

## Analysis of the Impact of Regional Expansion on the Human Development Index in North Sumatra Province

Ekawati Berutu<sup>a</sup>, Puti Andiny<sup>b</sup>, Salman<sup>c\*</sup>

<sup>abc</sup>Development Economics, Faculty of Economics and Business, Samudra University, Aceh

Corresponding author: [salman@unsam.ac.id](mailto:salman@unsam.ac.id)

Artikel Info	Abstract
<i>Article history:</i> Received November 8, 2025 Revised January 12, 2026 Accepted January 19, 2026 Available online February 1, 2026	<i>This study aims to analyze the impact of regional expansion on the Human Development Index (HDI) in North Sumatra Province in the regencies/cities resulting from the expansion in 2001-2008. The data used includes HDI, GRDP per capita, poverty rate, and open unemployment rate (TPT) from 2012 to 2023 for the expansion areas and parent areas using panel data analysis methods. The results show that GRDP per capita and OUR have a positive and significant effect on the HDI in the split-off and parent regions, while the poverty rate has a negative and significant effect on the HDI in both regions. The implication of this study is the importance of effective resource management, poverty and unemployment alleviation, and increased investment in the education and health sectors to maximize the positive impact of GRDP on human development in North Sumatra, especially in areas that have undergone expansion.</i>
<b>Keyword:</b> GRDP per capita; human development index (HDI); open unemployment rate (TPT); poverty rate; regional expansion	
<b>JEL Classification:</b> H72, O15, R11, R58	

### INTRODUCTION

Regional expansion in Indonesia is an integral part of the Decentralization and Regional Autonomy policy (Syarifuddin et al., 2019), which aims to improve the provision of public services and accelerate development at the regional level. Regional expansion refers to the administrative division of an existing region into two or more new autonomous regions. This process is expected to bring government institutions closer to the community and improve the efficiency of resource management. (Tenrini, 2012) (Nurohman and Aziz, 2021) The government has adopted this strategy to improve the effectiveness of governance, accelerate development, and promote social cohesion, particularly as an effort to reduce disparities between regions in development outcomes. Development must be directed towards creating a fair distribution of welfare across all levels of society so that social and economic inequalities can be minimized. This is very important so that all people can enjoy the benefits of the progress achieved and improve their overall quality of life (Nurasa et al., 2024).

North Sumatra Province is one of the provinces with great potential for economic and social development that has undergone significant regional expansion. Since the enactment of Law Number 22 of 1999, regional expansion has been carried out extensively in Indonesia, including in North Sumatra. Between 2001 and 2008, 13 new districts/cities were formed through regional expansion. This expansion was expected to improve economic performance, public services, and equitable distribution of welfare in the region. The main objective of the expansion was to shorten the span of government control so that public services could be optimized and development could be more evenly distributed at the local

level (Tennini, 2012). However, the results of the expansion show varying achievements, with some expanded regions successfully increasing their Human Development Index (HDI) and economic growth, while others still face challenges such as poverty and high unemployment. The data on the expansion of 13 districts/cities in North Sumatra is an important basis for evaluating the effectiveness of regional expansion policies in improving community welfare and human development in this province.

**Table 1. List of Regency/City Subdivisions in North Sumatra 2001-2008**

Subdivided District/City	Parent District	Year Of Expansion
Padangsidempuan	Tapanuli Selatan	2001
Nias Selatan	Nias	2003
Pakpak Bharat	Dairi	2003
Humbang Hasundutan	Tapanuli Utara	2003
Samosir	Toba Samosir	2003
Serdang Bedagai	Deli Serdang	2003
Batu Bara	Asahan	2007
Padang Lawas Utara	Tapanuli Utara	2007
Padang Lawas	Tapanuli Utara	2007
Labuhan Batu Selatan	Labuhan Batu	2008
Nias Utara	Nias	2008
Nias Barat	Nias	2008
Gunung Sitoli	Nias	2008

Source: Kementerian Dalam Negeri 2024

In recent years, there have been proposals to create new provinces in North Sumatra, particularly in 2024, with three regions applying to become new provinces. However, these applications have not yet been processed due to a moratorium on the formation of new autonomous regions (DOB) by the central government, which aims to evaluate previous divisions that are not yet financially independent. The discourse on division has sparked pros and cons among the public; supporters argue that division can accelerate development and equitable distribution of welfare, while opponents consider it to be in the political interests of the regional elite. Therefore, an in-depth study and a comprehensive analysis are needed before deciding on the division of new regions (Rifdan, 2012), (Kusuma, 2017).

The expected impact of this expansion is an increase in the Human Development Index (HDI) because with an increase in the Human Development Index, there will be an improvement in the quality of life of the community (Nizar et al.,2019). With a government that is closer and more focused on local needs, it is hoped that access to basic services such as education, health, and infrastructure can improve. The increase in HDI is expected to be reflected in improvements in the quality of life of the community, including increased life expectancy, education levels, and better living standards (Kusuma, 2017). Although the development planning system has made progress, a number of obstacles still hinder optimal implementation. One of the main obstacles that often arises in the context of rural development and local government administration is the limited capacity of human resources to manage and implement programs effectively, as well as budget constraints that are often insufficient to meet all development needs. This necessitates careful prioritization and efficient resource management so that

development can proceed according to targets and provide maximum benefits to rural communities. (Wula et al., 2024)

Research states that the expansion of 10 districts and cities was effective because their HDI growth was higher than that of the main districts, namely: Simeulue, Aceh Singkil, Bireuen, Southwest Aceh, Nagan Raya, Aceh Jaya, Bener Meriah, Pidie Jaya, Langsa, and Lhokseumawe. Meanwhile, in 3 regencies/cities, the expansion was ineffective, namely Gayo Lues, Aceh Tamiang, and Subulussalam. Panel data regression results show that the HDI significantly affects expansion, and the main regressors are GDP per capita and poverty, while the unemployment rate is not significant. GDP per capita has a positive effect, while poverty hurts the HDI. The effect of GDP per capita on HDI is greater, while the effect of poverty is greater in the main districts. Research by Daulay & Sirojuzilam, (2023) shows that economic aspects (income, labor, and large and medium industrial growth), social aspects (number of schools and health centers), infrastructure (road length and installed electricity capacity) before the 2002-2007 expansion were higher than after the 2008-2013 expansion, except for the economic aspect (per capita GRDP based on current prices), which was higher after the 2008-2013 expansion compared to before the 2002-2007 expansion. Research by Maulida & Silvia (2016). The results of the study show that the variables of people's purchasing power and the number of live births have a positive and significant effect on the Human Development Index (HDI). Meanwhile, the variable of the highest level of education completed has no effect and is not significant on the Human Development Index (HDI).

Research (Sofilda et al., 2023) tested eight variables, six of which had a positive effect on per capita income, namely health budget allocation, public service function, social protection function, village funds, regional independence, and investment. Conversely, education funding allocation and economic function did not show a significant impact. The second model indicates that the components of the first model positively influence Indonesia's HDI. 's research shows a positive increase in HDI every year after the division. The obstacles faced include the potential for less heterogeneous regions, traditional community cultures, and a lack of development pioneers. Future challenges include the need for sufficient funds and plans for the division of other Banyuwangi Regencies.

The differences in data changes from year to year provide a comprehensive picture of the socioeconomic dynamics in North Sumatra. The increase in per capita GRDP, the decline in poverty and unemployment rates, and the increase in HDI indicate progress in human development, although challenges remain, such as low education levels in some areas, high poverty rates, and a lack of equitable infrastructure development, especially amid the global crisis. An in-depth analysis of these changes can serve as a basis for recommending more effective policies to improve the welfare of the community in the future. However, some districts/cities are still below the poverty line, which indicates low per capita income and high unemployment, resulting in low levels of community welfare (low HDI), such as the districts of South Nias and West Nias.

This research gap is evident in previous findings regarding the impact of regional expansion on the Human Development Index (HDI). Previous studies have not comprehensively examined the differences in the influence of economic and social variables, such as GRDP per capita, poverty rate, and open unemployment rate, on the HDI between parent regions and the expansion areas. This study presents an update by providing a more in-depth and up-to-date analysis of the effectiveness of regional expansion on human development, while directly

comparing the differences in impact between parent regions and the expansion areas. Furthermore, previous studies have been conducted in other provinces, so they may not necessarily represent conditions in North Sumatra. The main differences between this study and previous studies lie in the use of more recent data, more comprehensive analytical methods, and a focus on evaluating the effectiveness of regional expansion from a human development perspective, which has previously received less attention.

This study aims to explore the extent to which regional expansion affects the Human Development Index (HDI) in North Sumatra. The main focus of the study is to analyze relevant economic variables, namely Gross Regional Domestic Product (GRDP) per capita, poverty rate, and unemployment rate. These variables were selected based on their relevance to the HDI. This study thus provides an important contribution to the development of theory and policy in the context of decentralization and regional development in Indonesia.

## **RESEARCH METHODS**

This research was conducted in North Sumatra province with a scope of regional economic studies. This research covers 21 districts/cities in North Sumatra province, which are divided into parent regions and expansion regions. The type of data used in this research is descriptive quantitative. The object of this research is the expansion of districts/cities on the human development index in North Sumatra. The data used in this study are secondary, and the data sources used in this study are secondary data in the form of per capita GRDP, poverty rate, open unemployment rate (TPT), and Human Development Index (HDI) obtained from the North Sumatra Provincial Statistics Agency (BPS) and related regional institutions.

Two data collection techniques were used in this study, namely documentation and literature study. Documentation involves collecting data by searching for records, documentation, and archives from the relevant parties. The documentation used was data published by the North Sumatra Central Statistics Agency. Literature study is a data collection technique that involves gathering information from books and journals related to this study. The literature study in this research used journals, theses, and scientific books.

This study uses Panel Data Regression Analysis with Eviews 10 software. The regression model selection was carried out through the Chow test to determine between the common effect or fixed effect model, and the Hausman test to choose between the fixed effect or random effect. Hypothesis testing includes a partial test (t-test) for each independent variable, a simultaneous test (F-test) for all independent variables together, and a coefficient of determination ( $R^2$ ) to measure the model's ability to explain the variability of the dependent variable. The general model of panel data regression is expressed in the following equation:

$$Y = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_3 + e \dots\dots\dots(1)$$

Y = Human Development Index; X1= GRDP per capita; X2 = Poverty; X3 = Open Unemployment Rate;  $\beta_0$  = Intercept;  $i$  = Shows cross-section data of the district;  $t$  = Shows time series data;  $\beta_1, \beta_2, \beta_3$  = Regression coefficients and  $e$  = Error term

## RESULTS AND DISCUSSION

### RESULTS

#### Selection of Panel Data Regression Estimation Techniques

To determine the appropriate estimation method for this study, a series of statistical tests was conducted, including the Chow test and the Hausman test.

#### Selection of Regression Estimation Techniques for Newly Formed Regencies/Municipalities

##### Chow Test

The Chow test is used to select between common effects and fixed effects models by examining the probability values. When the F-statistic probability value obtained is less than the significance level of 0.05, the appropriate panel data regression model is the fixed effects model rather than the common effects regression model. If the F-statistic probability value is greater than the significance level (5%), then the Common Effects or Pooled Least Squares model is used.

**Table 2. Chow Test Results for Newly Formed Regencies/Municipalities**

Effects Test	Statistic	d.f.	Prob.
Cross-section F	68.197.916	-12,14	0.0000
Cross-section Chi-square	300.081.087	12	0.000

The results presented in Table 3 show that the Chow test results indicate that the probability cross-section chi-square shows a value of 0.0000, which is less than the significance level of 0.05. Therefore, it was decided that the selected model was a *fixed-effect* model, requiring a Hausman test

##### Hausman Test

The Hausman test is performed to select between fixed effects and random effects techniques, and then retested. If the chi-square probability obtained is less than 0.05, then the fixed effects model is appropriate for this study. Conversely, if the chi-square probability obtained is greater than 0.05, then the random effects model is preferable. The regression results obtained are:

**Table 3. Hausman Test Results for Newly Formed Regencies/Municipalities**

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	51.683792	3	0.0000

The Hausman test results show that the probability value of cross-section random is  $0.0000 < 0.05$ , so it can be concluded that the best model to use in this study is *fixed effect*.

#### Selection of Regression Data Estimation Techniques for Parent Regions

##### Chow Test

The Chow test is used to select between common effects and fixed effects models by examining the probability values. When the F - statistic probability value obtained is less than the significance level of 0.05, the appropriate panel data regression model is the fixed effects model rather than the common effects regression model. If the F - statistic probability value is greater than the significance level (5%), then the Common Effects or Pooled Least Squares model is used.

**Table 4. Chow Test Results for Parent Regions**

Effects Test	Statistic	d.f.	Prob.
Cross-section F	62.912.937	(7.85)	0.0000
Cross-section Chi-square	174.863.102	7	0.000

The Chow test results show that the probability cross-section chi-square shows a value of 0.0000, which is less than the significance level of 0.05. Therefore, it was decided that the selected model was a *fixed effect*, requiring a Hausman test.

**Hausman Test**

The Hausman test is performed to select between fixed effects and random effects techniques, and then retested. If the chi-square probability obtained is less than 0.05, then the fixed effects model is appropriate for this study. Conversely, if the chi-square probability obtained is greater than 0.05, then the random effects model is preferable. The regression results obtained are:

**Table 5. Hausman Test Results for Parent Regions**

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.400085	3	0.2838

The Hausman test results show that the probability value for cross-section random is 0.2838 > 0.05, so it can be concluded that Ha is rejected, and the best model that can be used in this study is the *random effect*.

**Estimation Results of the Regional Expansion Model**

The results of the model selection indicate that the fixed effect model (FEM) appears to be the most appropriate among the two models. Therefore, this study will further analyze the FEM estimation results. The estimation results for the FEM are presented as follows:

Based on the regression results obtained in Table 6, the following can be explained:

**Table 6. Estimation Results of the Regional Expansion Model**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.900.583	1.419.077	-1.339.309	0.000
X1	3.510.317	1.876.895	1.870.279	0.000
X2	-0.137708	0.040829	-3.372.795	0.010
X3	0.205549	0.058911	3.489.146	0.006
R-squared	0.969410	Mean dependent var		6.687.147
Adjusted R-squared	0.966132	S.D. dependent var		4.439.697
S.E. of regression	0.817044	Akaike info criterion		2.530.668
Sum squared resid	9.345.862	Schwarz criterion		2.843.474
Log likelihood	-1.813.921	Hannan-Quinn criter.		2.657.716
F-statistic	2.957.763	Durbin-Watson stat		0.545462
Prob(F-statistic)	0.000000			

$$HDI = - 190.0583 + 18.70279 (GRDP) - 3.372795 (KM) + 3.489146 (TPT) \dots\dots\dots(2)$$

The coefficient value of the GRDP per capita variable is 18.70279. If there is a 1% increase in GRDP per capita, it will cause an increase in the HDI of 18.70%. The coefficient value of poverty is -3.372795. If there is a 1% increase in poverty, it will cause a decrease in the HDI of 3.37%, and the coefficient value of the TPT is 3.489146. If there is an increase in the TPT, it will cause the HDI to increase by 3,48%. Estimate the result parents' area

**Table 7. Estimate the result of the parents' area**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.544.382	9.443.416	6.930.100	0.0000
PDRB	1.728.515	0.487352	3.546.745	0.0006
KM	-1.127.255	1.153.033	-9.776.430	0.0000
TPT	0.015327	0.103185	0.148543	0.8822
Cross-section random			2.931.531	6,013888889
Idiosyncratic random			1.153.132	0,930555556
R-squared	0.610270	Mean dependent var		7.904.568
Adjusted R-squared	0.597561	S.D. dependent var		1.831.508
S.E. of regression	1.161.873	Sum squared resid		1.241.953
F-statistic	4.802.023	Durbin-Watson stat		0.514189
Prob(F-statistic)	0.000000			

$$\text{HDI} = 65.44382 + 3.546745 (\text{GRDP}) - 9.776430 (\text{KM}) + 0.148543 (\text{TPT}) \dots\dots\dots(3)$$

The coefficient value of the GRDP per capita variable is 3.546745. A 1% increase in GRDP per capita will result in a 3.54% increase in HDI. The coefficient value of the Poverty is -9.776430. A 1% increase in Poverty will result in a 9.77% decrease in HDI. The coefficient value of the TPT is 0.148543. An increase in TPT will result in a 0.14% increase in HDI.

**Hypothesis Testing**

**Partial Test (t-test) for Expansion Areas and Parent Areas**

The partial t-test is used to evaluate the specific effect of an individual independent variable on the dependent variable while controlling for the influence of other factors. A variable is deemed to have a statistically significant partial effect if the t-statistic > t-table or p-value <0.05.

**Table 8. Results of the t-test for Regions and Parent Regions**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.900.583	1.419.077	-1.339.309	0.0000
GRDP	3.510.317	1.876.895	1.870.279	0.0000
KM	-0.137708	0.040829	-3.372.795	0.0010
TPT	0.205549	0.058911	3.489.146	0.0006

1. Based on the estimated coefficient of the per capita GRDP variable, the t-value is 1.870279 > t-table 1.654 with a probability value of 0.0000, where the p-value is less than  $\alpha = 0.05$ . Therefore, the per capita GRDP variable has a positive and significant partial effect on the HDI in the regencies/cities. This means that if there is a one percent increase in per capita GRDP, the HDI will increase significantly by 18.70279 percent.
2. Based on the coefficient estimation results, the poverty rate variable has a t-value of -3.372795 > t-table 1.654 with a probability value of 0.0010, where the p-value is less than  $\alpha = 0.05$ . This means that, partially, the poverty rate variable has a negative and significant effect on the HDI in the regencies/cities. If there is a one percent increase in poverty, the HDI will decrease significantly by 3.372795 percent.
3. Based on the coefficient estimation results, the TPT variable has a t-value of 3.489146 > t-table 1.654 with a probability value of 0.0006, where the p-value is less than  $\alpha = 0.05$ . Therefore, partially, the TPT variable has a positive and

significant effect on the HDI in the regencies/cities; if there is a one percent increase in TPT, the HDI will increase significantly by 3.489146 percent.

**Table 9. t-Test for Parent Regions**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.544.382	9.443.416	6.930.100	0.0000
GRDP	1.728.515	0.487352	3.546.745	0.0006
KM	-1.127.255	1.153.033	-9.776.430	0.0000
TPT	0.015327	0.103185	0.148543	0.8822

1. Based on the estimation results, the coefficient of the per capita GRDP variable has a t-value of 3.546745 > t-table 1.661 with a probability value of 0.0006, where *the p-value* is less than  $\alpha = 0.05$ . Therefore, partially, the per capita GRDP variable has a positive and significant effect on the HDI in the parent district/city. If there is a one percent increase in per capita GRDP, the HDI will increase significantly by 3.546745 percent.
2. Based on the estimated coefficient results, the poverty level variable has a t-value of -9.776430 > t-table 1.661 with a probability value of 0.0000, where *the p-value* is less than  $\alpha = 0.05$ . This means that, partially, the poverty level variable has a negative and significant effect on the HDI in the parent district/city. If there is a one percent increase in poverty, the HDI will decrease significantly by 9.776430 percent.
3. Based on the coefficient estimation results, the TPT variable has a t-value of 0.148543 < t-table 1.661 with a probability value of 0.8822, where *the p-value* is greater than  $\alpha = 0.05$ . Therefore, partially, the TPT variable has a positive and insignificant effect on the HDI in the parent district/city. If there is a one percent increase in TPT, the HDI increases insignificantly by 0.148543 percent.

**Simultaneous Test (F Test) for the Expansion Area and Parent Area**

The F-test is utilized to determine whether all independent variables together exert a significant influence on the dependent variable. When the probability value of the F-statistic is less than or equal to the significance level ( $\alpha = 0.05$ ), it indicates that the independent variables have a joint effect on the dependent variable

**Table 10. F Test for Expanded Areas**

<b>F-statistic</b>	295.7763
<b>Prob(F-statistic)</b>	0.00000

Based on Table 7, the F-statistic of 295.7763 is greater than the F-table value of 3.06. This is also confirmed by the probability value, which is smaller than the significance level of 0.05 (0.000000 < 0.05). It can be concluded that all independent variables (per capita GRDP, poverty rate, and TPT) have a simultaneous effect on the dependent variable (HDI).

**Table 11. F-test for Parent Region**

<b>F-statistic</b>	131.3844
<b>Prob(F-statistic)</b>	0.00000

Based on Table 8, the F-statistic of 131.3844 is greater than the F-table value of 3.10. This is also confirmed by the probability value, which is smaller than

the significance level of 0.05 ( $0.000000 < 0.05$ ). So it can be concluded that all independent variables (per capita GRDP, poverty rate, and TPT) simultaneously affect the dependent variable (HDI).

### **Coefficient of determination ( $R^2$ ) Expanded regions and parent regions**

**Table 12. Coefficient of Determination ( $R^2$ ) Expansion Areas**

<b>Adjusted R-squared</b>	0.966132
---------------------------	----------

Based on Table 9, it can be seen that the Adjusted R-squared value is 0.966132. This shows that the independent variables consisting of per capita GRDP, poverty rate, and open unemployment rate influence the Human Development Index (HDI) of 96.61%, while the remaining 5.49% is influenced by other variables outside this study.

**Table 13. Coefficient of Determination ( $R^2$ ) Parent Region**

<b>Adjusted R-squared</b>	0.597561
---------------------------	----------

Based on Table 10, it can be seen that the Adjusted R-squared value is 0.597561, which shows that the independent variables consisting of per capita GRDP, poverty rate, and open unemployment rate influence the Human Development Index (HDI) of 59.75%. In comparison, other variables outside this study influence the remaining 40.25%.

## **DISCUSSION**

### **The Effect of Per Capita GRDP on HDI in the Main Region and the Expansion Region**

The expansion of regions in North Sumatra has had a positive impact on per capita GRDP and the Human Development Index (HDI), especially in the expanded regions. Panel data regression results show that per capita GRDP has a positive and significant effect on HDI, with this effect being greater in the expanded areas than in the parent areas, in line with research (Nizar et al., 2019) and (Raihan, 2025). This is due to a more focused infrastructure development, policies that adapt to local needs, and investment facilitation that encourages economic diversification and increased labor activity in the newly established regions. As a result, economic growth in the newly established regions occurs more rapidly, allowing economic potential to be maximized and having a greater impact on human development. Meanwhile, although the parent region loses some of its territory and resources, the per capita GRDP in the parent region can still increase due to a decrease in population and improved development efficiency. These results support the research of Sholeha et al. (2024), Williyani & Hasmarini (2024), and Fitriani et al. (2024).

### **The Effect of Poverty Levels on the Human Development Index in Parent Regions and Newly Established Regions**

Panel data regression results show that poverty levels have a negative and significant effect on the HDI in both newly established and parent regions in North Sumatra, in line with the study (Utomo et al., 2022). In the split-off region, a one percent increase in poverty causes a significant 3.37 percent decrease in the HDI, while in the parent region, the decline in the HDI due to a one percent increase in poverty is greater, at 9.77 percent. This means that a decrease in poverty in the parent region has a greater impact on HDI improvement than in the split-off region,

so that poverty alleviation programs in the parent region are considered more effective (Lismana & Sumarsono, 2022). These findings confirm that poverty is a major obstacle to human development, as high poverty rates reflect low community welfare and limited access to basic needs such as education and health (Naufal & Fikriah, 2023). In addition, infrastructure inequality also exacerbates the situation, especially in newly established regions that often experience population decline and a decrease in regional revenue, thereby limiting the ability of local governments to provide public services and reduce poverty. Therefore, a focused poverty alleviation strategy tailored to regional characteristics is essential to promote sustainable HDI improvement and human development. This aligns with research by Trisno et al. (2021), Hasan (2014), and Febrianti & Wenagama (2022).

### **The Effect of Open Unemployment Rate on Human Development Index in Parent Regions and Newly Established Regions**

Panel data regression results show that the Open Unemployment Rate (TPT) variable has a positive and significant effect on the Human Development Index (HDI) in the split-off regions of North Sumatra, with a one percent increase in TPT increasing the HDI by 3.49 percent. Conversely, in the parent region, the effect of TPT on HDI is positive but not significant. This finding rejects the hypothesis that TUP negatively affects HDI, as most workers are employed in the informal sector with low incomes, so even though unemployment is low, the quality of human development remains low. Unemployment can have a positive effect on the HDI due to the imbalance between labor absorption and job seekers, in line with the findings of Nizar et al., (2019) , (Nashih et al., 2024), and Lucya Hariani & Ekaria (2023).

### **CONCLUSION**

Gross Regional Domestic Product (GRDP) per capita has a positive and significant effect on the Human Development Index (HDI) in North Sumatra, while poverty levels show a negative and significant relationship. The Open Unemployment Rate (TPT) in the expanded region shows a positive and significant effect on the HDI, while in the parent region, the effect is positive but not statistically significant. Simultaneously, all independent variables of GRDP per capita, poverty rate, and unemployment significantly affect the HDI.

Regional governments need to increase per capita GRDP through investment in productive sectors, development of UMKM, and improvement of human resource quality through training tailored to job market needs. Effective and targeted poverty alleviation programs must be strengthened, including social assistance, economic empowerment, and access to basic services supported by accurate data and close monitoring. Creating quality jobs through investment, incentives, development of labor-intensive sectors, and industrial skills training is also crucial to reducing unemployment, including registering informal workers for protection and welfare. Furthermore, special attention needs to be given to regions with a low HDI, particularly in newly established regions, with development programs tailored to regional potential and needs and involving active community participation.

### **ACKNOWLEDGEMENTS**

The author would like to thank the supervising lecturer and reviewers for their guidance and input, the Central Statistics Agency for providing research data, and all parties who have provided support and assistance in completing this research

## REFERENCES

- Daulay, S. S., & Sirojuzilam. (2023). TALENTA Conference Series Dampak Pemekaran Kabupaten Padang Lawas Terhadap Perekonomian, Sosial dan Infrastruktur di Kabupaten Padang Lawas 06, 1–5.
- Febrianti, U. M., & Wenagama, I. W. (2022). Pengaruh Kemiskinan, Tingkat Pengangguran Dan Tingkat Pendidikan Terhadap Ipm Di Kabupaten/Kota Provinsi Bali 2014-2019. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*, 11(5), 1621. <https://doi.org/10.24843/eep.2022.v11.i05.p01>
- Fitria, D. N., Winanto, A. R., & Abas, S. (2024). *Pengaruh Produk Domestik Regional Bruto ( PDRB ), Tingkat Harapan Hidup , dan Harapan Lama Sekolah terhadap Indeks Pembangunan Manusia di Dki Jakarta Tahun 2010-2023*. 8(3), 1170–1178. <https://doi.org/10.29408/jpek.v8i3.28270>
- Hasan, nurhikmah amalia. (2014). Pengaruh Produk Domestik Regional Bruto (PDRB), Kemiskinan Dan Belanja Modal Terhadap Indeks Pembangunan Manusia (IPM) Di Daerah Istimewa Yogyakarta Periode 2008-2014 THE. *Procedia Manufacturing*, 1(22 Jan), 1–17. <https://doi.org/arXiv:1011.1669v3>
- Kusuma, R. (2017). Efektifitas Kebijakan Pemekaran Wilayah Terhadap Peningkatan Pelayanan Publik. *Jatiswara*, 26(3), 1–31. <https://doi.org/10.29303/jtsw.v26i3.17>
- Lismana, A. I., & Sumarsono, H. (2022). Analysis of the Effect of Population Growth, Human Development Index and Unemployment Rate on Poverty in West Java Province 2017-2020. *Jurnal Ekonomi Pembangunan*, 20(01), 88–97. <https://doi.org/10.22219/jep.v20i01.20286>
- Lucya Hariani, V. H., & Ekaria, E. (2023). Pengaruh Pengangguran, Sanitasi, TIK Terhadap IPM dan Melalui Kemiskinan Kabupaten/Kota di Kawasan Timur Indonesia 2021. *Seminar Nasional Official Statistics, 2023*(1), 601–610. <https://doi.org/10.34123/semnasoffstat.v2023i1.1736>
- Maulida, S., & Silvia, V. (2016). Indeks Pembangunan Manusia Pasca Pemekaran pada Enam Kabupaten di Provinsi Aceh. *JIM) Ekonomi Pembangunan Fakultas Ekonomi Dan Bisnis Unsyiah*, 1(2), 389–399.
- Nashih, M., Primandari, N. R., Muthmainnah, Siregar, S. E., & Utami, T. W. (2024). Indeks Pembangunan Manusia (IPM) Dalam Memediasi Pengaruh Tingkat Pendidikan Dan Pertumbuhan Ekonomi Terhadap Tingkat Pengangguran Di Pulau Kalimantan. *Edunomika*, 08(02), 5–24.
- Naufal, A., & Fikriah, F. (2023). Regional Nexus of Economic Growth, Income Inequality and Poverty. *Ekonomikalia Journal of Economics*, 1(2), 61–68. <https://doi.org/10.60084/eje.v1i2.114>
- Nizar, M., Syechalad, M. N., & Gunawan, E. (2019). *Analisis Dampak Pemekaran Daerah Kabupaten/Kota Terhadap Pembangunan Manusia Di Provinsi Aceh*.5(October),134–150. <https://doi.org/jurnal.usk.ac.id/EKaPI/article/view/14204>
- Nurasa, H., Abdillah, A., Adikancana, Q. M., & Widianingsih, I. (2024). Organization ecosystem for inclusive development in Indonesia: a bibliometric analysis and literature review. *Cogent Social Sciences*, 10(1).

<https://doi.org/10.1080/23311886.2024.2368949>

- Nurohman Dede, Abd Aziz, M. F. F. (2021). Implikasi Pemekaran Daerah Terhadap Pemerataan Dan Efisiensi Pelayanan Publik Di Provinsi Banten Oleh. *Kodifikasia: Jurnal Penelitian Islam*, Vol 15, No. 01 (2021), 133-158, 15(01), 133-158.
- Raihan, A. M. (2025). *Pengaruh PDRB (Produk Domestik Regional Bruto) Terhadap IPM (Indeks Pembangunan Manusia) Di Kabupaten/Kota Provinsi Jawa Tengah Tahun 2023*. 18(10).
- Rifdan. (2012). Implementasi Kebijakan Pemekaran Daerah dalam Mendukung Integrasi Nasional Di Kabupaten Luwu Timur. *Jurnal Ilmiah Ilmu Administrasi Publik*, 1(1), 23. <https://doi.org/10.26858/jiap.v1i1.206>
- Roekminiati, S. (2014). *Evaluasi Dampak Pemekaran Kecamatan Terhadap Indeks Pembangunan Manusia (Studi Kasus di Kecamatan Tegalsari Kabupaten Banyuwangi)*. 183-200.
- Sholeha, D. A., Amanda, Z. D., Ardiansyah, D., & Likuwatan, P. (2024). *Dampak Pasca Pemekaran Daerah terhadap Kesejahteraan Masyarakat (Studi kasus: Kabupaten Musi Rawas Utara Provinsi Sumatera Selatan)*. 1. <https://doi.org/10.62383/parlemer.v1i4.374>
- Sofilda, E., Hamzah, M. Z., & Nurhaida, D. (2023). *Pembangunan Manusia Di Indonesia (Studi pada Kabupaten / Kota Kurun Waktu 2015-2021)*. 31(1), 15-28.
- Syarifuddin, Benyamin, I. M., Paddu, H., & Yusri Zamhuri, M. (2019). The Influence of Government Spending on Increasing Regional Competitiveness through Infrastructure, Economic Growth, and the Quality of Human Resources after the Implementation of Regional Autonomy in Indonesia. *International Journal of Science and Research*, 8(7), 148-156.
- Tahan Upoyo Trisno, Munajat, & Yetty Oktarina. (2021). Pengaruh Kemiskinan Terhadap Indeks Pembangunan Manusia (IPM) Di Provinsi Sumatera Selatan Tahun 2016-2020. *Jurnal Bakti Agribisnis*, 7(02), 25-32. <https://doi.org/10.53488/jba.v7i02.128>
- Tenrini, R. H. (2012). Pemekaran Daerah: Kebutuhan Atau Euforia Demokrasi? Mengapa Harus Mekar. *Pusat Kebijakan APBN, BKF, 2009*, 1-9.
- Utomo, A. P., Mariana, N., Nugroho, I., Informasi, F. T., Semarang, U. S., Tri, J., Juang, L., & Mugas, N. (2022). Pendampingan Menumbuhkembangkan Wirausaha Bagi Karang Taruna Semarang Utara Dengan Kemampuan Proses Produksi Kain Ecoprint. *Ikraith-Abdimas*, 5(1), 167-171.
- Williyan, E. A., & Hasmarini, M. I. (2024). Analisis Pengaruh PDRB Per Kapita, Jumlah Penduduk Miskin dan Investasi Terhadap Indeks Pembangunan Manusia (IPM) di Provinsi Kalimantan Timur Tahun 2017-2021. *Jurnal EMT KITA*, 8(1), 226-234. <https://doi.org/10.35870/emt.v8i1.2106>
- Wula, H. V. M., Atok, F., & Sitorus, D. R. H. (2024). Village Development Planning Model in the Border Region Between the Republic of Indonesia and the Democratic Republic of Timor-Leste. *Society*, 12(2), 603-613. <https://doi.org/10.33019/society.v12i2.601>