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THE 1ST INTERNATIONAL CONFERENCE ACCOUNTING, MANAGEMENT, ECONOMICS, UNISKA
Proceeding Accounting, Management, Economics Uniska **Volume 1, Issue 1, 2024**
"Strengthening The Role of Accounting, Management, and Economics Science In Realizing Sustainable Welfare Goals"

Economic Growth and Inclusivity in Papua in 2021: A Quantitative Approach Using the 2SLS Method

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ABSTRACT

Economic growth relies heavily on robust infrastructure development to drive job creation, reduce poverty, and increase per capita income. This study explores the patterns of inclusive economic growth in Papua and the effect of infrastructure on this growth. Using data from 29 regencies and cities in Papua Province and applying simultaneous equations methods, the study finds that infrastructure significantly boosts Gross Regional Domestic Product growth and reduces poverty. Papua's economic growth reached 2.49% in 2021, a notable improvement from -3.4% the previous year. Despite a deceleration in growth, Papua successfully managed to maintain positive economic growth and reduce poverty, inequality, and unemployment between 2019 and 2021. The inclusive nature of this growth has led to more job opportunities and a pro-poor reduction in poverty. Infrastructure development, particularly in roads, plays a vital role in fostering economic growth by enhancing job accessibility and income distribution. The increase in Gross Regional Domestic Product and workforce in Papua is expected to further positively affect the overall economic condition. Therefore, the study emphasizes the necessity for targeted policies to meet regional needs for balanced and sustainable development and highlights infrastructure's crucial role in achieving inclusive economic growth and improving living standards in Papua Province.

INTRODUCTION

Infrastructure development is crucial for economic growth as it creates new job opportunities, reduces poverty, and increases per capita income. Good infrastructure enhances the efficiency and movement of goods and services, thereby adding economic value (Prasetyo & Firdaus, 2009). The availability of infrastructure is a key supporting factor for regional productivity. The national development goal is to achieve sustainable and inclusive economic growth, which meets the needs of the present generation without compromising the ability of future generations, while also reducing income inequality.

Inclusive development creates new economic opportunities and ensures equitable access for all segments of society, particularly the less fortunate (Prasetyo & Firdaus, 2009). Inclusive growth is part of the Sustainable Development Goals (SDGs) and encompasses equity, poverty and unemployment reduction, and accelerated economic growth. These four indicators define the economic capability to reduce poverty, income inequality, and unemployment (Klasen, 2010; Ianchovichina & Gable, 2009; Ali & Son, 2007). Therefore, inclusive development is crucial in achieving sustainable economic growth.

The Papua Province's 2019-2023 Regional Medium-Term Development Plan (RPJMD) sets a vision to make Papua a province that is rising, self-reliant, prosperous, and just. This vision reflects the local government's commitment to advancing both the economy and human development. Various strategies have been outlined in the RPJMD, including

improving the quality, quantity, and capacity of educational, health, and community welfare infrastructure. Thus, human development in Papua is directed towards a society with high competencies, integrity, and religiosity.

Macroeconomic indicators such as GDP and GRDP are used to measure economic growth, while the gini Coefficient measures income inequality (Central Bureau of Statistics, 2021b). Although Papua has experienced significant infrastructure development, the question remains whether the economic growth achieved is inclusive and what its impacts are. This research aims to evaluate the impact of infrastructure and economic development in Papua and analyze the relationship between inclusive growth indicators using a simultaneous equations model. This study is expected to provide a clearer picture of the inclusivity of economic growth in Papua.

Equitable and uniform physical infrastructure development across regions is a key principle in economic and social development policy. Equity reflects a commitment to ensuring that every area, whether urban or rural, has fair and adequate access to transportation, energy, clean water, and other public services. Uniform infrastructure not only enhances connectivity between regions but also strengthens economic resilience and improves the overall quality of life. In the context of rapid globalization and urbanization, efforts to reduce infrastructure gaps between regions are crucial in supporting inclusive and sustainable economic growth.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Institutional setting

The objectives of this research are to illustrate the achievements of inclusive growth in Papua. Additionally, this study aims to analyze the inclusiveness of economic growth in Papua through the pattern of relationships between inclusive growth indicators. Furthermore, the research will measure the impact of infrastructure development on inclusive growth in Papua Province. Finally, this study will assess Papua's conditions with the presence of either an increase or decrease in factors supporting inclusive growth. In line with the research objectives, the conceptual framework for this study will be:

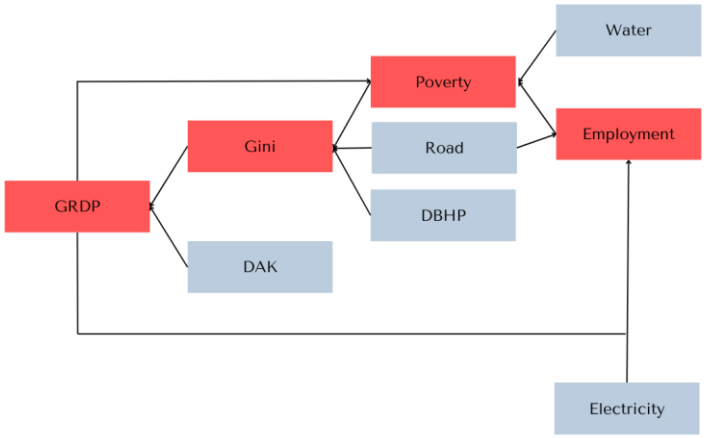


Figure 1. Research Framework

Agency theory

Klasen (2010) defines inclusive growth as economic growth that reduces income inequality, poverty, and unemployment. Wie (1983) emphasizes that focusing solely on economic growth without considering income distribution can create inequality. According to the World Bank (1994), infrastructure is the structure that supports economic, social, and administrative functions. Brenneman and Kerf (2002) found that transportation, telecommunications, and energy infrastructure have a significant impact on economic growth, while water and sanitation infrastructure have not yet provided significant effects. Calderon (2005) underscores that infrastructure supports economic competitiveness and productivity as well as the quality of life. Gibson and Olivia (2009) discovered that the quality of road and electricity infrastructure affects employment and income in rural Indonesia. Baltagi (2005) highlights the crucial role of infrastructure in development, increasing productivity, and improving individual well-being. Infrastructure plays a vital role in achieving inclusive growth by creating jobs, strengthening economic activities, and reducing economic inequality. According to Michael's research from ADB (2012), investment in infrastructure can stimulate economic growth and create new economic opportunities. Calderon and Serven (2005) also show that infrastructure has a significant positive impact on economic growth and a significant negative impact on inequality.

Infrastructure plays a key role in accelerating economic growth, especially in areas with adequate infrastructure (World Bank, 1994). Infrastructure development is crucial for promoting inclusive growth. This research examines the impact of economic infrastructure development, such as roads, clean water supply for households, and electricity in various districts/cities in Papua. The goal is to create jobs and enhance regional economic growth through economic activities that can improve community welfare, with the expectation of reducing poverty levels in Papua's districts/cities. Infrastructure can generate jobs and economic activity. Investment in infrastructure can stimulate economic activity, increase economic opportunities, and ultimately create jobs. Calderon and Serven (2005) also demonstrate that infrastructure has a significant positive impact on economic growth and a significant negative impact on inequality. Research by Gibson and Olivia (2009) found that the quality of road and electricity infrastructure affects employment and income from non-farm enterprises in rural Indonesia. The concept of inclusive growth was introduced by Kakwani and Pernia (2000) and developed by Ali and Son (2007) as well as Klasen (2010). Studies on inclusive growth by Klasen (2010), Tambunan (2011), and Ianchovichina and Gable (2009) indicate that inclusive growth is economic growth that effectively reduces poverty, income inequality among individuals, and unemployment levels.

METHODS

This study uses secondary data from Table 1, sourced from the Central Bureau of Statistics (BPS). The data used for analysis includes 29 districts and cities in Papua Province for the year 2021. Data processing is conducted using Eviews 9.0 software. Below are the definitions, units, and sources of the variables used in this research:

Table 1. Operational Definitions of Research Variables

Variable	Unit	Definition	Source
GRDP	%	The percentage comparison between the GRDP of a district/city and the GRDP of Papua Province.	BPS
Employment	%	The percentage of the number of employed individuals in district/city x compared to the total number of employed individuals in Papua Province.	BPS
Poverty	%	The percentage of the number of poor individuals in district/city x compared to the total number of poor individuals in Papua Province.	BPS
Gini Ratio	%	The percentage comparison between the Gini ratio of a district/city and the Gini ratio of Papua Province.	BPS
DAK	%	The percentage of funds transferred from the central government to regional governments in Indonesia.	KEMENKEU
Road	%	The percentage of villages in each district/city that have access to proper or paved roads (approach to physical infrastructure equality).	PODES
Electricity	%	The percentage of villages in each district/city that have adequate electricity network (approach to physical infrastructure equality).	PODES
Water	%	The percentage of villages in each district/city that have access to clean drinking water from piped sources (approach to physical infrastructure equality).	PODES
DBHP	%	The percentage of funds sourced from the state budget (APBN) allocated to regions based on specific percentages to support decentralization needs.	KEMENKEU

Simultaneous Equations Model:

$$Y1_{it} = \alpha_1 + \beta_{11}Y4_{it} + \beta_{12}X1_{it} + u_{(1,it)} \quad \text{..... (1)}$$
$$Y2_{it} = \alpha_2 + \beta_{21}Y1_{it} + \beta_{22}X2_{it} + \beta_{23}X3_{it} + u_{(2,it)} \quad \text{..... (2)}$$
$$Y3_{it} = \alpha_3 + \beta_{31}Y1_{it} + \beta_{32}X4_{it} + \beta_{33}Y2_{it} + u_{(3,it)} \quad \text{..... (3)}$$
$$Y4_{it} = \alpha_4 + \beta_{41}Y3_{it} + \beta_{42}X2_{it} + \beta_{43}X5_{it} + u_{(4,it)} \quad \text{..... (4)}$$

Where:

Y1 = Percentage of GRDP (Gross Regional Domestic Product) of the district/city (percent)

Y2 = Percentage of employed population (percent)

Y3 = Percentage of poor population in the district/city (percent)
Y4 = Percentage of the gini ratio in the district/city (percent)
X1 = Percentage of Special Allocation Funds (DAK) in the district/city (percent)
X2 = Percentage of roads in each district/city (percent)
X3 = Percentage of electricity access in the district/city (percent)
X4 = Percentage of piped water access in the district/city (percent)
X5 = Percentage of revenue-sharing tax funds in the district/city (percent)
u1it,...,u4it = Error term for each equation
uijt = Error term

A. Analysis Methods

This study employs both descriptive and quantitative analysis methods. Descriptive analysis is used to describe the development of economic growth variables and other variables in Papua Province. Quantitative analysis involves cross-sectional data regression with a simultaneous equations model. This model allows dependent variables in one equation to also act as independent variables in other equations.

According to Supranto (2004), a simultaneous equations system is a set of equations where variables can play dual roles, both as dependent and independent variables. Endogenous variables function as dependent variables whose values are determined within the system, while exogenous variables are determined outside the model. In this system, the values of X and Y are jointly determined, creating simultaneous relationships between these variables.

The simultaneous equations model consists of two types of equations: structural equations and reduced form equations. Structural equations describe the economic structure or behavior of economic agents such as consumers, producers, and distributors. Each endogenous variable in the model has one structural equation, indicating the direct impact of each independent variable on the dependent variable.

The analysis of the simultaneous equations model in this study involves a complex statistical process, following the steps outlined by Todaro et al. (2015) and Mankiw NG (2016). These steps include determining endogenous and exogenous variables, testing the simultaneity of endogenous variables, and identifying the structural equation model. The next steps are estimating the reduced form and structural equations using the two-stage least squares (2SLS) method, testing classical assumptions of structural equations, interpreting the model, drawing conclusions, and performing validation and simulation on specific variables.

B. Estimation Methods

The ILS method involves constructing reduced-form equations from the structural equations, followed by applying Ordinary Least Squares (OLS) to these equations to ensure consistency of the estimates. Meanwhile, the Two-Stage Least Squares (2SLS) method begins with regressing the endogenous variables on all exogenous variables, followed by substituting the endogenous variable values with the resulting estimates before performing OLS estimation again.

C. Assumption Methods

Normality Test:

The residuals from the model generated in the panel data regression analysis must meet the assumption of normality. To test this assumption, the Jarque-Bera test can be used. This test involves calculating skewness and kurtosis with the following hypotheses:
H0: Residuals are normally distributed.
H1: Residuals are not normally distributed.

Coefficient of Determination:

The coefficient of determination is used as a measure of the proportion of the total variation in the dependent variable Y that can be explained by the regression model.

F-Test:

The F-test is conducted to test whether the regression coefficients collectively have an effect on the dependent variable. The hypotheses used in this test are:
H0: The independent variables collectively have no significant effect.
H1: The independent variables collectively have a significant effect.

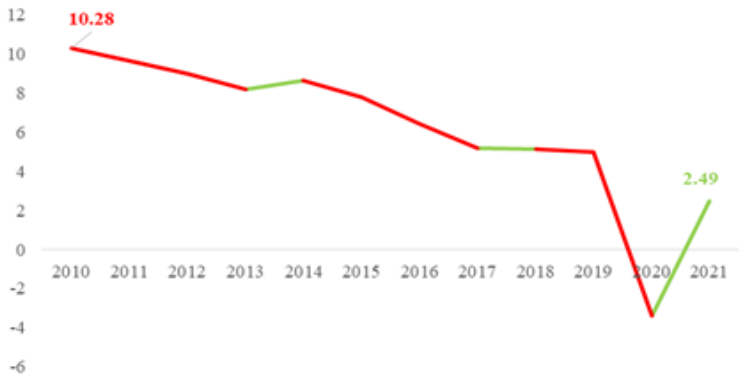
T-Test:

The t-test is performed to evaluate the significance of each individual regression coefficient with respect to the dependent variable, assuming that other variables are held constant. The hypotheses used in this test are:
H0: The independent variable is not significant.
H1: The independent variable is significant.

RESULTS

A. Descriptive analysis

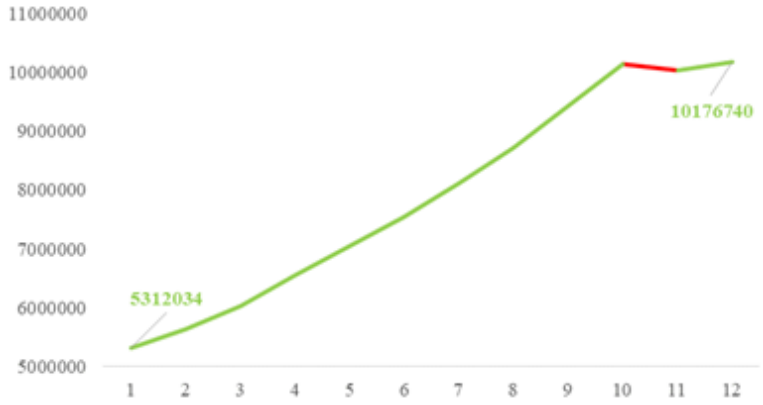
The economic condition of Papua in 2021 showed improvement, with the Gross Regional Domestic Product (GRDP) rising from 10.06 trillion rupiah in 2020 to 10.18 trillion rupiah in 2021 (Figure 3). Papua's economic growth reached 2.49 percent in 2021, an increase from -3.4 percent the previous year. The hope is that strong economic growth can reduce the poverty rate, which is key to achieving inclusive growth (Kakwani N, Pernia EM. 2000).



Source: Data Analysis

Figure 2. Trend of Economic Growth in Papua 2010-2021

According to data compiled by BPS in 2021c, the number of poor people in Papua reached 926.36 thousand in 2019. In 2021, the number of poor people increased to 920.44 thousand, while the poverty rate also rose to 26.86 percent. The slowdown in economic growth over the past five years has resulted in slow progress in efforts to alleviate poverty in Papua (Figure 2).



Source: Data Analysis
Figure 3. GRDP Trend at Constant 2010 Prices in Papua 2010-2021

Regencies/cities in Papua show high poverty rates, with some areas such as Intan Jaya Regency and Deiyai Regency recording poverty rates of over 40 percent. Income distribution, measured by the gini ratio, varies across regions, with the gini ratio at the regency/city level generally lower than at the provincial level. Despite fluctuations, the gini ratio of Papua Province showed an increasing trend in 2019 and 2021, which is contrary to the trend of economic growth during the same period.

Source: Data Analysis
Figure 4. Gini Ratio Trend of Papua Province 2010-2021

Creating new jobs, especially for low-income residents, is crucial for inclusive growth. The increase in the percentage of employed residents in 2021 compared to 2020 indicates improvement, despite a decline in 2019 due to the economic slowdown. Over the past five years, Papua's economy experienced a slowdown in 2020, leading to a decrease in labor

absorption in several sectors, possibly due to a shift of the workforce to sectors with smaller contributions to the regional economy.

B. Parameter Estimation of Simultaneous Equations

The initial steps in parameter estimation include model goodness-of-fit tests such as simultaneity tests, endogeneity tests, and identification of simultaneous equations. The results of these tests indicate that the simultaneous equation model is statistically suitable and consistent with the supporting theory. Identification of the simultaneous equations using the order condition and rank condition for the four structural equations results in an over-identified model, making OLS estimation inapplicable. In this situation, the Two Stage Least Squares (2SLS) estimation method becomes more efficient. The parameter estimation results for the four equations can be seen in Table 2.

Table 2. Results of 2SLS Estimation for Equation I

Variable	Coefficient	T-Test	VIF
C	0.1006	0.012	-
Gini	-0.0335	0.009	1.002
lnDAK	0.1031	0.022	1.002

Source: *Data Analysis*

Equation I:

$$Y1_{it} = 0.1006 - 0.0335Y4_{it} + 0.1031X1_{it} + u_{(1,it)} \quad \text{..... (5)}$$

Estimation using the Two Stage Least Squares (2SLS) method for Equation I shows that the gini and DAK variables have a significant effect on the dependent variable. The p-value for the t-test of the gini variable is 0.009 and for the DAK variable is 0.022, both of which are below 0.05, indicating statistical significance at the 5 percent level. Additionally, the Variance Inflation Factor (VIF) values for each variable are below 5, with the lowest value being 1.002, indicating no significant multicollinearity issues in the model. Therefore, this estimation model is considered good and reliable for interpreting the effects of the gini and DAK variables on GRDP.

Table 3. Results of 2SLS Estimation for Equation II

Variable	Coefficient	T-Test	VIF
C	0.0244	0.027	-
GRDP	0.2667	0.031	1.495
lnRoad	0.3227	0.02	3.201
Electricity	0.049	0.018	2.728

Source: *Data Analysis*

Equation II:
$$Y2_{it} = 0.02 - 0.27Y1_{it} + 0.32X2_{it} + 0.05X3_{it} + u_{(2,it)} \quad \ldots\ldots (6)$$

The estimation results using the Two Stage Least Squares (2SLS) method for Equation II in Table 3 show that the GRDP, Road, and Electricity variables have a significant effect on the dependent variable. The p-values for the t-test are 0.031 for the GRDP variable, 0.02 for the Road variable, and 0.018 for the Electricity variable, all of which are below 0.05. This indicates that all three variables are statistically significant at the 5 percent significance level. Additionally, the Variance Inflation Factor (VIF) values for each variable are below 5, with the lowest value being 1.495, indicating no significant multicollinearity issues in the model. Therefore, this estimation model is considered good and reliable for interpreting the effects of the GRDP, Road, and Electricity variables on the percentage of people employed.

Table 4. Results of 2SLS Estimation for Equation III

Variable	Coefficient	T-Test	VIF
C	0.349	0.0029	-
GRDP	-2.347	0.0213	4.252
Water	-0.839	0.0367	1.327
Employment	-0.374	0.0215	4.549

Source: *Data Analysis*

Equation III:
$$Y3_{it} = 0.35 - 2.35Y1_{it} - 0.84X4_{it} - 0.37Y2_{it} + u_{(3,it)} \quad \ldots\ldots (7)$$

The estimation results using the Two Stage Least Squares (2SLS) method for Equation III in Table 4 show that the PDRB, Water, and Employment variables have a significant effect on the dependent variable. This is evidenced by the p-values for the t-test: 0.0213 for the PDRB variable, 0.0367 for the Water variable, and 0.0215 for the Employment variable, all of which are below 0.05. This means that all three variables are statistically significant at the 5 percent significance level. Additionally, the Variance Inflation Factor (VIF) values for each variable are below 5, with the lowest value being 1.327, indicating no significant multicollinearity issues in the model. Therefore, this estimation model is considered good and reliable for interpreting the effects of the PDRB, Water, and Employment variables on the percentage of poor people.

Table 5. Results of 2SLS Estimation for Equation IV

Variable	Coefficient	T-Test	VIF
C	1.344	0.000	-
Poverty	0.976	0.0181	3.068
lnRoad	-0.224	0.024	2.917
lnDBHP	-0.089	0.035	1.853

Source: *Data Analysis*

Equation IV:
$$Y4_{it} = 1.34 + 0.98Y3_{it} - 0.22X2_{it} - 0.09X5_{it} + u_{(4,it)} \quad \text{.. (8)}$$

The estimation results using the Two Stage Least Squares (2SLS) method for Equation IV in Table 5 show that the variables Poverty, Road, and DBHP have a significant effect on the dependent variable. This is evidenced by the p-values for the t-test: 0.0181 for the variable poverty, 0.024 for the Road variable, and 0.035 for the DBHP variable, all of which are below 0.05. This means that all three variables are statistically significant at the 5 percent significance level. Additionally, the Variance Inflation Factor (VIF) values for each variable are below 5, with the lowest value being 1.853, indicating no significant multicollinearity issues in the model. Therefore, this estimation model is considered good and reliable for interpreting the effects of the Poverty, Road, and DBHP variables on the gini ratio percentage.

C. Analysis of the Significance of Equations in the Model

Table 6. Results of the Significance Analysis for the 4-Equation Model

Equation	RSquared	PValue (F-Statistic)
I	0.831	0.0014
II	0.866	0.0049
III	0.829	0.0002
IV	0.885	0.0039

Source: *Data Analysis*

The analysis results show very high R-squared values for each equation in Table 6: Equation I at 0.831, Equation II at 0.866, Equation III at 0.829, and Equation IV at 0.885. This indicates that the regression model explains more than 82% of the variation in the dependent variable for each equation. Additionally, the p-values for the F-statistic are 0.0014 for Equation I, 0.0049 for Equation II, 0.0002 for Equation III, and 0.0039 for Equation IV, demonstrating that the regression models are significant at the 5% significance level. These results confirm that the independent variables collectively have a significant impact on the

dependent variable in this model, reinforcing a strong and reliable interpretation of the studied relationships.

D. Assumptions of the Equations in the Model

Table 7. Results of Assumptions for the 4-Equation Model

Equation	Jarque-Bera	Breusch Pagan	LM Test
I	0.324	0.1387	0.4916
II	0.322	0.7683	0.5653
III	0.741	0.6713	0.5749
IV	0.556	0.0796	0.7128

Source: *Data Analysis*

The results of the model assumptions test show that the residuals in each equation meet the assumption of normality (Jarque-Bera p-value > 0.05). There are no significant issues with heteroskedasticity (Breusch-Pagan p-value > 0.05), and no issues with autocorrelation (LM p-value > 0.05). Overall, these results confirm that the regression model has validity and reliability in the estimations performed.

E. Model Validation

Table 8. Bias Value for Model Validation

Equation	Bias Proportion	Bias Variance	Bias Covariance
I	0.00	0.2314	0.7686
II	0.00	0.1986	0.8014
III	0.00	0.3807	0.6193
IV	0.00	0.2407	0.7593

Source: *Data Analysis*

The model evaluation in Table 8 shows that there is no bias tendency in the proportion for each equation, indicating that the model does not exhibit any undue preference. However, there is varying bias among the equations: Equation I (0.2314), Equation II (0.1986), Equation III (0.3807), and Equation IV (0.2407), reflecting different levels of variation or uncertainty in the model. Significant bias correlations are also observed between equations: Equation I (0.7686), Equation II (0.8014), Equation III (0.6193), and Equation IV (0.7593), indicating strong relationships between some variables in the model.

Table 9. Accuracy in Model Validation

Equation	MAPPE	Accuracy
I	2.1605	97.8395
II	2.1310	97.8680
III	2.3181	97.6819
IV	1.5610	98.4390

Source: *Data Analysis*

The results of the model validation in Table 9 show a high accuracy level for each equation. Equation I has an accuracy of 97.8395%, Equation II 97.868%, Equation III 97.6819%, and Equation IV 98.439%. This indicates the model's very good capability in consistently predicting data. This high level of accuracy provides confidence that the model is effectively estimating the variables under investigation.

F. Model Simulation

Table 10. Impact of a 13.85% Increase in GRDP Percentage

Simulation	Poverty	Gini	Employment
Before	0.2985	0.8618	0.0301
After	0.2859	0.8665	0.0339

Source: *Data Analysis*

The increase in the Gross Regional Domestic Product (GRDP) of Papua Province by 13.85% in 2022 had a significant impact on several economic factors in the region. Simulations show that the average percentage of poor people increased following the GRDP rise, aligning with the increase in poverty rates in Papua from 26.64% in 2021 to 26.86% in 2022. Additionally, the GRDP increase contributed to a rise in the gini ratio in Papua Province, reflecting a higher level of economic inequality. Simulations indicate that the average gini ratio across districts/cities also rose after the GRDP increase. Finally, the GRDP growth impacted the increase in the labor force percentage in Papua Province, consistent with data showing a 0.6% increase in the labor force in 2022.

Table 11. Impact of a 0.6% Increase in the Labor Force

Simulation	Poverty	Gin	GRDP
Before	0.2985	0.8618	0.0097
After	0.2859	0.8665	0.0216

Source: *Data Analysis*

Simulations in Table 11 indicate that a 13.85% increase in the labor force in Papua Province leads to higher poverty rates and an increased gini ratio across districts and cities. Data for 2022 shows a rise in poverty from 26.64% in 2021 to 26.86%, as well as an increase in the gini ratio from 0.406 in 2021 following the labor force growth. Additionally, the increase in GRDP also contributed to a 0.6% rise in the labor force, reflecting the correlation between GRDP growth and the labor force expansion in districts and cities in 2022.

DISCUSSION

Economic growth in Papua is currently seen as inclusive because it is able to reduce poverty levels and increase job opportunities for its population. Studies show that each increase in economic growth not only improves socioeconomic conditions but also narrows income gaps between groups. However, despite an increase in the production of goods and services, the direct impact on job creation remains limited. Strategic investments in infrastructure, such as through Special Allocation Funds (DAK), have proven to have a significant positive impact on economic growth in Papua. The government needs to continue enhancing its role in infrastructure development that supports economic growth, alongside efforts to expand access to employment through the construction of roads and other infrastructure. This approach will not only help boost economic production but also provide broad social benefits, leading to more inclusive and sustainable economic growth in Papua.

CONCLUSION

Based on the analysis, both descriptive and quantitative, using the two-stage least squares (2SLS) method, this study concludes several important points. First, Papua has managed to maintain positive economic growth, albeit at a slower rate during the 2019-2021 period, while also reducing poverty, inequality, and unemployment rates. The results from the simultaneous model estimation indicate that economic growth in Papua has been effective in reducing poverty in a pro-poor manner and creating more job opportunities for its population. This suggests that economic growth in Papua can be categorized as inclusive.

Furthermore, infrastructure development, particularly road infrastructure, plays a significant role in driving economic growth by expanding job opportunities and improving income distribution in the region. Finally, the increase in the Gross Regional Domestic Product (GRDP) and labor force growth in Papua is expected to have further positive effects on the overall economic conditions.

Regarding policy recommendations and future research, it is advised that the Papua Provincial Government intensify efforts to increase the number of job opportunities in the region. This would help raise the labor force percentage, which is expected to contribute positively to economic growth and overall economic improvement. For future research, it is suggested to include additional variables in the economic analysis of Papua to gain a more comprehensive and in-depth understanding. The use of time series data is also recommended to facilitate the interpretation of results from the simulation models used in the economic study.

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