

THE EFFICIENCY OF ZAKAT, INFAQ, SHADAQAH AND ECONOMIC GROWTH ON THE HUMAN DEVELOPMENT INDEX IN SOUTH SUMATRA PROVINCE: DEA APPROACH

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Abstract

Despite steady economic growth and substantial potential in Islamic social finance, South Sumatra continues to face challenges in human capital accumulation, with a Human Development Index (HDI) lagging behind the national average. Addressing this disparity requires moving beyond resource availability to examining the efficiency of resource allocation. This research explores how efficiently the Zakat, Infaq, and Shadaqah (ZIS) funds and economic growth influence the Human Development Index (HDI) in South Sumatra Province. Quantitative methods and secondary data from Central Statistics Agency (BPS) and the National Zakat Agency (BAZNAS) in 2022 are utilized. Each region is assessed for their efficiency in transforming ZIS funds and economic growth (inputs) into HDI (output) using Data Envelopment Analysis (DEA). Among the seventeen districts/cities, this research found significant variations in the efficiency scores, six district/cities like Palembang, Prabumulih, Pagar Alam, Ogan Komering Ulu, South Ogan Komering Ulu and Empat Lawang were determined efficient and other eleven district/cities were inefficient.

Keywords: Data Envelopment Analysis (DEA), Efficiency, Economic Growth, Human Development Index (HDI), Zakat Infaq Shadaqah (ZIS)

INTRODUCTION

Human development is now an increasingly important global agenda issue for achieving inclusive and sustainable development. Rising inequalities in education, health, and income have led gap researchers and policymakers to pursue an approach that goes beyond an economic scope. In 1990, the United Nations Development Programme (UNDP) introduced the Human Development Index (HDI) which today serves as a yardstick for measuring human development attainment in value health, education, and living standards (Aisyah et al., 2025). As a result, the HDI serves as a development compass to improve human welfare as envisioned by the Sustainable Development Goals (SDGs).

Enhancing people's standard of living in developing countries hinges on improving basic services such as education and health care. In developing countries like Indonesia, such improvement occurs, but is not accompanied with equitable distribution of the national Human Development Index, particularly in the district/city level such as South Sumatra Province.

Year	Economic Growth	HDI
2015	4,98	67,46
2016	5,20	68,24
2017	5,26	68,86
2018	5,19	69,39
2019	5,24	70,02
2020	1,23	70,01
2021	3,88	70,24
2022	5,03	70,90
2023	4,82	71,62

Table 1. Economic Growth and Human Development Index (HDI) in South Sumatra from 2015 – 2023

Table 1 indicates that from 2015 to 2023, South Sumatra's economy, particularly during the COVID-19 pandemic, grew unevenly while the province's human development index improved steadily every year. This shows that economic growth, even when rapid, does not guarantee a corresponding increase in HDI, and neither does a stagnant economy guarantee a low HDI. Not all human economic activity translates to the development of human capital. The existence of HDI does not mean that human capital should be ignored, rather it shows that economic growth should be merged with human development. This indicates a challenge to human development to be placed in a country's growth agenda (Irawan et al., 2022).

South Sumatra Province possesses substantial natural resources and maintains a steady rate of economic growth. Economic growth for South Sumatra Province in 2023 has reached 5.21%, primarily driven by the mining, trade, and agriculture sectors, as noted by the Central Statistics Agency (BPS). Zakat, Infaq, and Shadaqah (ZIS) Islamic financial instruments, on the other hand, possess great potential as a source of social funds. Within the scope of Human Resource Management (HRM) for the economic growth and ZIS, funds together constitute two primary components for investing in human capital (Aziz et al., 2025). Economic growth will generate employment opportunities and increase the revenue of the state, while ZIS will mitigate poverty, enhance the living standards of mustahik (zakat recipients), and positively impact the Human Development Index (HDI) (Suhendar et al., 2022).

However, this ideal situation hasn't been fully captured yet. There are still a lot of inequalities in income, educational attainment, and healthcare access disparities even when South Sumatra Province's economy seems to be doing well. ZIS funds are yet to be fully tapped into. There's still a significant gap to be bridged in ZIS collection by Baznas South Sumatra Province in 2023 in comparison to its potential. Also, its distribution tends to be consumptive and fails to integrate into long-term sustainable development efforts. In 2020, Baznas was only able to collect around 21% of the total potential ZIS funds, with a distribution of around 20.76% (Al-Labiyah et al., 2023). This is due to suboptimal collection strategies, limited human resources, and low zakat literacy (Hilmi et al., 2023), as well as suboptimal synergy between economic growth and ZIS fund distribution to accelerate HDI. In human resource management, this is a matter of resource allocation efficiency. Economic growth and ZIS funds as capital are not strategically invested to build superior human resources assets, resulting in low returns reflected in the slow increase in South Sumatra's HDI, which in 2023 was still at 72.63, below the national average.

Various studies on this topic have focused on the HDI. Economic growth, alongside ZIS distribution, has a positive impact on HDI improvement (Khairunnisa et al., 2024), and in the long term, zakat has a significant positive impact on economic growth and HDI due to its counter-cyclical nature (Hamadou & Jallow, 2024). On the other hand, the National Zakat Index is positively correlated with I-HDI, but not statistically significant, indicating that zakat optimization requires further attention (Pardiansyah & Ainun Najib, 2025). Aisyah in her research also state that ZIS distribution has a positive but insignificant mark on HDI, which suggests funds are ineffectively spent on improving educational opportunities, healthcare access, and overall living standards. Economic growth has a considerable negative impact on HDI, which indicates that the economic growth experienced has not been inclusive and the benefits have not been distributed widely across the population. (Aisyah et al., 2025).

Considering these difficulties, this research intends to analyze how effective Zakat, Infaq, Shadaqah (ZIS) and Economic Growth in improving the Human Development Index (HDI) in South Sumatra Province. This study will implement the Data Envelopment Analysis (DEA) method. This method allows for the measurement of the relative efficiency of each district/city in South Sumatra in converting the combination of inputs, that is the collected ZIS funds and the economic growth rate, into outputs the Human Development Index (HDI). DEA will identify which districts/cities have succeeded in becoming "benchmarks" in converting economic growth and ZIS funds into improvements in HDI, and which are not yet efficient. The results of this analysis will provide a clear roadmap for

policymakers and ZIS managers. From an HR management perspective, these findings are equivalent to a strategic performance audit that shows how investments in financial capital (ZIS) and macroeconomic capital (economic growth) can be managed more effectively to maximize human capital development in South Sumatra Province, creating an inclusive and sustainable development cycle.

LITERATURE REVIEW

Human Development Index (HDI)

The Human Development Index is a measure of the achievement of quality human development that has an impact on both the physical condition of humans (health and welfare) and non-physical conditions (education). Human development can also be seen from improvements in health, knowledge, and skills. Regarding this, the United Nations Development Program (UNDP) has established a concept of human development, that is (UNDP Team, 1995):

1. Productivity is a measure of a society's ability to meet its needs. The more productive a person is, the better their life will be.
2. Equity means that people must have equal opportunities in economic, social, and political matters so that they can participate and take advantage of existing opportunities.
3. Sustainability means not only ensuring that the current generation has access to opportunities, but also paying attention to future generations so that they can have the same opportunities. All types of capital, whether physical, human, or environmental, must be provided.
4. Empowerment is the development must also be carried out by the community, not just the government. The community must be fully involved in decision-making and processes related to their lives.

Zakat, Infaq, and Shadaqah

As key instruments in Islamic economics, Zakah, Infaq, and Shadaqah serve to realize fair distribution of wealth and maintain social stability. From the maqashid syariah perspective, all three perspectives contain dual elements, namely, spiritual and socio-economics. While Zakat is more prescriptive and obligatory, infaq and sedekah are more discretionary. ZIS takes the role of a channel in a big socio-economic stream useful for providing and distributing resources from the wealthy to the poor and developing a participative and humane economy (Mongkito et al., 2025).

The obligation to pay and fulfill zakat is detailed in the Qur'an, Al-Baqarah surah 2, verse 43:

وَأَقِيمُوا الصَّلَاةَ وَآتُوا الزَّكَاةَ وَارْكَعُوا مَعَ الرَّاكِعِينَ

Meaning: “Establish prayer, pay zakat, and bow down with those who bow down.”

Infaq and alms are also mentioned in the Qur'an, Surah Ali-Baqarah, verse 134:

يَا أَيُّهَا الَّذِينَ آمَنُوا أَنْفِقُوا مِنْ طَيِّبَاتِ مَا كَسَبْتُمْ وَمِمَّا أَخْرَجْنَا لَكُمْ مِنَ الْأَرْضِ وَلَا تَيَمَّمُوا الْخَبِيثَ مِنْهُ تُنْفِقُونَ وَلَسْتُمْ بِأَخِيذِهِ إِلَّا أَنْ تُغْمِضُوا فِيهِ وَاعْلَمُوا أَنَّ اللَّهَ غَنِيٌّ حَمِيدٌ

Meaning: “O you who believe, spend from the good things you have earned and from what We have provided for you from the earth. Do not choose the bad things to spend, which you yourselves would not accept unless you close your eyes to them. Know that Allah is All Sufficient and Praiseworthy.”

Zakat, Infaq, and Shadaqah (ZIS) focus on the strategic role of developing human resources. This can be done by providing funds to pay for scholarships, training for competency improvement, and

health service access (Musa et al., 2022). This makes ZIS advanced planning for human capacity building rather than simply a short-term charitable act. This, in turn, helps to improve the progress and competitiveness of human resources.

Economic Growth

When we say that an economy grows, we mean that there is positive development in the economy's productivity, and in the longer term the economy's Regional Domestic Product (RDP) and Gross Domestic Product (GDP) respectively increases (Todaro & Smith, 2015). Viewed through a more modern lens, economic growth does not simply mean the accumulation and stockpiling of capital and labor resources, there are also considerable technological and innovative advancements and the human resources involvements. High, positive and enduring growth means there are strong human resources involved, therefore, a workforce that is innovative and productive requires the right tools of positive health, educational resources and training to be made available and primed.

The absence of positive growth in human development along with economic growth is where the problems arise. The trickle down theory of growth suggests that benefits of economic growth flows to the most backward and deprived parts of the economy. Numerous studies such as (Mankiw et al., 1992) in the Solow-Swan framework recognizes the importance of human capital and economic growth. As highlighted in the studies by (Aisyah et al., 2025), in the Indonesian context, growth in economy and economic development is more the case with the low positive influence HDI. This is also born out in Table 1 where the benefits of economic growth is not equal to human growth.

RESEARCH METHODS

This research utilizes secondary data from the Central Statistics Agency (BPS) and the National Zakat Agency (BAZNAS). Specifically, this study analyzes data from the 2022 South Sumatra region/city dataset. The researcher conducted an electronic literature review discussing the research theme, considering that the data used was indirect (secondary) and included books, notes, and journals.

The analysis technique used in this study, Data Envelopment Analysis (DEA), is a non-parametric efficiency technique that can be used to measure the relative efficiency of decision-making units (DMUs) by utilizing several inputs and outputs simultaneously (Singh & Ali, 2023). The efficiency measurement process in this study was carried out using Win4DEAP software. Another advantage of DEA is that it can handle multiple inputs and outputs and does not require assumptions about the functional relationship between input and output variables (Mehdiloo & Podinovski, 2024). Regencies/cities with an efficiency score of 1 or 100% are considered efficient in managing their economic factors. Regencies/cities with an efficiency score < 1 are considered inefficient, meaning there is still potential for improvement in resource use.

RESULT AND DISCUSSION

By comparing Zakat, Infaq, Alms, economic growth as input variable and the Human Development Index as output, DEA helps mapping the districts/cities in South Sumatra Province which are efficient and still inefficient. Regencies/cities with an efficiency score of 1.000 are considered efficient in managing their economic factors. Regencies/cities with an efficiency score < 1.000 are considered inefficient, meaning there is still potential for improvement in resource use. Efficient districts/cities can serve as benchmarks for other districts that are not yet efficient. Thus, the government can use efficient regions as a reference in formulating regional economic policies. The results of the DEA analysis in this study can be seen in Table 2 below:

Districts/cities	Efficiency Score	Information
Ogan Komering Ulu	1.000	Efficient
Ogan Komering Ilir	0.238	Inefficient
Muara Enim	0.181	Inefficient

Lahat	0.300	Inefficient
Musi Rawas	0.223	Inefficient
Banyuasin	0.160	Inefficient
Musi Banyuasin	0.124	Inefficient
Oku Selatan	1.000	Efficient
Oku Timur	0.460	Inefficient
Ogan Ilir	0.299	Inefficient
Empat Lawang	1.000	Efficient
Penungkal Abab Lematang Ilir	0.873	Inefficient
Musi Rawas Utara	0.803	Inefficient
Palembang	1.000	Efficient
Prabumulih	1.000	Efficient
Pagar Alam	1.000	Efficient
Lubuk Linggau	0.878	Inefficient

Table 2. Results of DEA Analysis of Regional Economic Performance in South Sumatra Province

Based on the results of measurements using the Data Envelopment Analysis (DEA) approach, the IPM efficiency level in districts and cities in South Sumatra Province shows a variation in values between 0.124 and 1.000. Out of 17 regions, there are six regions that have achieved perfect efficiency (efficiency score = 1.000), namely Ogan Komering Ulu, South Ogan Komering Ulu (South OKU), Empat Lawang, Palembang City, Prabumulih City, and Pagar Alam City. This shows that these six regions have been able to optimize the use of Zakat, Infaq, and Sedekah funds and their economic growth effectively in boosting their regional HDI.

For Palembang, Prabumulih, and Pagar Alam, the results are efficient because these three cities are economic centers. All three have economic structures dominated by the trade, services, and diverse industries sectors. Such conditions enhance quality job opportunities, which significantly increases personal income, one of the critical components of the HDI (Rohima et al., 2019). Moreover, as capital cities, proximity to quality education, and the distribution of healthcare services are more equitably available and accessible (Nadari et al., 2025). The intersection of these elements forms a situation where ZIS economic growth and resources are available. The economic growth resources are available, and the ZIS funds can be concentrated to improve the community's quality of life. In these examples, the cities have a solid base of human capital and economic growth to directly convert resources into human potential (Wang et al., 2022).

Meanwhile, Ogan Komering Ulu, South Oku, and Empat Lawang are surprisingly efficient. The recognition of their achievements must draw the attention of policymakers because they provide critical lessons. Unlike the cities, these three districts showcase that even in resource-poor settings, efficiency can be garnered.

The two main reasons for this achievement would be, first, how the Zakat, Infaq, and Sedekah (ZIS) funds are being managed and distributed. Most people see the religious social funds as being all managed and aimed at programs that touch the HDI indicators (Saputro & Sidiq, 2020). These include providing scholarships for educational assistance to children of underprivileged families, skills training programs to enhance workforce competitiveness, and assistance on the aid programs targeted to the mortality rate. Second and last, the inclusive economic growth in the district is felt and experienced by the populations (Hidayat et al., 2018). The inclusive growth could come from the agrarian economy that employs many farmers, or from the Micro, Small, and Medium Enterprises that are the core of the local economy (Endris & Kassegn, 2022). The mechanism in this growth model supports the economic output to increase household income and welfare thereby driving the HDI rated efficiency.

Regions such as Lubuk Linggau, Pali, and Muratara are nearly efficient, with a score of over

0.8. This classification indicates they are on the right path, which suggests that only minor adjustments are required, possibly targeting inefficient bureaucracy and focusing program goals, and the like (Ferraz et al., 2020).

Most areas fall in the moderately inefficient category, with scores ranging from 0.2 to 0.46, and this includes Ogan Ilir, Lahat, Musi Rawas, Ogan Komering Ilir, and Oku Timur. This situation points to a more serious structural issue where excessive ZIS funds and economic growth are wasted to reach the region's HDI. The problem may arise from the quality of economic growth that is exclusive, for example, growth dominated by the extractive sector that creates fewer decent jobs (Rohima et al., 2019) or the weak effectiveness of ZIS programs that are mis-targeted and wasteful in a consumptive sense, rather than for long-term community capacity building.

The regions with the lowest efficiency are Musi Banyuasin, Banyuasin, and Muara Enim, which have scores below 0.2. Ironically, these regions often have significant income inputs, possibly from the oil and gas sector or large plantations. Their failure to transform this wealth into adequate HDI improvement is likely due to the "resource curse" phenomenon, where abundant income is not managed optimally for human development (Sholikin, 2020).

The results of this analysis can also be used as a reference for local governments in formulating more effective economic policies. Efficient regions can be used as benchmarks for other regions in managing ZIS and economic growth to improve HDI. Meanwhile, regions that are not yet efficient need to optimize their efforts in order to achieve higher levels of efficiency in the future.

Based on the results of the DEA analysis, the benchmarking of the economic performance of regencies/cities in South Sumatra Province can be seen in Table 3 below.

Regencies/Cities that Inefficient	Reference 1	Reference 2
Ogan Komering Ilir	Empat Lawang	Prabumulih
Muara Enim	Ogan Komering Ulu	OKU Selatan
Lahat	Prabumulih	OKU Selatan
Musi Rawas	Empat Lawang	Pagar Alam
Banyuasin	Ogan Komering Ulu	Prabumulih
Musi Banyuasin	Empat Lawang	Pagar Alam
Oku Timur	Prabumulih	OKU Selatan
Ogan Ilir	Pagar Alam	-
Penungkal Abab Lematang Ilir	OKU Selatan	Empat Lawang
Musi Rawas Utara	OKU Selatan	Empat Lawang
Lubuk Linggau	Prabumulih	Pagar Alam

Table 3. Benchmarking of Regional Economic Performance in South Sumatra Province

Based on the results of Data Envelopment Analysis (DEA), Table 3 shows the districts/cities that are not yet efficient along with the benchmark areas used as a reference for improving their efficiency. These benchmarks are based on regions that have achieved efficiency and have input-output characteristics that are not significantly different from those of inefficient regions, thus serving as examples for inefficient regions in managing ZIS funds and economic growth.

The pattern seen in the table shows that the best option for inefficient regions is to imitate the input-output combination of regions with economic characteristics similar to their own. The results of this benchmark provide an overview that improving the economic efficiency of regions in South Sumatra Province can be done by imitating the input management patterns of efficient regions, both in terms of ZIS fund allocation and economic growth, even though there is no direct relationship with the HDI. Theoretically, economic growth reflected in an increase in GDP or GRDP creates more fiscal space for the government through increased tax revenue. This increase in fiscal capacity allows for a larger budget allocation for key human development sectors, such as education and health.

The research hope that regions that are not yet efficient can improve ZIS management and economic growth to reach a more optimal and sustainable level of efficiency in the future, using efficient areas such as Palembang City, Prabumulih City, Pagar Alam City, Ogan Komering Ulu Regency, South OKU Regency, and Empat Lawang Regency as benchmarks.

CONCLUSIONS AND SUGGESTION

CONCLUSIONS

Zakat, Infaq, Shadaqah, and ZIS funds have the theoretical potential to promote human development through economic growth. However, while growth and development have the potential to transform the economy, little change is reflected in the Human Development Index. The inefficiency of transforming economic growth and ZIS funds into an improvement in HDI illustrates a fundamental problem of inefficient design, targeting and coordination, which can be analyzed through three core dimensions.

First, from the perspective of economic growth, inefficiency arises from three structural problems. The problem of inequality causes growth to be concentrated only in a handful of groups or specific sectors, often referred to as non-inclusive growth, which fails to provide economic benefits to the majority of the population. The quality of growth that relies on extractive or capital-intensive sectors has a limited impact on employment and household income growth. Furthermore, a flawed development approach tends to view human development as an automatic consequence of economic growth, so that budget allocations for education and health are often residual and non-strategic, focusing more on physical infrastructure development than on substantive service quality improvement.

Second, from the perspective of ZIS funds, inefficiencies occur in distribution and empowerment. The majority of ZIS fund distribution is still consumptive and short-term charitable in nature, such as basic food assistance or cash assistance, which only solves immediate problems without breaking the chain of poverty. The existing empowerment models are often fragmented, unsustainable, and not supported by adequate monitoring and evaluation systems. This approach fails to empower mustahik to become productive human resources, as skills training programs are often not followed up with adequate access to capital and marketing.

Third and most crucially, the lack of synergy and integration between these two instruments exacerbates this inefficiency. ZIS funds have not functioned optimally as a complement and enhancer of the effectiveness of government programs funded by the APBD/APBN resulting from economic growth. The government builds health centers, but ZIS funds are not focused on supporting promotional and preventive programs in these health centers.

In other words, economic growth and ZIS funds are merely tools. These two instruments' potential for economic advancement and improvement of human development hinges solely on the strategic coordination and collaborative action of the institutions responsible for equitable and balanced investments in human capital. Otherwise, the instruments will remain grossly inefficient, resulting in a negligible change in the HDI.

SUGGESTION

Given these inefficiencies, this study provides three primary behavior changes for stakeholders in the region. First, local governments that are not yet efficient must proactively emulate the best practices of their benchmark regions. Second, a paradigm shift is needed in ZIS management, from a charitable-consumptive approach to sustainable productive empowerment, such as through integrated scholarship programs, vocational training, and business incubation. Lastly, the Provincial Government should create integrative functions as the connective tissue of structural synergy between BAPPEDA, technical agencies, and BAZNAS, for example by allocating ZIS funds to complement government health and education programs, thereby creating a multiplier effect on HDI improvement.

This study has several limitations that need to be considered. First, the use of cross-sectional data for one year (2022) means that the analysis cannot capture the dynamics of changes in efficiency

over time. Second, the DEA model used only includes two input variables (ZIS and Economic Growth) and one output (HDI), thereby ignoring other determining factors such as government spending in the social sector and the level of income inequality. Third, the limited availability of ZIS data on aggregate collection figures hinders a more in-depth analysis of the effectiveness of distribution patterns (consumptive vs. productive) in each region.

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