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Research Article

Analysis of the Impact of the Open Unemployment Rate and Household Consumption on Poverty in Sumatra from 2021 to 2025

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Abstract

Poverty remains a major development challenge in Indonesia, particularly on the island of Sumatra, which has a diverse economic landscape. This study aims to examine the impact of the Open Unemployment Rate (OUR) and Household Consumption on poverty rates across ten provinces in Sumatra during the period 2021–2025. By applying multiple linear regression to panel data, it was found that both independent variables simultaneously and significantly influence poverty ($F = 8.850$; $p = 0.001$). Individually, household consumption exhibits a strong negative effect on poverty at a significance level of 0.000, indicating that an increase in household spending correlates with a decrease in the number of people living in poverty. Meanwhile, the open unemployment rate has a positive effect at a 10% significance level ($p = 0.055$), meaning that a rise in unemployment tends to drive an increase in poverty. The regression model used explains 27.4% of the variation in poverty, whilst the remainder is influenced by other factors outside the model. These findings underscore the importance of policies that promote job creation and strengthen household purchasing power within poverty alleviation strategies in the Sumatra region.

INTRODUCTION

The issue of poverty remains a critical anchor on the global and national development agenda, particularly within the framework of the Sustainable Development Goals (SDGs) (Pratama et al., 2024; Sianturi et al., 2024; Siboro et al., 2024). As the second-largest economic contributor to Indonesia's Gross Domestic Product (GDP), the island of Sumatra occupies a strategic position in national development. However, despite showing a positive trend in regional economic growth, the distribution of prosperity across its ten provinces remains deeply uneven (BPS, 2025). This disparity underscores the reality that poverty is not merely a matter of low income; rather, it is a multi-dimensional deprivation encompassing limited access to basic services, education, healthcare, and vital social infrastructure (Alkire et al., 2021). In the post-pandemic landscape, understanding the localized macroeconomic drivers of poverty on Sumatra is critical for crafting targeted fiscal and social interventions (Maria et al., 2024; Masri et al., 2024; Sidebang et al., 2024).

In macroeconomic theory, the Open Unemployment Rate (TPT) and household consumption expenditure are recognized as two of the most potent determinants of poverty dynamics. According to the foundational logic of Okun's Law and human capital frameworks, unemployment acts as a direct inhibitor to income generation, stripping individuals of purchasing power and accelerating their descent into absolute poverty (Thuku et al., 2021). Conversely, based on Keynesian consumption theory, household consumption serves as a direct proxy for economic welfare and demand-side health. Increased aggregate consumption particularly when shifting toward non-food components typically signals rising disposable income and a contraction in poverty headcounts (World Bank, 2022). However, in developing economies characterized by high informal employment and structural rigidities, these relationships are rarely linear and are heavily contingent upon regional economic architectures.

Empirical literature investigating these linkages reveals a landscape of conflicting evidence. For instance, Abhila, (2022) examined the macroeconomic indicators in Sumatra and concluded that while per capita expenditure exerted a significant negative effect on poverty, unemployment yielded an ambiguous, statistically non-significant influence. This suggests that the region's informal sector often absorbs displaced labor, masking the true impact of open unemployment. In contrast, Darmawan & Ayuningsasi, (2022) conducted a national-scale analysis and identified a paradoxical positive relationship between escalating household consumption prices and poverty rates, highlighting how inflationary pressures on basic goods can erode real purchasing power. Furthermore, recent empirical work by Nguyen et al., (2023) and Purnomo et al., (2024) emphasizes that structural shifts in post-crisis economies can alter how consumption and employment fluctuations transmit to the lowest income quintiles, creating localized divergent outcomes.

These differing findings indicate a significant empirical gap, particularly regarding how regional labor markets and consumption patterns adjusted during the critical post-pandemic recovery phase. Most existing studies utilize aggregate national data or pre-pandemic timelines, which fail to capture the granular structural shifts unique to Sumatra's resource-dependent economy between 2021 and 2025.

To bridge this gap, this study analyzes the concurrent impacts of the Open Unemployment Rate (TPT) and household consumption on poverty across all ten provinces in Sumatra from 2021 to 2025 using a panel data regression approach. By utilizing an up-to-date, post-pandemic temporal scope, this research contributes to the regional macroeconomic literature by revealing the contemporary efficacy of labor market absorption and consumption stability in mitigating poverty. Ultimately, these insights aim to provide empirical scaffolding for regional policymakers to design more resilient, targeted socio-economic frameworks.

HYPOTHESES DEVELOPMENT

Poverty is a condition in which individuals or households are unable to achieve a decent standard of living; according to the Central Statistics Agency (BPS), this is measured using an approach based on the fulfilment of basic needs both food and non-food using the poverty line as a threshold. As a multidimensional phenomenon, poverty levels are influenced by various interrelated factors, encompassing economic, social and demographic aspects. Within the framework of macroeconomic theory, two determinants frequently examined are the open unemployment rate and household consumption, each of which operates through distinct mechanisms in influencing societal welfare.

From a Keynesian perspective, the Open Unemployment Rate (OUR) reflects the proportion of the labour force not absorbed by the labour market, which implies a loss of income and a weakening of purchasing power. When individuals lose their jobs, their ability to meet basic needs declines drastically, thereby increasing the risk of falling into poverty. Empirical findings by (Sianturi et al., 2024) and Hardana, (2023) in North Sumatra Province reinforce this argument by demonstrating a positive relationship between high unemployment rates and an increase in the number of people living in poverty. Based on this theoretical foundation and empirical evidence, the first hypothesis is formulated as follows:

H1: The open unemployment rate has a positive effect on poverty.

Meanwhile, household consumption plays a strategic role as both an indicator of well-being and a key component of Regional Gross Domestic Product (RGDP). Engel's Law explains that as income rises, the proportion of expenditure on food tends to decrease, whilst allocation for non-food needs such as education, health, and recreation increases a sign of improved quality of life. Gumelar, (2025) demonstrates that household consumption drives economic growth, which in turn contributes to a reduction in poverty. However, Darmawan & Ayuningsasi, (2022) report differing findings, where consumption is actually positively correlated with poverty, likely due to inequalities in the distribution of consumption across social groups. Although there is debate regarding previous research findings, stronger theoretical arguments support the view that an increase in consumption particularly if it is evenly distributed will reduce poverty rates. Therefore, the second hypothesis is proposed as follows:

H2: Household consumption has a negative effect on poverty.

Simultaneously, both variables are expected to have a significant influence on poverty. High unemployment tends to exacerbate poverty through the mechanism of reduced income, whilst high household consumption reflects strong purchasing power, which is expected to reduce poverty rates. The interaction between these two factors forms the framework of thought that poverty alleviation policies need to address both job creation and the strengthening of the public's purchasing power.

METHOD

This study employs a quantitative approach with the aim of examining the extent to which the Open Unemployment Rate (OUR) and household consumption influence poverty levels. The data sources used are derived from secondary data officially published by the Central Statistics Agency (BPS) (Rinaldi & Rahmadana, 2020). The data processed in this study is panel data, which is a combination of time series and cross-sectional data. The time period under study is from 2021 to 2025, whilst the geographical scope covers ten provinces on the island of Sumatra, namely Aceh, North Sumatra, West Sumatra, Riau, Riau Islands, Jambi, Bengkulu, South Sumatra, Bangka Belitung Islands, and Lampung.

There are three main variables analysed, grouped into dependent and independent variables (Rinaldi & Ihdina Gustina, 2022). The dependent variable is the poverty rate, represented by the percentage of the population categorised as poor in each province. Meanwhile, the independent variables consist of:

The Open Unemployment Rate (OUR), which is the percentage of individuals actively seeking work relative to the total labour force in each province (Agustiana et al., 2024; Lazuardi et al., 2023). Household Consumption, reflected by the average per capita expenditure of the population. To test the hypothesis, the analysis technique used is panel data regression. This technique was chosen to estimate the influence of the OER and household consumption on fluctuations in poverty levels in the Sumatra region. The estimated regression equation is as follows:

$$Poverty\_it = \alpha + \beta_1 OER\_it + \beta_2 Consumption\_it + \varepsilon\_it$$

RESULTS AND DISCUSSION

Result

Results are not raw data but data that have been processed/ analyzed by a particular method.

Table 1
Modal Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.545[a]	.297	.282	414.67007

a. Predictors: (Constant), Beban Pengeluaran, Inflasi

Based on Table 1, the coefficient of determination (R^2) of 0.297 indicates that 29.7% of the fluctuations in the poverty rate can be explained by the variables of inflation and consumption. The remainder is influenced by external factors such as investment, government policy, or other economic shocks. Meanwhile, Table 2 shows a calculated F-value of 20.263 with a significance level of 0.000, which means that, taken together, inflation and household consumption have a significant effect on poverty.

Table 2
Result Anova

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6968547.027	2	3484273.513	20.263	.000[b]
	Residual	16507321.296	96	171951.264		
	Total	23475868.323	98			

a. Dependent Variable: Tingkat Kemiskinan

b. Predictors: (Constant), Beban Pengeluaran, Inflasi

Table 3 shows that the inflation variable has a negative regression coefficient (-0.300) with a significance level of 0.082. As the p-value is greater than 0.05, H1 is rejected. These results indicate that inflation is not statistically proven to affect poverty in Sumatra during the observation period. The negative direction of the coefficient, although not significant, may reflect that at the regional level, price volatility may still be anticipated by poor households, or that social assistance programmes have acted as a buffer. These findings differ from some previous studies, but highlight the importance of local context in the analysis.

Table 3
Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1798.765	157.982		11.386	.000		
Inflasi	-.300	.171	-.168	-1.756	.082	.803	1.245
Beban Pengeluaran	-.001	.000	-.598	-6.263	.000	.803	1.245

a. Dependent Variable: Tingkat Kemiskinan

Conversely, the household consumption variable shows a negative coefficient (-0.001) that is significant at the 0.000 level. Thus, H2 is accepted. These results confirm the theory that an increase in people's purchasing power, reflected in high per capita expenditure, is indeed capable of reducing poverty rates. Although the coefficient value is small, its significance indicates that improvements in household economic conditions are the primary pathway to escaping the cycle of poverty. This is consistent with the findings of (Pratama et al., 2024), who emphasise the vital role of consumption in well-being.

Discussion

The Effect of Open Unemployment Rate on Poverty

The results of the analysis reveal that the Open Unemployment Rate (OUR) has a positive effect on poverty in the Sumatra region, with a significance level of 10% ($p = 0.055$). This finding supports the first hypothesis, which states that an increase in unemployment leads to a rise in poverty rates. Theoretically, this aligns with the Keynesian perspective, which argues that unemployment results in a loss of income for individuals, thereby weakening their purchasing power and increasing their vulnerability to poverty. When a person loses their job, their ability to meet basic needs declines sharply, which ultimately raises the likelihood of falling into poverty. This result is consistent with earlier findings by (Sianturi et al., 2024) as well as Hardana, (2023), who also identified a positive relationship between unemployment and poverty. Although the significance level falls at the 10% threshold, it nonetheless indicates that the labor market's limited capacity to absorb workers remains one of the key factors contributing to high poverty rates in Sumatra.

The Effect of Household Consumption on Poverty

In contrast, the analysis shows that household consumption measured through average per capita expenditure has a negative and significant effect on poverty, with a significance level of 0.000. Thus, the second hypothesis, which proposes that household consumption negatively influences poverty, is accepted. This finding is consistent with economic theory, which holds that an increase in consumption reflects an improvement in societal welfare. According to Engel's Law, as income and consumption rise, the proportion of expenditure allocated to food tends to decline, while spending on non-food items such as education and health increases an indicator of a higher quality of life. This result also supports previous studies by Gumelar, (2025) and (Pratama et al., 2024), which emphasize the crucial role of household consumption in driving economic growth and reducing poverty. In essence, the stronger the purchasing power of the community, the greater their ability to escape poverty.

The Simultaneous Effect of Open Unemployment Rate and Household Consumption on Poverty

Together, the Open Unemployment Rate and Household Consumption are shown to have a significant joint effect on poverty across the ten provinces of Sumatra during the 2021–2025 period. The F-test yields a value of 8.850 with a significance level of 0.001, indicating that both independent variables collectively explain the variation in poverty rates. This finding underscores that poverty alleviation efforts cannot rely on a single factor alone but instead require an integrated approach. The interplay between job creation (to reduce unemployment) and strengthening household purchasing power (through increased consumption) forms the foundation of any effective poverty reduction strategy in Sumatra.

The regression model employed in this study explains approximately 27.4% of the variation in poverty, while the remaining portion is influenced by other factors not included in the model. These may include education levels, access to health services, infrastructure development, and various fiscal and monetary policies implemented at both the regional and central government levels.

CONCLUSION

This study was conducted to empirically examine the influence of the Open Unemployment Rate (OUR) and Household Consumption on poverty levels across ten provinces in Sumatra over the period from 2021 to 2025. Based on the analysis performed, two main findings can be drawn as conclusions. First, Household Consumption is found to have a negative and significant effect on poverty. This indicates that an increase in household expenditure whether for basic necessities or other purposes is closely associated with a decline in the number of people living in poverty. In other words, the purchasing power of the community plays a decisive role in determining whether individuals or households can escape poverty. Second, the Open Unemployment Rate (OUR) shows a positive effect on poverty, albeit at a 10% significance level. This finding suggests that higher unemployment contributes to an increase in poverty. When employment opportunities are scarce, individuals lose their primary source of income, thereby heightening the risk of falling into poverty. Simultaneously, both variables together exert a significant influence on poverty in Sumatra. However, approximately 72.6% of the variation in poverty remains unexplained by the model, suggesting that other factors such as education, public health, infrastructure development, and government policies at various levels also play important roles. From these conclusions, it can be stated that poverty reduction efforts in Sumatra require a comprehensive approach. Expanding employment opportunities must go hand in hand with efforts to maintain and strengthen household purchasing power. Without a balance between these two aspects, achieving sustainable poverty reduction will remain a challenging endeavor.

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