JIMEA | Jurnal Ilmiah MEA (Manajemen, Ekonomi, dan Akuntansi)
Vol. 9 No. 1, 2025

THE RELATIONSHIP BETWEEN EDUCATION EXPENDITURE, HEALTH EXPENDITURE AND FINAL EDUCATION LEVEL TOWARDS THE HUMAN DEVELOPMENT INDEX FROM A SHARIAH ECONOMIC PERSPECTIVE : EVIDENCE FROM10 PROVINCES WITH THE LOWEST HDI IN INDONESIA

Ira Julistia[1]; Muhamad Kurniawan[2]; Diah Mukminatul Hasimi[3]
State Islamic University of Raden Intan Lampung[1,2,3]
Email : Irajulistia686@gmail.com[1]; muhammadkurniawan@radenintan.ac.id[2];
diahmukminatul@radenintan.ac.id[3]

ABSTRACT

Several areas still have relatively low HDIs, despite the government's increased funding for education and health and focus on raising the final education level. The true impact of the last educational level on the quality of life and the efficacy of public expenditure are called into doubt by this. Spending on education, health care, and total education in connection to Indonesia's Human Development Index (HDI) is the focus of this research. This study used quantitative research methods that are associative in nature. The data used are secondary datasets derived from panel data collected from the Central Statistics Agency (BPS) and the Directorate General of Fiscal Balance of the Ministry of Finance (DJPK MENKEU) for the years 2014–2023. The 10 provinces named Maluku Province, Central Sulawesi, Gorontalo, North Maluku, West Nusa Tenggara (NTB), West Kalimantan, West Sulawesi, East Nusa Tenggara (NTT), West Papua, and Papua are the subject of the study object, which covers the period 2014–2024 and is centered on Indonesia. Eviews 10 software was used for the analysis. The results of the study provide facts that education spending and health spending affect the Human Development Index (HDI). The final level of education does not affect the Human Development Index (HDI). The integration of Islamic economic principles in increasing the Human Development Index (HDI) that human development must include material and spiritual aspects in a balanced manner. Principles such as distributive justice, social responsibility, and fulfillment of basic needs are the basis of the Islamic Economic perspective.

Keywords : Education Expenditure; Health Expenditure; Education Level; Human Development Index

ABSTRAK

Beberapa daerah masih memiliki IPM yang relatif rendah, meskipun pemerintah telah meningkatkan pendanaan untuk pendidikan dan kesehatan serta fokus pada peningkatan jenjang pendidikan akhir. Dampak sebenarnya dari jenjang pendidikan akhir terhadap kualitas hidup dan efektivitas belanja publik diragukan oleh hal ini. Belanja untuk pendidikan, perawatan kesehatan, dan pendidikan total dalam kaitannya dengan Indeks Pembangunan Manusia (IPM) Indonesia menjadi fokus penelitian ini. Penelitian ini menggunakan metode penelitian kuantitatif yang bersifat asosiatif. Data yang digunakan adalah dataset sekunder yang berasal dari data panel yang dikumpulkan dari Badan Pusat Statistik (BPS) dan Direktorat Jenderal Perimbangan Keuangan Kementerian Keuangan (DJPK MENKEU) untuk tahun 2014–2023. 10 provinsi yaitu Provinsi Maluku, Sulawesi Tengah, Gorontalo, Maluku Utara, Nusa Tenggara Barat (NTB), Kalimantan Barat, Sulawesi Barat, Nusa Tenggara Timur (NTT), Papua Barat, dan Papua menjadi subjek objek penelitian, yang mencakup periode 2014–2024 dan berpusat di Indonesia. Analisis dilakukan dengan menggunakan perangkat lunak Eviews 10. Hasil penelitian memberikan fakta bahwa belanja pendidikan dan belanja kesehatan berpengaruh terhadap Indeks Pembangunan Manusia (IPM). Jenjang pendidikan akhir tidak berpengaruh terhadap Indeks Pembangunan Manusia (IPM). Integrasi prinsip ekonomi Islam dalam meningkatkan Indeks Pembangunan Manusia (IPM) bahwa pembangunan

manusia harus mencakup aspek material dan spiritual secara seimbang. Prinsip-prinsip seperti keadilan distributif, tanggung jawab sosial, dan pemenuhan kebutuhan dasar menjadi dasar perspektif Ekonomi Islam.

Kata Kunci : Belanja Pendidikan; Belanja Kesehatan; Jenjang Pendidikan; Indeks Pembangunan Manusia

INTRODUCTION

The Human Development Index (HDI) measures a nation's progress toward a better life in three key areas healthcare, education, and income inequality. Since the growth of this index is directly proportional to the community's quality of life and potential production, HDI-related concerns are of enormous importance in Indonesia. While several areas have made progress, there is still a noticeable variation in the HDI achievement among regions. (Sumaryoto, Mirna Herawati, 2020). Papua and East Nusa Tenggara, two areas in eastern Indonesia, have lower HDI statistics than other regions in Java. Factors contributing to this issue include a lack of sufficient job opportunities, poor infrastructure, and restricted access to high-quality healthcare and schools in these areas (Yuliansyah, 2021). Increasing Indonesia's HDI during this era is not only hindered by regional differences, but also by the ongoing effect of the post-COVID-19 epidemic, particularly in the education sector. Children from low-income households are particularly affected by the effects of learning loss produced by long-term distance learning, which contributes to the poor quality of education overall. Furthermore, as a result of economic challenges, most families have prioritized basic living requirements, leading to a rise in the school dropout rate. In terms of health, there is still a need to address the disparity in the quality of health care between urban and rural regions, even if access to these services is increasing (Sasmita et al., 2023).

There is a significant obstacle to raising living standards in a number of areas shown by BPS data on the Human Development Index (HDI) for the years 2014–2023. This data reveals that the ten provinces with the lowest HDI values in Indonesia. West Papua (63.95), East Nusa Tenggara (NTT) (64.44), and West Sulawesi (65.08) are the provinces with the lowest HDI values, while Papua has the lowest HDI overall. The provinces in question have an average HDI that places them in the "lower-medium" category, suggesting that there are obstacles to the three cornerstones of human development: health care, education, and economic prosperity. The policymakers and government officials in Indonesia are very concerned about the development gap between these areas and the rest of the country (Andriansyah et al., 2022). The average HDI for six provinces—including Maluku, Central Sulawesi, Gorontalo, North Maluku, West Nusa Tenggara (NTB), and West Kalimantan—falls into the "upper-medium" category, joining the four provinces in the "lower-medium" group. This performance is much lower than the national HDI average, although it is better than the "lower-medium" group. The research found that

improper budget allocation is one of numerous reasons contributing to this poor HDI level. The government has allocated a minimum of 20% of the Regional Revenue and Expenditure Budget (APBD) to education and 10% to health, but allocating these monies effectively remains a concern (Afalia et al., 2023). There has been a gradual improvement in HDI in these regions since many local governments spend money on non-priority activities. These provinces' low HDI scores point to a lack of progress in environmentally friendly development. This reflects disparities in opportunity to earn a good living wage, access to good healthcare, and excellent education. Lack of basic infrastructure, like roads and power, makes it difficult for people in Papua and NTT to get essential services. People in these communities also have easier access to healthcare and schools because of the high poverty rate (Fahmiyah & Ningrum, 2023).

Education expenditure, health spending, and the ultimate level of education of the population are three essential elements that determine the Human Development Index (HDI), a crucial metric that measures the quality of life of a region's population. Because equitable improvements in both access and quality of education may result from a well-allocated budget, education expenditure is a key component of the HDI. Building respectable schools, giving skilled instructors, and access to the appropriate educational technologies are all examples of how education investment may contribute to suitable facilities and infrastructure (Talitha et al., 2020). The community's productivity and economic well-being are predicted to rise in tandem with the quality of education provided, as members acquire literacy and skills that align with the demands of today's job market. Health expenditure is also a major determinant of the HDI. With a sufficient health budget, the government can improve people's access to healthcare, hire more qualified medical professionals, and stock up on essential pharmaceuticals and medical equipment (Annisaa et al., 2023). People in a community can't take part in its economic and social life unless they're healthy. A person's greatest degree of education—that is, the amount of money spent on education and health care—is another major factor in the HDI. People who complete more years of schooling are more likely to be employed in well-paying occupations and have more chances to have a positive impact on the economy. A higher HDI reflecting a better and more equitable quality of life is the result of these three elements working in tandem (Jatmiko Wahyu Nugroho et al., 2024).

Efforts to raise the Human Development Index (HDI) should prioritize education investment, since it directly impacts the quality of human resources. But there are a number of big issues with how education funds are allocated in Indonesia, which means the budget isn't very efficient in raising the HDI. Education budget management's lack of efficacy and efficiency is one of its flaws. Despite the fact that education should get 20% of the State Budget (APBN), there are still several challenges to making this a reality. Funds designated for

enhancing infrastructure, facilities, and instructional technologies are often insufficient, while the majority of the budget is spent on regular operating expenses like personnel pay. A lower HDI is a direct outcome of the disparity in access to excellent education that this causes, particularly in economically deprived, geographically isolated, and geographically distant (3T) regions (Riana & Khafid, 2022). The disparity between educational expenditure and actual demands in the industry is another issue. Budget strategies often fail to provide funds to educational initiatives that have the potential to enhance students' long-term competitiveness and quality of life. Curriculum development that is responsive to industry demands and provides practical skill training receives less funding than administrative costs. Furthermore, education monies are often misused or misallocated due to a lack of oversight and responsibility. The standstill or sluggish development in the Human Development Index is directly related to this issue, since it limits attempts to raise education quality uniformly. It is believed that better financial oversight and more strategic education expenditure would lead to long-term improvements in education quality and sustainability, which will improve Indonesia's Human Development Index score (Alda et al., 2024).

Improved health care expenditure is a key component of a higher Human Development Index (HDI), particularly in areas where life expectancy and community quality of life are measured. There are a number of big issues that affect Indonesia's health expenditure effectiveness, which in turn affects the accomplishment of the total HDI. Inadequate distribution of health funding is a major issue in many locations, particularly in rural and economically disadvantaged ones. Despite allocating at least 10% of the Regional Revenue and Expenditure Budget (APBD) to health, the allocation is often inefficient due to the government's focus on operational and administrative expenditures rather than infrastructure development and access to health services (Damanik et al., 2022). Consequently, the HDI is not as well attained in rural regions because individuals there typically lack access to basic health care, which contributes to poor health and shorter life expectancy. Major roadblocks to improving health indices in the HDI also include the unequal distribution of medical staff and insufficient health facilities. There is a severe scarcity of medical professionals in rural and impoverished regions, in contrast to the abundance of health workers in metropolitan areas (FDA Putri et al., 2022). On top of that, local medical centers have a hard time dealing with serious patients and their complicated medical needs. Poor health care in rural regions is a common consequence of inadequate funding for the acquisition of life-saving medications and medical equipment. It is believed that if these issues with health expenditure are addressed via a more equal distribution of health services and personnel and a more effective planning budget, the health of the Indonesian

people would improve, leading to an increase in the HDI in the area (Olopade, Bosede C et al., 2023).

The Human Development Index (HDI) is influenced by a number of crucial aspects, one of which is a person's final education level, which is the greatest degree of schooling they have successfully finished. Nevertheless, the poor HDI accomplishment in a number of places in Indonesia is influenced by a multitude of issues pertaining to the final education level. A major issue is the relatively low rate of secondary and postsecondary education enrollment, which is particularly acute in outlying and rural regions. There are a lot of reasons why a lot of students don't go on to higher education. Some of these reasons include financial constraints that make them work at a young age, a lack of opportunities to attend secondary or tertiary institutions, and poor infrastructure, which makes it hard to get to and from school (Schröder et al., 2020). This issue has a negative effect on the HDI since it leads to poor average final education levels in a number of locations, which in turn reduces the community's income and productivity. Another major obstacle to raising the overall education level and, by extension, the HDI, is integrating the educational standards of different areas. Because of the low quality of their education, many students lack the will and aptitude to pursue further degrees, particularly in regions with little resources and an insufficient teaching staff. Education in underprivileged communities is subpar compared to that in metropolitan areas due to a lack of trained teachers and adequate learning resources. People in these regions cannot compete for jobs and have poor wages because of this, which perpetuates a cycle of educational backwardness and makes it hard for them to improve their living conditions and human development. The government may raise the ultimate education level and hence the HDI in Indonesia by ensuring that all areas have equal access to and high-quality education (Bali Swain & Yang-Wallentin, 2020).

There has been a lot of research on the relationship between the Human Development Index (HDI), education spending, health spending, and final education level in Indonesia generally, but there are major gaps in the literature when it comes to the ten provinces that had the lowest HDI values between 2014 and 2023. The first void is the lack of analysis of the unique variables that affect the return on investment (ROI) for health and education in these economically depressed regions. While several studies have looked at the correlation between health care expenditure and HDI on a national or regional level, few have taken into account the specific difficulties faced by low-income communities (Sijabat, 2022). Papua, NTT, and West Sulawesi are among the provinces with the lowest HDI. This is because the effects of health and education expenditure on HDI vary according to the provinces' unique geographical, economic, and social features. In order to maximize the impact of community spending according to the requirements of the area, more comprehensive study on the unique context in provinces with

low HDI is necessary. Furthermore, studies examining how HDI varies by final education level are lacking in these domains. The influence of final education level or the highest level of education attained by individuals in disadvantaged regions has not been thoroughly investigated in previous studies on the association between general education level and HDI (Handika Permana, 2023). bad levels of final education substantially contribute to bad quality of life and community production in the context of provinces with the lowest HDI, hence this is vital. An key component in understanding human development disparity, the interaction factor between education, health expenditure, and ultimate education levels influences HDI (Hamadou & Karim, 2024). However, this aspect is typically overlooked in previous studies. As a result, studies that investigate the interplay of these variables in Indonesia's provinces with the lowest HDI will enrich the scholarly literature and provide more useful empirical evidence for the creation of development policies that benefit all Indonesians (Majo, 2024).

Focusing on areas with a high human development lag is what makes this study unique when compared to others that have examined the relationship between HDI, education spending, health spending, and final education level in Indonesia's ten provinces with the lowest HDI from 2014 to 2023. Papua, West Papua, and East Nusa Tenggara are provinces with low HDI, and this research aims to examine the impact of education and health expenditures in detail within this context, in contrast to other studies that often take a national or general perspective (Darwin et al., 2022). Using this method, we may learn more about how infrastructure, human resources, and educational involvement all play a role in determining the efficacy of health and education programs in low-income communities. Consequently, this research adds to the existing body of knowledge by shedding light on the appropriate use of human development variables in a variety of circumstances (Ruzima & Veerachamy, 2023). Furthermore, this study adds to the existing body of knowledge by examining the interplay between education spending, health spending, and final education level on the HDI. Specifically, it delves into the ways in which these three factors impact one another and collectively impact the quality of life for individuals residing in provinces with low HDI (Suhendi & Astuti, 2023). Education and health expenditure interact to raise the community's ultimate education level, and prior research has typically looked at these elements alone, failing to understand the whole picture. Since it takes into account the intricate web of relationships between health, the education sector, and the end results of education, this integrative approach adds something unique to the field of human development studies in Indonesia (Rizal R. Manullang et al., 2024).

This study aims to determine the relationship between education spending, health spending, and final education level to the Human Development Index (HDI) in Indonesia in ten provinces with the lowest HDI values for the period 2014-2023. Human development and

social economics both benefit theoretically from this study's addition to the existing knowledge. The study's central argument is that public investments in healthcare and education not only affect people's quality of life directly, but also interact strongly with their degree of formal education. A more comprehensive knowledge of the third variable's synergistic link and its potential for higher effect under integrated planning and management is enhanced by this research, which highlights the significance of a multidimensional approach to increasing the HDI. Investment in education and health must be tailored to the specific regional environment for maximum effectiveness; this study's theoretical model may serve as the foundation for inclusive development theory, particularly as it pertains to underdeveloped areas. Consequently, our research adds to the current body of knowledge and offers a fresh theoretical framework for understanding why it's crucial to combine health investment with education spending in order to promote long-term improvements in HDI.

This research provides substantial practical contributions to the development of better public policies aimed at raising the HDI, particularly in regions where HDI accomplishments are low. The study's results may help lawmakers better allocate funds to health and education programs, drawing attention to the need for more focused and strategic spending to increase the availability and quality of essential services in low-income communities. Also, this research suggests ways in which local governments might help more disadvantaged populations get access to secondary and tertiary education, which would raise the overall level of education. Communities' production and income may rise, leading to an improvement in the HDI, if the government prioritises initiatives that help people finish college. This research lays the groundwork for improving the monitoring and evaluation system of public health and education expenditures, which is crucial for making sure that public funds are being utilized wisely and producing tangible outcomes for the populace. Human development in Indonesia may be advanced in a more fair and sustainable way with the help of the theoretical insights and practical answers offered by this research.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Human Capital Theory

It was in 1964 that Gary S. Becker first proposed the idea of human capital theory. Investments in human capital, such as health care and education, lead to higher individual and, by extension, economic productivity, according to this hypothesis. Becker argues that people's ability to contribute to the labor market and generate more added value is directly correlated to their level of education and health (Wright & Constantin, 2021). According to this hypothesis, if money is spent on health and education, the community's ability and skill level will improve, which will cause the economy to develop and the HDI to rise. Consequently, this idea lends

credence to the claim that public funds allocated to healthcare and education should be seen as vital investments in the progress of society (Abu-Shawish et al., 2021).

Basic Needs Theory

As a development strategy centering on fundamental human needs, Paul Streeten and his group established the Basic Needs Theory in 1976. According to the hypothesis, ensuring access to education, healthcare, food, and shelter is a prerequisite for achieving full human potential. Sustainable improvements to people's quality of life, according to the notion, are impossible in the absence of universal access to excellent healthcare and educational opportunities (Vansteenkiste et al., 2020). When applied to the HDI, this theory lays the groundwork for the idea that public investment in healthcare and education is not a luxury but a need if the people are to enjoy a good standard of living. Because inequalities in meeting these fundamental requirements might impede fair human development throughout the area, this theory also stresses the need of equal access to healthcare and education (Tang et al., 2020).

Endogenous Growth Theory

Paul Romer first proposed the Endogenous Growth Theory in 1986. According to this hypothesis, investments in education, information, and technology may have a direct impact on economic development, in addition to the external forces that affect it. The key to sustainable economic development, according to Romer, is spending money on people's education and health. Spending on healthcare and education, according to this view, boosts society's creativity and competitiveness, which in turn raises the HDI (Juhro et al., 2020). Spending on health and education should aim to build a society that is not just healthy and educated, but also able to innovate and bring about long-term change, according to this viewpoint. As a result, this theory is useful for elucidating how well-directed investments in healthcare and education may boost living standards and advance society as a whole (Thach, 2021).

Human Development Index (HDI)

A measure of a nation or region's general degree of human development is the Human Development Index (HDI), also abbreviated as HDI. United Nations Development Programme (UNDP) officials came up with the Human Development Index (HDI) in 1990 to gauge people's overall happiness and prosperity in a more holistic way than traditional economic metrics like GDP (Jin et al., 2020). The HDI takes into account a wide range of factors that contribute to people's standard of living. Health (life expectancy), education (levels of knowledge and literacy), and personnel are the three primary components that make up the HDI, which together provide a complete image of the possibilities and quality of life in a given area. In technical terms, there are three main factors that go into determining the HDI (Pradana & Juliannisa, 2022). The probability of living a long and healthy life, as assessed by life expectancy at birth,

is an indicator of health. The education component is quantified by looking at two metrics: the average number of years spent in school (mean years of schooling) for adults and the predicted number of years spent in school (expected years of schooling) for children of school age. Adjusted for purchasing power parity (PPP), GDP per capita is a measure of the level of life. Values closer to 1 show a high degree of human development, while values lower than 1 suggest substantial difficulties in health, education, and welfare; the HDI spans from 0 to 1. Therefore, the HDI is a useful instrument for comparing and evaluating community quality of life (Normasyhuri et al., 2022).

Education Expenditure

The term "education expenditure" refers to the money that a nation or region's government, an institution, or another organization sets aside to fund different parts of the education system and its infrastructure. Funds used for education include a wide range of activities, such as building schools, paying teachers and other education staff, providing students with learning resources, funding initiatives to enhance the quality of education, and more. As a significant investment in the quality of human resources, this allocation is often made with the goal of ensuring that all groups in society have equal access to high-quality education. One measure of a nation's dedication to human growth is its spending on education. This is due to the widespread belief that higher levels of education lead to better personal lives, stronger economies, and more informed and productive communities (Ita, 2020). One way to look at education expenditure on a macro level is as a proportion of the state budget or regional budget. This shows how important education is to the public budget. Indonesia, for instance, mandates that the education sector get at least 20% of the APBN, as is the case with many other nations' minimum expenditure caps. Thus, investing in education is both a spending habit and a long-term plan to raise the HDI via better educational opportunities for everybody. At the individual level, a well-funded education system fosters development in skills, employment possibilities, and social mobility, all of which contribute to the expansion of the national economy (Normasyhuri, 2021).

Health Expenditure

The term "health expenditure" refers to the sum of money spent on healthcare in a nation or area by public and private entities, as well as individual families. Health spending encompasses a wide range of activities, such as funding for healthcare facilities, compensation for medical staff, purchasing pharmaceuticals and medical equipment, public health initiatives, and efforts to promote wellness and prevent illness. Direct spending on health maintenance programs, rehabilitation services, and curative and preventative treatments as well as initiatives to improve health quality, increase life expectancy, and reduce illness in the community are all

part of health expenditure. One way the government shows it cares about its citizens' well-being and quality of life is by allocating enough funds for healthcare (Pervaiz et al., 2021). To gain a sense of how health is prioritized in a country's budget, macroeconomic analysts look at health expenditure as a share of GDP or the overall public budget. A minimum policy of 10% of the Regional Budget (APBD) for the health sector in Indonesia is one example of how many nations have instituted minimum health budget allocation policies to guarantee that all citizens have access to sufficient health care. One of the primary measures of human progress is health, hence there is a strong correlation between health expenditure and the HDI. Economic development and social welfare are anticipated outcomes of adequate and efficient health expenditure, which is anticipated to lead to improved health, longer life expectancy, and increased productivity (Normasyhuri, 2022).

Education Level

In most contexts, an individual's greatest level of education is considered their final education level. This level should represent their academic accomplishment or the particular talents that have been formally acknowledged by the education system. A person's knowledge and abilities are shaped by the several stages of education that make up their final degree of education, which typically include elementary, secondary, and university education. Students learn the fundamentals of reading, writing, and arithmetic in the elementary level of school. People often get marketable skills at the secondary level of school, while the in-depth information typically needed for professional or specialized occupations comes from university education (Hickel, 2020). Due to its impact on a person's career prospects, income, and social participation abilities, a person's degree of final education is a key indicator in socio-economic analysis. People who complete more years of schooling are more prepared for the workforce, more likely to earn a living income, and better able to adjust to the rapid pace of technological and economic change. Increased labor productivity and economic development are often linked to a high final education level in a country's population. Consequently, the degree of education attained is a key indicator of human development (HDI) and the efficacy of human resource development (HRD), both of which impact a community's economic and social well-being (Noviarita et al., 2023).

Hypothesis Development

The Impact of Education Spending on the Human Development Index (HDI)

According to research (Nurvita et al., 2022) funding for education significantly and positively affects the HDI. To speed up economic and human growth, the provincial government of Jambi should keep increasing expenditure in this area. The impact of public funding on education on the human development index has been well-documented (Goldani &

Momeni, 2023). According to research published in 2024 by (Zulkarnain, Muzdalifah, 2024) education expenditure in South Kalimantan Province positively and significantly affects the human development index.

H1: Education spending has an impact on the Human Development Index (HDI)

The Impact of Health Spending on the Human Development Index (HDI)

Health sector investment significantly and positively affects the Human Development Index (HDI), according to a study (Indrayana, 2021). Both life expectancy and infant mortality may be improved with a well administered health budget. Government investment on healthcare has a positive and statistically significant effect on the HDI, according to research (Muhammad Ilham Nur Al Fian, 2024). There is a positive and statistically significant correlation between health expenditure and the Human Development Index (HDI), according to research (Siregar, 2024). This is because higher health expenditures are associated with more people having access to high-quality health services, which in turn raises the HDI. Investment in this area has a direct impact on the HDI's health component, highlighting the need of allocating funds for health..

H2: Health spending has an impact on the Human Development Index (HDI)

The Influence of Final Education Level on the Human Development Index (HDI)

Central Java has shown good and considerable improvement in the education component of the Human improvement Index (HDI) (Mohammad Fauzan, Agung Nusantara, Sri Nawatmi, 2020). Evidence from studies showing a positive and statistically significant relationship between the Education Index and the Human Development Index (HDI) (NM Putri & Muljaningsih, 2022) providing highlights the need for sustained funding of educational initiatives in order to raise the standard of human capital.

H3: Education level has an effect on the Human Development Index (HDI)

RESEARCH METHODS

This research employs a quantitative methodology with associative characteristics to examine the impact of education expenditure, health expenditure, and final education attainment on the Human Development Index (HDI) in Indonesia. The study examines the dependent variable, HDI (Y), alongside independent variables such as education spending (X1), health spending (X2), and final education level (X3). The data utilized consist of secondary data in panel format, which combines time series and cross-sectional data, sourced from the Central Statistics Agency (BPS) and the Directorate General of Fiscal Balance of the Ministry of Finance (DJPK MENKEU) for the period 2014-2023. This study focuses on ten provinces in Indonesia that exhibit the lowest Human Development Index (HDI) values. The provinces include Maluku, Central Sulawesi, Gorontalo, North Maluku, West Nusa Tenggara (NTB),

West Kalimantan, West Sulawesi, East Nusa Tenggara (NTT), West Papua, and Papua. Data processing utilized Eviews 10 software (Sugiyono, 2019).

In order to understand the fundamental properties of the data, such as the median, standard deviation, maximum, and lowest values of each variable, a descriptive statistical test is run as part of the analysis step. Following this, a battery of tests, including the Chow, Hausman, and Lagrange Multiplier (LM) tests, is used to determine which estimating model is best suited for panel data. Which of the two models—Common Effect Model (CEM) or Fixed Effect Model (FEM)—is better suited to the data is found using the Chow test. The Hausman test is used to choose between the FEM and the Random Effect Model (REM) if the Chow test indicates that the FEM is more suitable. If the results of the Chow test are insignificant, the LM test is used to determine whether the CEM or the REM should be utilized. For trustworthy estimations, choosing the correct model is crucial (Retno Tri Vulandari, 2021).

Performing a classical assumption test after determining the model's estimate guarantees that the regression model satisfies the statistical criteria needed for multiple linear regression analysis. Assumption number one in linear regression is that the residuals will follow a normal distribution; to verify this, the normalcy test is run. Because of the potential for bias in the regression coefficient test, the multicollinearity test seeks to identify very correlated independent variables. To check whether the residual variance is constant (homoscedasticity), statisticians use the heteroscedasticity test. whether heteroscedasticity is present, model estimation may not be as efficient. To test the hypothesis, we first make sure the model satisfies the classical requirements. Then, we use the t-test to see how much each independent variable affects the HDI separately, and the F-test to see how much each independent variable affects the HDI together. Another measure of the model's predictive power for the dependent variable, the coefficient of determination (R^2) indicates how much variation in HDI can be accounted for by the independent variables (Prihadyatama, 2024).

RESEARCH RESULTS AND DISCUSSION

Descriptive statistical tests are analyses designed to systematically summarize data through the presentation of summary figures. Table 1 presents a summary of descriptive statistics, including the mean, maximum and minimum values, and standard deviations for each variable. The analysis indicates that the average education expenditure (BP) is 1,237,414, with a maximum of 3,456,000 and a minimum of 243,000. The substantial standard deviation of 985.9098 signifies a notable disparity in the distribution of education budgets across provinces. The elevated maximum value suggests that numerous provinces can allocate substantial education funds, whereas the low minimum value reflects the existence of provinces with markedly constrained education budgets. This inequality may lead to disparities in educational

quality, subsequently affecting overall human development. Health expenditure (BK) exhibits a comparable trend, with an average of 409.3610, a maximum value of 1,256,000, and a minimum of 15.10000. The standard deviation of 308.7074 indicates considerable variability in health budget allocation. This disparity exemplifies the unequal access to and quality of health services across provinces.

The Final Education Level (TPA) variable exhibits an average of 51.96310, with values ranging from 25.21000 to 75.01000. The standard deviation of 11.58916 suggests that there are moderate disparities in educational attainment among the provinces within the community. This indicates that the ultimate level of education, reflecting educational achievement, continues to pose a challenge in regions with low Human Development Index (HDI). The HDI variable exhibits an average of 66.09120, with a maximum value of 70.95000, a minimum of 56.75000, and a standard deviation of 3.140393. The limited variation in HDI relative to its independent variables suggests that, despite differences in education and health expenditure as well as final education levels, their influence on HDI remains relatively uniform across the analyzed provinces. Nonetheless, the differences in these factors highlight the necessity for more equitable and effective policy interventions. The government should prioritize enhancing budget allocations for education and health, along with expanding access to post-secondary education, to elevate the overall Human Development Index (HDI), particularly in regions with the lowest HDI in Indonesia. This study emphasizes the necessity of a more equitable budget allocation to foster equality in human development among provinces.

The Fixed Effect Model (FEM) was determined to be the best suitable model based on the findings of the panel data regression model selection in table 2. First, we ran the Chow Test, which compares the Common Effect Model (CEM) with the Full Effect Model (FEM). The statistical analysis reveals that the likelihood (Prob > F) is 0.0000, which is less than the significance threshold (α) of 0.05. This results in the rejection of the CEM model as the more acceptable null hypothesis (H0). Therefore, the FEM model is chosen for further research because of the large influence of variations between entities or between provinces in the data. The Hausman Test is then run to find out whether the FEM or REM is better suited for the task at hand. Moreover, the test findings reveal a 0.0093 probability value (Prob > chi2), which is less than the 0.05 significance threshold (α). Again, this points to the rejection of the null hypothesis (H0), which posits that the REM model is the more suitable one. As a result of the correlation between individual (provincial) impacts on the data and independent variables like education spending, health expenditure, and ultimate education level, FEM is still the favored model. This finding suggests that FEM can account for the impact of unobserved social, economic, and geographical factors on the connection between variables, as well as the distinct

effects of each province under consideration. By factoring in variations in HDI-related factors among provinces, this model for a more thorough and precise examination. Hence, FEM offers more pertinent insights to determine the primary elements impacting human development in regions with the lowest HDI, which may serve as a foundation for creating more focused and efficient public policies.

To ascertain whether a sample's data distribution is normal or not, statisticians use the normality test. In preparation for parametric testing, this test determines if the data fits a normal distribution. The probability value of 0.900268 is higher than the significance threshold of 0.05, according to the findings of the obtained normalcy test. What this means is that the data used for this investigation have a normal distribution. When analyzing the impact of education expenditure, health spending, and final education level on the Human Development Index (HDI), parametric statistical approaches like multiple linear regression rely on the assumption of normal distribution of data. Since the assumptions of the statistical test are satisfied with regularly distributed data, it is easier to guarantee the validity of the analysis findings. With these findings in mind, we can confidently use the statistical model that we developed to examine the impact of independent variables on HDI in the ten provinces of Indonesia that had the lowest HDI. From 2014–2023, this gives a solid foundation for understanding the impact of health expenditure, education expenditures, and total education on the growth of the HDI. Research findings are anticipated to be more representative and may be used as a benchmark for future, better informed judgments on human development policy, as the normal distribution of data indicates that the data is suitable for statistical assumptions.

As part of its assessment procedure, the multicollinearity test seeks to determine if two or more independent variables in a regression model have a high or perfect linear connection. Table 3 shows the outcomes of the multicollinearity test; all three independent variables (Education Spending, Health Spending, and Final Education Level) have correlation coefficient values lower than the cutoff value of 0.85. This proves that the regression model did not find any statistically significant linear relationships between the independent variables. This study model satisfies the fundamental premise of regression, which states that variables should not be dependent on one another, thus it does not exhibit multicollinearity. The key takeaway from this study examining the impact of education spending, health spending, and final education level on the Human Development Index (HDI) in 10 provinces in Indonesia that had the lowest HDI is the ability to measure the contribution of each variable independently, free from the influence of any potential bias caused by relationships between them. This gives more assurance in the estimate of the resultant regression parameters, which is necessary for a correct interpretation of the analysis's conclusions. Researchers can better understand the relative importance of each

variable in influencing the HDI and formulate actionable policy suggestions using data that does not suffer from multicollinearity.

To determine whether a regression model's error variance is non-constant, statisticians employ the heteroscedasticity test. A lack of homogeneity in the residual or error variability over all values of the independent variables is known as heteroscedasticity. The study of the residual graph yielded findings from the heteroscedasticity test, which revealed that the residual value falls between 2 and -3, staying within the specified boundaries of 500 and -500. This proves that the homoscedasticity of the regression model holds, meaning that the residual variance remains constant. Put simply, the regression model that was used did not exhibit any signs of heteroscedasticity. By reaching this result, we may be confident that the critical assumptions of linear regression about the distribution of errors have been satisfied. The significance of this finding lies in the fact that the regression analysis yielded credible findings when applied to studies examining the impact of various government expenditures on the Human Development Index (HDI) in the ten provinces of Indonesia that had the lowest HDI. The estimated regression parameters are both efficient and unbiased when heteroscedasticity is not present. This criterion ensures that the independent variables under consideration are meaningfully related to the dependent variable (HDI). These results also guarantee that the regression model can provide representative data, which is important for making better decisions on human development policies.

One statistical method for finding relationships or patterns in regression model mistakes (residues) is the autocorrelation test. The computed Durbin-Watson value of 1.036236 falls within the range of -2 to +2, according to the findings of the autocorrelation test in table 4. If the values fall within this range, it means the regression model is free of autocorrelation. Put simply, there are no discernible patterns of correlation or dependency among the model's residuals or mistakes. The independence of residuals is a crucial assumption in statistical analysis, and this guarantees that the regression model satisfies it. These findings indicate that the regression analysis was valid and trustworthy in examining the impact of education expenditure, health spending, and final education level on the Human Development Index (HDI) in the ten provinces of Indonesia that had the lowest HDI. The lack of autocorrelation allows for more efficient and accurate parameter estimation in regression, and one may trust the model's predictions to explain the connection between variables. The findings also back up the conclusion that the regression model accurately captures the link between variables, which means it may be utilized to formulate human development strategies that aim to improve the HDI. Based on the results of panel data regression analysis, the resulting model is:

$$\mathbf{IPMit = 62.98449 + 0.000517\ BP_{it} + 0.003464\ BK_{it} + 0.020182\ TPA_{it} + e}$$

Submitted : 05/10/2024 |Accepted : 06/11/2024 |Published : 10/01/2025
P-ISSN; 2541-5255 E-ISSN: 2621-5306 |

According to the regression findings, the HDI will stay at 62.98449 even if all the independent variables, including BP, TPA, and the sum of education and health spending, are set to zero. When the independent factors are not present, this number represents the baseline HDI. Assuming all other factors remain constant, a 1% increase in education spending would lead to a 0.000517% rise in the HDI, as shown by the regression coefficient of 0.000517 for the BP variable. Similarly, a 1% rise in health spending would result in a 0.003464% increase in the HDI, as shown by the BK coefficient of 0.003464. Furthermore, although this variable is not statistically significant (p-value> 0.05), the TPA coefficient of 0.020182 suggests that an increase of 1% in the final education level would raise the HDI by 0.020182%. Increasing budget allocations in the education and health sectors can have a positive impact on human development, particularly in the 10 provinces with the lowest HDI in Indonesia from 2014 to 2023. This is because education and health spending significantly affect the HDI. On the other hand, the ultimate education level does contribute positively, but it is not statistically significant. This suggests that additional mediating factors or more comprehensive data may be needed to further understand this factor's effect. In sum, these findings lend credence to the idea that greater investments in healthcare and education are necessary for a sustainable rise in the HDI, and they may inform policy decisions in this direction. Furthermore, in order to maximize the impact of the final education level on human growth, greater focus should be directed on enhancing the overall quality of education. This highlights the need of integrating policies across sectors to accomplish sustainable development objectives in regions with low HDI.

A partial test, often known as a t-test, is a statistical method for determining whether or not a regression model's independent variables significantly affect the dependent variable. The overall regression model's dependability may be assessed with the use of the partial test results. In order for the analysis to provide meaningful and trustworthy findings, the t-test verifies that the independent variables included in the model do, in fact, contribute to the hypothesised causal link. Each independent variable's effect on the dependent variable, the Human Development Index (HDI), may be determined using the t-test findings. The probability value of 0.0016 is lower than the significance threshold of 0.05, and the t-count value of 3.261812 for the Education Expenditure (BP) variable is higher than the t-table value of 1.661. Furthermore, with a positive value of 0.000517 for the BP coefficient, we can see that Education Expenditure does, in fact, have a positive and statistically significant influence on HDI. Assuming all other factors remain the same, this means that the HDI will rise by 0.000517% for every 1% increase in education expenditure. In addition, the Health Spending (BK) variable reveals a much greater t-count value (6.435174) than the t-table value (1.661), as well as a probability value (0.0000) that is less than the significance threshold (0.05). A somewhat positive and statistically

significant impact of health spending on the HDI is shown by the positive coefficient of 0.003464. This indicates that, all else being equal, the HDI will rise by 0.003464% for every 1% increase in health expenditure. The Final Education threshold (TPA) variable, on the other hand, has a t-count of 1.365903—less than the t-table value of 1.661—and a probability value of 0.1755—higher than the 0.05 confidence threshold. This model therefore concludes that TPA partly has no statistically significant influence on HDI.

In a regression model, the simultaneous test—also called an F-test—is a statistical tool for examining the combined effect of all independent variables on the dependent variable. The F-count value is 134.2556 and the p-value is 0.000000, according to the simultaneous test (F-test) findings. With a p-value less than the significance threshold of 0.05 and an F-count value higher than the F-table value of 3.091, we may reject the null hypothesis (H_0) and accept the alternative hypothesis (Ha). Human Development Index (HDI) is the dependent variable, while education spending, health spending, and final education level are the independent factors that significantly affect it here. Based on these findings, it is clear that the three independent factors significantly impacted the HDI fluctuations in the ten provinces of Indonesia that had the lowest HDI from 2014 to 2023. This demonstrates that attempts to enhance the HDI cannot be achieved by separating the allocation of education and health expenditures from the ultimate education level. When used together, the three have a profound effect on human progress. What this means is that development strategies need to be holistic and take into account all three aspects at once. Education and health spending plans should be structured to promote more equitable access to high-quality services, and efforts should be made to boost graduation rates in order to produce a more competent workforce. To enhance HDI in low-HDI regions sustainably, this research shows that human development planning has to take a comprehensive approach.

One statistical metric used in regression analysis is the coefficient of determination, or R2. It shows what percentage of the dependent variable's variation can be explained by the independent variables. An adjusted R-squared value of 0.941698 (or 94.1698%) was determined by the study. Meaning that the independent variables in the model—Education Expenditure (BP), Health Expenditure (BK), and Final Education Level (TPA)—explain 94.1698% of the variance in the dependent variable—the Human Development Index (HDI)—in the model. Excluded from this study model are other elements that account for the remaining 5.8302% (100% - 94.1698%). If the regression model can adequately describe the connection between the dependent and independent variables, then the Adjusted R Square value should be high. This finding indicates that the study's model adequately captures the relationship between HDI and ten of Indonesia's lowest HDI provinces from 2014 to 2023 in terms of education spending, health spending, and final education level. This outcome lends credence to the analysis and

research findings by demonstrating that the model's mix of independent factors can account for the majority of HDI variability. It is necessary to take into account extraneous elements, such as economic policies, infrastructural conditions, and cultural features, that are not accounted for in the model, because these additional variables account for 5.8302% of the variance in HDI. In order to provide a fuller picture, this finding might serve as a springboard for future research that incorporates other pertinent elements. All things considered, the model's high Adjusted R Square value lends credence to its claims of being a trustworthy analytical instrument that may bolster data-based policy making for the purpose of enhancing human development in key areas.

The Impact of Education Spending on the Human Development Index (HDI) in 10 Provinces with the Lowest HDI Values in Indonesia for the Period 2014-2023

The results of the study provide facts that education spending has an impact on the Human Development Index (HDI) in 10 Provinces with the Lowest HDI Values in Indonesia for the 2014-2023 Period. This is due to the fact that investments made in the education sector immediately contribute to the improvement of both the accessibility and the quality of education. Local governments have the ability to construct and upgrade school infrastructure, provide suitable learning facilities, and improve the competency of educators via training and professional development if they increase the amount of money they spend on education. In certain regions, this has an effect on boosting the percentage of students who start school and lowering the number of students who drop out. In addition, optimum expenditure on education makes it possible to develop a curriculum that is relevant to the requirements of the local community. This curriculum may include vocational education, which may help individuals enhance their competencies in the workplace. There is a clear correlation between the improvement in the quality of education and the components of the Human Development Index (HDI), particularly with regard to knowledge and a good level of life. There is a correlation between a higher level of education and improved economic prospects, which in turn leads to a rise in both the average income per person and overall wellbeing. A certain increase in the education budget is directly proportional to the increase in the average length of schooling and the expected length of schooling in East Nusa Tenggara (NTT), according to empirical data collected during the period 2014-2023. This indicates that there is a positive correlation between increasing education spending and increasing the Human Development Index (HDI) in the ten provinces. The similar thing occurred in Papua and West Papua, where the emphasis placed on elementary and secondary education has led to a large rise in the percentage of the population that is literate and in the fundamental skills that each individual has. Due to the fact that education is the primary foundation in human growth, the statistics demonstrate that spending on education has a considerable impact on the Human growth Index (HDI). Education not only

enhances the capabilities of individuals, but it also contributes to the expansion of the economy and the general advancement of society. In order to achieve the goal of raising the Human Development Index (HDI) in regions of Indonesia that have the lowest HDI values, it is considered a vital strategy to continue increasing and optimizing expenditure on education.

The Impact of Health Spending on the Human Development Index (HDI) in 10 Provinces with the Lowest HDI Values in Indonesia for the Period 2014-2023

The results of the study provide facts that health spending has an effect on the Human Development Index (HDI) in 10 Provinces with the Lowest HDI Values in Indonesia for the 2014-2023 Period. This is due to the fact that growing expenditure on health enables local governments to develop health infrastructure, which includes the building of hospitals, health clinics, and integrated health posts. In addition, higher funds are used to enhance the quality of services by means of the acquisition of more contemporary medical equipment and the distribution of drugs that are not only more comprehensive but also more comprehensive. If there are sufficient facilities, then the public will have easier access to health services that are of higher quality, which will result in an increase in life expectancy and a drop in mortality rates. In addition to investing money on infrastructure improvements, money is also provided for preventative and promotional health programs. These programs include mass vaccination campaigns, nutrition programs for pregnant women and children, and teaching on how to live a clean and healthy lifestyle. illnesses, both infectious and non-infectious, are often the leading causes of mortality in these regions, and these initiatives contribute to the reduction of the prevalence of infectious and non-infectious illnesses. It may be concluded that there has been a substantial improvement in public health in general. There is a positive association between the growth in health expenditure and the increased HDI in each of the 10 provinces, according to empirical data collected throughout the period of 2014-2023. As was the case in the province of East Nusa Tenggara (NTT), an increase in the health budget led to a reduction in the prevalence of stunting and an increase in the average life expectancy among the population. It was possible to achieve a considerable reduction in the rates of maternal and infant mortality in Papua and West Papua via the implementation of maternal and child health initiatives that were supported by increased health expenditure. Based on this evidence, it is clear that investments made in the health sector have a direct influence on the overall quality of life in the community. When these facts are taken into consideration, it is possible to draw the conclusion that health spending has a significant impact on the HDI. This is due to the fact that health is one of the primary components that are used to evaluate the HDI. Individuals who are in good health are able to actively participate in educational and economic activities, which ultimately leads to an improvement in overall welfare. As a result, boosting and optimizing health expenditure need to

be a priority in the efforts to raise the Human Development Index (HDI) in Indonesian provinces that have the lowest HDI values.

The Influence of Final Education Level on the Human Development Index (HDI) in 10 Provinces with the Lowest HDI Values in Indonesia for the Period 2014-2023

The results of the study provide the fact that the final level of education does not affect the Human Development Index (HDI) in 10 Provinces with the Lowest HDI Values in Indonesia for the 2014-2023 Period. This is because there is a mismatch between the level of education that is available and the requirements of the job market in the area. Despite the fact that there is a rise in the number of graduates who have completed their last level of education, the skills and competences that these graduates possess are often not pertinent to the requirements of the industry or the economic sector that is the most prominent in the area. Due to the fact that many graduates have a difficult time finding adequate career opportunities, the percentage of unemployment among educated individuals continues to be high, and their contribution to the economy of the local community is small. It is also difficult to put the information and abilities acquired via formal education into practice in these distant places because of the limited infrastructure and accessibility that exists there. This implies that graduates of higher education programs are unable to fully realize their potential in terms of contributing to the development of the area because there are not enough infrastructure that provide assistance, such as transportation, communication, and information technology. One factor that makes this situation even worse is the absence of investment from the private sector, which is hesitant to do business in regions that lack appropriate infrastructure. Another aspect that has an impact is the movement of workers with higher levels of education to other regions that are more developed. A significant number of graduates from provinces with low HDIs choose to look for career possibilities in bigger cities or provinces with economies that are farther along in their development. This process, known as "brain drain," results in the areas of origin losing high-quality human resources that ought to be able to fuel a rise in the Human Development Index (HDI). As a result, increasing the level of final education does not immediately contribute to the enhancement of the quality of life in the areas of origin. Finally, social and cultural difficulties are also a factor that contributes to the negative impact that final education levels have on human development index (HDI). Some communities have traditional values that do not support the use of formal education in day-to-day economic activities. In addition, problems such as structural poverty, gender inequality, and a lack of awareness of the importance of education in the long term also reduce the effectiveness of final education in increasing human development index (HDI). Although there is an improvement in the level of final education, it does not necessarily result in an increase in the Human Development Index

(HDI) in the ten provinces in Indonesia that have the lowest HDI values throughout the period of 2014-2023. This conclusion may be reached by taking into consideration the aforementioned criteria. The need for a more holistic approach that not only focuses on increasing the level of education but also on improving the quality of education, the relevance of the curriculum to local needs, the development of infrastructure, and addressing social and economic issues that hinder the contribution of education to human development is something that needs to be addressed.

Human Development Index (HDI) from a Sharia Economic Perspective

The Human Development Index (HDI) is a measuring tool used to assess the quality of human life in a country or region, based on three main dimensions: health, education, and a decent standard of living. In the perspective of Islamic Economics, the concept of human development is not only limited to material aspects, but also includes spiritual and moral dimensions. Based on the Qur'an, Hadith, and the interpretations of scholars, human development in Islam emphasizes the balance between worldly and hereafter needs, and upholds the values of justice, shared prosperity, and sustainability. The Qur'an emphasizes the importance of holistic human development (Ali, 2020). One of the relevant verses is Surah Al-Baqarah verse 201: "And among them there are those who pray: 'Our Lord, give us goodness in this world and goodness in the hereafter, and protect us from the torment of hell.'" According to Tafsir Ibn Katsir, this verse shows that a Muslim should seek the welfare of this world and the hereafter in a balanced way. Goodness in the world includes health, knowledge and halal sustenance, which is in line with the three dimensions of IPM. Apart from that, Surah An-Nahl verse 97 states: "Whoever does pious deeds, whether male or female in a state of faith, then surely We will give him a good life..." Tafsir Al-Qurtubi explains that "life "good" includes peace of mind, sufficient sustenance, and blessings in life, which are the main goals of human development in Islam (Purbaningsih, 2021). Islamic Economics emphasizes the principles of justice, balance, and public welfare. The application of these principles in human development means ensuring fair distribution of resources, equal access to education, and affordable health services for all levels of society. Al-Mawardi in the book "Al-Ahkam As-Sultaniyyah" emphasizes the role of government in ensuring people's welfare through the provision of basic needs and public services. This is in line with efforts to increase the Human Development Index through policy interventions that favor the people. From the perspective of Islamic Economics, the Human Development Index must reflect a balance between material and spiritual aspects. Based on the Qur'an, Hadith, and the interpretations of scholars in the tafsir books, human development in Islam includes improving the quality of life through education, health, and economic welfare, without neglecting moral and spiritual values. The principles of justice,

balance, and public welfare in Islamic Economics provide a comprehensive framework for achieving sustainable and holistic human development (Dwi Lestari & Nur Azlia Arumi, 2024).

The Human Development Index (HDI) is a measuring tool used to assess the success of a country or region's development based on three main dimensions: health, education, and a decent standard of living. From the perspective of Islamic Economics, human development does not only focus on material aspects, but also includes spiritual and moral dimensions. Islamic scholars have put forward various theories that emphasize the importance of a balance between worldly and afterlife welfare in an effort to improve the quality of human life. Al-Ghazali, a famous 11th-century philosopher and theologian, in his work Ihya Ulumuddin, discusses the concept of welfare which includes the fulfillment of basic human needs as well as spiritual development. He emphasized that true welfare is achieved when the balance between material and spiritual needs is met (Syahrudin et al., 2022). Al-Ghazali also highlighted the importance of ethics in economic activities, such as honesty, justice, and social responsibility. This relates to the health and standard of living dimensions of the HDI, where physical well-being must be accompanied by mental and moral well-being. Ibn Khaldun, a 14th-century Muslim scholar, in his Muqaddimah, emphasized the importance of social solidarity ('asabiyyah) as a major pillar in the development of civilization. According to him, the progress of a society is not only determined by material wealth, but also by the moral strength and social cohesion among its members. He also emphasized the role of education and knowledge as key factors in enhancing human capacity (Abdul Rahim et al., 2022). In the context of the HDI, Ibn Khaldun's views are relevant to the importance of education and social engagement in improving the quality of life and welfare of society. Muhammad Baqir al-Sadr, a contemporary Islamic economist, in his book Iqtishaduna (Our Economy), proposes an Islamic economic model that focuses on social justice and equitable distribution of wealth. He emphasizes that the main goal of economics in Islam is to achieve falah (well-being) for all humanity, not just economic growth alone. Al-Sadr highlights the role of the state in ensuring equitable access to resources, education, and health services. This perspective is in line with efforts to improve the HDI through policy interventions that ensure equity and accessibility for all levels of society (Hasbi et al., 2023).

CONCLUSION

Based on the results of the study, it provides the fact that education spending has an effect on the Human Development Index (HDI) in 10 Provinces with the Lowest HDI Values in Indonesia for the 2014-2023 Period, this is because investment in the education sector contributes directly to increasing access and quality of education. By increasing education spending, local governments can build and improve school infrastructure, provide adequate learning facilities, and improve the competence of educators through training and professional

development. Health spending has an effect on the Human Development Index (HDI) in 10 Provinces with the Lowest HDI Values in Indonesia for the 2014-2023 Period, this is because increasing health spending allows local governments to improve health infrastructure, such as the construction of hospitals, health centers, and integrated health posts. In addition, larger funds are also used to improve the quality of services through the procurement of more modern medical equipment and the provision of more complete medicines. The final level of education does not affect the Human Development Index (HDI) in 10 Provinces with the Lowest HDI Values in Indonesia for the 2014-2023 Period, this is due to the mismatch between the quality of education and the needs of the local labor market. Although there is an increase in the number of graduates at the final level of education, the skills and competencies possessed by these graduates are often not relevant to the needs of the industry or the dominant economic sector in the region. The integration of Islamic economic principles in improving the Human Development Index (HDI) that human development must include material and spiritual aspects in a balanced manner. Principles such as distributive justice, social responsibility, and fulfillment of basic needs are the foundations of the Islamic Economic perspective. By integrating these values, efforts to improve the HDI will not only focus on economic growth, but also on equalizing welfare and improving the quality of life as a whole.

This research adds to the existing body of knowledge on the factors that influence human growth by providing empirical evidence that public expenditure on health and education matters, as does the degree to which individuals pursue higher education. No prior research has paid much attention to the unique viewpoint provided by concentrating on the provinces with the lowest HDI. This study addresses a knowledge vacuum about the correlation between government expenditure and human development results in economically depressed areas. Using panel data that spans a decade, this research offers solid empirical information about the patterns and trends of human development in areas that face unique difficulties. Theorizing about the efficacy of public expenditure in various geographical settings benefits from this. Theorizing human development from an Islamic economics vantage point is another area that this research helps advance. Integrating ethical and moral ideas from Islamic teachings, this research expands the scope of development theory by basing the analysis on the principles of fairness, shared benefit, and balance between material and spiritual components.

This study's findings have significant policy and practical implications for governments at all levels working to raise the HDI in the provinces that scored the lowest. Research showing that health care and education expenditure have a substantial impact on the HDI highlights the critical need to increase funding for these areas. With these findings in hand, local governments may craft better budgetary policies, directing public monies where they will have the most

impact on health and education. The need for a thorough assessment of these areas' educational systems is highlighted by the discovery that HDI is unaffected by final education level. This can mean that the local job market isn't getting what it needs from the graduates, even if the number of graduates is on the rise. Consequently, it is imperative that educators and policymakers work to enhance local context-appropriate skill sets, relevant curriculum, and educational quality. In order to provide more focused initiatives, the findings of this research are helpful for donor agencies and non-governmental groups. These empirical data may be used to customize health services, capacity development initiatives, and community empowerment projects to meet the unique requirements of each location. This research presents an Islamic economics viewpoint that calls for the use of Islamic financial tools like zakat, infaq, and waqf to bolster healthcare and education. By doing so, we may raise money for social services while simultaneously fostering a more fair and united community. This, in turn, can boost HDI and overall wellbeing.

We must take into account the fact that this research has a number of limitations. This research used a quantitative methodology with a small number of variables, including expenditure on education, health care, and total education. Given the intricacy of the variables influencing HDI, this strategy could fall short. The study model does not account for other elements that might significantly impact HDI, such as the quality of infrastructure, the accessibility of public services, poverty levels, social inequality, and geographical circumstances. It is possible that the study period of 2014–2023, which is somewhat short, will not be enough to detect structural changes and long-term trends in human development in these domains. A more complete picture of the elements that impact HDI may be painted by looking at changes in government policies, economic fluctuations, and social dynamics across longer periods of time. Because this research only looked at the 10 provinces with the lowest HDI scores, its findings don't apply to the rest of the country or even other provinces. The study's findings and their interpretation may be impacted by the distinct cultural, social, and economic aspects of each province. Further study is needed to address these constraints and create various enhancements and advances. Poverty rate, infrastructure investment, basic service accessibility, education quality indicators, and health quality indicators are all significant additional characteristics that may be included to the list of independent variables. Because of this, we can examine the factors that contribute to HDI in a more thorough and integrated way. To identify repeatable success criteria, it is suggested to compare various types of provinces, including those with high HDI levels. More effective and contextual policies tailored to the demands of each area may be formulated with the aid of this comparative research.

THANK-YOU NOTE

The author would like to express his deepest gratitude to the Faculty of Islamic Economics and Business, Raden Intan State Islamic University of Lampung, which has become a place for the author to gain knowledge and develop academic competence during his education at university. This faculty not only provides optimal academic facilities and support, but also provides a conducive environment for scientific research, including the research conducted by the author. The support from this institution has become an important foundation for the success of the research conducted by the author. The author would also like to thank Mr. Muhammad Kurniawan, Mrs. Diah Mukminatul Hasimi, and Mr. Khavid Normasyhuri for their extraordinary dedication and guidance in this research process. The guidance provided by the supervisors not only helped the author in understanding the research methodology in depth, but also provided valuable direction in writing scientific articles that are worthy of being published in the MEA Scientific Journal (Management, Economics, and Accounting) published by the Muhammadiyah Bandung School of Economics. The sincerity and commitment of the lecturers in supporting the author during this research process is a great motivation for the author to continue to contribute to the development of science, especially in the field of Islamic economics.

REFERENCES

Abdul Rahim, Z., Syofyan, S., & Esya, L. (2022). The Influence of The Islamic Human Development Index (I-HDI) on Human Development. *UMRAN - International Journal of Islamic and Civilizational Studies*, *9*(3), 83–103. https://doi.org/10.11113/umran2022.9n3.579

Abu-Shawish, R. K., Romanowski, M. H., & Amatullah, T. (2021). Policy borrowing and developing knowledge economies in GCC countries: a critique from a Human Capital Theory perspective. *Asia Pacific Education Review*, *22*(1), 77–88. https://doi.org/10.1007/s12564-020-09661-x

Afalia, W., Hamda, I., Adriana, S. A., Alamsyah, A. F., & Wafiroh, N. L. (2023). Determinants Of Human Development Index In Papua Province 2012-2021. *Wiga : Jurnal Penelitian Ilmu Ekonomi*, *13*(2), 246–256. https://doi.org/10.30741/wiga.v13i2.1076

Alda, R., Nasution, Z., Lubis, S. N., Abdi, A., & Darajat, R. (2024). The Influence of Education, Social, and Healthcare Expenditures on the Human Development Index (HDI) in Bireuen Regency. *Asian Multidisciplinary Research Journal of Economy and Learning*, *1*(2), 20–25.

Ali, F. (2020). Measurement Method for Islamic Human Development Index. *Journal of Economics and Finance (IOSR-JEF)*, *11*(6), 1–7. https://doi.org/10.9790/5933-1106010107

Andriansyah, F., Wulandari, C., Hayatri, T. N., & Zahra, A. H. L. (2022). Strategy of Improvement of the Human Development Indeks in Indonesia Through Sustainable Settlement Management. *Dinamika Ekonomi*, *13*(2), 259–270. https://doi.org/10.29313/de.v13i2.9631

Annisaa, A., Rochmah, S. N., & Alma, L. R. (2023). Modeling the Human Development Index Seen from the Aspect of Public Health in East Java. *Populasi*, *31*(2), 32. https://doi.org/10.22146/jp.92548

Bali Swain, R., & Yang-Wallentin, F. (2020). Achieving sustainable development goals: predicaments and strategies. *International Journal of Sustainable Development and World Ecology*, *27*(2), 96–106. https://doi.org/10.1080/13504509.2019.1692316

Damanik, D., Panjaitan, P. D., Tumanggor, B., & Purba, F. (2022). Investigating the Effect of Government Spending on the Human Development Index in Simalungun Regency, Indonesia. *International Journal of Advances in Social Sciences and Humanities*, *1*(4), 217–223. https://doi.org/10.56225/ijassh.v1i4.99

Darwin, D., Madris, & Fatmawati. (2022). The Influence of Government Expenditure in the Health Sector , Education Sector , Capital Expenditures on the Human Development Index in South Sulawesi Province. *Enrichment : Journal of Management*, *12*(5), 3758–3767.

Dwi Lestari, & Nur Azlia Arumi. (2024). Factors that influence the Islamic Perspective Human Development Index as Evidence of the Development of the Muslim Community. *Journal of Lslamic Economics and Bussines Ethics*, *1*(2), 75–93. https://doi.org/10.24235/jiesbi.v1i2.133

Fahmiyah, I., & Ningrum, R. A. (2023). Human Development Clustering in Indonesia: Using K-Means Method and Based on Human Development Index Categories. *Journal of Advanced Technology and Multidiscipline*, *2*(1), 27–33. https://doi.org/10.20473/jatm.v2i1.45070

Goldani, M., & Momeni, F. (2023). The Impact of Government Educational Expenditure on Human Development Index. *International Political Economy Studies*, *6*(1), 79–105.

Hamadou, I., & Karim, A. (2024). Public Spending and Sustainable Human Development in Cameroon: Does corruption matter? *International Journal of Finance, Economics and Business*, *3*(1), 53–66. https://doi.org/10.56225/ijfeb.v3i1.288

Handika Permana, E. P. (2023). Pengaruh Inflasi, Ipm, Ump Dan Pdrb Terhadap Kemiskinan Di Pulau Sumatera. *Jurnal Ilmiah MEA (Manajemen, Ekonomi, Dan Akuntansi)*, *5*(3), 494–512.

Hasbi, M. Z. N., Munajat, M., & Qoyum, A. (2023). A Conceptual Framework of The Islamic Human Development Index (I-HDI) and its Relationship with Maqāṣid Al-Sharī'ah. *Amwaluna: Jurnal Ekonomi Dan Keuangan Syariah*, *7*(2), 258–273. https://doi.org/10.29313/amwaluna.v7i2.10910

Hickel, J. (2020). The sustainable development index: Measuring the ecological efficiency of human development in the anthropocene. *Ecological Economics*, *167*(April 2019), 106331. https://doi.org/10.1016/j.ecolecon.2019.05.011

Indrayana, A. (2021). The Analysis of Economic Growth, The Government Spending Education Sector, Health Sector, and Infrastructure Sector on Human Development Index In East Java. *American Journal of Humanities and Social Sciences Research*, *5*(10), 33–39.

Ita, E. B. (2020). Human Development in Nigeria. *International Journal of African and Asian Studies*, *61*(2016), 40–49. https://doi.org/10.7176/jaas/61-06

Jatmiko Wahyu Nugroho, Nurjanna Ladjin, Erwin Agus, Suwardi Zakaria, & Iwan Harsono. (2024). Determinants of Eastern Indonesia's Human Development Index. *Journal of Economic Education and Entrepreneurship Studies*, *5*(2), 175–182. https://doi.org/10.62794/je3s.v5i2.2457

Jin, H., Qian, X., Chin, T., & Zhang, H. (2020). A global assessment of sustainable development based on modification of the human development index via the entropy method. *Sustainability (Switzerland)*, *12*(8). https://doi.org/10.3390/SU12083251

Juhro, S. M., Narayan, P. K., Iyke, B. N., & Trisnanto, B. (2020). Is there a role for Islamic finance and R&D in endogenous growth models in the case of Indonesia? *Pacific Basin Finance Journal*, *62*(December 2019), 101297. https://doi.org/10.1016/j.pacfin.2020.101297

Majo, M. Y. (2024). Unveiling Human Development Index Mediation on Consumption Dynamics. *Economics Development Analysis Journa*, *13*(1).

Mohammad Fauzan, Agung Nusantara, Sri Nawatmi, dan A. B. S. (2020). Indeks Pembangunan Manusia dan Pendidikan di Jawa Tengah. *Jurnal Bisnis Dan Ekonomi (JBE)*, *27*(1), 49–58.

Muhammad Ilham Nur Al Fian, N. S. B. (2024). The Effect Of Government Expenditure On Education, Health Sector, And Gross Regional Domestic Product On Human Development

Index. *Contemporary Studies In Economic, Finance And Banking*, *3*(2), 367–379.
Normasyhuri, K. (2021). Determinan Pertumbuhan Ekonomi Indonesia Di Tengah Pandemi Covid-19 Dalam Perspektif Ekonomi Islam. *Pascasarjana Universitas Islam Negeri Raden Intan Lampung*, 1–116.
Normasyhuri, K. (2022). Dampak Penerbitan Surat Utang Negara (SUN) dan Surat Berharga Syariah Negara (SBSN) Pada Pertumbuhan Ekonomi Indonesia Era Pandemi Covid-19 : Tinjauan Ekonomi Islam. *Jurnal Ilmiah Ekonomi Islam (JIEI)*, *8*(01), 688–698.
Normasyhuri, K., Suryanto, T., & Prayoga, R. (2022). Dampak Dana Desa Terhadap Kemiskinan Dengan Pendekatan Indikator Sustainable Development Goals (SDGs) : Tinjauan Ekonomi Islam. *Relasi : Jurnal Ekonomi*, *18*(2), 173–185.
Noviarita, H., Kurniawan, M., Normasyhuri, K., & Nurmalia, G. (2023). Tourism Transition and Green Economy: Inspire or Prevent People's income in the Covid-19 Shock. *Matrik : Jurnal Manajemen, Strategi Bisnis Dan Kewirausahaan*, *17*(2), 136. https://doi.org/10.24843/matrik:jmbk.2023.v17.i02.p03
Nurvita, D., Rohima, S., Bashir, A., & Mardalena, M. (2022). The Role of Public Spending on Education, Health, and Economic Growth toward Human Development Index in the Local Economy. *Sriwijaya International Journal of Dynamic Economics and Business*, *6*(June), 197–210. https://doi.org/10.29259/sijdeb.v6i2.197-210
Olopade, Bosede C, Matthew O., Eseyin O., & Odularu. (2023). Public Expenditure and Human Capital Development in Nigeria. *UMYU Journal of Accounting and Finance Research*, *5*(1), 1–11. https://doi.org/10.61143/umyu-jafr.5(1)2023.001
Pervaiz, R., Faisal, F., Rahman, S. U., Chander, R., & Ali, A. (2021). Do health expenditure and human development index matter in the carbon emission function for ensuring sustainable development? Evidence from the heterogeneous panel. *Air Quality, Atmosphere and Health*, *14*(11), 1773–1784. https://doi.org/10.1007/s11869-021-01052-4
Pradana, O. D., & Juliannisa, I. A. (2022). Analisis Faktor-Faktor Yang Mempengaruhi IPM Di DKI Jakarta Pada Tahun 2016-2020. *Jurnal Ilmiah Manajemen, Ekonomi, & Akuntansi (MEA)*, *6*(1), 924–939.
Prihadyatama, A. (2024). *Panduan Praktis EViews: Konsep dan Contoh Penerapan dalam Penelitian Ekonomi*. Widina Media Utama : Bandung.
Purbaningsih. (2021). The Effect Of Poverty And Economic Growth On Human Development. *Journal Of Education And Social Sciences*, *17*(1), 1–15.
Putri, F. D. A., Suhendro, S., & Nauli, P. (2022). Analysis of factors affecting the level of the human development index. *Asian Journal of Economics and Business Management*, *1*(3), 218–228. https://doi.org/10.53402/ajebm.v1i3.229
Putri, N. M., & Muljaningsih, S. (2022). Analisis Pengaruh Indeks Pengangguran, Indeks Pelayanan Kesehatan dan Indeks Pendidikan Terhadap Indeks Pembangunan Manusia (Ipm) di Kabupaten Bojonegoro. *Equity: Jurnal Ekonomi*, *10*(1), 59–71. https://doi.org/10.33019/equity.v10i1.83
Retno Tri Vulandari, listya R. (2021). *Statistika Dengan Aplikasi Eviews : Referensi Olah data Penelitian*. Gava Media : Yogyakarta.
Riana, A., & Khafid, M. (2022). Analysis of Government Spending on Education on the HDI. *Jejak*, *15*(2), 324–335. https://doi.org/10.15294/jejak.v15i2.38263
Rizal R. Manullang, Ellyana Amran, Heppi Syofya, Iwan Harsono, & Awalauddin. (2024). The Influence of Government Expenditures on the Human Development Index With Gross Domestic Product As A Moderating Variable. *Reslaj: Religion Education Social Laa Roiba Journal*, *6*(4), 2059–2068. https://doi.org/10.47467/reslaj.v6i4.2039
Ruzima, M., & Veerachamy, P. (2023). The impact of public spending in education and health on human development in India. *Journal of the Asia Pacific Economy*, *28*(2), 390–403. https://doi.org/10.1080/13547860.2021.1952920
Sasmita, N. R., Phonna, R. A., Fikri, M. K., Khairul, M., Apriliansyah, F., Idroes, G. M., Puspitasari, A., & Saputra, F. E. (2023). Statistical Assessment of Human Development Index Variations and Their Correlates: A Case Study of Aceh Province, Indonesia. *Grimsa*

Journal of Business and Economics Studies, *1*(1), 12–24. https://doi.org/10.61975/gjbes.v1i1.14

Schröder, P., Lemille, A., & Desmond, P. (2020). Making the circular economy work for human development. *Resources, Conservation and Recycling*, *156*(November 2018), 104686. https://doi.org/10.1016/j.resconrec.2020.104686

Sijabat, R. (2022). The Impact of Health Spending, Education Spending and Economic Growth on Human Development: A Provincial Panel Analysis. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, *5*(4), 29584–29598.

Siregar, Z. (2024). The Effect of Education, Health and Social Expenditure Allocations on the Human Development Index (HDI) Level of the City District Aceh Province. *Journal of Environmental and Development Studies*, *05*(01), 25–30.

Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, Dan R&D*. Alfabeta : Bandung.

Suhendi, S., & Astuti, I. P. (2023). Analisis Pengaruh Tingkat Kemiskinan, Pdrb Dan Pengeluaran Pemerintah Bidang Kesehatan Dan Pendidikan Terhadap Ipm Di Provinsi Papua Tahun 2017-2022. *Jurnal Ilmiah Manajemen, Ekonomi, & Akuntansi (MEA)*, *7*(2), 1676–1694. https://doi.org/10.31955/mea.v7i2.3212

Sumaryoto, Mirna Herawati, A. T. H. (2020). Analysis of Changes in the Unemployment Rate as a Result of the Human Development Index in Indonesia (Case Study 2010-2019). *Journal of Economics and Business*, *3*(4). https://doi.org/10.31014/aior.1992.03.04.301

Syahrudin, K., Bakar, ahmad abu, Haddade, H., Ihsan, A., & Nur, A. (2022). Political stability, macro economics, and islamic human development index (i-hdi) in oic countries stabilitas politik, ekonomi makro, dan indeks pembangunan manusia islam (i-hdi) di negara oki. *Jurnal Syarikah*, *8*, 245–253.

Talitha, T., Firman, T., & Hudalah, D. (2020). Welcoming two decades of decentralization in Indonesia: a regional development perspective. *Territory, Politics, Governance*, *8*(5), 690–708. https://doi.org/10.1080/21622671.2019.1601595

Tang, M., Wang, D., & Guerrien, A. (2020). A systematic review and meta-analysis on basic psychological need satisfaction, motivation, and well-being in later life: Contributions of self-determination theory. *PsyCh Journal*, *9*(1), 5–33. https://doi.org/10.1002/pchj.293

Thach, N. N. (2021). How have NESTs grown? Explanations based on endogenous growth theory. *Cogent Economics and Finance*, *9*(1). https://doi.org/10.1080/23322039.2021.1913847

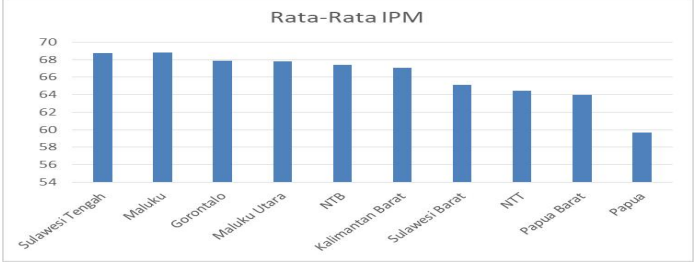
Vansteenkiste, M., Ryan, R. M., & Soenens, B. (2020). Basic psychological need theory: Advancements, critical themes, and future directions. In *Motivation and Emotion* (Vol. 44, Issue 1). Springer US. https://doi.org/10.1007/s11031-019-09818-1

Wright, C. F., & Constantin, A. (2021). Why recruit temporary sponsored skilled migrants? A human capital theory analysis of employer motivations in Australia. *Australian Journal of Management*, *46*(1), 151–173. https://doi.org/10.1177/0312896219895061

Yuliansyah. (2021). Analysis of the Human Development Index (Hdi) in Indonesia. *Cross-Border Journal of Businees Management*, *1*(2), 244–256.

Zulkarnain, Muzdalifah, A. Y. (2024). The Influence of Education Expenditures, Health Expenditures, Social Assistance Expenditures, and Per Capita Income on the Regency/City Human Development Index in South Kalimantan Province. *Riwayat: Educational Journal of History and Humanities*, *7*(2), 659–669.

ATTACHMENT



Graph 1. Average Human Development Index Value in the 10 Lowest Provinces in Indonesia in 2014-2013
Source:www.bps.go.id

Table 1. Descriptive Statistical Test

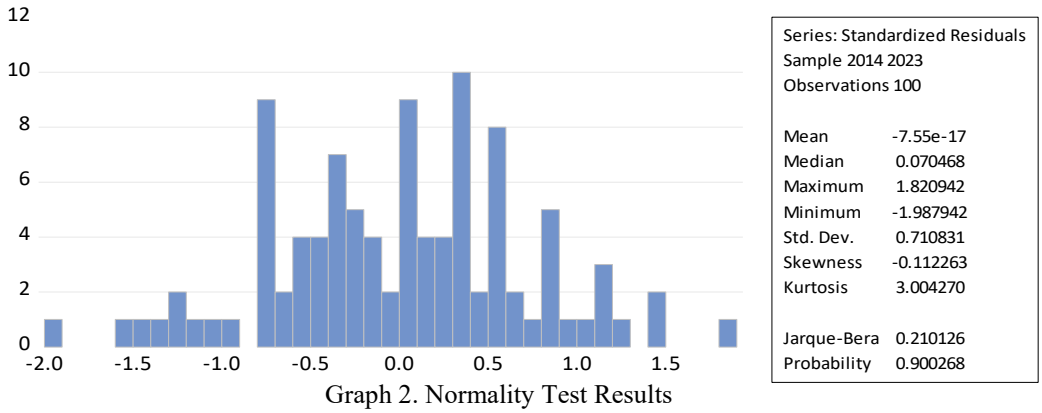
	BP	BK	Landfill	IPM
Mean	1237.414	409.3610	51.96310	66.09120
Maximum	3456.000	1256,000	75.01000	70.95000
Minimum	24.30000	15.10000	25.21000	56.75000
Std. Dev.	985.9098	308.7074	11.58916	3.140393
Observations	100	100	100	100

Source: Data Processing Results (2024)

Table 2. Selection of Panel Data Regression Models

Test Type	Effect Test	Test Results
Chow	Prob < 0.05 = 0.0000	FEM
Houseman	Prob < 0.05 = 0.0093	FEM

Source: Data Processing Results (2024)

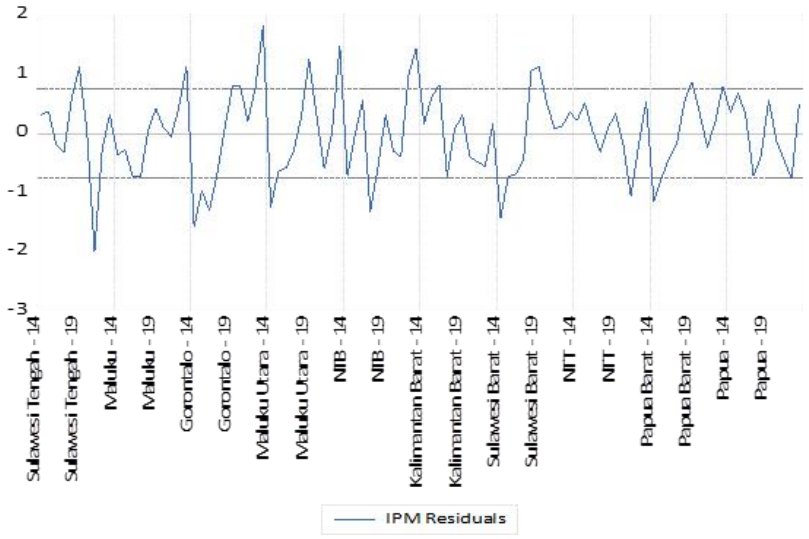


Graph 2. Normality Test Results
Source: Data Processing Results (2024)

Table 3. Multicollinearity Test Results

	BP	BK	Landfill
BP	1,000,000	0.813434	0.038290
BK	0.813434	1,000,000	0.007261
Landfill	0.038290	0.007261	1,000,000

Source: Data Processing Results (2024)



Graph 3. Heteroscedasticity Test Results
Source: Data Processing Results (2024)

Table 4. Autocorrelation Test Results

Root MSE	0.707268	R-squared	0.948765
Mean dependent variable	66.09120	Adjusted R-squared	0.941698
SD dependent var	3.140393	SE of regression	0.758270
Akaike information criterion	2.405185	Sum squared residual	50.02274
Black criterion	2.743857	Log likelihood	-107.2592
Hannan-Quinn critter.	2.542251	F-statistic	134.2556
Durbin-Watson stat	1.036236	Prob(F-statistic)	0.000000

Source: Data Processing Results (2024)

Table 5. Panel Data Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	62.98449	0.695822	90.51814	0.0000
BP	0.000517	0.000159	3.261812	0.0016
BK	0.003464	0.000538	6.435174	0.0000
Landfill	0.020182	0.014775	1.365903	0.1755
C	62.98449	0.695822	90.51814	0.0000

Source: Data Processing Results (2024)

Table 6. Partial Test Results (T Test)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	62.98449	0.695822	90.51814	0.0000
BP	0.000517	0.000159	3.261812	0.0016
BK	0.003464	0.000538	6.435174	0.0000
Landfill	0.020182	0.014775	1.365903	0.1755

Source: Data Processing Results (2024)

Table 7. Simultaneous Test Results (F Test)

Root MSE	0.707268	R-squared	0.948765
Mean dependent variable	66.09120	Adjusted R-squared	0.941698
SD dependent var	3.140393	SE of regression	0.758270
Akaike information criterion	2.405185	Sum squared residual	50.02274
Black criterion	2.743857	Log likelihood	-107.2592
Hannan-Quinn critter.	2.542251	F-statistic	134.2556
Durbin-Watson stat	1.036236	Prob(F-statistic)	0.000000

Source: Data Processing Results (2024)

Table 8. Results of the Determination Coefficient Test (R2)

Root MSE	0.707268	R-squared	0.948765
Mean dependent variable	66.09120	Adjusted R-squared	0.941698
SD dependent var	3.140393	SE of regression	0.758270
Akaike information criterion	2.405185	Sum squared residual	50.02274
Black criterion	2.743857	Log likelihood	-107.2592
Hannan-Quinn critter.	2.542251	F-statistic	134.2556
Durbin-Watson stat	1.036236	Prob(F-statistic)	0.000000

Source: Data Processing Results (2024)