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Government expenditure on education, health, and minimum wages as determinants of the human development index: A study of selected provinces in Indonesia

Nurul Hidayah[1] & Fauzan Alamsyah[2]

[1&2] School of Business & Management, Bina Nusantara University, Indonesia

Corresponding Author: Nurul Hidayah

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Abstract

The purpose of this study was to examine the impact of three key factors—government expenditure on education, health, and minimum wages—on the Human Development Index (HDI) across five selected provinces in Indonesia. The research employed a panel data analysis method, covering the period from 2007 to 2016. The study focused on five provinces in Indonesia: Bangka Belitung, Lampung, Bengkulu, South Sumatra, and Jambi. Findings indicate that while government spending on education and health has a positive yet statistically insignificant effect on HDI, minimum wages have a significant positive influence. Overall, the average HDI across these provinces remains relatively consistent, ranging from 68% to 70%, with no substantial disparities. However, among the five provinces, Jambi and Bangka Belitung exhibit higher HDI levels compared to the others.

Keywords: Government Expenditure, Education, Health, Minimum Wages, Human Development Index (HDI).

INTRODUCTION

Human development plays a crucial role in reflecting advancements in various fields, including social, economic, cultural, political, and environmental aspects. Its primary objective is to create opportunities for individuals to grow, enabling them to lead productive, healthy, and long lives (BPS, 2015).

The United Nations Development Program (UNDP) introduced the Human Development Index (HDI) in 1990 as a way to measure overall human progress. Indonesia began calculating HDI in 1996, initially using a three-year assessment cycle, which was later changed to an annual evaluation. The Ministry of Finance incorporates HDI calculations when determining the General Allocation Fund. The key indicators used to assess HDI include life expectancy at

birth, expected and average years of schooling, and per capita expenditure, which serves as an indicator of a reasonable standard of living (BPS, 2015).

To enhance human development, fiscal policies are designed to allocate funds to sectors that contribute to HDI growth. Different levels of government, including local administrations, often develop their own policies for human resource development, with key areas of focus being education and healthcare budgets.

However, disparities in policy implementation have sparked discussions regarding the effectiveness of government initiatives in improving societal well-being through HDI-focused strategies. Some argue that the government has yet to fully optimize its role in ensuring equitable human development (Mahulauw, Santosa, Mahardika, 2016).

According to the United Nations Development Program (UNDP), Indonesia's Human Development Index (HDI) has shown consistent growth over the past 25 years, driven by improvements in per capita income, education, and healthcare. Indonesia currently ranks 113th out of 188 countries, with the fastest HDI growth rate in the Asia-Pacific region. The country's HDI reached 0.712, with a lower figure of 0.66 for women. Several contributing factors include an increase in the average length of schooling to 4.6 years, a 135.4% rise in per capita income, and an increase in life expectancy by 5 to 8 years between 1990 and 2015. Despite these positive trends, the UNDP cautions that these indicators provide only a partial view of reality, which remains more complex. In Indonesia, approximately 140 million people live on less than Rp 20,000 per day, while 19.4 million suffer from malnutrition. In the healthcare sector, two million children under the age of one have not received full immunization, and the maternal mortality rate stands at 305 deaths per 100,000 live births (Newswire, 2017). These figures highlight ongoing challenges in human development, particularly in education, healthcare, and employment.

HDI is measured using three key indicators. The first, life expectancy, reflects government spending on healthcare. The second, education, is based on public expenditure in the sector. The third, which represents a decent standard of living, is determined by purchasing power or per capita income. In this study, provincial minimum wage is used as an indicator of a decent standard of living. The research applies a panel data analysis technique, focusing on five selected provinces: Bangka Belitung, Bengkulu, Jambi, Lampung, and South Sumatra.

LITERATURE REVIEW

Setyowati and Suparwati (2012) conducted a study examining the relationship between PAD (Regional Original Revenue) and the Human Development Index (HDI). Their research concluded that PAD serves as an indicator of HDI, while the DAU (General Allocation Fund) was found to have no significant impact on HDI. Pramissella (2015) explored the effects of provincial minimum wages and service-related expenditures on HDI in Lampung province. The study found that factors such as inflation, changes in regional minimum wages, and gross regional domestic product (GRDP) influenced HDI in Aceh province.

Forcael, Gonzalez, Orozco, Opazo, and Vargas (2016) analyzed HDI across three key dimensions: health, education, and income. Their findings revealed that growth in the construction industry positively correlates with HDI, though it does not significantly affect the income dimension.

Edeme, Nkalu, and Ifelunini (2017) investigated the relationship between government spending and HDI. Their research indicated that public expenditures in sectors such as health, agriculture, education, water resources, and rural development contribute positively to HDI. However, spending on housing, environmental protection, and energy was found to have a negative impact on HDI.

MS and Sudirman (2017) examined the factors influencing HDI in Jambi province, Indonesia. Their study found that government spending plays a significant role in shaping the region's

HDI. Additionally, the findings indicated that investments in health and education contribute positively to HDI improvement in this area.

Similarly, Bahtera, Muhammad, and Jamal (2018) explored the impact of government spending on HDI. Their research revealed that budget allocations for urban education have a positive effect on HDI, particularly in the Pemekaran district of Indonesia.

Overall, the literature review suggests that government budget allocations—especially in education and healthcare—along with infrastructure development projects, contribute to enhancing HDI across Indonesian provinces.

RESEARCH METHODOLOGY

This study examines the impact of government spending on education, healthcare, and minimum wages on the Human Development Index (HDI) in selected provinces of Indonesia. The analysis utilizes panel data covering the period from 2007 to 2016. The following equation has been developed:

$$Y_{it} = \beta_0 + \beta_1 X1_{it} + \beta_2 X2_{it} + \beta_3 X3_{it} + e_{it}$$

Where, **Y** represents the Human Development Index (HDI) as a percentage, while **β_0** denotes the constant term. The independent variables include **X_1**, which refers to government expenditure on education (Rupiah), **X_2**, representing public spending in the health sector (Rupiah), and **X_3**, indicating the minimum wage (Rupiah). The coefficients **β_1, β_2, and β_3** correspond to the regression coefficients for each variable. The study employs a panel data approach, where **i** represents the cross-sectional units (1 = Jambi Province, 2 = South Sumatra Province, 3 = Bengkulu Province, 4 = Lampung Province, 5 = Bangka Belitung Province), and **t** denotes the time period from 2007 to 2016. Lastly, **Eit** represents the error term, accounting for both cross-sectional and time-series variations.

ANALYSIS RESULTS AND DISCUSSION

Panel Data Regression Analysis

For best model selection, three tests including Lagrange Multiplier test, Hausman test, and Chow test are utilized.

Table 1

Model Testing Results

Pengujian Model	Nilai Statistik	Probabilitas
Uji Chow	5,755558	0,1536
Uji Hausman	5,731538	0,1302

Source: Data Processed, 2018

The results were contradictory between the Chow test and the Hausman test so we used the LM test which shows that the Random Effect Model is the suitable model for this study.

Table 2

Random Effect Model

Dependent Variable: IPM?
Method: Pooled EGLS (Two-way random effects)
Sample: 2007 2016
Included observations: 10
Cross-sections included: 5
Total pool (balanced) observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	68.53504	1.133585	63.05037	0.0000
PENDIDIKAN?	0.000182	0.000166	1.080387	0.3855
KESEHATAN?	0.000337	0.000581	-0.683634	0.5855
UPAH_MINIMUM?	0.001155	0.000504	3.885854	0.0057
Random Effects (Cross)				
_JAMBI—C	0.513555			

_SUMSEL—C	-0.180535
_BENGKULU—C	0.356507
_LAMPUNG—C	-1.558554
_BABEL—C	0.858155

Source : Data Processed, 2018

Random effect model regression equation as follows:

HDI = 68.53 + 0.000183 PDK + 0.00033 KES + 0.001156 UM

The constant value of 68.53 suggests that even in the absence of government spending on health and education, as well as with a minimum wage of zero, the Human Development Index (HDI) would still be 68.53. The regression coefficient for education expenditure indicates that a one-unit increase in government spending on education leads to a 0.02% rise in HDI. Similarly, the coefficient for health expenditure suggests that a one-unit increase in health spending results in an approximately 0.03% increase in HDI. Lastly, the regression coefficient for minimum wage reveals that a one-unit increase in minimum wage leads to a 0.12% increase in HDI, highlighting its significant impact on human development.

Individual Analysis

Table-3

Interspective Value of Each Province

Provinsi	Coefficient	C	Nilai Intersep
Jambi	0.513454	58.7352	70.247524
Sumatera Selatan	-0.180534	58.7352	58.544533
Bengkulu	0.255507	58.7352	58.881577
Lampung	-1.457574	58.7352	57.275484
Bangka Belitung	0.778144	58.7352	70.514214

Source: Processed Data, 2018

The analysis of individual provinces, as presented earlier, indicates that Bangka Belitung Province has the highest intercept at 70.51, suggesting that the influence of minimum wage on HDI is most significant in this region. Jambi Province follows closely with an intercept of 70.24, making it the second-highest. Bengkulu ranks third with an intercept of 58.88, while South Sumatra comes in fourth with an intercept of 58.54. Lampung has the lowest intercept at 57.27, placing it at the bottom of the list in terms of HDI influence.

Simultaneous Significance Test (Test Statistics F)

Table 4

Results of Weighted Statistics Model Random Effect

R-squared	0.230093	Mean dependent var	2.515770
Adjusted R-squared	0.126621	S.D. dependent var	0.271724
S.E. of regression	0.263284	Sum squared resid	3.177569
F-statistic	4.568006	Durbin-Watson stat	0.705013
Prob(F-statistic)	0.026374		

Source: Processed Data, 2018

The R-squared shows that these three factors explains 23% variation in HDI. The Fstatistics indicate that model is fit and significant (Fstat=4.56 P<.05).

Effect of Government Expenditure on Education and Health and Minimum Wages on the Human Development Index

The results indicate that, among the three independent variables, government spending on education and health has a less significant impact on the Human Development Index (HDI) compared to minimum wage. Similar findings were reported in previous studies, such as those by Muliza and Seftarita (2017). An analysis of minimum wage growth in Jambi Province, South Sumatra Province, Bengkulu Province, Lampung Province, and Bangka Belitung

Province shows a consistent increase each year, which aligns with the steady growth of HDI in these regions. The study confirms a significant positive relationship between minimum wage and HDI in southern Sumatra, meaning that an increase in minimum wage leads to an improvement in HDI. A rise in minimum wages contributes to a higher standard of living, as it enhances access to basic needs and improves overall well-being. With increased wages, purchasing power strengthens, positively impacting HDI in southern Sumatra. This finding aligns with natural wage theory, which suggests that higher minimum wages boost purchasing power, leading to better living conditions, particularly for low-income and economically disadvantaged groups.

CONCLUSION

Our conclusion is that minimum wage is the most influential factor affecting the Human Development Index (HDI). In contrast, government spending on education and healthcare, while having a positive impact, does not show a significant effect on HDI. This suggests that policies aimed at increasing minimum wages may be more effective in driving human development compared to increased spending in education and health alone.

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