
**THE EFFECT OF GOVERNMENT EXPENDITURE IN THE FIELD OF
EDUCATION, HEALTH AND PER CAPITA EXPENDITURE ON THE HUMAN
DEVELOPMENT INDEX IN THE DISTRICTS/CITIES OF NORTH SUMATRA
PROVINCE**

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Abstract

This study aims to determine: (1) the effect of government expenditure in the education sector on the Human Development Index (HDI) in the Districts/Cities of North Sumatra Province, (2) the effect of government expenditure in the health sector on the HDI in the Districts/Cities of North Sumatra Province, (3) the effect of per capita expenditure on the HDI in the Districts/Cities of North Sumatra Province, (4) the effect of government expenditure in the education sector, health sector and per capita expenditure on the HDI in the Districts/Cities of North Sumatra Province. This study uses a quantitative approach using secondary data sourced from BPS Indonesia. The data used are panel data of DAK education, DAK health, per capita expenditure and HDI in 33 Districts/Cities of North Sumatra Province from 2018-2024 or as many as 231 observations. The data analysis technique in this study uses panel data regression with the Eviews 10 program application with the best selected estimation model, namely the fixed effect model (FEM). The results of this study indicate that: (1) government expenditure in the field of education has a positive and significant effect on the HDI in the Regency/City of North Sumatra Province, (2) government expenditure in the field of health has a positive and significant effect on the HDI in the Regency/City of North Sumatra Province, (3) per capita expenditure has a positive and significant effect on the HDI in the Regency/City of North Sumatra Province, (4) government expenditure in the field of education, health and per capita expenditure simultaneously have a significant effect on the HDI in the Regency/City of North Sumatra Province. Furthermore, the area with the best HDI model is in Padang Sidempuan Regency, while the area with the lowest HDI model is in Serdang Berdagai Regency.

Keywords: Expenditure Government, Expenditure Per capita Education, Health, Human Development Index

INTRODUCTION

The UNDP developed human development in the form of the Human Development Index (HDI). The Human Development Index (HDI) is a composite index compiled from a number of indicators and then calculated using a specific method to produce the HDI. The indicators used are the dimensions of longevity and healthy living, the dimension of knowledge, and the dimension of a decent standard of living. The HDI can be used as a tool to measure the development progress of a country or region. Its concept, built on the three main essences of human identity, makes the HDI able to explain human progress as a whole and can be used to evaluate development progress over time and across different regions (BPS, 2023).

This Human Development Index (HDI) problem occurs particularly in North Sumatra Province. The HDI of North Sumatra Province is consistently below the National HDI average. It is known that of the 33 regencies/cities in North Sumatra Province, only 11 regencies/cities exceeded the average Provincial HDI and the National HDI average from the observation year 2018-2024, namely 6 cities (Medan, Pematang Siantar, Binjai, Tebing Tinggi, and Sibolga) and 5 regencies (Deli Serdang, Simalungun, Karo, North Tapanuli, and Toba Samosir). If examined further, the average human development of the City area is much better than the Regency area. This indicates that there is inequality in human development in North Sumatra Province; the most extreme inequality occurs especially on Nias Island, namely Nias Regency, West Nias Regency, and South Nias Regency. The HDI in these three districts is classified as an area with a moderate HDI, with an HDI category between 60 and 70. In fact, at the beginning of the observation year, almost all three districts were in the low HDI category.

Of course, many factors influence the HDI. According to Mankiw (2006), human resource development can be achieved by improving the quality of human capital, which consists of education and health. Education and health are expected to expand opportunities to achieve a decent life. Furthermore, according to Keynes (1936), household consumption is influenced by disposable income. Higher incomes also increase consumption, although not proportionally. Consequently, increased purchasing power improves access to basic needs. One of the government's efforts to improve education and health is through government spending. According to Sukirno (2013), government expenditure is part of fiscal policy, namely a government action to regulate the economy through budget instruments. Government spending is needed to increase physical capital, such as basic infrastructure and public facilities, as well as to improve public service facilities such as health, education, social protection, public order and security, and the environment, which in turn can improve the economy and public welfare.

Government expenditure in the education sector is contained in the Special Allocation Fund (DAK), which is sourced from APBN revenue allocated to certain regions with special needs, to help fund special activities that are regional affairs in accordance with national priorities. The DAK in the education sector is intended to fund educational activities, which are basic services that must be implemented by regional governments and are national priorities. The DAK in the education sector aims to realize the fulfillment of learning facilities and infrastructure standards in each educational unit that refer to the National Education Standards (SPN) (Presidential Regulation Number 123 of 2020 Concerning

Technical Guidelines for Physical Special Allocation Funds). The DAK in the education sector is considered capable of increasing the Human Development Index (HDI). According to Becker (1993), education functions as "human capital" that improves individual skills and productivity, increases employment opportunities, and leads to increased income. People with sufficient income will be freer to improve their quality of life. Therefore, the DAK in the education sector is considered capable of increasing the HDI. The DAK in the education sector is able to increase the Human Development Index (HDI) because it directly supports access to and quality of education, one of the main pillars of the HDI. The Special Allocation Fund (DAK) is used to build or rehabilitate school infrastructure, provide learning facilities, and fund education programs in the regions. This is particularly important for underdeveloped regions, which often face budget constraints. With adequate educational facilities and improved teaching quality, the average length of schooling and expected years of schooling can increase. Better education produces more skilled human resources, increases productivity, and employment opportunities. Overall, improving education through DAK has a positive impact on the quality of life of the community and increases the Human Development Index (HDI) in recipient regions.

It is known that there was an increase in the amount of physical DAK in the education sector from 8.66 billion (2018) to 21.85 billion (2019) or an increase of 252.2 percent followed by an increase in the region's HDI from 60.42 (2018) to 61.14 (2019) or an increase of 1.19 percent. This is in line with the human capital theory, if government spending on education increases, the region's HDI tends to increase. However, this contradicts the 2021, the decrease in physical DAK in the education sector from 22.26 billion (2020) to 9.11 billion (2021) or a decrease of 144.28 percent was actually followed by an increase in the HDI from 61.51 (2020) to 61.99 (2021), or an increase of 0.78 percent. Certainly, this data gap is an interesting study to further reveal the role of government spending on education with the development of the HDI in Regencies/Cities in North Sumatra Province. Complete data is in Appendix 1.

Furthermore, studies linking government spending on education to the Human Development Index (HDI) have previously been conducted. Andiny and Sari (2018), Darnawaty and Purnasari (2019), Listianingsih et al. (2022), and Putri and Kurnia (2022) concluded that government spending on education positively impacted the HDI. However, this contradicts other research, including Agustina et al. (2016), Laode et al. (2020), and Mahuze et al. (2022), which concluded that government spending on education had no impact on the HDI. This discrepancy between research findings makes for an interesting study to further explore the relationship between government spending on education and the HDI, particularly across regencies/cities in North Sumatra Province.

In addition to education, the government's efforts to improve the Human Development Index (HDI) include increasing government spending on health. Government spending on health is also reflected in the Special Allocation Fund (DAK), which is sourced from the State Budget (APBN) allocated to specific regions with special needs, with the aim of helping fund special activities that are regional affairs in accordance with national priorities. The DAK for Health is allocated to increase the reach and quality of health services for Regency/City Communities, especially those in Regency/City groups with suboptimal public health (Presidential Regulation Number 123 of 2020 concerning Technical Guidelines for Physical Special Allocation Funds). The DAK for health is considered capable of

increasing the HDI. According to Asri (2013), health aspects also affect human quality. Lack of calories, nutrition, or low health levels for the population will result in low human quality. In addition, health is a form of human capital that impacts the ability to work and learn (Grossman, 1972). So, unhealthy people will find it very difficult to work and learn, resulting in low human quality.

Therefore, the Special Allocation Fund (DAK) for health directly contributes to the improvement of the Human Development Index (HDI) by supporting improvements in access to and quality of healthcare services, which impact life expectancy indicators. The Special Allocation Fund (DAK) for health is used to build and rehabilitate healthcare facilities such as community health centers (Puskesmas) and hospitals, provide medical equipment, and fund health programs such as stunting, family planning, disease control, and others. Improved access to healthcare services helps reduce mortality rates, improve maternal and child health, and extend life expectancy. A healthier population leads to increased work productivity and greater economic opportunities. Therefore, the Special Allocation Fund (DAK) for health not only improves health indicators but also contributes to improving the overall quality of life, ultimately increasing the regional HDI.

an increase in the amount of physical DAK for the health sector from 2.18 billion (2018) to 20.34 billion (2019), or an increase of 932.44 percent. This was followed by an increase in the region's HDI from 60.42 (2018) to 61.14 (2019) or an increase of 1.19 percent. This is in line with the human capital theory; if government spending on health increases, then the region's HDI tends to increase. However, this is contradictory in 2023, the decrease in physical DAK for the health sector from 94.6 billion (2022) to 9.78 billion (2023) or a decrease of 867.25 percent, was actually followed by an increase in the HDI from 62.93 (2022) to 63.7 (2023), or an increase of 1.2 percent. Certainly, this data gap is an interesting study to further reveal the role of government spending on health with the development of the HDI in Regencies/Cities in North Sumatra Province.

Studies linking government health spending to the HDI have been conducted previously. Mahulauw et al. (2016), Andiny and Sari (2018), Mahuze et al. (2022), and Wahyuni and Amar (2023) concluded that government health spending has a positive and significant effect on the HDI. However, this contradicts other research, including Kahang et al. (2016), Listianingsih et al. (2022), Hidayati and Imaningsih (2022), and Nor and Nasruddin (2019), which concluded that government health spending has no effect on the HDI. This discrepancy in research findings between researchers is certainly an interesting study to further explore the relationship between government health spending and the HDI, particularly in regencies/cities in North Sumatra Province.

In addition to government spending on education and health, another factor thought to influence the HDI is per capita expenditure. According to the Central Statistics Agency (BPS) (2024), per capita expenditure is the average household consumption expenditure per individual over a given period. This expenditure includes all expenditures made by a household for consumption needs, both food and non-food, and is calculated by dividing total household consumption expenditure by the number of household members. According to Hidayat and Perwithosuci (2024), high per capita expenditure reflects better purchasing power, allowing wider access to basic needs such as nutritious food, education, and health services. This contributes directly to an increase in the HDI.

The increase in per capita expenditure from Rp. 6,152 to Rp. 6,382 in 2023, or an increase of 3.74%, was followed by an increase in the HDI from 62.9 to 63.7 in 2023, an increase of 1.22%. This is in line with the theory that if per capita expenditure increases, the HDI of the region tends to increase. However, this contradicts the 2020 trend, where the decrease in per capita expenditure from Rp. 6,009 to Rp. 5,830, or a decrease of 2.98%, was actually followed by an increase in the HDI from 61.1 to 61.5, an increase of 0.61%. Certainly, this data gap is an interesting study to further reveal the role of per capita expenditure on the development of the HDI in regencies/cities in North Sumatra Province.

Various expert opinions and empirical research findings link government spending on education, health, and per capita expenditure to the human development index. However, these findings indicate a research gap that even contradicts the theory. Considering that government spending on education and health, as well as per capita expenditure, is an urgent matter, the issue of the human development index and all its influencing factors is increasingly interesting to study further, particularly in the 33 regencies/cities of North Sumatra Province.

Based on a series of empirical, theoretical, and phenomenal issues presented, researchers are interested in discussing and conducting research related to "The Effect of Government Expenditure in Education, Health, and Per Capita Expenditure on the Human Development Index of Regencies/Cities in North Sumatra Province". Based on the background of the problem above, the objectives of this study are: To determine the effect of government expenditure in education on the HDI of Regencies/Cities in North Sumatra Province. To determine the effect of government expenditure on health on the HDI of Regencies/Cities in North Sumatra Province. To determine the effect of per capita expenditure on the HDI of Regencies/Cities in North Sumatra Province. To determine the effect of government expenditure in education, health, and per capita expenditure on the HDI of Regencies/Cities in North Sumatra Province.

REVIEW OF LITERATURE

- 1) Human Development Index (HDI) The HDI is a composite index used to measure the achievement of human development quality to achieve a better quality of life, both in terms of health, education, and economic aspects in a region within a one-year period. The data used in this study are the Human Development Index data for Regencies/Cities in North Sumatra for the period 2018-2024. This data was obtained from the Central Statistics Agency (BPS) of Indonesia in figures.
- 2) Government expenditure in the education sector is the budget issued by the government to improve public education in a region within a one-year period. This government expenditure in the education sector is proxied from the Physical Special Allocation Fund (DAK) for Education in 33 regencies/cities in North Sumatra Province for the 2018-2024 period. This data is the accumulation of physical DAK data in the education sector for PAUD, SD, SMP, SKB, SMA, SLB, SMK, and Libraries. This data was obtained from the Directorate General of Fiscal Balance (DJPK) in millions of rupiah.
- 3) Government expenditure on health is the annual budget allocated by the government to improve public health. This government expenditure on health is proxied from the Physical Special Allocation Fund (DAK) for Health in 33 regencies/cities in North Sumatra Province

for the 2018-2024 period. This data is the accumulation of physical DAK data for health programs to strengthen the reduction of maternal and infant mortality and stunting rates; health system strengthening programs; and family planning programs. This data is obtained from the Directorate General of Fiscal Balance (DJPK) in millions of rupiah.

4) Per capita expenditure is the average household consumption expenditure per individual in a certain period. This expenditure includes all expenditures made by households for consumption needs, both food and non-food, and is calculated by dividing total household consumption expenditure by the number of household members. The data used in this study is the per capita expenditure data of Regencies/Cities in North Sumatra for the period 2018-2024. This data was obtained from the Central Statistics Agency (BPS) of Indonesia in figures in rupiah units.

Research conducted by Barro, RJ (1996) entitled "Government Health and Education Spending and Economic Growth in Developing Economies." This research shows that spending on health and education not only increases the Human Development Index but also supports economic growth by increasing labor productivity.

Research conducted by Filmer, D., & Pritchett, L. (1999) entitled "The Impact of Public Health Expenditures on Human Development Indicators: A Cross-Country Analysis". The study shows that increasing public health spending has a positive impact on life expectancy and the quality of public health, especially in low- and middle-income countries.

Research conducted by Afonso, A., Schuknecht, L., & Tanzi, V. (2005) entitled "Public Sector Efficiency and Human Development: Evidence from OECD Countries". This study found that the efficiency of public spending, not just the amount, is very important in improving education and health indicators in the HDI, especially in developed countries.

A study conducted by Gupta, S., Verhoeven, M., & Tiongson, ER (2002) entitled "Public Expenditure and Human Development: The Case of Health and Education in Africa" concluded that health and education spending in African countries has a significant effect on improving the HDI indicator, although the results vary depending on the efficiency of budget governance.

A study conducted by Psacharopoulos, G., & Patrinos, H.A. (2004) entitled "Public Spending on Education and Human Development: Evidence from Developing Countries" found that government spending on education is positively and significantly related to improvements in education indicators within the Human Development Index (HDI), such as average years of schooling. Countries with higher education spending tend to have faster HDI growth. Research conducted by Hasibuan (2022) in a journal entitled "The Effect of Government Expenditure in Education on the Human Development Index" used path analysis methods. The results showed that government expenditure in education has a positive and substantial effect on the human development index in Medan City.

A study conducted by Hidayati (2022) entitled "The Effect of Government Expenditure on Education, Health, Economic Growth, and Poverty on the Human Development Index" found that government expenditure on education had a positive and significant effect on the Human Development Index in Yogyakarta. Government expenditure on health did not affect the Human Development Index in Yogyakarta.

Research conducted by Sari et al. (2022) in a journal entitled "The Effect of Education and Health Budgets on the Human Development Index in Indonesia" The results of the study show that partially there is a positive and significant influence of education and health

budgets on the human development index in Indonesia. Research conducted by Mahya and Widowati (2021) in a journal entitled "The Effect of Expected Years of Schooling, Average Years of Schooling, and Per Capita Expenditure on the Human Development Index." The results of the study show that per capita expenditure has a positive and significant effect on the human development index.

Research conducted by Meilinna (2024) in a journal entitled "The Effect of Life Expectancy, Average Years of Schooling, and Per Capita Expenditure on HDI: Background, Theoretical Study, Research Methods" The results of the study show that per capita expenditure has a positive and significant effect on the human development index.

Based on the framework of thought above, the research hypothesis can be formulated as follows:

- 1) It is suspected that government spending on education has a positive and significant impact on the Human Development Index of Districts/Cities in North Sumatra Province.
- 2) It is suspected that government expenditure in the health sector has a positive and significant impact on the Human Development Index of Districts/Cities in North Sumatra Province.
- 3) It is suspected that per capita expenditure has a positive and significant effect on the Human Development Index of Districts/Cities in North Sumatra Province.
- 4) It is suspected that government expenditure in the fields of education, health and per capita expenditure together have a significant influence on the Human Development Index of Districts/Cities in North Sumatra Province.

RESEARCH METHOD

This research approach is quantitative research. Quantitative data is data that is numerical or numeric. The research was conducted in North Sumatra Province over a seven-year period (2018-2024) to examine the Effect of Government Expenditure in Education and Health Sectors and Per Capita Expenditure on the Human Development Index (HDI) of Regencies/Cities in North Sumatra Province. The location and time of the research will be in 33 Regencies/Cities in North Sumatra Province. This research will be conducted from January 2025 until completion. This research uses secondary data with panel data regression analysis. The panel data used in this study is a combination of time series and cross-section data taken from 33 Regencies/Cities in North Sumatra Province in 2018-2024 obtained from the North Sumatra Central Statistics Agency (BPS) and the Directorate General of Fiscal Balance (DJPK). The data used is Human Development Index (HDI) data. Data collection in this study was carried out through documentation. This technique is carried out by collecting and recording available secondary data in the form of documents in the form of books, journals, archives, and so on (Sanusi, 2011). The documentation method is used to obtain data originating from various sources, such as journals, theses, books, and various published manuscripts from the BPS of North Sumatra Province, and also from data from the Directorate General of Fiscal Balance (DJPK), namely physical allocation funds for education and health in regencies/cities/provinces throughout Indonesia. Of course, the data used must be relevant regarding government spending in education and health, per capita spending, and the human development index. This study uses panel data regression analysis

techniques that will be estimated with several steps to obtain the right model and estimation, namely panel regression, classical assumption testing, and hypothesis testing.

RESULTS AND DISCUSSION

The Influence of Government Expenditure in the Education Sector on the Human Development Index (HDI)

The results of this study concluded that there is a partial positive and significant influence of government spending on education on the Human Development Index (HDI) in the districts/cities of North Sumatra province. In addition, a regression coefficient value of 0.10107 was obtained, which means that if government spending on education increases by 1 percent, the HDI will also increase by 0.10107 units, assuming the values of other variables remain constant. Therefore, it can be concluded that the higher the government spending on education, the higher the HDI will be. This means that the proposed hypothesis is proven true. The results of this study support the theory of development economics, education functions as human capital that improves individual skills and productivity, increases employment opportunities, and leads to increased income (Becker, 1993). Todaro (2008) stated that education is the most fundamental development goal. The results of this study are in line with the results of previous research, Anand & Ravallion (1993), Barro, (1996), Andiny and Sari (2018), Darnawaty and Purnasari (2019), Listianingsih et al. (2022), Putri and Kurnia (2022), which concluded that government spending on education has a positive and significant effect on the HDI.

Several logical reasons why education contributes to the increase in the Human Development Index (HDI) are that the government, through the State Budget (APBN), has allocated a special allocation fund for education. This allocation covers school infrastructure, libraries, and educational subsidies to improve accessibility, especially for disadvantaged groups. Education also influences public awareness of the importance of health and social policies. Educated individuals are more likely to adopt healthy lifestyles, understand their rights in society, and contribute to social development.

The North Sumatra Provincial Government is committed to improving the quality of education. This is evident in the 2023 Regional Budget (APBD), which allocates approximately 20% of total spending to education, as mandated by law. This budget will be used for school construction, teacher quality improvement, scholarships, and educational infrastructure. With improved educational facilities and access, the community has greater opportunities to acquire the knowledge and skills needed in the workforce.

According to the Central Statistics Agency (BPS) of North Sumatra Province, in 2023, North Sumatra's Human Development Index (HDI) reached 74.33, an increase from the previous year. This increase is in line with the increase in average years of schooling to 9.17 years and expected years of schooling to 13.50 years. This data indicates that more residents are able to receive education for longer periods, improving the quality of human resources.

Logically, increased education boosts individual productivity, lowers unemployment rates, and improves the quality of life, all of which are reflected in an increase in the Human Development Index (HDI). Empirical studies and supporting theories increasingly confirm that the higher the government spending on education, the higher a region's HDI.

The Influence of Government Expenditure in the Health Sector on the Human Development Index (HDI)

The results of this study concluded that, partially, there is a positive and significant influence of government spending on health on the Human Development Index (HDI) in the districts/cities of North Sumatra Province. Furthermore, a regression coefficient of 0.0725 was obtained, meaning that if government spending on health increases by 1 percent, the HDI will also increase by 0.0725 units, assuming the values of other variables remain constant. Therefore, it can be concluded that the higher the government spending on health, the higher the HDI will be. This means that the proposed hypothesis is proven true.

The results of this study support the Human Capital Model theory, which states that health is a form of human capital that impacts the ability to work and learn (Grossman, 1972). According to Todaro & Smith (2003), a requirement for a country to increase community productivity is to fulfill one of its basic rights, namely the right to good health services and facilities.

In addition, this study also supports previous studies, Filmer & Pritchett (1999), Mahulauw et al. (2016), Andiny and Sari (2018), Mahuze et al. (2022), and Wahyuni and Amar (2023), which concluded that government spending on health has a positive and significant effect on the HDI.

Several logical factors contribute to the positive and significant impact of increased government spending on health on the HDI. This is because when the government increases its budget allocation for health, such as programs to strengthen maternal and infant mortality and stunting reduction, disease control programs, health system strengthening programs, and family planning programs, public health services will be better and more affordable for the community, including the underprivileged.

The North Sumatra Provincial Government demonstrated a strong commitment to the health sector by allocating a budget of IDR 1.6 trillion (11.71% of the total APBD) in the 2023 Revised APBD. These funds are used for hospital operations, provision of facilities and infrastructure, national health insurance programs, and increasing human resource capacity in the health sector.

One indicator of the success of this budget allocation is the decline in stunting rates. The number of stunted toddlers in North Sumatra decreased from 27,006 in August 2023 to 15,679 in October 2023, representing a 41.94% decrease. This decline reflects improvements in children's nutritional and health status, which contributed to the increase in the Human Development Index (HDI).

In 2023, North Sumatra's Human Development Index (HDI) reached 75.13, an increase of 0.62 points (0.83%) compared to the previous year. This increase reflects improvements in the dimensions of longevity and healthy living, which are closely related to the quality of healthcare services.

Logically, increased government spending on health care improves access to and the quality of health care services, which in turn increases life expectancy and the quality of life of the community. Based on the empirical studies and supporting theories presented above, it is increasingly clear that the higher the government spending on health care, the higher the HDI in a region.

3. The Effect of Per Capita Expenditure on the Human Development Index

The results of this study concluded that per capita expenditure partially had a positive and significant effect on the Human Development Index (HDI) in the regencies/cities of North Sumatra Province. Furthermore, the regression coefficient was 27.13, meaning that a 1 percent increase in per capita expenditure would also lead to a 27.13-unit increase in HDI, assuming other variables remain constant. This suggests that the higher the per capita expenditure, the higher the HDI. This suggests that the proposed hypothesis is proven to be true.

The results of this study support Keynes's (1936) previous theory that household consumption is influenced by disposable income. Higher incomes increase consumption, although not proportionally.

In addition, the results of this study are in line with previous studies, Permana et al. (2019), Arofah and Rohimah (2019), Mahyanan and Widowati (2021), Meilinna et al. (2024) Wahyuni and Amar (2023) which concluded that per capita expenditure has a positive and significant effect on the HDI.

Several logical reasons why per capita expenditure has a positive and significant impact on the Human Development Index (HDI) include the fact that per capita expenditure reflects a community's ability to meet basic needs, such as food, education, and healthcare. Increased per capita expenditure indicates an improvement in the community's standard of living. This is in line with the opinion of Hidayat and Perwithosuci (2024), who confirmed that high per capita expenditure reflects better purchasing power, enabling wider access to basic needs such as nutritious food, education, and healthcare. This directly contributes to an increase in the HDI.

Logically, as per capita spending increases, people have greater purchasing power to access better education and healthcare services. This translates into increased expected years of schooling and average years of schooling, as well as life expectancy at birth.

For example, in 2024, there was an increase in average real expenditure per capita per year of Rp. 411 thousand (3.72%) compared to the previous year. This is in line with the expected length of schooling in North Sumatra increasing to 13.49 years (2024), and the average length of schooling reaching 9.93 years. Furthermore, life expectancy at birth increased to 73.90 years (2024). This increase triggered an increase in the Human Development Index (HDI). According to data from the Central Statistics Agency (BPS) of North Sumatra Province, in 2024, North Sumatra's HDI reached 75.76, an increase of 0.63 points (0.84%) compared to the previous year.

Thus, increased per capita expenditure contributes directly to improvements in all three dimensions of the HDI, demonstrating that a community's economic well-being plays a crucial role in human development. Based on the empirical studies and supporting theories presented above, it is increasingly clear that the higher a community's per capita expenditure, the higher a region's HDI.

The Influence of Government Expenditure on Education, Government Expenditure on Health, and Per Capita Expenditure on the Human Development Index (HDI)

The results of this study concluded that government spending on education, health, and per capita spending simultaneously significantly influenced the Human Development Index (HDI) in districts/cities in North Sumatra province. This means the proposed hypothesis was proven correct.

Furthermore, an R-squared value of 0.9913 was obtained. This indicates that government spending on education, health, and per capita spending contributed 99.13 percent to the HDI in the districts/cities of North Sumatra Province. Meanwhile, the remaining 0.87 percent was influenced by other variables outside this study.

Simultaneously, government spending on education, government spending on health, and per capita spending have a significant influence on the HDI because all three are the main pillars in the formation of the HDI, namely education, health, and a decent standard of living.

According to Statistics Indonesia (BPS) of North Sumatra, the province's Human Development Index (HDI) reached 75.76 in 2024, a 0.63 point increase from the previous year. This increase is due to various government budget interventions and increased public purchasing power. In the education sector, the government allocated approximately 20% of the regional budget (APBD) to improve access and quality of education. Consequently, the expected length of schooling reached 13.49 years, with the average length of schooling reaching 9.93 years.

Meanwhile, in the health sector, the budget allocation reached IDR 1.6 trillion in the 2023 Regional Budget. This supported improved healthcare services and a 41.94% reduction in stunting rates in just two months. Life expectancy in North Sumatra also increased to 73.90 years by 2024.

Furthermore, the increase in per capita spending of Rp411,000 (3.72%) strengthened people's purchasing power for basic needs. Logically, these three factors mutually reinforce each other and contribute directly to improving the quality of life, as reflected in the increase in North Sumatra's Human Development Index (HDI).

CONCLUSION

This study concludes that government spending in the education and health sectors, as well as per capita expenditure, has a positive and significant effect on the Human Development Index (HDI) in districts and cities across North Sumatra province. Collectively, these three variables contribute substantially to the improvement of HDI, with an r-square value of 99.13 percent. Among them, per capita expenditure emerges as the most dominant factor influencing HDI, reflecting the crucial role of household purchasing power in enhancing human development outcomes. The findings also indicate disparities across regions, where Padangsidempuan City, North Labuhanbatu Regency, and Binjai City exhibit the strongest HDI model, while Serdang Berdagai Regency, Dairi Regency, and Medan City demonstrate weaker performance.

In light of these results, several recommendations can be made. The North Sumatra Provincial Government should manage and allocate education spending more effectively, ensuring that funds are directed toward improving facilities, infrastructure, and teacher quality, while also addressing disparities in remote and underdeveloped regions. Equally important is the need for stronger monitoring and evaluation systems to guarantee transparency and accountability in fund utilization. In the health sector, budget allocation must prioritize primary health services, including the strengthening of Puskesmas and Posyandu, the provision of adequate medical resources, and the enhancement of health workers' competencies. Greater attention should also be given to promotive and preventive programs, such as immunization, nutrition, and maternal and child health.

Beyond the provincial level, both central and regional governments should design policies that strengthen purchasing power and promote equitable welfare across all regions. This can be realized through the creation of productive employment, the empowerment of micro, small, and medium enterprises, and vocational training that aligns with labor market needs. Social protection programs must also be better targeted to safeguard vulnerable groups and ensure access to basic needs in education, health, and daily living. For future research, it is essential to conduct more comprehensive studies with longer time spans and additional variables to further explore the dynamics between government spending, per capita expenditure, and human development in Indonesia.

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