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Research Article

Analysis of Education Level and Unemployment on Poverty Rates in Nias Islands 2013-2023

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Abstract

This study aims to analyze the relationship between education level, open poverty level, and poverty in Nias Regency during the period 2013–2023. Nias Regency still faces major challenges in economic and social development, relatively low levels of community education, declining unemployment rates, and poverty lines that tend to increase from year to year. Based on BPS data and various recent scientific literature, it was found that improvements in education have not significantly reduced poverty rates. Expert opinions such as Zebua and Laoli (2023) state that low workforce skills are the main cause of high poverty rates. Meanwhile, Latif and Ramadhani (2024) emphasize the importance of investing in education in reducing poverty rates sustainably. This study uses a quantitative descriptive approach with secondary data analysis to determine the pattern of relationships between variables. The results of the analysis are expected to be used as consideration in the preparation of regional policies that focus on strengthening the quality of human resources as a strategy for overcoming poverty in Nias Regency.

Introduction

Poverty remains a central issue in development in Indonesia, including Nias Regency located in the province of North Sumatra. Over the past decade, the poverty rate in this region has shown quite complex dynamics, influenced by various social and economic factors. Nias Regency, as part of North Sumatra Province, continues to strive to reduce the poverty rate. The socio-economic dynamics of this region are closely tied to the influence of education levels and open unemployment. Both become interrelated indicators in determining the welfare of the community, especially in areas with limited access and resources. Here is the table of data on Education Level, Open Unemployment, and Poverty Line in Nias Regency for the period 2013-2023

Table 1

Data on Education Level, Open Unemployment Rate, and Poverty Line of Nias Regency 2013-2023

Tahun	Tingkat Pendidikan umur 16-18 (%)	Tingakt Pengangguran Terbuka Umur 15 > (%)	Garis Kemiskinan (Rupiah)
2013	54,68	0,87	276.654
2014	59,75	0,44	280.008
2015	65,7	0,92	287.527
2016	78,02	-	330.111
2017	73,6	1,19	346.374
2018	72,17	1,62	353.141
2019	75,79	1,09	361.698
2020	77,36	3,49	405.355
2021	77,58	3,12	428.739
2022	80,06	2,81	454.570
2023	81,13	2,31	485.533

Sumber:Badan Pusat Statistik Sumatera Utara

Based on the table above, the poverty line continues to rise, from Rp 280,000 per capita per month in 2013 to Rp 485,000 in 2023, indicating inflationary pressure and increased basic needs of the community. The increase in the poverty line from Rp 280,000 (2013) to Rp 485,000 (2023) indicates inflationary pressure and rising basic needs, necessitating implementations such as adjustments to the amount and targets of social assistance, inflation control through stabilization of basic prices and distribution oversight, increasing the income of the poor through skills training and access to capital, improving access to education, health, and basic infrastructure, as well as regular monitoring and evaluation to ensure program effectiveness and appropriate policy adjustments. Hutapea (2019) highlights that poverty in underdeveloped areas like Nias is not only influenced by economic aspects but also by limited access to education and healthcare services. Simbolon (2022) adds that prolonged poverty can create a vicious cycle, where the younger generation struggles to obtain adequate education, resulting in low human resource quality and slow economic growth.

The phenomenon of poverty in Nias is not only influenced by macroeconomic factors but is also closely related to the social conditions of the community. Research by Siregar et al. (2020) emphasizes that poverty in underdeveloped areas like Nias is highly vulnerable to external changes, such as rising prices of basic necessities and the impact of natural disasters. Simanjuntak (2021) also found that the vulnerability of the poor in Nias is increasing due to limited access to basic services, such as education and health care. Additionally, BPS North Sumatra (2023) reported that the poverty rate in Nias is still above the provincial average, thus requiring special attention in formulating poverty alleviation policies.

Education is the main pillar in the economic development of a region. The low level of education in Nias Regency, as illustrated by the average length of schooling data in the Table, has become one of the main obstacles in improving labor productivity and the region's economic competitiveness. Siregar et al. (2021) revealed that investment in the education sector has a significant impact on economic growth in North Sumatra, where an increase in the average length of schooling is in line with GDP growth. This is also supported by Nasution and Simanjuntak (2020), who found that areas with low levels of education tend to experience economic stagnation due to a lack of innovation and low-quality workforce. In Nias Regency, the average length of schooling, which is still below the provincial average, poses a unique challenge in creating competent human resources capable of competing in the job market.

The open unemployment rate in Nias Regency is also an important aspect that needs further examination. The data in the Table shows that the open unemployment rate has undergone quite significant changes, even tending to increase in certain years, especially during the COVID-19 pandemic. The research by Zebua and Laoli (2023) states that the high unemployment rate in Nias is closely related to the low education and skills of the

workforce. Many school graduates do not yet have skills that match market needs, making it difficult for them to be absorbed in both the formal and informal sectors.

This emphasizes the importance of improving the quality of education accompanied by vocational skills training so that unemployment can be reduced and economic growth becomes more inclusive. Manurung (2020) emphasizes the importance of collaboration between improving education and poverty alleviation to drive regional economic growth. His research shows that regions capable of simultaneously reducing poverty rates and increasing average years of schooling tend to experience faster and more sustainable economic growth. This is highly relevant to the conditions in Nias Regency, where economic development policies should not only focus on macro growth but also be directed towards improving the quality of human resources and integrated poverty reduction. These efforts can be carried out through the provision of scholarships, skills training, and the economic empowerment of communities based on local potential.

The connection between education, unemployment, and poverty in Nias becomes clearer when faced with external challenges such as a pandemic. Telaumbanua and Harefa (2022) noted that during the pandemic, many working-age residents lost their jobs due to the decline in economic activity, resulting in a surge in unemployment and an increase in poverty. However, after 2022, there has been a trend of improvement in line with economic recovery and the enhancement of social and educational assistance programs.

Looking at the developments over the past ten years, it can be concluded that the efforts to improve education and create jobs in Nias have shown results, although not yet optimal. The poverty rate, which had increased in 2020-2021, began to decline again in 2022-2023, in line with the improvement in education levels and the decrease in unemployment. However, the challenges remain significant, especially in improving access to secondary and higher education and expanding opportunities for decent work.

Referring to various studies from the past five years and the development of socio-economic indicators in Nias, this article aims to comprehensively analyze the influence of education levels and unemployment on poverty rates in Nias Regency during the period 2013-2023. This analysis is expected to provide appropriate policy recommendations for local governments and stakeholders in their efforts to sustainably reduce poverty rates in the future.

The introduction includes background to interest, issues, phenomena, and novelty the purpose of the study showed at the end of the introduction.

Hypotheses Development

Poverty

Poverty remains one of the most pressing social and economic challenges faced by many developing countries, including Indonesia. It is not only characterized by the inability to meet basic needs but also encompasses multidimensional aspects such as limited access to education, healthcare services, adequate housing, and employment opportunities. In remote regions like the Nias Islands, poverty is a structural issue that requires special attention due to the lack of infrastructure and uneven economic development.

According to data from Statistics Indonesia (Badan Pusat Statistik/BPS), poverty is defined as a condition in which monthly per capita expenditure falls below the poverty line. This line is calculated based on the minimum requirements for both food and non-food necessities deemed essential for a decent standard of living. In 2023, the poverty line in North Sumatra Province rose, indicating increasing economic pressures such as inflation and instability in staple food prices, which further exacerbated the living conditions of poor households.

The basic needs approach posits that poverty arises when individuals cannot meet minimum standards due to restricted access to economic resources. This model is highly relevant in analyzing the situation in the Nias Islands, where disparities in the distribution of public services and economic facilities are more pronounced compared to mainland regions. Poverty in this context is influenced not only by economic factors but also by geographical, cultural, and social constraints.

Scholars such as Todaro and Smith (2020) argue that poverty should not be measured solely by income levels. They emphasize that genuine economic development must create equal opportunities, enhance quality of life, and eliminate discrimination in access to education and employment. Therefore, efforts to reduce poverty must go beyond social assistance and include structural reforms.

In regional development contexts, poverty often intersects with other indicators such as education and unemployment. High poverty rates are commonly found among populations with low educational attainment and limited access to productive employment. Hence, it is critical to examine the relationship between education levels, unemployment, and poverty, particularly in vulnerable areas like the Nias Islands.

Education Level

Education plays a fundamental role in human and economic development. It not only enhances individual knowledge and skills but also broadens opportunities for employment and social mobility. In the context of poverty, education is vital in breaking the cycle of intergenerational poverty. Individuals with low educational attainment are more likely to have limited job opportunities, earn lower incomes, and face difficulties accessing basic services.

Quality education can improve labor productivity and increase access to formal employment. In underdeveloped regions such as the Nias Islands, the education sector faces various challenges, including inadequate school facilities, a shortage of qualified teachers, and economic constraints that force children to drop out of school. These factors contribute to low participation rates in secondary and higher education.

According to Suryadi (2022), education has a negative correlation with poverty, indicating that the higher a person's education level, the lower their likelihood of experiencing poverty. This is consistent with the findings of Putri and Hidayat (2023), who assert that education is a key asset in improving household welfare. They emphasize that formal education should be complemented by practical skills to ensure that graduates can be readily absorbed into the labor market.

Theoretically, human capital theory underscores that investment in education yields returns in the form of higher labor productivity and increased earnings. Education is seen as an asset that generates long-term economic benefits. In areas like the Nias Islands, strengthening primary and secondary education is a priority for improving the economic mobility of local communities.

Nonetheless, issues of accessibility and educational quality remain significant obstacles. Government interventions are needed to improve educational infrastructure, enhance teacher quality, and provide educational support for low-income families. Without substantial improvements in the education sector, poverty alleviation efforts will be less effective.

Unemployment

Unemployment is one of the key indicators that influence a population's economic conditions and significantly contributes to poverty. An individual is considered unemployed if they are part of the labor force but do not have a job and are actively seeking employment. High unemployment rates reflect an imbalance between labor supply and demand in the labor market.

In the Nias Islands, the economy is still predominantly reliant on the primary sector, such as agriculture and fisheries, which limits the availability of formal employment opportunities. As a result, even individuals with secondary education often struggle to secure jobs, leading many to work in the informal sector with unstable income and minimal social protection.

Faisal and Murni (2021) state that prolonged unemployment leads to declining household purchasing power and worsens poverty conditions. They also highlight the importance of job training programs that align with market needs to reduce skill mismatches. Over the long term, high unemployment rates can impose a social burden on the government and hinder regional economic growth.

From a Keynesian perspective, unemployment results from insufficient aggregate demand in the economy. This implies that increasing economic activity through public investment, MSME development, and higher

government spending can be effective strategies for generating new employment. Local governments are expected to design economic policies that can absorb the local workforce.

Additionally, it is essential to create a conducive business climate to support the growth of local industries that can generate employment opportunities. Expanding labor-intensive programs and promoting community-based economic empowerment can also serve as short-term solutions to reduce unemployment in the Nias Islands.

Method

This study uses a quantitative approach with descriptive methods and multiple linear regression analysis. According to Prasetyo and Nuraini (2023), a quantitative approach is very appropriate for testing the relationship between socio-economic variables objectively and measurably. The purpose of this study was to determine the effect of education level and poverty level on poverty rates in Nias Regency during the period 2013 to 2023.

The type of data used is secondary data obtained from official agencies, such as the Central Statistics Agency (BPS) of Nias Regency. The variables in this study include the average length of schooling as an indicator of education level, the open poverty rate as an indicator of employment, and the poverty line as an indicator of poverty level.

The population in this study is all annual data from 2013 to 2023 related to the third variable. Data analysis techniques were carried out using SPSS software version 22.0. The first analysis was carried out descriptively to describe the data trend, including the average, maximum, minimum, and standard deviation values of each variable.

Furthermore, multiple linear regression analysis was carried out to determine the effect of education level (X_1) and poverty level (X_2) on poverty rates (Y). Hypothesis testing was carried out using the t-test to test the effect of each variable partially, and the F-test to test the effect of both variables simultaneously. The significance value set at 0.05. If the significance value <0.05, then the variable is declared to have a significant effect on poverty.

Results And Discussion

Result

Table 2
Uji Multikoloniearitas
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-32369,029	84434,358		-,383	,711		
	Tingkat Pendidikan (X1)	4823,042	1262,117	,585	3,821	,005	,708	1,412
	Tingkat Pengangguran (X2)	29529,673	9521,492	,475	3,101	,015	,708	1,412

a. Dependent Variable: Garis Kemiskinan (Y)
  Data processed by SPSS. 22

From the results of the multicollinearity test analysis, the independent variables have a Tolerance value of more than (>0.100) and a VIF of less than (<10.00), so it can be concluded that the assumption of Multicollinearity has been met or there are no symptoms of multicollinearity.

Table 3

Uji Normalitas (*Kolmogrove Smirnov*)

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		11
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	26014,94774709
Most Extreme Differences	Absolute	,192
	Positive	,192
	Negative	-,116
Test Statistic		,192
Asymp. Sig. (2-tailed)		,200[c,d]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

Data processed by SPSS. 22

It is known that the Asymp. Sig. (2-tailed) value obtained is 0.200 (>0.05) then it is concluded that the data is normally distributed, this is stated from the significance value obtained which is greater than 0.05.

Table 4
Uji Heteroskedastisitas (*Uji Park*)

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	20,156	5,053		3,989	,004		
	Tingkat Pendidikan (X1)	-,023	,076	-,123	-,301	,771	,708	1,412
	Tingkat Pengangguran (X2)	,415	,570	,296	,729	,487	,708	1,412

a. Dependent Variable: LN_RES

Data processed by SPSS. 22

From the results of the analysis of the independent variables, Education Level (X1) has a significance value of 0.771, and for Unemployment Level (X2) has a significance value of 0.487, so from these two independent variables have a significance value greater than 0.05, it can be concluded that there is no symptom of heteroscedasticity or the heteroscedasticity assumption test has been met.

Table 5
Uji Autokorelasi (*Durbin Watson*)
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson

| 1 | ,405a | ,164 | ,059 | 25752,858 42746 | 1,332 |

a. Predictors: (Constant), LAG_RES
b. Dependent Variable: Unstandardized Residual
Data processed by SPSS. 22

It is known that the DL value is 1.242, DW < 1.332, DU < 1.6044, so it can be concluded that there is no autocorrelation symptom in this study.

Table 6
Koefisien Determinasi
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,931a	,867	,834	29085,595 80

a. Predictors: (Constant), Tingkat Pengangguran (X2), Tingkat Pendidikan (X1)
Data processed by SPSS. 22

It is known that the Adjusted R Square value is 0.834, so it can be concluded that the variables of Education Level and Unemployment Level provide a joint influence of 83.4% on the Poverty Rate variable and the remaining 17.3% is influenced by other variables outside this study.

Table 7
Uji F
ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	442182868 54,070	2	221091434 27,035	26,135	,000b
	Residual	676777506 2,840	8	845971882 ,855		
	Total	509860619 16,909	10			

K informal sector, is needed to address this problem holistically.

Conclusion
The conclusion should answer the research question and not be expressed in statistical sentences, followed by implications and suggestions for further research.
Research conducted in Nias Regency during the period 2013-2023 shows that education level and unemployment rate have a significant influence on poverty rates. Increasing education levels correlate with decreasing poverty rates, which confirms that education is the main key to eradicating poverty. Conversely, high unemployment rates contribute to increasing poverty as more individuals lose their steady income. Therefore, increasing access and quality of education and reducing unemployment are two important elements in the poverty alleviation strategy in Nias.
The results of this study are in line with international findings in the last decade that emphasize the role of education and unemployment in overcoming poverty. A study by UNESCO (2015) shows that quality education improves skills and job opportunities, thereby significantly reducing poverty. A study by the World Bank (2018) also confirms that high unemployment exacerbates structural poverty, and interventions that combine job training with job creation are effective in reducing poverty rates. In addition, the OECD report (2017) underlines the importance of vocational education to match workforce skills with market needs and reduce unemployment. Studies by the Asian Development Bank (2020) and the International Labour

Organization (2019) also support that investment in education and job training is an effective long-term strategy for poverty alleviation.

The Nias District Government has begun to respond to these findings with various programs to improve the quality of education and provide school supplies for students from poor families, as part of efforts to eradicate extreme poverty. In addition, the government is also encouraging the integration of vocational education and skills training that are relevant to the needs of the local labor market. This approach not only aims to improve the quality of human resources, but also prepares the younger generation to be able to compete in the job market and reduce dependence on traditional sectors such as agriculture and fisheries.

However, geographical and infrastructure challenges remain obstacles to expanding access to education and employment in Nias. Therefore, continuous investment is needed in improving infrastructure, teacher training, and developing education programs that are relevant to local conditions. Synergy between the government, communities, and international institutions is essential to ensure the sustainability of poverty alleviation programs through education and reducing unemployment. Thus, integrated education and job creation are the main strategies in overcoming structural poverty in Nias Regency.

References

Asian Development Bank. (2020). Skills for Inclusive Growth in Asia and the Pacific. Asian Development Bank.

Becker, G. S. (1993). Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education (3rd ed.). University of Chicago Press.

BPS Kabupaten Nias. (2013-2023). Data Tingkat Pendidikan, Pengangguran Terbuka, dan Garis Kemiskinan Kabupaten Nias. BPS Kabupaten Nias.

BPS Sumatera Utara. (2023). Statistik Sosial Ekonomi Kabupaten Nias. Badan Pusat Statistik Provinsi Sumatera Utara.

Capra, T. (2009), Poverty and Its Impact on Education. The Nea Higher Education Journal, Vol. 25, No. 1, (PP: 78-111).

Daulay, M. A., & Haris, A. (2023). Pengaruh Jumlah Penduduk, Proporsi Perempuan dan Pertumbuhan Ekonomi Terhadap Pengangguran di Provinsi Sumatera Utara. Jurnal Magister Ekonomi Syariah, 2(2 Desember), 77-87.

Gethin, A. (2024). Education and global poverty reduction: Evidence and policy implications. International Journal of Development Studies.

Hutapea, A. (2019). Faktor-faktor Penentu Kemiskinan di Daerah Tertinggal: Studi Kasus Kabupaten Nias. Jurnal Pembangunan Daerah, 12(2), 45-60.

IMF. (2025). The role of education in income growth and poverty reduction (IMF Working Paper).

International Labour Organization (ILO). (2017). Structural Unemployment and Poverty: Challenges and Policy Responses. Geneva: ILO.

International Labour Organization. (2019). Global Employment Trends for Youth 2019: Technology and the future of jobs. ILO Publications.

Manurung, R. (2020). Kolaborasi Pendidikan dan Penanggulangan Kemiskinan dalam Mendorong Pertumbuhan Ekonomi Daerah. Jurnal Ekonomi dan Pembangunan, 18(1), 75-89.

Nasution, M., & Simanjuntak, E. (2020). Dampak Tingkat Pendidikan terhadap Pertumbuhan Ekonomi di Sumatera Utara. Jurnal Ekonomi Regional, 15(3), 101-115.

OECD. (2017). Skills Matter: Further Results from the Survey of Adult Skills. OECD Publishing.

OECD. (2020). Unemployment, Poverty, and Social Inequality. OECD Publishing.

OECD. (2023). Education, social mobility and inequality: Policy insights. OECD Publishing.

Sembiring, P. (2023). Analisis Regresi Logistik Untuk Menentukan Faktor-Faktor Yang Mempengaruhi Kesejahteraan Masyarakat Kabupaten/Kota Di Pulau Nias. FARABI: Jurnal Matematika dan Pendidikan Matematika, 6(1), 25-31.

Simanjuntak, E. (2021). Kerentanan Masyarakat Miskin terhadap Akses Layanan Dasar di Kabupaten Nias. Jurnal Sosial dan Kesejahteraan, 9(1), 33-47.

Simbolon, T. (2022). Lingkaran Setan Kemiskinan dan Pendidikan di Wilayah Tertinggal. Jurnal Pendidikan dan Pembangunan, 10(4), 112-125.

Segoro, W. (2016). Analisis Pengaruh PDRB, Inflasi, Indeks Pembangunan Manusia (IPM) dan Pengangguran terhadap Kemiskinan di Indonesia Tahun 2009-2012. Vol 6 no.1.

Siregar, D., et al. (2020). Pengaruh Faktor Sosial Ekonomi terhadap Kemiskinan di Kabupaten Nias. Jurnal Ilmu Sosial dan Ekonomi, 14(2), 88-102.

Sinaga, M., Damanik, S. W. H., Zalukhu, R. S., Hutauruk, R. P. S., & Collyn, D. (2023). Pengaruh pendidikan, pendapatan per kapita dan pengangguran terhadap kemiskinan di Kepulauan Nias. Jurnal Ekuilnomi, 5(1), 140-152.

Siregar, D., et al. (2021). Investasi Pendidikan dan Pertumbuhan Ekonomi di Sumatera Utara. Jurnal Pendidikan Ekonomi, 16(1), 50-65.

Smith, J., & Khandker, S. (2015). The Impact of Unemployment on Poverty in South Asia. Journal of Development Studies.

Susanto, R., & Pangesti, I. (2019). Pengaruh tingkat pendidikan terhadap kemiskinan di DKI Jakarta. JABE (Journal of Applied Business and Economic), 5(4), 340.

Telaumbanua, R., & Harefa, J. (2022). Dampak Pandemi COVID-19 terhadap Pengangguran dan Kemiskinan di Kabupaten Nias. Jurnal Ekonomi dan Kebijakan Publik, 11(2), 77-90.

UNESCO. (2015). Education for All 2000-2015: Achievements and Challenges. UNESCO Publishing.

United Nations Development Programme (UNDP). (2019). Multidimensional Poverty and Unemployment. New York: UNDP.

World Bank. (2018). Youth Unemployment and Poverty in Developing Countries. Washington, DC: World Bank Publications.

World Bank. (2018). World Development Report 2018: Learning to Realize Education's Promise. World Bank Publications.

Zendrato, F., & Lubis, I. (2024). Analisis Faktor-Faktor Yang Mempengaruhi Kemiskinan Di Kepulauan Nias. Jurnal Ekuilnomi, 6(2), 194-200.