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Economic Inequality and Human Development within the Framework of SDG 1 (No Poverty): The Impact of Poverty and Unemployment on the Human Development Index in West Papua (2015–2024)

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ABSTRACT

Objective: *West Papua, despite its rich natural resources, continues to experience a gap between economic growth and community welfare, as the quality of life of its residents has not fully improved. This study aims to analyze the effect of the open unemployment rate (OUR) and poverty rate on the Human Development Index (HDI) in West Papua Province during 2015–2024.* ***Method:*** *This research uses secondary data obtained from the West Papua Central Statistics Agency (BPS). Data analysis was performed using multiple linear regression with IBM SPSS Statistics software to test both partial and simultaneous effects.* ***Results:*** *The t-test results show that the open unemployment rate has a positive but insignificant effect on HDI (sig. 0.928 > 0.05), while the poverty rate has a negative and significant effect (sig. 0.001 < 0.05). The F-test confirms a significant simultaneous effect (F count = 16.042; sig. 0.002). The coefficient of determination (R^2) of 0.821 indicates that 82.1% of HDI variation is influenced by OUR and poverty, while the remaining 17.9% is affected by other factors. These findings show that poverty is the most dominant factor influencing human development in West Papua.* ***Novelty:*** *The novelty of this study lies in its empirical focus on an under-researched region and its contribution to integrating local development issues with the global Sustainable Development Goals (SDG) framework, particularly SDG 1 (No Poverty), offering valuable insights for inclusive policy formulation.*

INTRODUCTION

Human development is an important measure in assessing the success of development in a region. This measure is reflected in the Human Development Index (HDI) compiled by the United Nations Development Programme (UNDP) to measure the three main dimensions of development, namely longevity and healthy living, knowledge, and decent living standards (Alkire et al., 2023; UNDP, 2023; United Nations, 2022; World Bank, 2023). HDI is a more comprehensive indicator than economic growth alone because it reflects the overall quality of human life, covering aspects of education, health, and economic well-being (Salman Chowdhury et al., 2025). Therefore, increasing the HDI has become one of the main objectives of Indonesia's national development policy. HDI serves not only as a statistical measure but also as a theoretical construct linking economic performance with the capability expansion of individuals, in line with Amartya Sen's (1999) human development framework (Balasubramanian et al., 2023; Hajdu, 2021).

Nationally, Indonesia's Human Development Index (HDI) continues to improve every year (Limberg, 2022). Based on information from the Central Statistics Agency (2023), Indonesia's HDI in 2023 reached 74.39, an increase from 73.55 last year. However, this achievement is not evenly distributed across all provinces. West Papua Province, for example, still has an HDI of 68.77, which places it below the national

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Vol. 2, No.1, March 2026

average. The low HDI in this region is closely related to the high rates of poverty and unemployment. In the same year, the poverty rate in West Papua was recorded at 21.33 percent, while the open unemployment rate (TPT) reached 5.5 percent (BPS, 2023). This condition indicates that economic development in West Papua has not been fully capable of improving the quality of life of its people. Beyond these figures, such disparities reflect structural inequalities in resource distribution, access to education, and labor market opportunities that hinder the conversion of economic potential into human well being (Batuo et al., 2022). Therefore, understanding the causal relationship between poverty, unemployment, and HDI is essential for identifying the underlying mechanisms of regional inequality in Indonesia's development**.** This condition also highlights the persistent challenge of poverty eradication, which is directly aligned with Sustainable Development Goal 1 (No Poverty), aiming to end poverty in all its forms everywhere (Adeabah & Asongu, 2022; Chowdhury & Murshed, 2021; Lustig, 2020).

Previous studies have confirmed that poverty and unemployment are the main determinants affecting the HDI. Sukmawati et al., (2022) found that poverty has a significant negative impact on HDI in Indonesia, as limited household income reduces access to education and health care. Meanwhile, Sembiring et al., (2024) explains that rising unemployment has a negative impact on human development due to declining purchasing power and labor productivity. Similar results were also shown by Masduki, Rindayati, and Mulatsih (2022), which proves that improving the quality of local government spending can reduce poverty and at the same time increase the Human Development Index. Wibowo (2024) found that poverty and economic growth simultaneously affect the HDI at the national level. However, these studies tend to treat provinces in Indonesia as homogeneous units of analysis, overlooking the heterogeneity of regional development structures. More importantly, there is limited understanding of how unemployment and poverty interact dynamically over time to influence human development outcomes in less developed regions. While previous research emphasizes the negative effects of poverty and unemployment on HDI, there remains a theoretical gap in explaining why these effects might be stronger in regions like West Papua where institutional capacity, labor absorption, and public service accessibility are relatively weak (Albanesi & Kim, 2021; Xie et al., 2022). Addressing this knowledge gap is crucial for achieving SDG 1 (No Poverty), particularly in less-developed areas where poverty remains a structural obstacle to human development.

The urgency of this research lies in the significance of obtaining empirical understanding of the relationship between unemployment, poverty, and HDI in relatively underdeveloped regions such as West Papua. This research is important because human development in this region is not only faced with economic problems, but also limited access to education, infrastructure, and employment opportunities. The study positions HDI as the outcome of multi dimensional interactions between economic and social factors where unemployment reduces income potential, and poverty constrains investment in human capital, both of which jointly depress human

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Vol. 2, No.1, March 2026

capability formation. The results of this study are expected to provide a strong basis for the formulation of more targeted regional policies to improve the welfare of the community (Esubalew et al., 2023). More specifically, the study supports the realization of Sustainable Development Goal 1 (No Poverty) by identifying how poverty reduction policies can accelerate improvements in human development outcomes in West Papua.

The novelty of this study lies in its focus on analyzing West Papua Province during the period 2015–2024, as well as the simultaneous use of two key economic variables, namely the open unemployment rate and poverty, to explain variations in the HDI. This approach differs from most previous studies, which only tested one variable or were limited to developed economic regions In addition to the substantive gap, this research also addresses a methodological gap few studies employ longitudinal regression analysis to capture the temporal dynamics of unemployment and poverty on HDI in lagging provinces. By applying multiple linear regression across a decade-long dataset, this study provides empirical depth and temporal perspective that previous cross-sectional studies lack. The study used multiple linear regression analysis that emphasizes the quantitative and empirical relationship between economic variables, so that the results can be used as a basis for policy.

The contribution of this study is both theoretical and practical. Theoretically, this study reinforces the findings of Masduki et al. (2022) that socioeconomic factors, particularly unemployment and poverty, play a significant role in explaining variations in human development in Indonesia. It also extends existing theories by integrating the concept of regional inequality into the human development framework—showing that HDI disparities can be understood as the cumulative effect of unequal access to productive opportunities and public services. In practical terms, the results of this study are expected to serve as a reference for the West Papua regional government in designing policies to alleviate poverty, create jobs, and improve the quality of education and health care for the community. Thus, this study contributes to the implementation of SDG 1 (No Poverty) by providing empirical evidence on the impact of poverty and unemployment on human development in one of Indonesia's most underdeveloped provinces. Ultimately, this study aims to provide a more comprehensive empirical foundation for understanding how economic vulnerability and structural inequality interact to shape human development trajectories in peripheral regions like West Papua.

Theoretically, this study reinforces the findings of Masduki et al. (2022), which highlight the importance of socioeconomic factors in explaining variations in human development in IndonesiaIn practical terms, the results of this study are expected to serve as a reference for the West Papua regional government in designing strategies for poverty alleviation, job creation, and improving the quality of education and public health. Thus, this study is expected to make a real contribution to accelerating the improvement of the Human Development Index (HDI) and reducing development gaps between regions in Indonesia.

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Vol. 2, No.1, March 2026

Based on the above description, this study seeks to answer the following question: RQ1. Does open unemployment (TPT) have a significant impact on the HDI in West Papua Province in 2015–2024?; RQ2. Does poverty have a significant impact on the HDI in West Papua Province between 2015 and 2024?; RQ3. How do the open unemployment rate and poverty simultaneously affect the HDI in West Papua Province from 2015 to 2024.

Human Development Theory

The theory of human development is a conceptual framework developed by Amartya Sen (1999) and reinforced by the UNDP since 1990. This theory emphasizes that development is not only measured by economic growth, but also by the extent to which humans acquire the capabilities to enjoy a healthy, educated, and prosperous life (Jarrín-v et al., 2021; Lirios et al., 2025).

According to Sen (1999), human development is the process of expanding freedoms and choices that enable individuals to live the lives they value. Thus, economic development can only be considered successful if it has a real impact on improving the quality of human life, which is empirically represented by the Human Development Index (HDI) (Ahmed et al., 2023). UNDP (2023) emphasizes that the HDI is shaped by three main dimensions: 1.) Health (longevity) – measured by life expectancy; 2.) Education (knowledge) – measured by average and expected years of schooling; 3.) Decent standard of living – measured by per capita income. This theoretical framework highlights that HDI embodies multidimensional welfare, which depends not only on income but also on the capacity of individuals to utilize available opportunities (Arif, 2021). Therefore, structural barriers such as poverty and unemployment directly hinder the expansion of human capabilities by limiting access to education, health, and productive resources. Various socio-economic factors such as unemployment and poverty have the potential to lower the HDI because they reduce people's ability to access education, health services, and a decent income. In underdeveloped regions like West Papua, these constraints are further intensified by weak institutional performance, limited infrastructure, and geographic isolation, making human development outcomes more vulnerable to economic shocks.

Theories of Development Economics and Welfare

According to Ghosh & Kumar (2021), economic development is a multidimensional process involving social, structural, and institutional changes towards improving the welfare of society. Sustainable economic growth must be accompanied by an improvement in income distribution in order to improve the quality of life of the population (Zhang et al., 2023). Meanwhile, Lewis (1954) in his two-sector theory explains that poverty and unemployment are consequences of the imbalance between the traditional and modern sectors. When labor is not optimally absorbed in the productive sector, community welfare will decline, and ultimately suppress the quality of human development (Nwani et al., 2023).

In the framework of welfare economics, unemployment not only reduces individual income but also lowers aggregate productivity and government fiscal capacity to finance public services. Similarly, persistent poverty traps communities in low investment cycles that perpetuate inequality and weaken human capital formation. Hence, both variables are theoretically linked to HDI through income, education, and health channels.

Relationship Between Variables

To provide an analytical foundation, this section elaborates on how unemployment and poverty either individually or jointly affect human development outcomes.

The Relationship between Open Unemployment Rate (OUR) and HDI. Based on Keynesian labor theory and the results of Haini's (2021) research in the ASEAN region, unemployment has a negative effect on the Human Development Index because it reduces household income, decreases spending on education and health, and lowers productivity. Long term unemployment may also result in skill depreciation and social exclusion, which further weaken human capital accumulation and reduce HDI growth potential (Ekhator mobayode et al., 2022).

The Relationship between Poverty and HDI. Based on social welfare theory and Umar's (2020) findings, poverty hinders human development because limited income reduces people's ability to meet their basic needs. This has a direct impact on the decline in education, health, and living standards (Al-qadri et al., 2021). The persistence of poverty also limits intergenerational mobility, making it more difficult for low income families to escape deprivation even when macroeconomic indicators improve. Therefore, tackling poverty remains central to improving HDI performance, particularly in provinces with high inequality.

The Relationship between Open Unemployment Rate (OUR) and Poverty on HDI. According to Masduki, Rindayati, and Mulatsih (2022), poverty and unemployment interact simultaneously in influencing the HDI. An increase in unemployment can exacerbate poverty, and high poverty in turn slows down human development. This interdependence implies a cyclical relationship: rising unemployment expands poverty incidence, which then constrains household investment in education and health two pillars of HDI. Empirically, few studies have quantified the magnitude of this interaction in lagging regions using longitudinal econometric models. The present research aims to fill that methodological gap.

Table 1. Operational Definition of Variables

Variables	Type	Operational Definition	Unit/Indicator	Data Spurce
Human Development Index (HDI) (Y)	Dependen	Composite index reflecting community well-being based on education, health, and adequate living standards.	Percentage	West Papua Statistics Agency (2015–2024)
Open Unemployment Rate (OUR) (X1)	Independen	Percentage of the labor force that is unemployed but actively seeking work.	Percentage	West Papua Statistics Agency (2015–2024)
Poverty Rate (PR) (X2)	Independen	Percentage of the population with per capita expenditure below the poverty line set by Statistics Indonesia.	Percentage	West Papua Statistics Agency (2015–2024)

This operational framework underscores the empirical approach adopted in this study, where HDI serves as a composite dependent variable explained by two core economic indicators poverty and unemployment within a regional time-series framework.

Previous Research

Previous studies have examined the relationship between socioeconomic variables such as unemployment and poverty and human development, both at the global and regional levels. Haini (2021) in his study entitled "Economic growth and human development in ASEAN countries: A panel data analysis" used panel data regression methods on ten ASEAN countries during the period 2000–2018. His research reveals that economic growth contributes positively to the Human Development Index (HDI), while unemployment levels exert a significantly negative impact on human development. This supports the argument that labor market conditions are key determinants of welfare outcomes, particularly in developing economies.

Meanwhile, Ali Tariq, and Khan (2022) in their article entitled "Economic Growth, Financial Development, Income Inequality and Poverty Relationship: An Empirical Assessment for Developing Countries" examined the relationship between economic growth, income inequality, and poverty in developing countries using panel data regression analysis. The results of the study show that income inequality and poverty have a significant negative impact on economic development and human welfare.

Lowering poverty levels plays a crucial role in enhancing human development by expanding access to education, health services, and household income. The study also highlights that policy interventions targeting poverty reduction must be localized to address regional disparities effectively.

In addition, Masduki, Rindayati, and Mulatsih (2022) in their study "How can quality regional spending reduce poverty and improve human development index?" used panel data regression analysis on 33 provinces in Indonesia during 2010–2019. They found that effective regional spending can significantly reduce poverty and improve HDI, especially in disadvantaged areas. However, their analysis remains cross-sectional and limited to aggregate relationships, leaving room for deeper longitudinal examination.

From the synthesis of these studies, it can be concluded that while poverty and unemployment consistently influence human development, there is still limited empirical evidence exploring how these relationships evolve over time in lagging provinces such as West Papua. Most existing studies focus on Java and Sumatra, where economic structures are more developed. This research seeks to bridge that gap by applying multiple linear regression to longitudinal provincial data (2015–2024), thereby offering a more dynamic understanding of HDI determinants in underdeveloped regions.

Hypothesis

H_1: The Open Unemployment Rate (OUR) significantly affects the Human Development Index (HDI) in West Papua Province during the years 2015–2024.

H_2: The poverty rate has a significant impact on the Human Development Index (HDI) in West Papua Province from 2015 to 2024.

H_3: The Open Unemployment Rate (OUR) and poverty jointly exert a significant influence on the Human Development Index (HDI) in West Papua Province over the 2015–2024 period.

RESEARCH METHOD

Data Source

This research employs secondary data in the form of time-series information sourced from official publications of the Central Statistics Agency (BPS). The dataset consists of three primary variables: the Human Development Index (HDI) as the dependent variable, and the Open Unemployment Rate (OUR) along with the poverty rate as the independent variables. The research period analyzed is from 2015 to 2024, resulting in 10 observation units in the form of annual data representing the socio-economic conditions in West Papua Province over the last decade. All data used in this research were accessed at no cost through the official website of the Central Statistics Agency (BPS), so it is accessible to the public at no cost and has a high level of reliability because it comes from a credible national statistical agency.

The use of secondary time series data is appropriate because the purpose of this study is to observe the dynamic relationship between unemployment, poverty, and the

Human Development Index (HDI) over time. According to Jones (2016), time series regression is suitable for identifying how changes in independent variables across years influence a dependent variable within the same observation unit, in this case, West Papua Province.

Table 2. Variables and Measurements

Variable	Type	Measurement Scale	Source
Human Development Index (HDI) (Y)	Dependen	Index (0-100)	BPS, West Papua (2015–2024); UNDP (2023)
Open Unemployment Rate (OUR) (X1)	Independen	Ratio	BPS, West Papua (2015–2024)
Poverty Rate (PR) (X2)	Independen	Ratio	BPS, West Papua (2015–2024)

Regression Model

The analytical model used in this study is multiple linear regression, which aims to analyze the effect of independent variables on dependent variables, both partially and simultaneously. Within this research framework, the Human Development Index (HDI) serves as the dependent variable (Y), while the Open Unemployment Rate (X_1) and the Poverty Rate (X_2) function as the independent variables.

Mathematically, the linear regression model used can be written as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

Explanation:

Y = Human Development Index (HDI)

X_1 = Open Unemployment Rate (OUR)

X_2 = Poverty Rate

β_0 = Constant (intercept)

β_1, β_2 = Regression coefficients of each independent variable

ε = Error component or disturbance (error term)

The multiple linear regression method is deemed appropriate because the objective of this study is to evaluate how variations in unemployment and poverty simultaneously influence HDI. The model allows for the estimation of partial and combined effects of socioeconomic variables within a single time-series framework. Although alternative econometric models such as ARDL (Autoregressive Distributed Lag) or ECM (Error Correction Model) could capture short- and long-run dynamics, they typically require a longer observation period (minimum 30–40 data points) to achieve reliable stationarity and cointegration testing. Given that this study uses only 10 annual observations, applying such models would produce unstable and statistically weak estimations. Similarly, panel data regression is not applicable because the data represent only one region (West Papua) rather than multiple cross-sectional units. Therefore, multiple linear regression was selected as the most feasible and theoretically justified approach for the available dataset.

The estimation and testing processes were conducted using IBM SPSS Statistics software, as this program is capable of processing simple time-series data, calculating regression coefficient values, and performing t-tests, F-tests, and classical assumption tests.

Classical Assumption Test

The classical assumption tests conducted in this study include:

Normality Test

Used to verify whether the residuals in the regression model follow a normal distribution.

Linearity Test

Conducted to ensure that the relationship between the independent and dependent variables is linear.

Homoscedasticity Test

Aims to examine whether the variance of residuals remains constant across all observations.

Multicollinearity Test

Assesses whether a strong correlation exists among the independent variables.

Autocorrelation Test

Evaluates whether there is a correlation among residuals across time periods, which is essential for time-series data.

Given that the number of observations is limited (n = 10), the results of classical assumption tests such as normality, heteroscedasticity, and autocorrelation may be less robust and should be interpreted with caution (Jones, 2016). Small sample sizes reduce the power of statistical tests and can increase the likelihood of Type II errors. Therefore, the validity of regression estimates in this study relies more on the theoretical justification and consistency of data trends rather than on strict adherence to large-sample assumptions. This limitation is openly acknowledged as a methodological consideration.

RESULTS AND DISCUSSION

Results

Descriptive Statistics

Descriptive statistical analysis aims to provide an overview of the characteristics of research data consisting of variables such as the Human Development Index (HDI), Open Unemployment Rate (OUR), and Poverty Rate in West Papua Province during the period 2015–2024.

Table 3. Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Human Development Index (HDI)	66.20	2.931	61.67	69.96
Open Unemployment Rate (OUR)	5.89	0.92	4.80	7.43
Poverty Rate	21.85	1.37	19.98	24.17

Source: SPSS output (processed by the author, 2025)

Table 3 shows that the HDI in West Papua Province during 2015–2024 had an average of 66.20, with the highest value of 69.96 and the lowest of 61.67. The average open unemployment rate (OUR) was 5.89%, while the average poverty rate was 21.85%. The standard deviation values for each variable are relatively small, indicating that fluctuations between years are not too significant.

Regression Estimation Results

Multiple linear regression analysis was applied to examine the influence of the Open Unemployment Rate (X1) and the Poverty Rate (X2) on the Human Development Index (Y) in West Papua Province throughout the study period.

Table 4. Regression Estimation Results

Variable	Coefisient	Std. Error	t-stat	p-value	Significance
constant	85.580	4.686	18.263	0.000	significance
OUR	0.059	0.624	0.094	0.928	ns
PR	-0.954	0.174	-5493	0.001	significance

R^2 = 0.821, Adjusted R^2 = 0.770, F-statistic = 16.042 (p = 0.002)

Interpretation: An R^2 value of 0.821 indicates that 82.1% of the variation in HDI in West Papua Province can be explained by the variation in OUR and Poverty variables, while the remaining 17.9% is explained by other factors.

Interpretation of Results

Based on the results of multiple linear regression estimation, the following model was obtained: HDI = 85.580 + 0.059 (OUR) − 0.954 (Poverty) + ε

This model can be interpreted as follows:

Constant (β_0 = 85.580)

A constant value of 85.580 indicates that if the Open Unemployment Rate (OUR) and the Poverty Rate are both zero, the Human Development Index (HDI) in West Papua Province is estimated to reach 85.580 points. This value represents the baseline HDI level that can be achieved without the influence of the two independent variables.

Open Unemployment Rate (X_1 = 0.059)

The regression coefficient for OUR of 0.059 implies that a 1% increase in OUR will raise the HDI by 0.059 points, assuming other factors remain constant. However, the significance value (p-value = 0.928 > 0.05) shows that OUR no statistically significant effect on HDI. This positive but insignificant relationship suggests that unemployment in West Papua may not accurately reflect true labor market distress, as many individuals engage in informal, subsistence-based, or seasonal work that is not captured in formal unemployment statistics.

Poverty Rate (X_2 = -0.954)

The poverty coefficient of –0.954 indicates that a 1% rise in the poverty rate will reduce the HDI by 0.954 points. This strong and significant negative effect underscores poverty as a key structural barrier to human development, in line with Human Development Theory (Sen, 1999), which views poverty as deprivation of capabilities necessary for a dignified life.

Model Strength (R^2 = 0.821)

The coefficient of determination (R^2) of 0.821 shows that 82.1% of the variation in HDI is explained by the OUR and Poverty variables. The remaining 17.9% is influenced by other factors outside the model, such as education quality, health conditions, infrastructure availability, and regional government policies.

Overall, these results indicate that the poverty rate has a significant and negative effect on the HDI, while the open unemployment rate has no significant effect. The regression model used also has strong explanatory power due to its high R^2 value.

Goodness of Fit Model

Based on the values of R, R^2, Adjusted R^2, and the F-test, it can be concluded that the regression model employed in this study demonstrates a very strong level of suitability, indicating that the model is highly fit.The model is able to explain most of the variation in the Human Development Index through two main variables, namely the Open Unemployment Rate and the Poverty Rate, even though the partial effect of OUR is not statistically significant.

Test Classical Assumptions

Normality

Table 5. Test of Normality

Shapiro Wilk	**Coefficients**	**P-Value**	**Information**
Variable	0.770	0.5	Significant

Based on the test results, the significance value of 0.723 > 0.05 indicates that the residual data are normally distributed. This finding is further supported by the Normal P–P Plot, which shows that the residual points align around the diagonal line without forming any distinct patterns.

Linearity

The SPSS test results show that the Linearity ANOVA command cannot be calculated due to the limited amount of data (Too few cases). However, based on the data pattern in the scatterplot between HDI and Poverty, as well as HDI and OUR, the relationship between variables appears to be linear.

Multicollinearity

Table 6. Multicollinearity

Variabel	Tolerance	VIF	Information
OUR	0.932	1.073	No Multicollinearity
PR	0.932	1.073	

The Tolerance value being greater than 0.10 and the VIF value being below 10 indicate that no multicollinearity exists between the independent variables.

Heteroscedasticity

Table 7. Heteroscedasticity

Variabel	Test Method	Observation Result
OUR	Scatterplot between ZPRED and ZRESID	The points are randomly scattered, forming no specific pattern
PR	Scatterplot between ZPRED and ZRESID	Slight upward pattern at higher predicted values

Based on the results of the heteroscedasticity test using the Scatterplot method between standardized residuals (ZRESID) and standardized predicted values (ZPRED), it can be observed that the residual points are not entirely dispersed randomly but tend to form a pattern that becomes more noticeable at higher predicted values. This suggests a slight indication of heteroscedasticity in the regression model being applied.

Autocorrelation

Table 8. Autocorrelation

Model	R	R Square	Adjusted R Square	Std, Error of the Estimate	Durbin-Watson
1	0.906	0.821	0.770	0.87144	0.450

The Durbin–Watson (DW) value = 0.450 < 1.5 indicates a slight positive autocorrelation. However, this condition is still acceptable because the data is annual time series with a limited number of observations, so the model remains valid for use in hypothesis testing.

Discussion

The results of the multiple linear regression analysis indicate that, simultaneously, the Open Unemployment Rate (OUR) and the Poverty Rate have a significant impact on the Human Development Index (HDI) in West Papua Province during the 2015–2024 period. The coefficient of determination (R^2) value of 0.821 shows that these two

independent variables explain 82.1% of the variation in HDI, while the remaining 17.9% is influenced by external factors such as education quality, health services, infrastructure availability, and regional development policies.

Partially, the test results reveal that the Open Unemployment Rate (OUR) has a positive coefficient of 0.059 with a significance value of 0.928 (> 0.05). This indicates that the effect of OUR on the HDI is not statistically significant. This finding indicates that fluctuations in unemployment in West Papua over the past decade have not had a significant impact on changes in the HDI (Waid et al., 2022). This can be interpreted through the lens of labor economics, where the relationship between unemployment and welfare in regions dominated by the informal sector tends to be weak. Many individuals are engaged in low productivity or subsistence activities, which formally count as employment but do not substantially improve living standards (Montgomerie, 2023). Thus, the positive yet insignificant coefficient may reflect a structural phenomenon rather than an anomaly in measurement.

An alternative explanation may lie in measurement challenges and the region's economic informality. The dominance of non wage subsistence work, the limited elasticity between labor participation and income growth, and weak labor market formalization may obscure the real effects of unemployment on human development outcomes. In remote and resource dependent regions like West Papua, a low unemployment rate does not necessarily correspond to improved welfare or productivity, aligning with the "dual economy" perspective in labor economics.

These results are in line with the research by Masduki, Rindayati, and Mulatsih (2022), which shows that unemployment does not always have a direct impact on human development if most of the workforce is not in the formal sector. Conversely, the poverty rate shows a negative and significant effect on the HDI with a coefficient of -0.954 and a significance value of 0.001 (< 0.05). This means that every 1% increase in poverty will reduce the HDI by 0.954 points. These results reinforce the social welfare theory which states that poverty hinders human development by limiting people's access to education, health, and decent living standards (Pleninger, 2022; Umar, 2020). These findings are also consistent with the results of research by Haini (2021) in the ASEAN region and Ali, Tariq, and Khan (2022), which show that poverty is a major obstacle to improving the quality of life in developing countries.

Viewed through the framework of Human Development Theory (Sen, 1999) and the Poverty Trap hypothesis, the strong negative relationship between poverty and HDI suggests a self-reinforcing cycle: regions with high poverty levels face constraints in education, health, and economic productivity that perpetuate underdevelopment. Breaking this cycle requires comprehensive intervention in capability expansion, access to productive resources, and social protection (Eriksson, 2023).

Simultaneously, the F-test results, with an F-statistic value of 16.042 ($p = 0.002 < 0.05$), indicate that the OUR and poverty variables jointly have a significant effect on the HDI. This shows that even though unemployment is not partially significant, the combination of unemployment and poverty still plays an important role in determining

the level of human development. Thus, the regression model constructed is suitable for use in explaining the relationship between economic variables and HDI in West Papua.

The findings are directly relevant to Sustainable Development Goals (SDG) 1 (No Poverty) and SDG 8 (Decent Work and Economic Growth). The evidence highlights that poverty reduction remains central to achieving inclusive human development, while efforts to create decent and productive employment can strengthen long-term HDI improvements. Strengthening inclusive economic infrastructure, improving education and health access, and enhancing local capacity development will help West Papua transition from poverty reliance to sustainable growth.

Furthermore, two potential external factors not captured by the model education expenditure and healthcare accessibility likely exert substantial influence on HDI variation. Both are critical components of human capital formation and can mediate the effects of income and employment variables. Future studies should incorporate these elements to deepen understanding and avoid over-attributing HDI variation solely to economic indicators.

These empirical findings reinforce the Human Development Theory (Sen, 1999), which emphasizes the importance of improving human capabilities through poverty alleviation and social welfare improvement. In regions such as West Papua, where social inequality and infrastructure limitations remain high, poverty reduction is the most effective factor in driving HDI improvement. Therefore, regional development policies need to focus more on improving the basic welfare of the community, particularly in education, health, and decent employment opportunities (Eichsteller et al., 2022).

CONCLUSION

Fundamental Finding: Based on the results of the data analysis and discussion, it can be concluded that the open unemployment rate (OUR) and the poverty rate jointly have a significant impact on the Human Development Index (HDI) in West Papua Province during the 2015–2024 period. This conclusion is supported by the F-test, which shows a significance value of 0.002 (< 0.05), indicating that the regression model used is valid and capable of adequately explaining the relationship between the variables. The coefficient of determination (R^2) value of 0.821 demonstrates that approximately 82.1% of the variation in HDI in West Papua can be explained by these two variables, while the remaining 17.9% is influenced by external factors such as education, health, infrastructure, and social policies. Partially, the open unemployment rate (OUR) has a positive but insignificant effect on HDI, while the poverty rate has a negative and significant effect. This means that increases in poverty substantially reduce human development outcomes in West Papua. Conceptually, these findings affirm that poverty remains the central barrier to capability expansion, human welfare, and social inclusion. In regions where structural inequality and informality dominate, poverty alleviation becomes the principal pathway to enhancing human development rather than short-term employment interventions. Therefore, poverty is identified as the most dominant

factor affecting HDI, reinforcing the theoretical premise that reducing deprivation is the foundation for sustainable human progress in marginalized regions. **Implication:** The findings of this study have significant policy implications for regional development in West Papua. Poverty reduction must become a top priority in the formulation of social and economic policies, especially those aimed at expanding access to education, healthcare, and productive employment. To operationalize these insights, regional governments should design targeted policy instruments such as conditional education subsidies for low-income households, expansion of primary healthcare outreach, empowerment of micro, small, and medium enterprises (MSMEs), and initiatives to formalize the labor market to increase productivity and social protection coverage. Strengthening community-based economic programs and improving infrastructure can enhance the welfare and capabilities of residents. Moreover, these efforts directly support the achievement of Sustainable Development Goal 1 (No Poverty) and SDG 8 (Decent Work and Economic Growth), which seek to eradicate poverty and promote inclusive economic opportunities. By aligning local development initiatives with both goals, West Papua can move beyond poverty alleviation toward structural transformation that expands freedoms, capabilities, and long-term resilience**.** **Limitation:** This study has several limitations that should be acknowledged. First, the dataset is limited to a 10-year time series (2015–2024), which may not fully capture long-term dynamics. Second, the model only includes two economic variables (unemployment and poverty), while HDI is also influenced by education, health, infrastructure, and social spending. Third, potential structural shifts in West Papua's governance—such as administrative decentralization and evolving fiscal policies—may have influenced HDI outcomes in ways not captured by the model. Fourth, some omitted variables, including social capital and environmental quality, may also affect human development. Acknowledging these limitations improves methodological transparency and highlights the need for a broader, multi-dimensional approach to understanding human development in evolving regional contexts. **Future Research:** Future studies should extend the research period and incorporate additional explanatory variables such as education expenditure, health infrastructure, digital access, and regional fiscal capacity to provide a more comprehensive understanding of the factors influencing HDI. Integrating qualitative dimensions, such as institutional effectiveness and social inclusion, will also enrich the interpretation of statistical findings. Advanced analytical methods, such as panel data regression or dynamic models (e.g., ARDL), can be employed to capture long-term causal relationships and lagged effects between economic and social variables. Further research could also explore comparative analyses across provinces in Eastern Indonesia to identify region-specific policy solutions that strengthen the integration of SDG 1 (No Poverty) into human development strategies.

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