

Influence Growth Economy, Products Gross Regional Domestic Product (GRDP) and Open Unemployment Rate Against Community Welfare with Human Development Index (HDI) As Moderating Variables

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Abstract: This study aims to analyze the effect of economic growth, Gross Regional Domestic Product (GRDP), and open unemployment rate on public welfare, with the Human Development Index (HDI) as a moderating variable. The main topic discussed is how these macroeconomic variables affect public welfare as measured by the achievement of HDI as an indicator of quality of life. This study uses a quantitative approach with moderated regression analysis to test the interaction between independent variables and moderating variables. The data used are sourced from the official report of the Central Statistics Agency (BPS) consisting of panel data with a time series for the period 2020-2023 and cross-sectional data from 34 provinces in Indonesia. Data processing was carried out using Moderate Regression Analysis (MRA) through Eviews 12 software. The results of the study show that economic growth has a negative and significant effect on public welfare, GRDP has a negative and insignificant effect on public welfare, while the open unemployment rate has a positive and insignificant effect on public welfare. The Human Development Index can moderate the relationship between economic growth and public welfare, but cannot moderate the relationship between GRDP and the open unemployment rate on public welfare.

Keywords: *Economic Growth, Gross Regional Domestic Product, Open Unemployment Rate, Community Welfare, Human Development Index.*

1. Introduction

Indonesia, despite recording rapid economic growth in recent decades, still faces various challenges in achieving community welfare. The unemployment and poverty rates remain fundamental issues affecting purchasing power and the overall quality of life of the community. These two issues not only impact consumption decline but also become major obstacles in improving social welfare (Sukirno, 2019). As an effort to address these challenges, the International Labour Organization (ILO) since 1997 has introduced a global strategy to increase job availability, helping communities meet basic needs such as food, shelter, education, and health (Indrayanti, 2020). In this context, community welfare encompasses not only material aspects but also spiritual and social aspects, as mandated in the Law of the Republic of Indonesia Number 11 of 2009.

The welfare of society reflects the dynamics of the quality of life of a nation. Welfare indicators, as explained by the Central Statistics Agency (BPS), include eight main aspects, including health, education, employment, and consumption. The level of education, for example, becomes a very influential factor, as individuals with higher education tend to have stable jobs and better income (Mulia & Saputra, 2020). However, to achieve optimal welfare, Indonesia needs to

address structural challenges such as economic inequality, unemployment, and poverty. Increasing community participation in economic development becomes a crucial step to realize inclusive and equitable growth (PPN/Bappenas, 2019). Appropriate development strategies must also consider sustainability aspects and equitable income distribution.

In efforts to support sustainable development, economic growth becomes an important element that not only impacts the increase in national output but also creates opportunities to reduce poverty and income inequality. Therefore, this research aims to analyze the influence of economic growth, Gross Regional Domestic Product (PDRB), and the Open Unemployment Rate (TPT) on community welfare, with the Human Development Index (IPM) as a moderating variable.

2. Research Method

This study uses quantitative data analysis methods. The data used in this study are annual secondary data consisting of panel data including time series data and cross-section data. Data were taken from 34 provinces in Indonesia (West Papua Province, South Papua Province, Central Papua Province, and Papua Mountains Province are not included) for the period 2020 to 2023.

3. Results and Discussions

Stationarity Test

This test is conducted to see whether the data is stationary or not. The test used in this study is the Unit Root Test through Augmented Dickey-Fuller.

Table 1. Stationarity Test at Level

No.	Variable	Prob*
1.	Economic Growth	0,0001
2.	Gross regional domestic product	0,0129
3.	Open Unemployment Rate	0,0010
4.	Community Welfare	0,5642
5.	Human Development Index	0,0633

According to table 1, stationary testing results show some outputs with a probability > 0.05 so that the test probability > 0.05 so that the test is continued to the 1st Difference level. Here are the following below are the test results.

Table 2. 1st Difference Stationarity Results

No.	Variable	Prob
1.	Economic Growth	0,0000
2.	Gross regional domestic product	0,0000
3.	Open Unemployment Rate	0,0000
4.	Community Welfare	0,0000
5.	Human Development Index	0,0000

Table 2 explains that all outputs have a probability of <0.05 , which means that all variables have met the stationary conditions, so further tests can be carried out.

Model Selection Estimation Test

1. Chow Test

Table 3. Results of Chow Test

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	11.735498	(33,98)	0.0000
Cross-section Chi-square	217.564766	33	0.0000

Based on the Chow test that has been conducted with a probability value of $0.0000 < 0.05$, the fixed effect model is chosen.

2. Hausman Test

Table 4. Results of Hausman test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	7.026386	4	0.1345

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
X1	-0.175075	0.008155	0.014981	0.1344
X2	-0.000007	0.000000	0.000000	0.2782
X3	0.734447	-0.708084	1.019526	0.1531
Z	0.373115	-0.651517	0.203246	0.0230

Based on the test results, a probability value of $0.1345 > 0.05$ is obtained, which means the random effect model is selected, thus requiring an LM test.

3. Lagrange Multiplier Test

Table 5. Results Lagrange Multiplier test

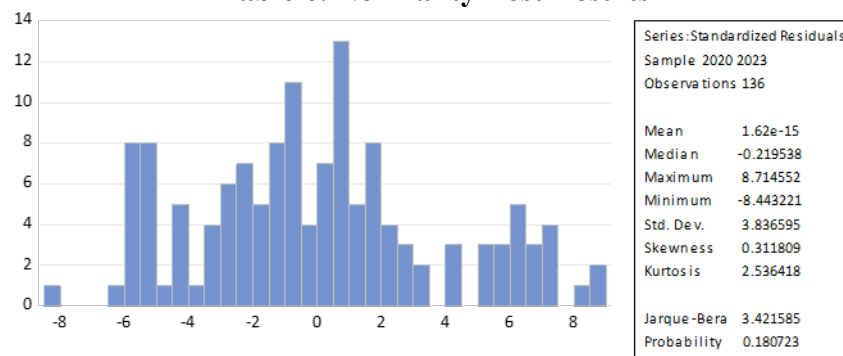
Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided
(all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	100.2464 (0.0000)	0.762637 (0.3825)	101.0091 (0.0000)
Honda	10.01231 (0.0000)	-0.873291 (0.8087)	6.462266 (0.0000)
King-Wu	10.01231 (0.0000)	-0.873291 (0.8087)	2.054194 (0.0200)
Standardized Honda	10.74971 (0.0000)	-0.486852 (0.6868)	3.210904 (0.0007)
Standardized King-Wu	10.74971 (0.0000)	-0.486852 (0.6868)	-0.118557 (0.5472)
Gourieroux, et al.	--	--	100.2464 (0.0000)

According to the results of the test that has been carried out, the Breusch-Pagan value is $0.0000 < 0.05$, so the selected model is random effect.

Classical Assumption Test Normality Test

Table 6. Normality Test Results



Based on table 6, the probability value is $0.180723 > 0.05$, so it can be said that the data is normally distributed.

Heteroscedasticity Test

Table 7. Heteroscedasticity Test Results

Variable	Coefficient Variance	Uncentered VF	Centered VF
C	2.178039	13.57199	NA
X1	0.099490	1.735764	1.021220
X2	8.85E-13	1.912989	1.276246
X3	0.321126	14.43216	1.292047

The heteroscedasticity test aims to see whether or not there is an equal variance for all those observed in the regression method. In this study using the white test as a detection tool. The regression equation is free from heteroscedasticity probability $\text{Obs} * R \text{ Square } 0.1306 > 0.05$ which indicates that no heteroscedasticity symptoms are detected.

Multicollinearity Test

Table 8. Multicollinearity Test Result

Variable	Coefficient Variance	Uncentered VF	Centered VF
C	2.178039	13.57199	NA
X1	0.099490	1.735764	1.021220
X2	8.85E-13	1.912989	1.276246
X3	0.321126	14.43216	1.292047

Observing the test results above, the VIF value of all variables is less than 10. This indicates that the regression model avoids multicollinearity symptoms.

Autocorrelation Test 1

Table 9. Autocorrelation Test Results 1

R-squared	0.409976	Mean dependent var	10.29097
Adjusted R-squared	0.391960	S.D. dependent var	4.934489
S.E. of regression	3.847764	Akaike info criterion	5.568933
Sum squared resid	1939.492	Schwarz criterion	5.676016
Log likelihood	-373.6875	Hannan-Quinn criter.	5.612449
F-statistic	22.75619	Durbin-Watson stat	1.005366
Prob(F-statistic)	0.000000		

This test uses Durbin Watson which has the criteria $dU < dW < 4-dU$. Based on the tests that have been carried out, the dw value is 1.005366 with a dL value of 1.6751, a dU value of 1.7652, a 4-dL value of 2.3249 and a 4-dU value of 2.2348. Then $dU < dW < 4-dU = 1.7652 < 1.005366 < 2.2348$, meaning that the research model gets the results of autocorrelation symptoms, the healing method can be done by transforming the First Difference.

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$1.005366 < 2.2348$, meaning that the research model gets the results of autocorrelation symptoms, the healing method can be done by transforming the First Difference.

Table 10. Autocorrelation Test Results II

R-squared	0.297212	Mean dependent var	-1.43E-16
Adjusted R-squared	0.264268	S.D. dependent var	3.705417
S.E. of regression	3.178314	Akaike info criterion	5.201038
Sum squared resid	1293.015	Schwarz criterion	5.351682
Log likelihood	-344.0701	Hannan-Quinn criter.	5.262255
F-statistic	9.021937	Durbin-Watson stat	1.879847
Prob(F-statistic)	0.000000		

Based on the test after healing, the dW value is 1.879847 with a dL value of 1.6738, a dU value of 1.7645, a 4-dL value of 2.3262, and a 4-dU value of 2.2355. Then $dU < dW < 4-dU = 1.7645 < 1.879847 < 2.2355$, meaning that the research model is not detected autocorrelation.

Hypothesis Test

Table 11. Hypothesis Test Results

Dependent Variable: D(Y)				
Method: Panel EGLS (Cross-section random effects)				
Date: 12/16/24 Time: 19:25				
Sample (adjusted): 2021 2023				
Periods included: 3				
Cross-sections included: 34				
Total panel (balanced) observations: 102				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.243864	1.192963	-0.204419	0.8385
D(X1)	-23.46782	3.836368	-6.117197	0.0000
D(X2)	-0.000111	8.63E-05	-1.290456	0.2001
D(X3)	12.08911	23.07381	0.523932	0.6016
D(Z)	0.237329	2.383655	0.099565	0.9209
D(X1*Z)	0.324240	0.053158	6.099608	0.0000
D(X2*Z)	1.09E-06	1.03E-06	1.062391	0.2908
D(X3*Z)	-0.185661	0.307754	-0.603277	0.5478
Effects Specification				
		S.D.	Rho	
Cross-section random		0.000000	0.0000	
Idiosyncratic random		2.989388	1.0000	
Weighted Statistics				
Root MSE	2.545082	R-squared	0.363300	
Mean dependent var	-0.175686	Adjusted R-squared	0.315886	
S.D. dependent var	3.205337	S.E. of regression	2.651173	
Sum squared resid	660.6993	F-statistic	7.662313	
Durbin-Watson stat	3.081453	Prob(F-statistic)	0.000000	
Unweighted Statistics				
R-squared	0.363300	Mean dependent var	-0.175686	
Sum squared resid	660.6993	Durbin-Watson stat	3.081453	

Looking at the analysis results in table 4.11, the following information is obtained:

1. With a coefficient of -23.46782 and a probability of $0.0000 < 0.05$, the economic growth variable indicates that economic growth significantly and negatively affects community welfare.
2. Next, gross regional domestic product has a probability of $0.2001 > 0.05$ with a coefficient of -0.000111, indicating that gross regional domestic product has a negative and insignificant effect on community welfare.
3. A coefficient of 12.08911 indicates that the open unemployment rate has a positive but insignificant impact on community welfare with a result of $0.6016 > 0.05$.
4. The interaction between economic growth and the human development index obtained a probability of $0.0000 < 0.05$ with a coefficient of 0.324240. This indicates that the human development index can have a moderating effect on the relationship between economic growth and community welfare.
5. The interaction between gross regional domestic product obtained a probability of 0.2908 with a coefficient value of $1.09\text{E}-06$. This means that the human development index does not play a moderating role in the relationship between gross regional domestic product and community welfare.
6. Interaction between open unemployment rate and human development index with probability 0.5478 with coefficient -0.185661. Indicates that the human development index cannot have an effect

Discussion

1. The effect of economic growth on community welfare

With a probability of $0.0000 < 0.05$ and a coefficient of -23.46782 the study results for the economic growth variable show that economic growth has a significant negative impact on community welfare. This shows that the first hypothesis is proven to be rejected. This suggests that increased economic growth is not in line with improvements in people's quality of life. Instead, community welfare is negatively impacted by current economic growth.

High economic growth is often considered an indicator of improved community welfare. However, a number of studies have shown that a fair increase in welfare does not always follow high economic growth. According to (Sultan et al., 2023), an increase in economic growth is not always felt by all levels of society. In Indonesia, the instability of economic growth is often accompanied by high income inequality, which in turn increases the poverty rate and affects people's welfare.

In addition, Wahyu Utomo from the Fiscal Policy Agency of the Indonesian Ministry of Finance emphasized that the goal of rapid economic growth is to provide fair and equitable welfare. However, economic progress will not be able to improve people's welfare if income distribution is unfair. Therefore, while rapid economic growth is essential, it does not automatically improve people's welfare. Efforts are needed to ensure that the benefits of economic growth are distributed fairly so that people's welfare can increase evenly.

This research is in line with (Indrayanti, 2020) and (Indrayanti, 2020) which state that economic growth has a negative effect on community welfare. This means that a high level of economic growth may not necessarily improve people's welfare. Another case with research (Indrayanti, 2020) and (Indrayanti, 2020) which found a positive influence.

2. The effect of gross regional domestic product on community welfare

With a probability value of $0.2001 > 0.05$ and a coefficient of -0.000111 , the study results for the gross regional domestic product variable show that gross regional domestic product has a very small and adverse impact on community welfare. Thus, the second hypothesis that has been established is rejected.

A common measure of an area's economic growth is gross regional domestic product. However, improvements in community welfare do not always correlate with increases in gross regional domestic product. Several studies have shown that high GRDP does not always significantly improve community welfare, and in some cases its effect on community welfare can be negative or insignificant.

According to research (Hendrawan & Yanto, 2023) GRDP has a positive but insignificant relationship with the happiness index in Indonesia. This shows that an increase in GRDP does not automatically improve community welfare. Thus, although GRDP is an important indicator in measuring economic growth, an increase in GRDP does not always reflect an increase in community welfare. Other factors such as income distribution, unemployment rate, and quality of life also play an important role in determining people's welfare.

A confirming finding of this research is the finding of (Devi, 2021) where it was found that gross regional domestic product has an adverse impact on people's welfare. This shows that people's welfare actually decreases when gross regional domestic product increases. This finding contradicts (Mulia & Saputra, 2020) and (Mulia & Putri, 2022) who managed to find a positive effect of the relationship between the two.

3. The effect of the open unemployment rate on community welfare

The results of the analysis for the open unemployment rate variable obtained a result of $0.6016 > 0.05$ with a coefficient of 12.08911 , this shows that the open unemployment rate has a positive and insignificant impact on community welfare. This means that the third hypothesis that has been determined is rejected.

A high level of open unemployment (TPT) is generally considered to reduce community welfare, as the increasing number of individuals without work has an impact on income and quality of life. However, several studies have shown that the effect of open unemployment on community welfare is not always significant, and in some cases the relationship can be positive but not significant.

According to research (Mulia & Saputra, 2020), statistical analysis shows that there is no significant influence between TPT and community welfare. Although in theory high TPT can reduce community welfare, in practice this influence is not always significant. Other factors such as a) regional economic structure which reflects how a region utilizes its resources to produce goods and services and create income, b) dominance of certain sectors which refers to a condition where one economic sector has a very large or dominating contribution which is usually seen from the high proportion of the sector. The

relationship between the unemployment rate and community welfare may be influenced by the absorption of labor in the gross regional domestic product (GRDP).

Thus, policies aimed at improving community welfare need to consider various factors other than just reducing the unemployment rate, including economic sector development and improving the quality of the workforce. Research that supports this result is (Indrayanti, 2020) that the open unemployment rate has a positive effect on community welfare. However, it disagrees with (Shavira et al., 2021) which shows a negative influence between the open unemployment rate and community welfare.

4. Human development index in moderating the effect of economic growth on community welfare

The results of the analysis for the interaction between economic growth and the human development index obtained a probability of $0.0000 < 0.05$ with a coefficient of 0.324240. This indicates that the human development index can have a moderating effect on the relationship between economic growth and community welfare. This means that the fourth hypothesis that has been determined is accepted.

The human development index (HDI) plays an important role in moderating the relationship between economic growth and community welfare. HDI includes indicators of education, health, and living standards that directly affect people's quality of life. Several studies have shown that HDI can strengthen the impact of economic growth on poverty reduction, which is one of the indicators of community welfare.

In other words, regions with higher HDI tend to experience more significant poverty reduction along with economic growth. In addition, other studies have shown that HDI plays a role in reducing poverty in Indonesia. Improving the quality of human resources through better education and health can increase people's productivity and income, thus improving their welfare.

As a result, the relationship between public welfare and economic growth may be moderated by the human development index. The positive impact of economic growth on people's welfare will be amplified if the human development index is improved through investments in health, education, and improved living standards. Therefore, to ensure that growth substantially contributes to improving people's welfare, development policies that focus on improving the human development index are essential.

This study supports the findings of (Nisa Maulani et al., 2023) which state that the human development index can reduce the negative impact of economic growth on people's welfare.

5. Human development index in moderating the effect of gross regional domestic product on community welfare

The results of the analysis for the interaction between gross regional domestic product obtained a probability of 0.2908 with a coefficient value of $1.09E-06$. This means that the human development index does not play a moderating role in the relationship between gross regional domestic product and community welfare. This means that the fifth hypothesis that has been determined is rejected. This shows that an increase in GRDP does not automatically improve community welfare through an increase in HDI.

Gross regional domestic product is often used as an indicator of a region's economic growth, which is assumed to improve community welfare. However, the relationship between gross regional domestic product and community welfare is not moderated by the human development index in this study. This is consistent with previous studies that show that the human development index does not always mitigate the impact of economic factors on community welfare. Here are some reasons why the human development index may not moderate this relationship: income inequality or unequal income distribution refers to a situation where income is not spread evenly among individuals or groups in society, inadequate quality of education and health services may hinder productivity or welfare gains, and untargeted policies may reduce the effectiveness of HDI in improving welfare.

6. The human development index in moderating the impact of the open unemployment rate on community welfare.

The analysis results for the interaction between the human development index and the open unemployment rate, which has a probability of 0.5478 with a coefficient of -0.185661. Indicates that the human development index cannot provide a moderating effect in the relationship between the open unemployment rate and welfare. This means that the sixth hypothesis that has been determined is rejected.

The Human Development Index (HDI) is an important indicator that reflects the quality of life of society, encompassing aspects of education, health, and income. HDI is often used to analyze the factors that influence the well-being of society. In the context of the relationship between the open unemployment rate (TPT) and community welfare, the Human Development Index (HDI) is assumed to have a moderating role, which can either strengthen or weaken the influence of TPT on community welfare. However, the research conducted shows that the HDI does not have a significant moderating effect on the relationship between the open unemployment rate (TPT) and community welfare.

This research is in line with the studies conducted by (Agustin Ningsih et al., 2024) and (Zulmi et al., 2024) which concluded that the human development index does not always serve as an effective moderator in the relationship between TPT and community welfare.

The absence of the moderating role of the Human Development Index (HDI) in the relationship between the unemployment rate and community welfare can be caused by several factors, namely, low education levels can reduce the quality of human resources, thereby increasing the unemployment rate and lowering the HDI, limited access to healthcare services can reduce work productivity and increase the unemployment rate, and high income inequality can lower the HDI, as it indicates an uneven distribution of income.

4. Conclusions

Based on the results of this study, it was found that several observed economic variables do not directly affect the welfare of the community. Economic growth, although showing an increase, significantly has a negative impact on the well-being of the community. This shows that non-inclusive economic growth can actually worsen the existing socio-economic conditions. Moreover, a high Regional Gross Domestic Product (RGDP) does not significantly impact the welfare of the

community, indicating that regional economic growth does not always reflect an improvement in the quality of life of the people. The open unemployment rate also shows similar results, where its impact on community welfare is not significant.

However, this research reveals that the negative impact of economic growth on societal well-being can be minimized by improving the Human Development Index (HDI). The Human Development Index (HDI) has proven to be an effective moderating factor in the relationship between economic growth and community welfare, highlighting the importance of investment in education, health, and better living standards. On the contrary, the HDI does not play a moderating role in the relationship between GDP and the open unemployment rate with community welfare. These findings indicate that although economic indicators are important, improving community welfare requires a more comprehensive and multidimensional approach.

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