Determinants of Eastern Indonesia's Human Development Index

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Abstract
This study aims to determine the underlying Human Development Index in Eastern Indonesia Region by using Health expenditure and Education expenditure as variables that affect it. Using a new numerical perspective where the measurement of the Human Development Index according to the UNDP is reviewed by tracing and analysing Health and Education expenditure data using panel data, namely cross-section and time series to see the effect statistically. The results of this study which obtained positive and insignificant numbers and the low contribution value of the influence variables in this study are challenging data to face global progress, various forms of access to social services, especially in health and education, are basic things that need to be considered, some regions included in Eastern Indonesia may have experienced progress, but equity itself is what we must pay attention to together, continuous efforts to overcome the challenges of progress must ensure that all Indonesians can enjoy prosperity.

Keywords
Fintech, HDI, Health, Education, Human Capital, Eastern Indonesia

JEL Classification
J18, R11, O15, I31

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INTRODUCTION

Equitable development in Indonesia is at the development stage, sustainable infrastructure is expected to have a positive effect on the development of the quality of Human Resources, pay attention to existing environmental impacts and not eliminate cultural diversity. The quality of Human Resources can basically improve the quality of development and alleviate poverty, poverty itself can be measured by the amount of people’s income to meet the basic needs in their households based on the definition referred to by experts and recognised government institutions.

Poor quality of human resources will result in poverty, both in developing and developed countries, according to Syaifullah & Malik (2017) This poverty problem, consciously or unconsciously is a problem that humans always face, it can be said that where there are humans there is poverty, almost every country has even experienced poverty conditions but of course every country has a different solution to overcome it. From this poverty arises a variety of complete social problems, just look along the streets of cities and villages, the increasing number of sponges on the side of the road scattered, the increasing number of prostitutes and the increasing number of street children who are subjected to raids, it can be ascertained that 90% of the main factor is low economic conditions, not to mention the increasing number of children dropping out of school due to their inability to meet school needs where every year the number always increases, which in this case is illustrated by the Human Development Index (HDI), underage children have become beggars, it is increasingly clear that poverty really exists in every country (Suliswanto, 2010).

Seeing the extent of the success of development and human welfare, UNDP has published an indicator, namely the Human Development Index (HDI) to measure the success of development and welfare of a country. HDI is a measure of the welfare of a region or country that is seen based on three dimensions, namely: life expectancy at birth, literacy rate and mean years of schooling, and purchasing power parity, Harsono, I. (2024). We can see the increase in the human development index in a region or country from the increase in the quality and quality of human resources in that area. In measuring the quality level of the population in a region (Darwin, 2022).

Government expenditure can be used as a reflection of the policies taken by the government in a region. Government policy in each purchase of goods and services for the implementation of a programme reflects the amount of costs that the government will incur to implement the programme. Government expenditure is used to finance important public sectors, among all the current public sectors that are the priority of the government in achieving the development of the quality of human resources in relation to what is reflected in the human development index is investment in the education and health sectors. it is expected that investment in this sector will have an effect on improving the quality of human resources and reducing poverty, Firmansyah (2018). According to Mangkoesoebroto (2016) in Mongan, J. J. S. (2019), government spending reflects government policy. The government that establishes a certain policy has a cost consequence that must be incurred. These costs are funded from the government budget which is an expenditure for the government. The budget allocated to an area shows the government’s commitment to the problems in that area.

Government spending in the Health and Education sectors is the main variable to see its effect on the Human Development Index, especially in Eastern Indonesia, according to the results of research conducted by Sanggelorang, S., Rumate, V., & Siwu, H. (2015) Sanggelorang, S., Rumate, V., & Siwu, H. (2015) The Effect of Government
Expenditure in the Health Sector has no effect on the Human Development Index, because the amount of Government Expenditure in the Health Sector and the Effect of Government Expenditure in the Education Sector affect the Human Development Index. The results of research by Mongan, J. J. S. (2019) central government expenditure in education has no significant effect on HDI. Central government spending in the health sector and local government spending in education have a positive and significant effect on HDI, while local government spending in the health sector has a negative and significant effect.

The existence of various research results with different results in each region and different scales in Indonesia is a reference for the author to analyse the quality of human resources in eastern Indonesia, Eastern Indonesia has several provinces with a concerning human development index, which we can see based on human development index data issued by BPS with a total of 13 provinces, the following is a presentation of Human Development Index data in each province.

Table 1. Eastern Indonesia Human Development Index per province 2014-2023 (%)

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Province of Bali</td>
<td></td>
<td>72.48</td>
<td>73.27</td>
<td>73.65</td>
<td>74.3</td>
<td>74.77</td>
<td>75.38</td>
<td>75.5</td>
<td>75.69</td>
<td>76.44</td>
<td>77.1</td>
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<tr>
<td>Province of NTB</td>
<td></td>
<td>64.31</td>
<td>65.19</td>
<td>65.81</td>
<td>66.58</td>
<td>67.3</td>
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<td>68.25</td>
<td>68.65</td>
<td>69.46</td>
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<td>62.67</td>
<td>63.13</td>
<td>63.73</td>
<td>64.39</td>
<td>65.23</td>
<td>65.19</td>
<td>65.28</td>
<td>65.9</td>
<td>66.68</td>
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<tr>
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<td>69.96</td>
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<td>71.66</td>
<td>72.2</td>
<td>72.99</td>
<td>72.93</td>
<td>73.3</td>
<td>73.81</td>
<td>74.36</td>
<td></td>
</tr>
<tr>
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<td>66.43</td>
<td>66.76</td>
<td>67.47</td>
<td>68.11</td>
<td>68.88</td>
<td>69.5</td>
<td>69.55</td>
<td>69.79</td>
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<tr>
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<td>68.49</td>
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<td>69.76</td>
<td>70.34</td>
<td>70.9</td>
<td>71.66</td>
<td>71.93</td>
<td>72.24</td>
<td>72.82</td>
<td>73.46</td>
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<tr>
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<td>69.31</td>
<td>69.86</td>
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<td>71.66</td>
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<td>66.74</td>
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<td>69.71</td>
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<td>68.76</td>
<td>69.47</td>
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<tr>
<td>Province of West Papua</td>
<td>61.28</td>
<td>61.73</td>
<td>62.21</td>
<td>62.99</td>
<td>63.74</td>
<td>64.7</td>
<td>65.09</td>
<td>65.26</td>
<td>65.89</td>
<td>66.66</td>
<td></td>
</tr>
<tr>
<td>Province of Papua</td>
<td></td>
<td>56.75</td>
<td>57.25</td>
<td>58.05</td>
<td>59.09</td>
<td>60.06</td>
<td>60.84</td>
<td>60.44</td>
<td>60.62</td>
<td>61.39</td>
<td>62.25</td>
</tr>
</tbody>
</table>

Source: Bappenas

Based on the Human Development Index data above, we can conclude that the trend of these figures shows an increase in each year throughout the Eastern Region of Indonesia in each province. Through this data, the author formulates the problem below:

**Problem Formulation**

1. Does Health Expenditure have a positive and significant effect on the Human Development Index in Eastern Indonesia?
2. Does Education Expenditure have a positive and significant effect on the Human Development Index in Eastern Indonesia?
Research Benefits

This research has practical and academic benefits, as a comparison material in analysing fiscal policy, namely related to the function of health expenditure and education expenditure.

Theoretical Foundation
1. Human Development Index

The UNDP (United Nations Development Programme) defines human development as a process to expand choices for the population. In this concept, the population is placed as the ultimate end, while development efforts are seen as the principal means to achieve this goal. To ensure the achievement of human development goals, there are four things that must be considered, namely productivity, equity, sustainability and empowerment (UNDP, 1990).

The term human capital was first proposed by Gary S. Becker. Ace Suryadi (1994) (In Boediono 1999), which examines more deeply the role of formal education in supporting economic growth states that, the higher the formal education obtained, the higher the labour productivity. This is in accordance with the Human Capital theory, which states that education has an influence on economic growth because education plays a role in increasing labour productivity. This theory assumes that population growth is determined by individual productivity. If everyone has a higher income due to higher education, then the economic growth of the population can be supported. Since 1999, the United Nations Development Program (UNDP) introduced the concept of measuring the quality of human capital called the Human Development Index (HDI). An increase in the human development index (HDI) can enable increased output and income in the future so that it will increase economic growth.

2. Government Spending on Education and Health

This model was developed by Rostow and Musgrave in Harsono, I. (2024) which links the development of government expenditure with the stages of economic development, namely the early stage, middle stage and advanced stage. In the early stages of economic development, the percentage of government investment to total investment is large because at this stage the government must provide infrastructure such as education, health, transport infrastructure and so on. (Dumairy, 1997). In the middle stage of economic development, government investment is still needed to increase economic growth in order to take off, but at this stage the role of private investment is getting bigger. The role of government remains large at the intermediate stage, because the greater role of the private sector will cause many market failures and also cause the government to provide more public goods and services.

Previous Research

The results of the study by Astri, M., Nikensari, S. I., & Kuncara W., H. (2013) the calculation results can be concluded that partially the local government expenditure variable in the education sector has an effect on HDI (t count 3.023> t table 1.674116), but local government expenditure in the health sector has no effect on HDI (t count 0.412 < t table 1.674116).

Mongan, J. J. S. (2019) on the effect of expenditure in the health and education sectors sees the contribution value or R2 with a constant value of 66.51 interpreted as an estimate of the amount of HDI value that is not influenced by the percentage of central government spending on education from GRDP, the percentage of central government spending on health from GRDP, the percentage of local government spending on education from GRDP, and the percentage of local government spending on
health from GRDP, as well as the percentage of central government spending on infrastructure from GRDP and the percentage of central government spending on infrastructure from GRDP. Harsono, I. (2024) The results of this study are that overall the independent variables (education expenditure, health expenditure and social assistance expenditure) affect 92.1% of the dependent variable (Human Development Index). health spending has a positive and significant impact on the Human Development Index in NTB province from 2013 to 2022.

**METHOD**

The data collection technique used is direct recording in the form of panel data, which is a combination of cross section data and time series data, consisting of 13 provinces in eastern Indonesia and a time interval of 10 years (2014-2023) and the number of samples from the cross section series is 130 samples. Cross-section data is data consisting of one or more variables collected at the same time. While time series data is data consisting of one or more variables collected over time (Gujarati. 2003).

**Data Analysis Technique**

This research approach uses quantitative descriptive methods by analysing quantitative data and describing it and then using statistical test tools. Multiple linear regression analysis is part of a regression model that can be used to analyse the causal relationship between one variable and another. Multiple linear regression analysis is used using regression correlation so that it can be known to arrive at the last dependent variable with the formula can be seen below:

\[ Y = f + (X_{1i}, X_{2i}) \]

\[ \ln Y = f + (X_{1i}, \ln X_{2i}) \]

**Description:**

- **X1** = Health Expenditure
- **X2** = Education Expenditure
- **Y** = Human Development Index (HDI)

**Testing Parameters**

1. Test Coefficient of Determination (R2)

The coefficient of determination is a measure to determine the suitability or accuracy of the relationship between the independent variable and the dependent variable in a regression equation. The greater the coefficient of determination, the better the ability of the independent variable to explain and explain the dependent variable. In SPSS output. The coefficient of determination is located in the model summary table and is written R square. The R square value is said to be good if it is above 0.5 because the R square value ranges from 0 to 1.

2. Hypothesis Test
   a. Partial testing (t test)

According to Kuncoro (2012) the t statistical test shows how far one explanatory variable individually explains the variation in the dependent variable. The hypotheses to be tested are as follows:

1) **H0**: \( b_1 = 0 \). then \( X_1, X_2 \), has no effect on \( Y \).
2) **Ha**: \( b_1 = 0 \). then \( X_1, X_2 \), has an effect on \( Y \).
Test criteria:
- If the significance value > 0.05, means that there is no influence between the independent variable on the dependent variable.
- If the significance value < 0.05, means that there is an influence between the independent variables on the dependent variable.

b. Simultaneous testing (F test)
According to Kuncoro (2012) the F statistical test shows whether all the independent variables included in the analysis model have a joint influence on the dependent variable. The hypothesis to be tested is as follows:
1) Ho: \( b_i = 0 \), then the independent variable (i) simultaneously has no effect on \( Y \).
2) Ha: \( b_i = 0 \), then the independent variables (i) simultaneously affect \( Y \).

**Operational Definition**
- The human development index is an index that measures the socio-economic development achievements of a (province), achievements in the fields of education, health, economic growth and quality-adjusted living environment. Measured in per cent.
- Health expenditure is regional expenditure (Province) related to Health Sector Operational Expenditure. Measured in Rupiah.
- Education expenditure is local (provincial) expenditure related to Education Operational Expenditure. Measured in units of Rupiah.

**RESEARCH RESULTS AND DISCUSSION**

**Research Results**

<table>
<thead>
<tr>
<th>Variabel Penelitian</th>
<th>Koefisien Regresi</th>
<th>t-statistik</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kesehatan (X_1)</td>
<td>0.719</td>
<td>1.198</td>
<td>0.233</td>
</tr>
<tr>
<td>Pendidikan (X_2)</td>
<td>0.702</td>
<td>1.794</td>
<td>0.075</td>
</tr>
<tr>
<td>C</td>
<td>29.538</td>
<td>2.104</td>
<td>0.037</td>
</tr>
</tbody>
</table>

\[ F\text{-statistic} = 4.550 \]
\[ (F\text{-Sig}) = 0.012 \]

*) Signifikant pada \( \alpha = 5\% \); \( R^2 = 0.067 \)
\( N = 130 \)

1. **R² Determination Coefficient Test**
The coefficient of determination from the table above shows a figure of 0.067 which means that the total contribution value of the Health and Education variables is 0.67% to the human development index in Eastern Indonesia, this figure also means that other variables still have a large effect on HDI where the amount of influence of other variables.

2. **The t-test**
The significance value of health in the table above shows a figure of 0.233, a t-statistic value of 1.198 and a regression coefficient value of 0.719 which means that partially the Health expenditure variable has a positive and insignificant effect on the Human Development Index in Eastern Indonesia.
The significance value of education in the table above shows a figure of 0.075, a t-statistic value of 1.794 and a regression coefficient value of 0.702 which means that partially the education expenditure variable has a positive and insignificant effect on the Human Development Index in Eastern Indonesia.

3. F-test

The significance value of F in the table above shows 0.012, which means that simultaneously the variables of Health expenditure and Education expenditure have a significant influence on the Human Development Index in Eastern Indonesia.

Discussion

1. Health

Health Expenditure which is an influence variable in this study provides a positive but insignificant value, which means that the Health programmes provided in Eastern Indonesia need to be considered, the average range of Human Development Index in the KTI region is calculated to be lower than the Western Region of Indonesia, if averaged, the Development Index of the Eastern Region of Indonesia is at 60%, only most provinces have HDI values above the expected category, the provinces of Papua and West Papua, NTB, Maluku and North Maluku for example, which have been in the last ten years are still in the low category. Health expenditure, which is our benchmark, theoretically has not been able to measure the extent of the health programme targets that are believed to be able to boost the quality of human resources.

Special attention must be given to areas that are classified as low quality human resources, Health expenditure itself as a definition of meeting the basic nutritional needs of the community must be under strict programme supervision, given the history of Collusion, Corruption and Nepotism that exists in Indonesia in the category of concern, in the case of corruption of social assistance funds and covid 19 assistance, for example, has become unique news of public doubts about the fairness of the distribution of Health programme funds, the results of infrastructure development are not fully enjoyed by the people of Indonesia, especially in Eastern Indonesia. Improving the quality of nutrition and health services needs to be improved, the distribution of healthy food and nutritional support must be balanced with other regions in Indonesia.

2. Education

The results of this study obtained a positive but insignificant number, this could mean that there is a need for a review of the management of Education funds, in Eastern Indonesia there are several poor provinces that need special attention, the reality that occurs, in the Papua region itself there are districts with an average dropout rate at the age of 10 years, also in several districts / cities located in Eastern Indonesia classified as disadvantaged areas. The low quality of human resources is the forerunner of poverty.

The poor conditions experienced in the eastern region are a reflection for the community and government, both central and regional. The low level of community education is an important contributing factor to the lack of quality of human resources. A concerted effort must be made to improve the quality and facilities of education, an increase in the number of qualified teachers/lecturers is highly desirable where the increase in facilities, teachers/lecturers can increase opportunities for the population in school age to improve their abilities.
CONCLUSION

The results of this study which obtained positive and insignificant numbers and the low contribution value of the influence variables in this study are challenging data to face global progress, various forms of access to social services, especially in health and education, are basic things that need to be considered, some areas included in Eastern Indonesia may have experienced progress, but equity itself is what we must pay attention to together, continuous efforts to overcome the challenges of progress must ensure that all Indonesians can enjoy prosperity.

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