International Journal of Social Science and Business
Volume 8, Number 2, 2024, pp. 317-327
P-ISSN: 2614-6533 E-ISSN: 2549-6409
Open Access: https://dx.doi.org/10.23887/ijssb.v8i2.75392

The Effect of PAD, DAU, DAK, BHSDA, Investment, and Economic Growth on Poverty in North Maluku Province

Fajri Hatim[1]*, Hijrasil[1]

[1] Faculty of Economics and Business, Khairun University, Ternate, Indonesia

ARTICLE INFO

Article history:
Received February 8, 2024
Accepted September 22, 2024
Available online Nov 04, 2024

Keywords:
PAD, DAU, DAK, BHSDA, Investment, Economic Growth, Poverty

ABSTRACT

This study examines the relationship between various economic factors—regional own-source revenue (PAD), general allocation funds (DAU), special allocation funds (DAK), natural resource revenue sharing (BHSDA), investment, and economic growth (PDRB)—and poverty levels in North Maluku Province. While economic growth is commonly associated with improvements in community welfare, North Maluku presents a paradox: despite increasing economic growth, poverty rates have also risen. The objective of this research is to assess the impact of these factors on poverty alleviation in the region. Using variance decomposition analysis, the study finds that the variables of PAD, DAU, DAK, BHSDA, investment, and PDRB collectively have a minimal influence on poverty reduction in North Maluku. This suggests that other factors, not captured by these variables, may play a more significant role in shaping poverty outcomes. The findings highlight the complexity of poverty dynamics in the region and imply that additional policy measures beyond economic growth and fiscal transfers may be necessary to effectively reduce poverty in North Maluku.

1. INTRODUCTION

Investment activities in North Maluku in recent years have increased very high, both investment sourced from abroad (FDI) and investment from within the country (DDI). According to the BPKM report, the value of investment in North Maluku in the fourth quarter of 2021 reached IDR 3,974.0 (billion), higher than the fourth quarter of 2020, which was IDR 125.9 (billion). Meanwhile, the value of investment from abroad invested in North Maluku in the fourth quarter of 2021 amounted to U$ 976.2 or when converted at the Indonesian exchange rate (IDR 14,625) per US dollar is IDR 14,276,925 (trillion). Various phenomena occur in North Maluku, including; The lack of adequate transportation infrastructure can hinder access to markets, health services, and education. Remote and inaccessible areas can limit local economic potential and hinder the growth of important sectors. Suboptimal management of natural resources can cause environmental damage and reduce the long-term potential of these sectors. The economy of North Maluku often relies on sectors such as mining and fisheries, which can experience price fluctuations and adverse environmental impacts. Economic diversification is a major challenge. Some areas in North Maluku may rely heavily on a few types of industries or businesses, making the local economy vulnerable to market fluctuations or natural disasters. Addressing the unique economic challenges in North Maluku Province requires a comprehensive and collaborative approach, involving government, the private sector, and communities to achieve sustainable results in poverty alleviation.

This FDI position increased compared to 2020, which amounted to IDR 9.26 trillion, Bank Indonesia (2021). In macroeconomics, an increase in investment will increase economic growth and vice versa, it is possible that high growth causes high investment or the increase in these two variables is due to a third variable. However, most economists point out that high levels of investment lead to faster economic growth, not the other way around, Mankiw (2012 51:52).

Directly proportional to the theory, the increase in investment in North Maluku also leads to high economic growth. BPS noted that throughout 2019 North Maluku's economic growth was 6.25%, in 2020 it was 5.35% and in 2021 it jumped high to 16.40%. The high economic growth of North Maluku indicates an increase in the production side, which has implications for improving people's welfare. According to Mankiw (p. 4, 2012), the level of real GDP is a measure of economic welfare and real GDP growth shows economic progress. Here we focus on the extent to which investment and growth have implications for welfare, especially the poverty rate in North Maluku.

*Corresponding author.
E-mail: ffajrihatim@gmail.com (Fajri Hatim)

The Poverty Rate in North Maluku based on BPS data in the last six years fluctuates even though poverty in North Maluku is considered to have increased. the lowest poverty rate in North Maluku in 2017 was 78.28 thousand residents, while the highest in 2020 was 87.52 thousand residents. This is inversely proportional to the amount of economic growth and investment. The following is the number of poor people (thousand people) in North Maluku.

Table 1. Poverty Level in North Maluku Province

Year	Semester I	Semester II
2022	79.87	82.13
2021	87.16	81.18
2020	86.37	87.52
2019	84.60	87.18
2018	81.46	81.93
2017	76.47	78.28

Source: BPS North Maluku Province

Seeing the development of investment accompanied by an increase in economic growth in North Maluku is paradoxical when the number of poor people in North Maluku also rises. Some research from Aisyah (2022) found that the variables of investment and economic growth have a negative effect on the poverty rate, which means that any increase in investment and economic growth will reduce the poverty rate in East Kalimantan Province.

From the above poverty issues, the role of local governments in solving poverty problems is needed. Therefore, the optimization of regional fiscal policy is strongly encouraged in carrying out development in the regions, through the utilization of regional income which includes regional own-source revenue (PAD), transfer funds from the central government such as special allocation funds (DAK), and general allocation funds (DAU), as well as natural resource revenue sharing. Government spending plays an important role in poverty alleviation. According to the Keynesian approach, public spending can increase aggregate demand which in turn stimulates economic growth and employment, Mehmood and Sadiq (2010).

Based on the background described above, the formulation of the problem to be discussed is how the influence of PAD, DAU, DAK, Revenue Sharing of Natural Resources, Investment, and Economic Growth on Poverty in North Maluku Province in the Short Term and Long Term. Poverty is not influenced by Local Revenue (Alkalah, 2016). Poverty is not affected by General Allocation Fund (Nany & Suryarini, 2022) Special Allocation Fund does not affect Poverty (Ikhsan et al., 2022) Natural Resources Revenue Sharing does not affect Poverty (Ahmad et al., 2023) Invest does not affect Poverty (Chen & Yu, 2023) Gross Regional Domestic Product does not affect Poverty (Zhu et al., 2022). so based on the phenomenon and research gap, this study aims to explore the factors that influence poverty, viewed from Local Revenue; General Allocation Fund; Special Allocation Fund; Natural Resources Revenue Sharing; Invest; Gross Regional Domestic Product. This research is expected to provide the data and insights needed to design public policies that are more responsive to the needs and challenges of the North Maluku community. Policies that are based on accurate data are more likely to be successful in reducing poverty.

2. METHODS

This research took place in North Maluku Province. The reason for choosing North Maluku Province is the high poverty rate in this province. Meanwhile, the time used for this research was carried out for 6 months. The data used in this research is secondary data. The type of secondary data used consists of two types of data, namely time series data. Periodic data (time series), namely data based on the period of occurrence or from time to time, in this study used data valid for 20 years starting from 2002-2021.

Data collection techniques in this study were carried out in several ways, namely: Library Research and Field Research. This research uses quantitative methods. Quantitative methods are used to test the analysis method using the Vector Error Correction Model (VECM). VECM is a form of Vector Autoregressive (VAR) that is retrained. The criterion is given because the data is stationary but cointegrated9. The VECM specification permits the long-run relationship between variables to converge into a cointegrating relationship while still allowing for short-run dynamic changes. Choosing a Vector Error Correction Model (VECM) over other econometric models can be a wise decision in certain contexts, especially when dealing with time series data that have both long-run and short-run relationships. Here are some reasons why VECM might be chosen over other models and how it can improve the robustness of the methodology. Many time series economic data are non-stationary (e.g., trends or seasonal fluctuations), which can confound the

results of the analysis if not handled properly. VECM addresses this problem by converting non-stationary data to stationary through the process of cointegration. VECM allows the analysis of both long-run relationships (cointegration) and short-run dynamics (error correlation). This provides a more comprehensive insight into how variables influence each other in both the short and long run.

Table 2. Types of Data and Data Sources

Variables	Data Type	Data Source	Number of Observations	Period
PAD	Secondary	Bank Indonesia	1 Province	2002-2021
DAU	Secondary	Bank Indonesia	1 Province	2002-2021
DAK	Secondary	Bank Indonesia	1 Province	2002-2021
Revenue Sharing of Natural Resources	Secondary	Bank Indonesia	1 Province	2002-2021
Invest	Secondary	BPKM	1 Province	2002-2021
PDRB	Secondary	BPS	1 Province	2002-2021
Poverty	Secondary	BPS	1 Province	2002-2021

The first step in estimating an economic model with time series data is to test the stationarity of the data (stationary stochastic process). Stationary data is data whose variance is not too large and has a tendency to approach its mean value. The purpose of this test is to make the average value stable and the random error equal to zero. Exposing stationary data or variables at the level will lead to the use of VAR with standard methods. While nonstationary will have implications for the VECM form. Therefore, stationarity testing plays an important role in the estimation stage using the VAR method. The VAR and VECM models used in the study are as follows:

$KMSKN_t = f(PAD_t, DAU_t, DAK_t, BHSDA_t, INVEST_t, PDRB_t)$

KMSKN : Poverty
PAD : Local Revenue
DAU : General Allocation Fund
DAK : Special Allocation Fund
BHSDA : Natural Resources Revenue Sharing
INVEST : Invest
PDRB : Gross Regional Domestic Product

Furthermore, to see the issue of long-term problems, a combination of the structural VAR model with the vector error correction model (VECM) is formed so that the equation becomes as follows:

$$\Delta y_t = \mu_{0x} + \mu_{1x} t + a\beta y_{t-1} + \sum_{i=1}^{k-1} \tau_k \Delta y_{t-1} + \varepsilon_t$$

y_t : $KMSKN_t$, PAD_t, DAU_t, DAK_t, $BHSDA_t$, $INVEST_t$, $PDRB_t$
μ_{0x} : *vector intercept*
μ_{1xt} : *vector* koefesien regresi
t : *time trend*
a : *coefficient speed of adjustment*
β : *vector* kointegrasi
y_{t-1} : variable *in-level*
τ_k : regression coefficient matrix
k-1 : ordo VECM dari VAR
k : *lag*
ε_t : *error term*

3. RESULTS AND DISCUSSIONS

Local own-source revenue (PAD) as funding and local income comes from local taxes, local levies, the results of the management of separated local assets and other legitimate PAD or includes the sale of non-separated local assets, current account services, interest income, gains on the difference in the rupiah exchange rate against foreign currencies, and commissions, deductions, or other forms as a result of the sale or procurement of goods and services by the region. To maintain and increase PAD, Yustika (2008: 34) said that local governments must design and implement various PAD enhancement schemes, including intensification and extension of local levies in the form of levies or taxes, exploration of natural resources, capital formation schemes or regional investment through fundraising or attracting investors.

Table 3. Development of PAD, Regional Transfer, Revenue Sharing of Natural Resources, Investment and Economic Growth in North Maluku Province

Year	PAD	DAU	DAK	BHSDA	Invest	PDRB	Poverty
2001	5.087 500	225.483483	1.440.000	7.507.000		101.000.000	
2002	9.085 000	232.710.000	3.370.000	1.475.000		891.160.000	
2003	16.688.191	124.75,000		-		918.621.000	
2004	15.720.719	-		-		-	
2005	26.933.237	24.635.801.285		246.358.012.853		223.680.365	
2003	34.153.293	•		•		235.948.302	
2007	57.107.011	24.635.801.285		5.066.037.111		250.117.513	
2008	76.338.211	45.148.145.900		3.272.306.830		265.076.009	10.500
2009	73.292.407	45.851.166.000		7.030.938.006	55.394.200	281.021.318	98.000
2010	77.842.742.791	479.480.664.000	26.386.100.000	99.097.999.162	2.211.821.964	303.564.084	91.000
2011	84.811.587.802	540.389.811.000	51.233.800.000	99.383.715.937	1.177.437.078	323.005.300	97.000
2012	-	•	51.233.800.000	•	873.073.785	344.548.040	91.000
2013	160.524.534.897	772.591.162.000	69.688.380.000	98.408.592.111	3.273.453.076	182.112.871	83. 000
2014	203.266.619.376	906.623.550.000	74.623.090.000	108.427.698.801	1.228.127.465	192.119.417	82.000
2015	248.065.000.000	106.100.001.800	11.461.000.000	75.96.000.000	2.811.854.110	203.810.339	79.000
2016	280.111.908	1.132.578.857	233.861.505	27.346.253	5.897.098.731	215.563.218	74.000
2017	327469 790	1.265.846.334	553.215.205	31.855.145	3.091.598.454	737.925.333	76.000
2018	358.325.359	1.331.236.347	654.320.605	83.143.698	5.255.887.496	25.050.000.012	81.000
2019	1.349.662.180	1.354.662.180	780.339.362	64.423.951	14.020.158.095	26.586.000.000	84.000
2020	447.291.483	1.221.012.415	722.991.766	45.871.468	•	27.868 000.000	86.000
2021	552.347.164	1.262.976.766	843.800.713	-	-	32.615.000.000	87.000

The table shows that North Maluku since its establishment as an autonomous region in 2001 has demonstrated its economic independence. This can be seen from the acquisition of local revenue. Where in 2015 the North Maluku provincial government was able to significantly increase local revenue, namely IDR 248,065,000,000 (billion) since 2001, the initial data period. Although in the 2021 data period, North Maluku's local revenue decreased by IDR 552,347,164 due to the Covid-19 pandemic conditions since 2020.

DAU aims to reduce inequality in financial capacity between regions. Where the amount of DAU distributed is at least 26% of domestic revenue determined by the APBN and given to all provinces and districts/cities according to the formula. Meanwhile, in Article 27 of Law No. 33/2004, the allocation of DAU is based on fiscal gap and basic allocation. The fiscal gap here is the fiscal need minus the fiscal capacity of the region, while the basic allocation is based on the calculation of the number of civil servants in the region. According to Yustika (2008, 32:33), DAU criteria are based on two important factors, namely regional needs (fiscal need) and regional economic potential (fiscal capacity).

The table shows that the DAU allocated by the central government in the APBN since becoming an autonomous region, the DAU provided by the government has tended to be smaller in value in 2020, namely IDR 1,221,012,415. This value is smaller than the initial period of autonomy until the middle period, where in the initial period of data the value of DAU allocated by the central government was IDR 24,635,801,285. Meanwhile, in the middle period the DAU data amounted to Rp 906,623,550,000.

DAK as part of the equalization fund is allocated for special activities of local governments. These special activities are in line with the national and regional interests stipulated in the APBN. There are several DAK criteria set by the government, first, including general criteria, namely considering regional finances in the APBD. Second, special criteria, namely by taking into account legislation and regional

characteristics. Third, technical criteria or determined by the state ministry / technical department. Yustika (2018: 31) explains specifically that DAK is a fund that comes from the APBN and is allocated to regions that are intended to help finance special activities in the regions and in accordance with national priorities. The table shows the DAK allocated by the central government in the APBN since becoming an autonomous region, the DAK provided by the government has tended to be smaller in value in 2020, namely IDR 45,871,468. The highest DAK was in 2014, where the DAK provided amounted to IDR 74,623,090,000.

Yustika (2008: 203), Natural resource revenue is the main component of non-tax state revenue. The purpose of revenue sharing funds according to the Ministry of Finance (2020) is directed at health development to support the JKN program, especially increasing the quantity and quality of health services, regional economic recovery, development in education, expanding the use of DBH for community empowerment programs and social forestry.

Investment has become an important variable in economic growth, every government in both developing and developed countries always tries to increase investment in their country, both domestic and foreign investment, this makes the investment variable an instrument to accelerate increased economic growth, Semara & Yasa (2017). To spur economic growth, new investment is needed which is a net addition to reserves or capital stock. The table shows that incoming investment in North Maluku continued to increase from 2009, namely IDR 55,394,200 to the highest point in 2019 with an investment value of IDR 14,020,158,095.

Economic growth as one of the macroeconomic indicators aims to see the economic condition of a country or region. Where to measure economic growth used is GDP. Through GDP two things are measured at once, namely the total income of all people in the economy and the amount of spending to buy goods and services resulting from the economy. The reason GDP can measure total income and expenditure simultaneously is that these two things are basically the same. For an economy as a whole, total income must equal total expenditure (Mankiw, 2012:4). Along with the increase in the value of incoming investment in North Maluku above, the table shows an increase in the economic growth or gross domestic product (GDP) of North Maluku. In the last four years, the value of production of goods and services has increased greatly, such as in 2018, namely Rp. 25,050,000,012, in 2019 Rp. 26,586,000,00, 2018 Rp. 27,868,000,000, to the highest Rp. 32,615,000,000.

The poor are people or individuals who live below the poverty line. The poverty line is a minimum expenditure value for food and non-food needs that must be met in order not to be categorized as poor (BPS, 2022). Poverty measured by access to basic needs can be considered included in the scope of absolute poverty. According to Todaro and Smith (2006: 243), absolute poverty is a number of people who are unable to get enough resources to meet basic needs. People live below a certain minimum real income or below the international poverty line.

The table shows that the poverty rate in North Maluku fluctuates every year and the changes are not that big, the highest poverty rate was in 2008 with a poverty rate of 10,500 people, this figure is higher than the 2021 data year which dropped to 87,000 people. Nevertheless, the number of poor people in North Maluku is still considered high compared to the level of investment and economic growth in North Maluku.

Statistical Analysis

The first step in analyzing time series data is the stationary test with the aim of knowing the data of the variables tested are stationary or not. Stationary data obtained is done through a root test or unite root test using augemted dickey-fuller (ADF) with level and first difference degrees to obtain stationary data. The following below are the results of the stationary test using dickey-fuller (ADF) for each data:

Table 4. Results of ADF Stationarity Test

Variables	ADF Statistik			Description
	t-statistic	Critical Values 5%	prob	
Poverty	-1.291607	-3.020686	0.6124	Non-stationary
PAD	-4.344574	-3.020686	0.0032	Stationary
DAU	-3.763950	-3.020686	0.0110	Stationary
DAK	-4.285979	-3.020686	0.0036	Stationary
BSDA	-5.554528	-3.020686	0.0002	Stationary
Invest	-5.091078	-3.020686	0.0006	Stationary
PDRB	-3.526802	-3.020686	0.0181	Stationary

Source: Analysis Results

Based on the table of stationary test results at the level using ADF above using Critical values 5%, only the ADF t-statistic of Poverty is smaller than the Critical values, namely with a value of -1.291607 and

can be said to be non-stationary at the level. While other variables are stationary at the level. Therefore, stationary testing needs to be continued at the first difference level. The following data is stationary at the first difference level.

Through the first difference test results in the table above, all data on each variable is stationary at first difference with the assumption of t-statistic > critical value (not stationary) and the assumption of t-statistic < critical value (stationary). Optimal lag assessment with various criteria, namely: Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Criterion (SC), and Hannan-Quinn Information Criterion (HQ).

Table 5. ADF Stationarity Test Results at 1st different level

Variables	ADF Statistik			Description
	t-statistic	Critical values 5%	Prob	
Poverty	-4.479544	-3.029970	0.0026	Stationary
PAD	-5.264834	-3.040391	0.0006	Stationary
DAU	-4.489856	-3.052169	0.0030	Stationary
DAK	-6.089400	-3.029970	0.0001	Stationary
BSDA	-11.38620	-3.029970	0.0000	Stationary
Invest	-10.75763	-3.029970	0.0000	Stationary
PDRB	-5.788968	-3.029970	0.0002	Stationary

Source: Analysis result

Table 6. Optimal Lag Test Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-4719.922	NA*	2.90207	497.5707	497.9187*	497.6296
1	-4663.217	65.65894	1.90207*	496.7596*	499.5433	497.2307*

Source: Analysis Results

Table 7. Cointegration Test Results

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.934976	162.3822	125.6154	0.0000
At most 1 *	0.866001	107.7224	95.75366	0.0058
At most 2	0.740472	67.52387	69.81889	0.0752
At most 3	0.709212	40.54610	47.85613	0.2035
At mosat 4	0.448961	15.84291	29.79707	0.7233
At most 5	0.174665	3.923923	15.49471	0.9096
At most 6	0.004221	0.084607	3.841466	0.7711
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.934976	54.65984	46.23142	0.0051
At most 1 *	0.866001	40.19848	40.07757	0.0485
At most 2	0.740472	26.97778	33.87687	0.2646
At most 3	0.709212	24.70319	27.58434	0.1120
At most 4	0.448961	11.91899	21.13162	0.5557
At most 5	0.174665	3.839316	14.26460	0.8759
At most 6	0.004221	0.084607	3.841466	0.7711

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: Analysis result

The lag test results above contain only one lag and as a test recommendation by looking at various criteria, namely FPE, AIC, SC, HQ. Determination of the optimal lag results here by looking at the number of asterisks on each criterion. The cointegration test is conducted to see the long-term relationship between variables based on the requirements of having fulfilled the previous stationary test process through testing

on the first difference. In this test, if cointegration is found, VECM estimation will be carried out. Conversely, if it is not found then VAR estimation in difference is carried out.

Looking at the table of cointegration test results above, the trace statistic value is greater than the critical value with a value of 162.3822> 125.6154 at the 0.05% confidence level. Furthermore, the Max-Eigen statistic value is also greater than the critical value of 54.65984 > 46.23142. Significant cointegration of the Trace Statistic value and Max-Eigen Statistic value at α = 5% indicates the presence of 1 rank cointegration marked with an acentric sign (*). All of that means that the movements of all research variables have an equilibrium relationship in the long run. So that further analysis is carried out using VECM.

Table 8. Vector Error Correction Model Test Results

Variable	Coefficient	t-statistic	Description
Short Term			
CointEq1			
PAD (-1)	1.24729	-1.25852	Insignificant
DAU (-1)	0.44399	-4.14886	Insignificant
DAK (-1)	1.34109	1.19490	Significant
BSDA (-1)	0.78435	8.98502	Significant
Investasi (-1)	1.65509	-0.10097	Insignificant
PDRB (-1)	1.09935	2.25896	Significant
Long Term			
PAD (-1)	0.065748	3.65480	Significant
DAU (-1)	0.150900	2.91079	Significant
DAK (-1)	0.005252	0.20756	Significant
BSDA (-1)	-0.160330	-7.86880	Significant
Investasi (-1)	-0.000984	-0.06274	Significant
PDRB (-1)	-0.037801	-0.99910	Significant

Source: Analysis Results

Based on the table above in the long run PAD, DAU, and DAK have a positive and significant relationship with Poverty. Meanwhile, BSDA, Investment, GRDP in the long run have a negative and significant relationship with poverty in North Maluku. While in the short-term PAD, DAU, Investment, have a positive but insignificant relationship to poverty. DAK, BSDA, GRDP in the short term have a positive and significant relationship to poverty in North Maluku.

Table 9. Response of Poverty

Period	POVERTY	PAD	DAU	DAK	BSDA	INVEST	PDRB
1	4.52013	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	5.49013	-1.04013	-5.90012	8.81012	9.88012	3.79012	-2.24012
3	5.33013	-8.70012	-4.93012	7.36012	8.26012	3.16012	-1.88012
4	5.35013	-8.98012	-5.09012	7.60012	8.52012	3.27012	-1.94012
5	5.35013	-8.93012	-5.06012	7.56012	8.48012	3.25012	-1.93012
6	5.35013	-8.94012	-5.07012	7.57012	8.49012	3.25012	-1.93012
7	5.35013	-8.94012	-5.07012	7.57012	8.49012	3.25012	-1.93012
8	5.35013	-8.94012	-5.07012	7.57012	8.49012	3.25012	-1.93012
9	5.35013	-8.94012	-5.07012	7.57012	8.49012	3.25012	-1.93012
10	5.35013	-8.94012	-5.07012	7.57012	8.49012	3.25012	-1.93012

Source: Analysis Results

From the table above, the Poverty variable responds to the disturbance (shock) of DAK, BSDA, Investment is positive until the end of the period or can be said to be permanent positive. While the disturbance (shock) provided by the PAD, DAU, GRDP variables is negative from the beginning of the period to the end of the period so that it can be said to be permanently negative.

Graph 1 illustrates the tendency of DAK, BSDA, Investment, GRDP variables to be above the horizontal line, indicating that these variables have a positive impact. Meanwhile, the PAD and DAU variables are below the horizontal line, indicating that these variables have a negative impact.

From the figure below, the response of Poverty to shocks given by DAK, the 2nd period of the shock given is so high that is 8.26012 which means that if there is any increase in DAK which is part of the central transfer funds for regional development increases by one unit, it will result in an increase in the poverty

rate of 8.260%. the higher the DAK, the higher the poverty. The results of this study indicate that the shock to the DAK is responded positively by poverty. This study correlates with research conducted by Putri et al. (2008) where equalization funds (DAK) have a positive and significant effect on poverty. In other words, the balancing funds (DAK) aimed at implementing development in the regions and reducing inequality between fiscal regions have not been fully successful (Saputra et al., 2019).

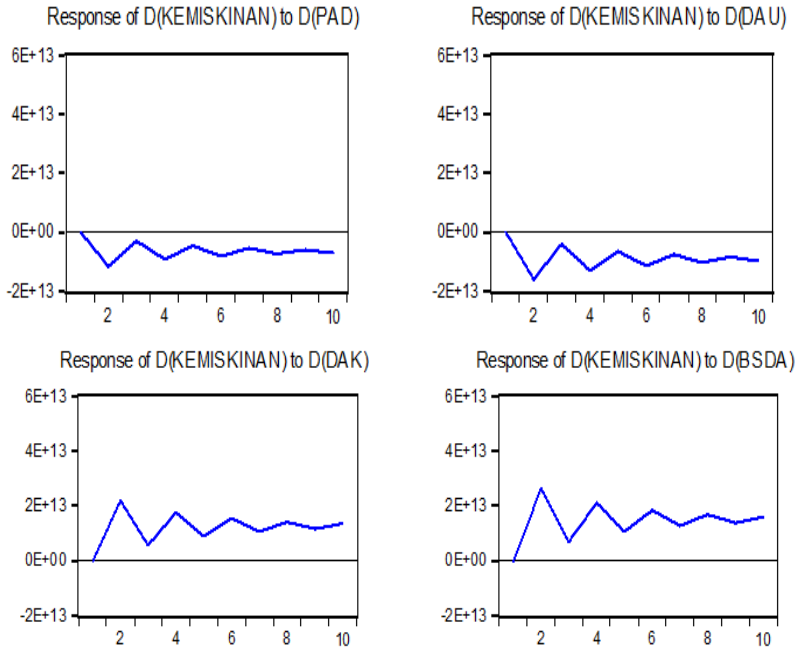

Figure 1. Poverty response to shocks of PAD, DAU, DAK, BSDA, Investment, GRDP variables.

The shock given by BSDA is positive by 9.88012 in the 2nd period, meaning that if there is an increase in BSDA, it will increase poverty. This response is different from the results of research by Rasu et al. (2019) where the results of their research show that the BSDA variable has a negative but insignificant effect on poverty. This can be seen from the t-count value of the BSDA variable is smaller than the t-table and it can be concluded that the BSDA variable has no contribution to the poverty variable (Saputra et al., 2018).

The positive response is also given by investment; however, the graph shows that it is right on the horizontal line where the shock is given in the 2nd period 3.79012 which means that if there is an increase in investment, it will increase poverty by 3.80%. shocks to investment can also be positive or negative. This research is different from the results of Aisyah et al (2022) where the investment variable has a negative effect on poverty in East Kalimantan. While the results of other research from Semara and Yasa (2017) have the same results as this study where the Investment variable has no effect on poverty in Bali Province in 2014-2018 (Saputra & Kurniawan, 2017).

The shock is given positively by GRDP, amounting to -2.24012 even though the value in the entire period is negative. Which means that high economic growth (GRDP) will increase poverty by -2.24%. based on the results of the Impulse Response Function (IRF) above illustrates the effect of GRDP on Poverty can be positive and negative. The results of this research are supported by research by Semara and Yasa (2017) where the GRDP variable has no effect on poverty.

Regarding shocks that have a permanent negative response to poverty, among them are PAD and DAU. When viewed from the results of the 4th period IRF test for PAD of -8.98012, which means that if there is an increase in PAD, it will reduce poverty by -8.98%. The results of this study are supported by Paus et al. (2015) the results of their research found that PAD has a negative relationship with Poverty through regional spending.

In addition, another permanent negative response by DAU in the 3rd period was -4.93012, which means that if there is an increase in DAU, it can reduce poverty by -4.93%. the results of this study are supported by Paus et al. (2015) the results of their research found that DAU has a negative relationship with Poverty through regional spending. This study also has different results from the research of Putri et al.

(2008), the results of their research found that equalization funds (DAU) have a positive effect on poverty.
Variance Decomposition (VD)

Table 10. Result of Variance Decomposition (VD)

Period	S.E.	D(POVERTY)	D(PAD)	D(DAU)	D(DAK)	D(BSDA)	D(INVESI)	D(PDRB)
1	4.87013	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	8.43013	77.73094	1.904872	3.664504	6.753139	9.614608	0.000841	0.331098
3	9.89013	82.70683	1.479240	2.845693	5.244191	7.466282	0.000653	0.257116
4	1.18014	80.28631	1.686288	3.244003	5.978218	8.511334	0.000744	0.293105
5	1.29014	82.19492	1.523028	2.929931	5.399428	7.687298	0.000672	0.264727
6	1.43014	81.59648	1.574218	3.028408	5.580907	7.945673	0.000695	0.273625
7	1.53014	82.46048	1.500312	2.886231	5.318896	7.572641	0.000662	0.260779
8	1.65014	82.31518	1.512741	2.910141	5.362959	7.635374	0.000668	0.262939
9	1.74014	82.74926	1.475610	2.838710	5.231323	7.447961	0.000651	0.256485
10	1.84014	82.74263	1.476177	2.839801	5.233332	7.450823	0.000652	0.256584

The table above explains the results of the VD test where for the first period Poverty is influenced by poverty itself. As the period increases, other variables begin to influence Poverty although their influence is not as great as Poverty itself. BSDA has the second largest influence after Poverty. At the beginning of the period, its influence amounted to 9.61%, but its influence decreased in each period until the final period or the 10th period, its influence amounted to 7.45% on the poverty rate. The smallest influence is given by the Investment variable of 0.065% in the 9th period. The other variables such as DAK are in 3rd place in terms of their influence on Poverty by 5.23% at the end of the period. Next in 4th place is DAU with an influence on poverty of 2.83% at the end of the period. PAD is in 5th place on Poverty and the GRDP variable has an influence on poverty of 0.25%.

Based on the results of data analysis, the short-term effect of local revenue (PAD), regional transfer funds (DAU and DAK), natural resource revenue sharing (BSDA), investment and economic growth (GRDP) on poverty. H0: It is suspected that in the short term, the variables of local revenue (PAD), regional transfer funds (DAU and DAK), natural resource revenue sharing (BSDA), investment and economic growth (GRDP) have no significant effect on poverty. Based on the hypothesis test, it is found that there is a positive relationship between the variables of local revenue, regional transfer funds (DAU, DAK), natural resource revenue sharing (BSDA), investment and economic growth (GRDP) with a significant positive effect and an insignificant positive effect. Then the hypothesis H0 is rejected. H1: It is suspected that local own-source revenue (PAD), regional transfer funds (DAU and DAK), natural resource revenue sharing (BSDA), investment and economic growth (GRDP) have a significant effect on poverty. Based on the hypothesis test, it is found that there is a positive relationship between the variables of local revenue, regional transfer funds (DAU, DAK), revenue sharing of natural resources (BSDA), investment and economic growth (GRDP) and a significant and positive effect is not significant. Then the hypothesis H1 is rejected.

Long-term effect of own-source revenue (PAD), regional transfer funds (DAU and DAK), natural resource revenue sharing (BSDA), investment and economic growth (GRDP) on poverty. H0: It is suspected that own-source revenue (PAD), regional transfer funds (DAU and DAK), natural resource revenue sharing (BSDA), investment and economic growth (GRDP) have no significant effect on poverty. Based on the hypothesis test, it is found that there is a significant positive and significant negative relationship. variable local revenue, regional transfer funds (DAU, DAK) have a positive and significant relationship to Poverty. natural resource revenue sharing (BSDA), investment and economic growth (GRDP) have a negative and significant effect on poverty. Then the hypothesis H0 is rejected. H1: It is suspected that local own-source revenue (PAD), regional transfer funds (DAU and DAK), natural resource revenue sharing (BSDA), investment and economic growth (GRDP) have a significant effect on poverty. Based on the hypothesis test, it is found that there is a significant positive and significant negative relationship. local revenue variables, regional transfer funds (DAU, DAK) have a positive and significant relationship to Poverty. natural resource revenue sharing (BSDA), investment and economic growth (GRDP) have a negative and significant effect on poverty. Then the hypothesis H1 is accepted.

H0: It is suspected that shocks that occur in the variables of economic growth, investment, local revenue, regional transfer funds, and natural resource revenue sharing are not responded to by the poverty variable. Based on the hypothesis test, it is found that there is a positive and negative response to poverty. The variables DAK, Investment, BSDA, and GRDP responded positively to the poverty level of North Maluku. Meanwhile, the PAD and DAU variables responded negatively to poverty. Then the H0 hypothesis is rejected. H1: It is suspected that shocks that occur in the variables of economic growth, investment, local revenue, regional transfer funds, and natural resource revenue sharing are responded to by the poverty variable. Based on the hypothesis test, it is found that there is a positive and negative response to poverty. The

variables DAK, Investment, BSDA, and GRDP responded positively to the poverty level of North Maluku. While the PAD and DAU variables respond negatively to poverty in North Maluku. Therefore, hypothesis H1 is accepted.

In the context of poverty alleviation in a region, such as North Maluku Province, several key elements in regional finance can play an important role. These elements include Regional Original Income (PAD), General Allocation Fund (DAU), Special Allocation Fund (DAK), Natural Resource Revenue Sharing Fund (DBH SDA), investment, and Gross Regional Domestic Product (PDRB). PAD is a source of regional income obtained from various local sources such as regional taxes, levies, and results of regional wealth management. Increasing PAD can expand regional fiscal capacity to finance poverty alleviation programs. DAU is a fund provided by the central government to regions to support financing of regional spending. This fund helps regions in providing basic services and infrastructure needed to improve community welfare. DAK is allocated for special strategic and priority projects, such as the construction of schools, hospitals, and other infrastructure. DAK allows the distribution of funds for specific needs that can directly address poverty problems. DBH SDA is a fund received by regions from the exploitation of natural resources. This fund can be used for infrastructure development and poverty alleviation programs. Investment, both from the government and the private sector, can create jobs, increase community incomes, and drive local economic growth. Investment in sectors such as industry, tourism, and agribusiness can improve the economy and reduce poverty. GRDP is a measure of the total value of goods and services produced in a region. GRDP growth indicates an increase in the regional economy, which can have an impact on poverty reduction by increasing income and employment opportunities. Mapping needs and priorities in poverty alleviation based on PAD, DAU, DAK, DBH SDA, and GRDP data to ensure effective resource allocation. Effective management of PAD, DAU, DAK, DBH SDA, investment, and GRDP analysis can make a major contribution to overcoming poverty. By utilizing these elements strategically, local governments can strengthen poverty alleviation efforts, improve the quality of life of the community, and drive inclusive economic growth.

4. CONCLUSION

Based on research that has been conducted with the aim of seeing whether in the short term and long term the variables of economic growth, investment, local revenue, regional transfer funds, and natural resource revenue sharing can reduce the poverty rate. By using time series data with the vector error correction model (VECM) model on EViews 9 software, it can be concluded that the results of this study, namely: 1) The short-term effect of PAD, DAU, Investment, has a positive but insignificant relationship to poverty. DAK, BSDA, GRDP in the short term have a positive and significant relationship to poverty in North Maluku. 2) The Long-Term Effect of PAD, DAU, DAK has a positive and significant relationship to Poverty. Meanwhile, BSDA, Investment, GRDP in the long run have a negative and significant relationship with poverty in North Maluku. 3) In the impulse response function results, in general, shocks from the conditions of the PAD, DAU, DAK, BSDA, Investment, and GRDP variables are responded to by Poverty in North Maluku both positively and negatively with the length of the shock given being permanent or non-permanent. As for the results of variance decompotion on forecasts made, poverty is not much influenced by the variables of PAD, DAU, DAK, BSDA, Investment, and GRDP. It is possible that other variables outside the PAD, DAU, DAK, BSDA, Investment, and GRDP variables have more influence on poverty in North Maluku.

5. ACKNOWLEDGE

If any, thanks are addressed to Faculty of Economics and Business, Khairun University have provided funding or have made other contributions to this research.

6. REFERENCES

Ahmad, M., Ahmed, Z., Yang, X., & Can, M. (2023). Natural Resources Depletion, Financial Risk, and Human Well-Being: What is the Role of Green Innovation and Economic Globalization? Social Indicators Research, 167(1–3), 269–288. https://doi.org/10.1007/s11205-023-03106-9

Aisyah, dkk. (2022). Pengaruh Investasi Sektor Swasta, Pertumbuhan Ekonomi serta Indeks Pembangunan Manusia (IPM) Terhadap Tingkat Pengangguran dan Kemiskinan. Jurnal Forum Ekonomi. Vol.24 (1)

Anwar, dkk. (2016). Pengaruh DAU, DAK, PAD Terhadap Pertumbuhan Ekonomi dan Kemiskinan. Jurnal Berkalah Ilmiah Efisiensi Vol.16 (2).

BPS. (2023). Kemiskina dan Ketimpangan. (https://www.bps.go.id/indicator/23/185/1/jumlah-penduduk-miskin-ribu-jiwa-menurut-provinsi-dan-daerah.html, diakses 30 Januari 2023).

Bank Indonesia. (2021). Laporan Perekonomian Provinsi Maluku Utara. (http:www.bi.go.id/id/ publikasi/kajian-ekonomi-regional/, diakses tanggal 20 Januari 2023)

Chen, Y., & Yu, W. (2023). Chinese investment, anti-poverty and institutional improvement: evidence from the Belt and Road Initiative. Digital Economy and Sustainable Development, 1(1), 1–15. https://doi.org/10.1007/s44265-023-00013-2

Ferezagia. (2018). Analisis Tingkat Kemiskinan di Indonesia. Jurnal Sosial Humaniora Terapan. Vol.1 (1)

Hamid, Edy Suani. (2005). Formula Alternatif DAU: Upaya Mengatasi Ketimpangan Fiskal dalam Era Otonomi Daerah. Yogyakarta: UII Pess.

Haughton, Jonathan dan R. Khandker, Shahidur. (2012). Pedoman tentang Kemiskinan dan Ketimpangan. Jakarta: Salemba Empat.

Hill, Hal. (2002). Ekonomi Indonesia, Edisi Kedua. Jakarta: Raja Grafindo Persada.

Ikhsan, Hajad, V., Marefanda, N., Saputra, A., & Herizal. (2022). The Special Autonomy Funds are not for Poverty Alleviation: A lesson from Aceh's Way. Journal of Local Government Issues, 5(2), 161–175. https://doi.org/10.22219/logos.v5i2.21658

Imam, Z. Wahda. (2011). Problematika Otonomi Daerah (Sebuah Perspektif Kritis). Ternate: LepKhair.

Jonaidi. (2012). Analisis Pertumbuhan Ekonomi dan Kemiskinan di Indonesia. Jurna Kajian Ekonomi Vol 1, (1).

Kementrian Keuangan. (2020). Daftar Alokasi Dana Transfer ke Daerah dan Dana Desa Tahun Anggaran 2021 Provinsi Maluku Utara. (http:www.djpk.kemenkeu.go.id, diakses tanggal 30 Januari 2023).

Koswara, E. (2000). Arus Bawah Demokrasi Otonomi dan Pemberdayaan Desa. Yogyakarta: Lapera Pustaka Utama.

Mankiw, N. Gregory, Quah, Euston dan Wilson, Peter. (2012). Pengantar Ekonomi Makro. Jakarta: Salemba Empat.

Mardiasmo. (2001). Dampak Otonomi Daerah Terhadap Sektor Perbankan. Jurnal Bisnis & Akuntansi. Vol.3 (1)

Mas'ud dan Rochaida. (2022). Determinan tingkat pertumbuhan ekonomi dan tingkat kemiskinan dengan. Jurnal Forum Ekonomi Vol.24 (1).

Mehmood, Rasid; Sadiq, Sara. (2010). The Relationship Between Government Expenditure and Poverty: A Cointegration Analysis. Romanian Journal of Fiscal Policy (RJFP). Vol.1 (1).

Mubyarto. (2001). Prospek Otonomi Daerah dan Perekonomian Indonesia Pasca Krisis Ekonomi. Yogyakarta: BPFE-YOGYAKARTA

Mubyarto. (2000). Membangun Sistem Ekonomi. Yogyakarta: BPFE-YOGYAKARTA

Nany, M., & Suryarini, T. (2022). Does Balancing Fund Affect Economic Growth and Poverty Level in Central Java? Jurnal Kajian Akuntansi, 6(1), 1. https://doi.org/10.33603/jka.v6i1.5078

Prasetyo, P. Eko. (2012). Fundamental Makro Ekonomi. Yogyakarta: Beta Offset.

Saputra, K. A. K., & Kurniawan, P. S. (2017). Konsep Good Corporate Governance Dan Fungsi Badan Pengawas Sebagai Internal Auditor LPD Di Bali. Simposium Nasional Akuntansi XX, Universitas Jember.

Saputra, K. A. K., Ekajayanti, L. S., & Anggiriawan, P. B. (2018). Competency Of Human Resources And Love Of Money Attitude In Management Of Financial Small-Medium Micro Business. Jurnal Reviu Akuntansi dan Keuangan, 8(2), 135-146.

Saputra, K. A. K., Darma, I. K., & Putra, I. N. G. M. (2019). Financial Management In The Good Village Governance Frame In Plaga Village, Bali. International Journal of Advances in Social and Economics, 1(5).

Semara, Ananda dan Yasa, Mahaendra. (2017). Pengaruh Pendapatan Asli Daerah dan Investasi Terhadap Pertumbuhan Ekonomi dan Tingkat Kemiskinan di Provinsi Bali. Jurnal EP Unnud. Vol.10 (7).

Todaro, M.P.dan Smith, S.C. (2006). Pembangunan Ekonomi. Terjemahan oleh Haris Munandar, Pujia A.L. Jilid 1. Edisi Kesembilan. Jakarta: Erlangga.

UU. No. 33 Tahun 2004, Tentang Perimbangan Keuangan antara Pemerintah Pusat dan Pemerintah Daerah.

Yustika, Ahmad Erani. (2008). Desentralisasi Ekonomi di Indonesia. Malang: Bayumedia Publishing.

Zhu, Y., Bashir, S., & Marie, M. (2022). Assessing the Relationship between Poverty and Economic Growth: Does Sustainable Development Goal Can be Achieved? Environmental Science and Pollution Research, 29(19), 27613–27623. https://doi.org/10.1007/s11356-021-18240-5