an equation. Three possibilities occur in the results of the identification of the structural equation model, namely: (1) if: $K - k = m - 1$, then the equation is said to be correctly identified (adequately identified); (2) if: $K - k < m - 1$, then the equation is called underidentified; and (3) if $K - M > m - 1$, then the equation is called overidentified. Evy Sulistianingsih (2019). In this case, it is possible (1) to be a condition that the structural equation model can be estimated using Indirect Least Square (ILS) or OLS and also TSLS; Possibility (2) suggests that the structural equation model cannot be predicted as a structural equation. On the other hand, possibility (3) suggests that the structural equation model can only be estimated using the TSLS method. Before the identification and estimation of the model with the TSLS method, the testing stage begins with the selection of the appropriate data panel model shape, namely through the Chow Test, Test Lagrange Multiplier (LM), and Hausman Test Hidayat et al., (2018) The purpose is to determine whether the Fixed Effect Model (FEM) or Random Effect Model (FEM) is used appropriately. Then, it is followed by the stages of classical assumption testing through autocorrelation, multicollinearity, and heteroscedasticity testing (Winarno, 2017).

3. Results

Data Envelopment Analysis (DEA)

In this study, the period from 2019 to 2023 was used with the government expenditure budget as the Decision Making Unit (DMU), which was based on the purpose of the study, namely to investigate the efficiency of the use of the special allocation budget for the development of educational facilities in the provinces of East Nusa Tenggara, North Maluku, Maluku, West Papua, and Papua. Based on the results of calculations carried out using excel software and obtained a distribution of different efficiency values for the use of the special allocation budget, as follows:

Table 1. DEA Calculation Results

Province	Year									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Nusa Tenggara Timur	1.00000	0.99261	0.98445	0.97153	0.99341	1.00000	0.96986	0.99895	1.00000	1.00000
Maluku	0.42872	0.37546	0.36816	0.37605	0.37883	0.36749	0.37279	0.34663	0.36021	0.39095
Maluku Utara	1.00000	0.99371	0.99155	0.99979	0.97771	0.97861	0.98694	1.00000	1.00000	1.00000
Papua Barat	1.00000	0.33202	0.32989	0.48856	0.42754	0.48688	0.54167	0.32444	0.90753	0.91706
Papua	0.53542	0.50252	0.49644	0.49233	0.49448	0.48521	0.47943	0.48355	1.00000	0.37772

Source: Secondary Data (Processed), 2024

The results of data processing show that the value of Constant Return to Scale (CRS) in each province is different, which reflects that the efficiency of the use of government expenditure budgets in each province is not every year efficient in the use of the budget. Provinces that are declared efficient with a score of 1 or 100%. Meanwhile, the country is inefficient because the score is less than 1 or 100%, which means that improvements need to be made in the management of the government expenditure budget. Efficiency has a definite meaning, which shows that there is a comparison between output and input. Mubyarto and Edy Suandi Hamid (in Ria et al., 2022), define efficiency as a benchmark and is used for various purposes, a comparison between input and output. In other words, efficiency is achieved by minimizing the cost of using resources to achieve a predetermined output. It is called efficient if it can maximize output with a limited number of inputs; the smaller this ratio, the more efficient it is, and vice versa.

Panel Data Regression Model Estimation (Simultaneous)

The Chow test was carried out to find out whether the panel data regression technique with the fixed effects model was better than the common effects model. The Chow test is a test to compare standard effect models with fixed effects (Widarjono, 2021). The Hausman test aims to determine the best model between random effects models and fixed effects models that must be carried out in panel data modeling (Widarjono, 2021). The hypothesis formed in the Hausman Test is as follows: The regression test of the data of this research panel uses Eviews 9 software. The first step in panel data regression analysis is to estimate the regression of panel data using the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) approaches (Sitorus & Yuliana, 2018).

Table 2. Chow Test and Hausman Test

Test Type	Model-01			Model-02		
Chow Test	F-Statistic	Prob.	Hasil	F-Statistic	Prob.	Hasil
Cross-section F	17.069875	0.0019	FEM	10.578165	0.0000	FEM
Test Type	**Model-01**			**Model-02**		
Chow Test	Chi-Sq. Statistic	Prob.	Hasil	Chi-Sq. Statistic	Prob.	Hasil
Cross-section random	4.320790	0.2288	REM	12.496459	0.0059	FEM

Source: Eviews, 2024

Based on the results of the Chow Test in Table 1, the probability value of the F cross-section in model 01 is smaller than 0.05, namely 0.0019 < 0.05, and the probability value of the F cross-section in model 02 is smaller than 0.05, which is 0.0000 < 0.05. It can be concluded that H0 is rejected and Ha is accepted. The interpretation of the results of the Chow Test is that the fixed

effects model is better than the common effects model, so the Hausman Test can be further performed.

The results of the Hausman Test on model-01 show that the random cross-sectional probability value is more significant than 0.05, which is 0.2288 > 0.05, so it can be concluded that H0 is accepted and Ha is rejected. The results of the Hausman Test in model 02 show that the random cross-sectional probability value is less than 0.05, which is 0.0059 < 0.05, so it can be concluded that Ha is accepted and Ho is rejected. Based on the results of the Hausman Test on model-01, it was obtained that the random effects model was better when compared to the fixed effects model; since REM was chosen, it can be said that the regression model does not have Eliminated Variable Bias, and Based on the results of the Hausman Test on model-02, it is obtained that the fixed effects model is better when compared to the random effects model so the FEM model is chosen. This test was carried out to find out that the data processed was valid (there were no deviations), so the Classical Assumption Test used was multicollinearity and heteroscedasticity according to (Mardani, 2023); (Handayani, 2020); and (Basuki, A.T. & Yuliadi, 2014)

Table 3. Multicollinearity Test Results Model-01

Variabel	LN_IPM	LN-JPT	LN_IPDIK
LN_IPM	1.000000	-0.020575	0.026775
LN_JPT	-0.020575	1.000000	-0.140612
LN_IPDIK	0.026775	-0.140612	1.000000

Source: Eviews, 2024

Table 4. Multicollinearity Test Results Model-02

Variabel	LN_DAK	LN_AMH	LN_AHH
LN_DAK	1.000000	-0.153221	0.030233
LN_AMH	-0.153221	1.000000	0.158728
LN_AHH	0.030233	0.158728	1.000000

Source: Eviews, 2024

Heteroscedasticity Test

The Heteroscedasticity test is used to test whether there is a variant inequality in the regression model from the rest of one observation to another. To determine the classification of heteroscedasusity residues in this study, the Breusch-Pagan LM test, the scaled LM test, and the CD test were used (Winarno, 2017)

Table 5. Results of Model-01 and Model-02 Heteroscenity Test

Test Criteria	Model-01		Model—02	
	Statistics	Prob	Statistics	Prob
Breusch-Pagan LM	24.89459	0.0055	23.91909	0.0078
Pesaran scaled LM	2.212497	0.0269	1.994369	0.0461
Pesaran CD	3.001228	0.0027	1.867855	0.0618

Source: Eviews, 2024

Based on the output results of Eviews 9 in Table 5, it shows that the probability in the Breusch-Pagan LM test, the scaled LM Pesaran test, and the Pesaran CD test in model-01 show consecutive numbers of 0.0055; 0,0269, and 0.0027 which means a significance of 0.05. In the model-02 test, the results of the Breusch-Pagan LM test, the scaled LM Pesaran test, and the Pesaran CD test showed consecutive numbers of 0.0078, 0.0461 and 0.0618 which means a significance of 0.05. So it can be said that residues are said to be affected by heteroscedasticity.

Table 6. Model-01 Results

Variable	Coefficient	t-Stat	Prob
C	11.79955	1.923890	0.0587
LN_IPM	-1.937226	1.467210	0.1913
LN_JPT	0.619448	6.409257	0.0000
LN_IPDIK	0.010949	0.262645	0.7936
R-squered	0.355783		
Adjusted R-squared	0.326501		
F-statistik	16.34734		
Prob(F-Statistic)	0.000000		
Durbin-Watson stat	1.203564		

Source: Eviews, 2024

From the results of the calculation of equation 1 of simultaneous regression above, it can be interpreted: that first, the constant value of 11.79955 indicates the value of the special allocation fund constant (Y). That is, if the value of the Special Allocation Fund variable is stable at 11.79955, if the Human Development Index variables, the number of accredited libraries, and the amount of school infrastructure are all equal to zero or constant.

In addition, a significant influence was found on the variable of the number of accredited libraries (X2), which was evidenced by the positive coefficient value of 0.619448 obtained and the t-table value of 0.000. This shows that the increase in the construction of the number of accredited libraries is likely to result in an increase in the budget for special allocation funds.

Meanwhile, the variables of the human development index (X1) and the number of school infrastructure (X3) have no effect on the special allocation fund. This means that for 14 years, the use of special allocation funds by local governments has not contributed to improving the quality of human resources and the number of school infrastructure in eastern Indonesia, especially in the provinces of East Nusa Tenggara, North Maluku, Maluku, West Papua, and Papua.

Table 7. Model-02 Results

Variable	Coefficient	t-Stat	Prob
C	1.651063	2.464876	0.0165
LN_DAK	0.031293	3.905240	0.0002
LN_AMH	0.255089	5.714680	0.0000
LN_AHH	0.285013	1.853449	0.0686
R-squered	0.794556		
Adjusted R-squared	0.771361		
F-statistik	36.49624		
Prob(F-Statistic)	0.000000		
Durbin-Watson stat	1.087102		

Source: Eviews, 2024

From the results of the calculation of equation 2 simultaneous regression above, it can be interpreted: first, the constant value of 1.651063 indicates the value of the human development index (HDI) constant (Y). that is, if the value of the Human Development Index (HDI) variable is stable at 1.651063 if the variable of the special allocation fund (DAK), the variable of the literacy number (AMH), and the variable of the life expectancy number (AHH) are all equal to zero or constant.

In addition, a significant influence was found on the variable of special allocation funds (DAK), which was evidenced by the positive coefficient value of 0.031293 obtained and the t-table value of 0.002. This shows that an increase in the budget allocation of special allocation funds is likely to result in an increase in the value of the human development index (HDI). In addition, variables that affect the literacy number variable were also found as evidenced by a positive coefficient value of 0.255089 and a t-table value of 0.000. This means that if there is an increase in literacy rate, it will increase the value of the human development index (HDI). Meanwhile, the Life Expectancy Rate (Health Factor) does not contribute or influence to improving the quality of human resources in the provinces of East Nusa Tenggara, North Maluku, Maluku, West Papua, and Papua.

4. Discussion

The findings of this study in the equation 1 model based on the results of simultaneous regression calculations found that the variable number of accredited libraries has an effect on the

increase in the budget for special allocation funds of local governments in the provinces of East Nusa Tenggara, North Maluku, Maluku, West Papua, and Papua. The importance of education as a long-term investment, the construction of libraries is a significant symbol of educational investment. Libraries provide access to information and learning resources that can improve the quality of community education. In the long term, this investment supports the development of competent human resources, which in turn contributes to the economic growth of the region. The special allocation budget is allocated to support regional development that has specific needs, such as educational infrastructure. If the increase in the number of libraries proves to increase the budget of the special allocation fund, this shows that the government sees the strategic value of education development to stimulate regional development. Eastern Indonesia often faces challenges in geography, infrastructure, and access to education. Therefore, focusing on library development can be a practical solution that narrows the education gap and improves human development indicators (HDI).

According to Becker (1964), investment in education and training increases the productivity of individuals and communities. The construction of libraries as educational facilities strengthens human capital which ultimately supports the economic development of the region. In addition, the Regional Dependency Theory emphasizes that areas with limited resources need external support for development. In this context, the special allocation fund can be seen as support to improve inequality in the development of the special region in eastern Indonesia through the improvement of educational infrastructure. Meanwhile, another view in the theory of equity in education, this theory focuses on equal access to education. Library construction increases learning opportunities for all groups, especially in remote areas, thereby supporting equity policies. This theory is in line with research from (Hryhorash et al., 2020) which states that countries in Europe are aware that education is a major factor in the formation of responsible citizens who are able to provide their own jobs, and provide professionals yang berkualitas bagi negara, yang berarti untuk mendorong pertumbuhan ekonomi dan budaya. Oleh sebab itu penyediaan pendanaan pemerintah pada bidang pendidikan sangat is important to achieve the goal of quality human development.

Meanwhile, in the model 2 equation, the findings in this study are based on the results of simultaneous regression calculations that, First, the variable of special allocation funds (X1) has an effect on increasing the human development index (HDI). The use of special allocation funds is designed to support the implementation of government priority programs in strategic sectors such as education and health. These two sectors have a direct relationship with the HDI dimension, namely education and health. In the context of eastern Indonesia, the region has complex development challenges, such as inadequate infrastructure, low levels of education, and limited access to health. Thus, the increase in the budget for the special allocation fund for this region is very relevant. The results of these findings emphasize the importance of designing fiscal policies that are responsive to regional needs to achieve national development equality.

In regional development theory, this theory emphasizes the importance of government investment in regional development, especially in underdeveloped areas, to reduce disparities

and improve the quality of life of the community. This theory is in line with the fiscal decentralization policy that gives authority to regions to manage funds for development. In addition, in institutional economic theory, this theory explains that the success of fiscal interventions, such as the use of special allocation funds, is highly dependent on the institutional capacity of local governments to manage funds properly. This theory is in line with research from Musviyanti et al. (2022) which reveals that the central government's support for regional fiscal autonomy is able to support the independence of local governments in overcoming their regional problems to then advance regional development. Another study from Nashshar et al (2022) showed that the efficient and appropriate use of special allocation funds has a significant positive influence on increasing the human development index (HDI), especially in the health and education sectors in disadvantaged areas. In addition, research from Ridho (2023) highlights the role of the use of special allocation funds in reducing development disparities between regions, including eastern Indonesia.

Second, the variable of literacy has an effect on the increase in the human development index (HDI). The results of the regression calculation show that the literacy variable has a significant effect on the increase of the Human Development Index (HDI) in the Eastern Indonesia region is very relevant to the context of the development of this region. Eastern Indonesia, which has had a relatively lower HDI rate compared to other regions, relies heavily on human resource development as a strategic step to catch up. The increase in literacy rates can be considered as a basic foundation in improving access to education, health, and income which are the main dimensions of HDI. Theoretically, these findings strengthen the relationship between basic education (literacy) and human development, as outlined in the theory of human development by Amartya Sen which emphasizes basic abilities as the key to improving individual welfare. Research from Pradhan, M., & Utomo, A. (2021) shows that the increase in literacy rates is directly correlated with improved quality of life and social mobility. Dimas research (2024) found that literacy is a critical factor to improve HDI status.

In the theory of human development by Amartya Sen, Human development is not only about increasing income, but also about improving basic skills such as literacy. Literacy gives individuals the ability to make better choices, improve their well-being, and promote sustainable development. In addition, on the development spiral theory by Hirschman, Increasing literacy creates a positive domino effect in the fields of education and health, which then accelerates the overall increase in HDI.

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