

ANALYSIS OF THE EFFECT OF GOVERNMENT EXPENDITURE IN THE AGRICULTURAL SECTOR, AGRICULTURAL SECTOR INVESTMENT AND AGRICULTURAL SECTOR LABOR ON GROSS REGIONAL DOMESTIC PRODUCT (GRDP) IN THE AGRICULTURAL SECTOR IN NAGEKEO REGENCY

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ABSTRACT

This study aims to determine the extent of influence of government expenditure in the agricultural sector, agricultural investment, and agricultural labor on the gross regional domestic product (GRDP) in the agricultural sector in Nagekeo Regency. This study uses quantitative descriptive research, with the analysis method used being multiple linear regression with secondary time series data. The results of this study indicate that, partially, the variables of government expenditure in the agricultural sector and investment in the agricultural sector have a positive and significant effect on the gross regional domestic product (GRDP) of the agricultural sector in Nagekeo Regency. The variable of agricultural labor in the agricultural sector does not have a positive and significant effect on the gross regional domestic product (GRDP) of the agricultural sector in Nagekeo Regency. Simultaneously, or collectively, the variables of government expenditure in the agricultural sector, investment in the agricultural sector, and labor in the agricultural sector have a positive and significant effect on the gross regional domestic product (GRDP) of the agricultural sector in Nagekeo Regency.

Keywords: Government Expenditure in the Agricultural Sector, Investment in the Agricultural Sector, Labor in the Agricultural Sector, Gross Regional Domestic Product (GRDP) of the Agricultural Sector

I. INTRODUCTION

As an agrarian country, Indonesia possesses immense strategic potential in the agricultural sector. Fertile soil, a tropical climate, favorable rainfall, and a vast maritime territory—including the world's second-longest coastline—position the agricultural sector as the cornerstone of national economic development (Chaniago, 2024). At the regional level, particularly in East Nusa Tenggara (NTT) Province, this sector plays a vital role in ensuring food security and regional economic stability. The Gross Regional Domestic Product (GRDP) of the agricultural sector serves as a key indicator of the success of agrarian-based regional economic development (Dea, 2013).

Overall, the agricultural sector remains a strategic sector and a major contributor to the Gross Domestic Product (GDP) (Dea, 2013). The agricultural sector plays a crucial role in national development because it is capable of increasing state revenue while driving economic growth (Chaniago, 2024). The agricultural sector's contribution is manifested through various aspects, including capital formation, the provision of food, feed, clothing, as well as industrial raw materials and bioenergy (Mawu, 2024). All of these contributions align with the objectives of national economic development, namely improving public welfare, providing productive employment, accelerating economic growth, reducing poverty levels, and maintaining the balance of natural resources and environmental sustainability.

Economic growth is the process of continuously improving a region's economic conditions, as measured by increases in production capacity and income (Inayah, 2023). National economic growth is highly dependent on economic dynamics at the regional level, in line with the provisions of Law No. 9 of 2015 on regional government and Law No. 23 of 2014 on fiscal balance between the central and regional governments. The delegation of authority to regional

governments to manage regional finances independently (Wahyuni, 2018). Regional autonomy and fiscal decentralization underscore the critical role of local governments. Through strategic planning aligned with available resources, the ability of local governments to formulate effective policies to enhance the contribution of strategic sectors—such as agriculture—to the Regional Gross Domestic Product (RGDP) becomes crucial (Chaniago, 2024).

Theoretically, growth in the agricultural sector's GRDP depends heavily on the integration of fiscal policy (government spending), capital formation (investment), and the quality of human resources (the workforce). Government spending in the agricultural sector serves as a stimulus by providing public goods that the private sector cannot supply on its own. Budget allocations for infrastructure—such as irrigation development, farm access roads, and bridges—are crucial for reducing farmers' logistics costs and increasing crop yields. In addition to physical infrastructure, government spending in the form of fertilizer subsidies, high-quality seed assistance, and agricultural extension services directly contributes to enhancing land productivity (Soleh, 2012). At the macro level, effective government spending has been shown to have a positive and significant impact on increasing the Gross Regional Domestic Product (GRDP) of the agricultural sector, both at the national level and in specific regional areas such as Central Java and Eastern Indonesia (Himari, 2024).

Investment in the agricultural sector, including both Domestic Investment (PMDN) and Foreign Direct Investment (FDI), serves as the driving force behind agricultural modernization. Investment enables the accumulation of capital used to procure agricultural machinery (tractors, combine harvesters) and post-harvest technology. With the influx of investment, production capacity increases due to the shift from traditional methods to more efficient ones (mechanization). Investment also drives the growth of the agricultural processing industry (agroindustry) at the local level, which adds value to agricultural products, thereby increasing the sector's total revenue (Sulaksono, 2012).

The agricultural workforce is the most fundamental human factor of production in agriculture. In Indonesia, the agricultural sector often serves as a “safety valve” that absorbs labor that cannot be accommodated in the industrial or service sectors. However, the role of the workforce should not be viewed solely in terms of its size (quantity) but also its quality. Research indicates that high labor absorption in the agricultural sector positively contributes to the sector's output growth, although its effectiveness heavily depends on wage levels and skills in operating new technologies (Soleh, 2012). Despite a declining trend in the number of young farmers, optimizing the existing workforce through education and training is crucial to ensuring the sector's sustainability (Sulaksono, 2012). Ideally, improvements in these three variables will boost productivity, which in turn will increase economic value added or regional gross domestic product (Amelia, 2014).

However, the dynamics of agricultural development in Nagekeo Regency reveal a phenomenon that runs counter to these theoretical assumptions. As a region known for its potential for irrigation, Nagekeo should be able to convert every unit of input into maximum economic output. In reality, there are signs of inefficiency in the use of resources. Government investments and expenditures allocated to the region often fail to address structural barriers, such as the shrinking number of young workers shifting to the service sector.

In the context of production theory, a decline in labor input followed by an increase in output (GRDP) indicates improved efficiency or structural changes, such as a shift toward the tertiary sector. This pattern challenges classical assumptions and highlights the need for empirical research to determine which factor—government spending, investment, or labor—is the most dominant driver of GRDP growth in the agricultural sector in Nagekeo Regency.

Given the gap between the theory—which identifies these three factors as drivers of GRDP—and the empirical evidence from Nagekeo Regency, which indicates an imbalance in the data, the researcher chose the title “Analysis of the Impact of Government Expenditures in the

Agricultural Sector, Investment in the Agricultural Sector, and the Agricultural Labor Force on the Gross Regional Domestic Product (GRDP) of the Agricultural Sector in Nagekeo Regency.”

II. RESEARCH METHODOLOGY

The types of research used in this study are descriptive and associative research. Descriptive research aims to provide a systematic, factual, and accurate description of the phenomenon under study. In this study, the researcher aims to describe trends and developments in government spending, investment, the agricultural labor force, and agricultural sector GRDP growth in Nagekeo Regency during the 2010–2024 period (Sembiring, 2023).

Associative research aims to identify relationships among three or more variables, whether in the form of influence, correlation, or cause-and-effect. In this context, this study aims to analyze the cause-and-effect relationship (influence) between the independent variable and the dependent variable, in accordance with the formulated hypothesis (Sembiring, 2023).

The research approach used in this study is a quantitative descriptive approach. This approach was employed to measure the impact of government spending, investment, and the agricultural labor force on the growth of the agricultural sector’s GRDP in Nagekeo Regency, as well as to identify which variables are dominant in driving economic growth. According to Sugiyono in Abyan (2022), quantitative descriptive research is used to describe a phenomenon based on numerical data that can be statistically processed to obtain objective conclusions.

Using a quantitative descriptive approach, this study seeks to quantitatively describe how government spending on the agricultural sector (X_1), investment in the agricultural sector (X_2), and the agricultural labor force (X_3) influence the agricultural sector’s GRDP (Y) in Nagekeo Regency. The data, derived from public documents, were analyzed using the statistical software SPSS-26, so that the results can be empirically tested.

The data sources consist of primary and secondary data. For this study, primary data was obtained directly from unstructured interviews with staff of the Nagekeo Regency Agriculture Office, with the aim of identifying the priorities needed in the agricultural sector. Secondary data is typically available in the form of reports, tables, or documents.

Data collection techniques included gathering data from official documentation that has been published or is available at relevant agencies; direct interviews with staff from the Regional Finance Agency and the Nagekeo Regency Agricultural Office; and non-participatory observation to gain a deeper understanding of the context of how government spending, investment, and labor in the agricultural sector influence the agricultural sector’s GRDP.

Translated with DeepL.com (free version) Data analysis techniques The data analysis technique used in this study is multiple linear regression using the OLS (Ordinary Least Squares) method to determine the effect of the dependent variable on the independent variables by estimating a multiple linear regression model, testing classical assumptions (normality test, multicollinearity test, heteroscedasticity test, autocorrelation test), hypothesis testing (partial test (t), simultaneous test (f)), and finally a test of the coefficient of determination. Data management was performed using SPSS version 26.

III. RESULTS AND DISCUSSION

Result

Multiple Linear Regression Analysis

Table 1 Results of Multiple Linear Regression Analysis

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,178	,032		5,635	,000		
	PP	,107	,032	,472	3,350	,006	,550	1,817
	INVES	,012	,003	,558	3,953	,002	,548	1,824
	TK	,235	,128	,226	1,842	,093	,724	1,381

a. Dependent Variable: PDRB

Source: SPSS data processing results, 2026

Based on table 1, a regression equation is formulated to determine the factors that influence the gross regional domestic product of the agricultural sector in Nagekeo Regency.

Classical Assumption Test

Normality Test

Tabel 2 Hasil Uji Normalitas

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		13
Normal Parameters ^{a,b}	Mean	,0000000
	Std. Deviation	,05328919
Most Extreme Differences	Absolute	,118
	Positive	,117
	Negative	-,118
Test Statistic		,118
Asymp. Sig. (2-tailed)		,200 ^{c,d}
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance.		

Source: SPSS data processing results, 2026

Based on table 2, it shows that the significant value in the Kolmogorov-Smirnov test is 0.200, which is greater than 0.05, so it can be concluded that the residual value of the variables of government expenditure in the agricultural sector (X1), investment in the agricultural sector (X2), and labor in the agricultural sector (X3) towards the GRDP in the agricultural sector (Y) is normally distributed.

Multicollinearity Test

The multicollinearity test is conducted to determine whether there is a correlation between the independent variables in a regression model.

Tabel 3 Uji Multikolinearitas

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,178	,032		5,635	,000		
	PP	,107	,032	,472	3,350	,006	,550	1,817
	INVES	,012	,003	,558	3,953	,002	,548	1,824

	TK	,235	,128	,226	1,842	,093	,724	1,381
<i>a. Dependent Variable: PDRB</i>								

Source: SPSS data processing results, 2026

Table 3 shows the VIF coefficients for each independent variable: the agricultural sector government expenditure variable (X1) has a tolerance of $0.550 > 0.10$ and a VIF of $1.817 < 10$; the agricultural sector investment variable (X2) has a tolerance of $0.548 > 0.10$ and a VIF of $1.824 < 10$; and the agricultural sector labor variable (X3) has a tolerance of $0.724 > 0.10$ and a VIF of $1.381 < 10$. Therefore, it can be concluded that the tolerance values for all variables are > 0.10 and the VIF values are < 10 . Therefore, it can be concluded that the regression equation model in this study does not exhibit multicollinearity and the data can be used in this study.

Heteroscedasticity Test

The heteroscedasticity test is a condition in which the variance of each disturbance is not constant. The purpose of this test is to determine whether there is unequal variance in the residuals from one observation to another in a regression model. If the variance of the residuals from one observation to another remains constant, it is called homoscedasticity and if the variances are different, it is called heteroscedasticity.

Tabel 4 Uji Heteroskedastisitas

<i>Coefficients^a</i>						
Model		<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>	t	Sig.
		B	<i>Std. Error</i>	<i>Beta</i>		
1	<i>(Constant)</i>	-,003	,014		-,184	,857
	PP	,000	,014	-,005	-,014	,989
	INVES	,002	,001	,508	1,563	,146
	TK	,044	,057	,221	,783	,450
<i>a. Dependent Variable: ABS_RES</i>						

Sumber: Hasil olah data SPSS, 2026

Based on Table 4, the significance value of government expenditure in the agricultural sector is $0.989 > 0.05$, investment in the agricultural sector is $0.146 > 0.05$, and labor in the agricultural sector is $0.450 > 0.05$. The significance value of all three variables is greater than 0.05, indicating no heteroscedasticity.

Autocorrelation Test

The autocorrelation test uses the Durbin-Watson test, with the following decision-making basis:

1. $dU < DW < (4-dU)$, then there is no autocorrelation.
2. If the DW value lies between dU and $(4-dU)$, then there is no autocorrelation.
3. If the DW value is $< dL$ or $DW > (4-dL)$, then there is autocorrelation.
4. If $(4-dU) < DW < (4-dL)$, then no definitive conclusion is reached.

Tabel 5 Test Autokorelasi

<i>Model Summary^b</i>					
Model	R	<i>R Square</i>	<i>Adjusted R Square</i>	<i>Std. Error of the Estimate</i>	Durbin-Watson
1	,602 ^a	,363	,189	,00596	2,485

a. Predictors: (Constant), TK, PP, INVES
b. Dependent Variable: ABS_RES

Source: SPSS data processing results, 2026

Durbin-Watson Value Recap

1. Durbin-Watson value = 2.485
2. dL value = 0.8968 and (4-dL) = 3.1032
3. dU value = 1.7501 and (4-dU) = 2.2499

Decision Making:

1. $1.7501 < 2.485 > 2.2499$, opposite to decision making in point 1
 $1.7501 < 2.2499 < 2.485$, opposite to decision making in point 2 because DW does not lie between dU and (4-dU).
2. $2,485 > 0,8968$
3. $2,485 < 3,1032$, contradicting the decision in point 3.
4. $2.2499 < 2.485 < 3.1032$, consistent with the decision in point 4. Therefore, it can be concluded that no definitive conclusion is reached.

Based on the Durbin-Watson autocorrelation test, the test results do not yield a definitive conclusion. Therefore, the test cannot proceed to the hypothesis stage. Therefore, the test was conducted again using an alternative test (Breusch-Godfrey Test).

Tabel 5 Breusch-Godfrey-Test (LM- Test)

<i>Coefficients^a</i>						
Model		<i>Unstandardized Coefficients</i>		<i>Standardize d</i>	t	Sig.
		<i>B</i>	<i>Std. Error</i>	<i>Beta</i>		
1	<i>(Constant)</i>	,185	,040		4,669	,001
	PP	,103	,040	,448	2,568	,030
	INVES	,010	,004	,490	2,285	,048
	TK	,229	,149	,238	1,537	,159
	LAG RES	,445	,483	,157	,923	,380

a. Dependent Variable: PDRB

Sumber: Hasil olah data SPSS, 2026

Based on the results of the LM-Test, the residual significance value is $0.380 > 0.05$, in accordance with point 1, meaning that there are no autocorrelation symptoms in the model, so that the assumption is met and can be continued to the hypothesis stage.

Hipotesis Testing

Test t

Tabel 6 Test Results T

Model		Coefficients ^a						
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,178	,032		5,635	,000		
	PP	,107	,032	,472	3,350	,006	,550	1,817
	INVES	,012	,003	,558	3,953	,002	,548	1,824
	TK	,235	,128	,226	1,842	,093	,724	1,381

a. Dependent Variable: PDRB

Source: SPSS data processing results, 2026

$$\begin{aligned}
 T \text{ tabel} &= t (\alpha/2 : n-k-1) \\
 &= t (0,025: 15-3-1) \\
 &= t (0,025:11) \\
 &= 2,201
 \end{aligned}$$

Based on the table above, the results of the t-test are as follows:

1. The results of the t-statistic test in table 4.19 obtained a t-count value of 3.350 and a significance value of 0.006. The significance value of 0.006 is smaller than 0.05 ($0.006 < 0.05$) and the t-count value of 3.350 is greater than the t-table value of 2.201, so H0 is rejected and H1 is accepted. So it can be concluded that the government expenditure variable in the agricultural sector has a significant effect on the Gross Regional Domestic Product of the agricultural sector in Nagekeo Regency.
2. The results of the t-statistic test in table 4.19 obtained a t-count value of 3.953 and a significance value of 0.002. The significance value of 0.002 is smaller than 0.05 ($0.002 < 0.05$) and the t-count value of 3.953 is greater than the t-table value of 2.201, so H0 is rejected and H2 is accepted. So it can be concluded that the investment variable in the agricultural sector has a significant effect on the Gross Regional Domestic Product of the agricultural sector in Nagekeo Regency.
3. The results of the t-statistic test in table 4.19 obtained a t-count value of 1.842 and a significance value of 0.093. The significance value of 0.093 is greater than 0.05 ($0.093 > 0.05$) and the t-count value of 1.842 is smaller than the t-table value of 2.201, so H0 is accepted and H3 is rejected. So it can be concluded that the agricultural sector labor variable does not have a significant effect on the Gross Regional Domestic Product of the agricultural sector in Nagekeo Regency.

Tabel 7 Test Results F

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,014	3	,005	26,862	,000 ^b
	Residual	,002	11	,000		
	Total	,016	14			

a. Dependent Variable: PDRB
b. Predictors: (Constant), TK, PP, INVES

Source: SPSS data processing results, 2026

$$\begin{aligned}
 F \text{ tabel} &= F (k : n-k) \\
 &= f (3 : 15-3) \\
 &= f (3 : 12) \\
 &= 3,490
 \end{aligned}$$

The significance value is $0.000 < 0.05$ and the calculated f-value is $26.862 > 3.490$. Therefore, it can be concluded that H_0 is rejected and H_4 is accepted. This means that the variables of government expenditure in the agricultural sector (X1), investment in the agricultural sector (X2), and labor in the agricultural sector (X3) together have a significant influence on the gross regional domestic product (GDP) of the agricultural sector in Nagekeo Regency (Y).

Coefficient of Determination

The coefficient of determination is used to calculate how much of the variance in the dependent variable can be explained by the variation in the independent variables. If R^2 is equal to 0, the regression line cannot be used to predict the dependent variable. This indicates that a variable choice is appropriate. If R^2 is greater or closer to 1, then the use of capital is justified.

Tabel 8 Test R Square

<i>Model Summary^b</i>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,602 ^a	,363	,189	,00596	2,485
<i>a. Predictors: (Constant), TK, PP, INVES</i>					
<i>b. Dependent Variable: ABS_RES</i>					

Sumber: Hasil olah data SPSS, 2026

The R square value is known to be 0.363 or 36.3% which shows that there is a simultaneous influence between variables X1, X2 and X3 on Y of 36.3% and the remaining 63.7% is influenced by other factors not examined in this study.

Discussion

Based on the testing conducted, the researcher will explain the results of the hypothesis testing in more detail. The discussion of each hypothesis is as follows:

Analysis of the Influence of Government Expenditure in the Agricultural Sector on Gross Regional Domestic Product (GRDP) in the Agricultural Sector in Nagekeo Regency

The results of the analysis and hypothesis testing that have been carried out show that government spending in the agricultural sector has a positive and significant influence on the GRDP of the agricultural sector in Nagekeo Regency (H_1). It is known that based on the comparison of the calculated t value is greater than the t table ($3.350 > 2.201$), the significance value is $0.006 < 0.05$ so that H_0 is rejected and H_1 is accepted, and the results obtained are strengthened by the regression coefficient which is positive. This shows that the allocation of government spending budgets focused on agricultural affairs, such as dam construction, irrigation in Nagekeo, has functioned effectively towards economic growth. Theoretically, these results support the Keynesian view that when fiscal intervention or budget allocation increases it will increase aggregate demand and through the multiplier effect can significantly encourage regional economic growth.

Based on research findings, government expenditure in the agricultural sector originates from regional and national budgets (APBD). 10% of the APBD allocated to the agricultural sector is allocated as supporting funds. This budget allocation is expected to support work programs within each agricultural service, ultimately driving the growth of the agricultural sector's GRDP (Regional Gross Regional Domestic Product) in Nagekeo Regency. Several

programs/expenditures in the agricultural sector that can drive GRDP growth include the multiplication of certified food crop seeds, the development of maps of sustainable agricultural land and reserves, the control of plant pests (OPT), feasibility assessments and technical considerations for agricultural business permits, the management of animal, plant, and microorganism genetic resources (SDG), the provision of livestock seeds/seedlings and forage, the development of public grazing land, animal health assurance, and the provision of fish farming infrastructure.

Fiscal policy encompasses the government's role in regulating the economy by determining the amount of government revenue and expenditure each year, as reflected in the Regional Budget (APBD) (Putra, 2012). The primary objective of this policy is to stabilize prices, output levels, and employment agreements in the hope of stimulating economic growth.

Government expenditure is the total cost incurred by the government over a given period to carry out government functions, provide public services, and achieve the country's socio-economic targets. Government expenditure plays a strategic role in increasing growth rates. This statement aligns with Mankiw's view in Tampubolon (2025), which explains that appropriate economic policies can boost economic growth. Government spending can play a key role in driving the economy, enabling the government to salvage the situation through policy instruments when the economy experiences difficulties due to a recession. One step that can be taken is to increase government spending through its budget.

In Nagekeo Regency, increased government spending directly contributed to improvements in supporting infrastructure, which facilitated farmers' increased cropping intensity and ultimately increased the added value of the agricultural sector. This research aligns with research conducted by Soleh (2012), which stated that government spending has a positive effect on economic growth, where every IDR 1 billion increase in government spending resulted in a 1.17% increase in economic growth. Further research conducted by (Widyandana, 2018) stated that the relationship between government expenditure in the agricultural sector and GRDP in the agricultural sector is positive but not significant, meaning that if government expenditure increases, GRDP in the agricultural sector also increases but does not have a direct impact. In this study, budget allocation in the sense of government expenditure is the most important factor in driving GRDP growth in the agricultural sector in Nagekeo Regency.

Analysis of the Impact of Agricultural Sector Investment on Gross Regional Domestic Product (GRDP) of the Agricultural Sector in Nagekeo Regency

The results of the hypothesis test indicate that the agricultural sector investment variable has a positive and significant influence on the agricultural GRDP in Nagekeo Regency (H2). The calculated t-value is greater than the table t-value ($3.953 > 2.201$), with a significance value of $0.002 < 0.05$. Therefore, H0 is rejected and H2 is accepted. The results are supported by the positive regression coefficient. This indicates that any increase in agricultural sector investment, whether through the procurement of goods or land, significantly drives growth in the sector's gross value added, or GRDP.

This finding indicates that additional capital or investment in the agricultural sector can make a significant contribution to increasing regional output during the observation period. This finding aligns with the Harrod-Domar Theory of Economic Growth, which emphasizes that investment plays a dual role in the economy: generating income and increasing production capacity through capital formation (Todaro & Smith, 2015). This is in line with the view of Tadaro and Smith, who explain that one of the essential components in driving economic growth is capital accumulation, which includes all new investments in land, physical equipment, and human resources (Soleh, 2012).

More broadly, investment is the accumulation of capital that can increase a country's potential output and foster long-term economic growth (Sulaksono, 2012). Increased investment will drive increased production volume, which in turn will increase employment opportunities, which in turn will impact per capita income. In national development, capital accumulation

through investment is crucial for catching up with economic growth. Investment is defined as the activity of placing funds in one or more assets with the expectation of generating income. This aligns with the opinion of Harianto and Sudomo, who state that investment is the development of money or funds developed to generate future profits (Abbas, 2021).

Contextually, at the research location, agricultural sector investment in Nagekeo Regency, both from private and public sources, has become a major driver of regional economic growth. This investment manifests itself in the form of physical investment and technological investment. Physical investments include the procurement of modern agricultural machinery (tractors, TR4s, harvesting equipment, and automatic irrigation systems), the construction of cold storage, the construction of modern rice mills integrated with large-scale drying machines and packaging facilities, the provision of infrastructure, and the clearing of new land. Furthermore, technological investments include the use of superior seeds, a digital-based smart farming system, horticultural plantations using greenhouse systems or open fields with drip irrigation, a concentrated animal feed processing plant utilizing local agricultural waste, a salt refinery to improve the quality of local salt, and the revitalization and management of semi-intensive whiteleg shrimp or milkfish ponds. The effectiveness of these investments is further strengthened by the support of financial instruments such as business credit distribution and agricultural insurance schemes that successfully mitigate the risk of crop failure, thus creating a safer and more productive farming climate.

This investment plays a crucial role in boosting the Gross Regional Domestic Product (GRDP) of the agricultural sector through several key mechanisms. First, investment in equipment and technology directly increases production volume per unit of land, which translates into an increase in the total value of agricultural output recorded in GRDP. Second, investment in processing facilities (such as post-harvest processing plants) creates added value; the products sold are no longer simply raw materials but processed products with higher selling prices, contributing significantly to regional economic growth. Third, investment in distribution infrastructure helps reduce logistics costs and yield losses, thereby increasing farmers' profit margins and strengthening the local economic structure. Overall, a consistent flow of investment will create systemic efficiencies that make the agricultural sector a stable and sustainable economic driver for the region.

The results of the study in Nagekeo Regency are in line with the research conducted by (Gwijangge, 2018) and (Sulaksono, 2012) which stated that investment has a positive and significant effect on economic growth. Although it has a positive impact in Nagekeo Regency, the results of this study provide critical notes when compared to the research conducted by Adha (2022) which stated that investment has a negative and insignificant effect on economic growth, this is caused by: (1) The impact of the global economic crisis and natural disasters in several regions in Indonesia; (2) The distribution of investment is not even across provinces; (3) The use of GRDP for investment is lower than spending on consumption (4) The average investment growth is not comparable to the average economic growth.

Analysis of the Influence of Agricultural Sector Labor on Gross Regional Domestic Product (GRDP) of the Agricultural Sector in Nagekeo Regency

The analysis and hypothesis testing results indicate that the agricultural labor force variable does not have a positive and significant effect on the agricultural GRDP in Nagekeo Regency (H_0). Based on the comparison of the calculated t-value, which is small compared to the t-table ($1.842 < 2.201$), the significance value is $0.093 > 0.05$, thus H_0 is accepted and H_3 is rejected. This is indicated by the regression coefficient value of 0.235, but the significance level is above 0.05. Therefore, although the agricultural labor force in Nagekeo is quite large, its addition does not contribute significantly to the increase in GRDP output statistically. This study's results align with Adha's (2022) research, which states that the agricultural labor force partially has a negative and insignificant effect on agricultural economic growth in Indonesia.

Economic growth fundamentally depends on the accumulation of production factors, including labor, capital, population, and technological progress, as explained in the Solow-Swan theory (Soleh, 2012). Within this framework, the capital-to-output ratio (COR) is dynamic, where theoretically, a significant increase in capital investment should trigger efficiency gains that reduce reliance on labor. However, the findings of this study indicate an imbalance between the results and theory. Despite significant increases in government spending and investment in the agricultural sector, the number of workers has actually shown an annual upward trend without triggering a reduction in manual labor.

This phenomenon can be further explained through W. Arthur Lewis's Theory of Labor Surplus and the concept of The Law of Diminishing Returns. Based on Lewis's model, the rural agricultural sector often finds itself trapped in a situation where the number of workers far exceeds the capacity of available land (Ali, 2023). This causes the marginal productivity of labor to approach zero ($MPL = 0$), where additional labor no longer makes a significant contribution to total production. The increase in capital investment found in this study has not been able to shift this labor structure, indicating disguised unemployment. Here, the law of diminishing returns is at work, even though capital and labor continue to increase, the value added remains low due to the large surplus population that only survives in the traditional sector.

According to Law No. 13 of 2003, the workforce is defined as the working-age population (15-65 years old) capable of producing goods or services to meet their own and the community's needs. Labor absorption in the agricultural sector is influenced by the availability of other production factors, such as land and capital. According to the theory put forward by Mulyadi Subri, labor is the primary capital in economic development and must be managed effectively to provide added value (Adha, 2022).

In Nagekeo Regency, approximately 55.5% of the workforce is employed in the agricultural sector. Given that agriculture in Nagekeo is a primary sector that absorbs a large number of workers (labor-intensive), the number of people employed in this sector is a dominant driving force of production. With a large workforce in the agricultural sector, all forms of work programs funded by both the government and the private sector in the form of investment are expected to improve the quality of farmers' work and drive GRDP growth. Several government and private sector programs include training in cultivation techniques for farmers, training in the use of agricultural machinery, providing business credit and agricultural insurance to farmers,

training food brigades, establishing and operating farmer group field schools, providing agricultural business licensing programs for livestock farmers, agricultural extension programs, ensuring the availability of capture fisheries business facilities, and empowering small-scale fishers.

However, 55.5% of the agricultural workforce is dominated by farmers aged 40-55, whose productivity is likely to be questioned. Tests have shown that the workforce does not contribute positively to GRDP growth, and neither government nor private sector programs have been able to boost farmer productivity. Agricultural labor productivity is measured by the ratio of value added (output) to the number of workers employed (input). This measurement is crucial because it indicates the efficiency of human resource utilization in producing agricultural products.

The potentially low quality of human resources, in terms of education, technological mastery, and workplace health, also hinders the effectiveness of the workforce in managing agricultural inputs in Nagekeo (Hasibuan, 2022). These findings align with research (Gwijangge, 2018) which states that labor absorption in the agricultural sector is often residual, meaning that people work in this sector only because there are no other formal sector options, and thus are not accompanied by increased productivity. This is also supported by the findings of Suroto (2000), who emphasized that without improving the quality (human capital), labor quantity alone will not be able to significantly drive GRDP growth in the agricultural sector.

Analysis of the Influence of Government Expenditure in the Agricultural Sector, Investment in the Agricultural Sector and Labor in the Agricultural Sector on the Gross Regional Domestic Product (GRDP) of the Agricultural Sector in Nagekeo Regency. Based on the results of the f-test, simultaneously government expenditure in the agricultural sector, investment in the agricultural sector, and labor in the agricultural sector have a significant effect on the GRDP in the agricultural sector in Nagekeo Regency (H4). This statement is supported by the results of the F-test (simultaneous), obtained an F-count value of 26.862 greater than the f table of 3.490, with a significance of $0.000 < 0.05$ so that H_0 is rejected and H_4 is accepted. This shows that although partially labor is not significant, when combined with appropriate government budget policies and capital support (investment), these three variables become a strong driving force for the agricultural sector economy. The synergy between the availability of production inputs (labor and capital) with the support of public policy (government spending) creates an economic ecosystem that is able to encourage sustainable growth in the value of agricultural production in Nagekeo Regency. The coefficient of determination is 0.363, or 36.3%, indicating that 36.3% of the variation in the agricultural sector's GRDP in Nagekeo Regency is explained by these three independent variables, while the remaining 63.7% is explained by variables outside this research model (such as climate factors, trade policies, or non-agricultural infrastructure).

Overall, this model confirms the Cobb-Douglas Production Function, where $Y = f(K, L)$, but with the caveat that the Capital factor (K), represented by investment and government spending, is much more dominant than the Labor factor (L) in Nagekeo Regency. This has policy implications: The Nagekeo Regency Government needs to focus more on: 1) Improving the investment climate for the procurement of agricultural technology. 2) Optimizing government spending on physical infrastructure such as reservoirs and irrigation. 3) Transforming the quality of the workforce through technical (vocational) training, rather than simply increasing the number of people working in rice fields or fields. Meanwhile, according to Mankiw (in Tampubolon, 2025), economic growth can be influenced by various factors, such as: 1) Investment: has the potential to increase production capacity and boost economic growth. 2) Innovation: can increase efficiency and productivity, thereby increasing economic growth. 3) Economic policy: Appropriate economic policies can boost economic growth by increasing investment, exports, and reducing inflation. 3) Natural factors: Natural factors such as natural disasters can reduce economic growth by destroying infrastructure and increasing production costs.

The t-test results indicate that government expenditure in the agricultural sector has a positive and significant impact on the agricultural GRDP in Nagekeo Regency. Theoretically, this

aligns with the Keynesian view that government expenditure is a fiscal instrument that can stimulate economic growth by increasing aggregate demand. This significance demonstrates that the allocation of the Nagekeo Regency regional government's budget for agriculture, such as infrastructure procurement, fertilizer subsidies, and irrigation development, has been able to increase agricultural productivity, ultimately increasing the sector's gross value added (GRDP).

The agricultural sector investment variable in this study is also a determining factor in GRDP formation. Investment is a crucial component of the Harrod-Domar theory of economic growth, which emphasizes the need for capital formation to create new production capacity. In Nagekeo Regency, investment, both in the form of fixed capital and the use of agricultural machinery technology, plays a role in accelerating the production process. The results of the study indicate that investment has a positive contribution, meaning that the greater the inflow of capital into the agricultural sector, both from the private sector and from independent communities, the greater the agricultural production capacity, which in turn drives GRDP growth.

In contrast to government spending in the agricultural sector and agricultural investment, the t-test results indicate that agricultural labor does not significantly influence agricultural GRDP in Nagekeo Regency. In economic theory, this phenomenon can be explained by David Ricardo's Law of Diminishing Returns, which states that continuously adding labor to a fixed area of land will reduce its marginal productivity. This insignificance is suspected to be due to the agricultural sector in Nagekeo Regency being dominated by traditional labor with relatively low levels of education and skills, as well as the presence of disguised unemployment. The large number of workers does not necessarily increase output if it is not accompanied by an increase in the quality of skills or modernization of agricultural technology.

CONCLUSION

Based on the results of research and discussion regarding the analysis of the influence of government expenditure in the agricultural sector, investment in the agricultural sector, and agricultural sector labor on the GRDP in the agricultural sector in Nagekeo Regency, the following research conclusions were obtained:

1. The agricultural sector government expenditure variable (X1) has a positive and significant influence on the agricultural sector's GRDP in Nagekeo Regency. This indicates that every increase in regional spending allocation for the agricultural sector significantly contributes to increasing the agricultural GRDP value through the provision of infrastructure and production stimulus.
2. The agricultural sector investment variable (X2) has a positive and significant effect on the agricultural sector's GRDP in Nagekeo Regency. Investment acts as a driving force for production capacity, where increased capital and technology flows can drive efficiency, which in turn increases regional agricultural output.
3. The agricultural labor variable (X3) does not have a significant influence on the agricultural GRDP in Nagekeo Regency. This proves that increasing the quantity of the workforce without improving the quality of skills, human resources, and additional land is unable to provide a real impact on increasing regional income in the agricultural sector in the research area.
4. Together or simultaneously, the variables of government expenditure in the agricultural sector, investment in the agricultural sector and labor in the agricultural sector have an influence on the Gross Regional Domestic Product (GRDP) in the agricultural sector in Nagekeo Regency.

BIBLIOGRAPHY

- Abbas. 2021. "Pengaruh Faktor-Faktor Riil Ekonomi Terhadap Pdrb Pertanian Indonesia." 03.
- Abyan. 2022. "Metodologi Penelitian Kuantitatif." P. 21 In.
- Adha. 2022. "Pengaruh Tenaga Kerja Dan Investasi Di Sektor Pertanian Terhadap Pertumbuhan Ekonomi Sektor Pertanian Di Indonesia." 6(1):40-50.
- Adityamurti. 2017. "Pengaruh Penghindaran Pajak Dan Biaya Agensi Terhadap Nilai Perusahaan Enggar Adityamurti, Imam Ghozali 1." 6(2010):1-12.
- Ali. 2023. "Pemahaman Dasar Dalam Teori Klasik Pertumbuhan Ekonomi, Pembangunan Ekonomi, Dan Pendekatan Ekonomi Islam." 1(6):738-49.
- Amelia. 2014. "Analisis Fungsi Produksi Cobb-Douglas Di Lingkungan Uin Syarif Hidayatullah Jakarta." 3(1):45-62.
- Anindita. 2024. "Konsep Dasar Ekonomi Pertanian." 1-26.
- Asir. 2022. *Ekonomi Pertanian*.
- Aziz. 2024. "Ekonomi Makro Islam." P. 204 In.
- Chaniago, Asep. 2024. "Kontribusi Sektor Pertanian Terhadap Pertumbuhan Ekonomi Kabupaten Kubu Raya Provinsi Kalimantan Barat." 141-58.
- Dachi, Beatrice Ingrid. 2016. "Analisis Faktor - Faktor Yang Mempengaruhi Pertumbuhan Sektor Pertanian Di Provinsi Sumatera Utara."
- Dea. 2013. "Kontribusi Sektor Pertanian Dan Sektor Industri Terhadap Pertumbuhan Ekonomi Kabupaten Nagekeo." 17(2):302.
- Easterly. 2002. : "The Elusive Quest For Growth Teori-Teori Pertumbuhan Ekonomi." 7(2):181-86.
- Gwijangge, Lainus. 2018. "Pengaruh Investasi Dan Tenaga Kerja Terhadap Pertumbuhan Ekonomi Provinsi Papua." 18(06):45-55.
- Hasibuan, Marito. 2022. "Analisis Faktor-Faktor Yang Mempengaruhi Pertumbuhan Sektor Pertanian Di Provinsi Sumatera Utara." 15(1):23-34.
- Himari. 2024. "Pengaruh Tenaga Kerja Dan Pengeluaran Pemerintah Pada Produk Domestik Regional Bruto Sektor Pertanian Di Kawasan Timur Indonesia." 5(1):22-31. Doi: 10.38076/Ideijeb.V5i1.
- Inayah. 2023. "Pengaruh Pengeluaran Pemerintah Di Sektor Pertanian Terhadap Pertumbuhan Ekonomi Di Indonesia." *Jurnal Penelitian Ekonomi Manajemen Dan Bisnis* 2(4):149-69. Doi: 10.55606/Jekombis.V2i4.2543.
- Juliansyah. 2018. "The Influence Of Investments , Government Expenditure And Labors On Economic Growth In Aceh Province." 5(November):184-99.
- Junaidi. 2009. *Ekonomi Kependudukan*.
- Lasaksi. 2023. "Analisis Peran Sektor Pemerintahan Terhadap Perekonomian." 1(3):165-71.
- Mawu, Militia Christy. 2024. "Faktor-Faktor Yang Mempengaruhi Sektor Pertanian Terhadap Pdrb Di Kabupaten Minahasa Tenggara." 24(6):1-12.
- Nasrum. 2015. "Pengantar Ekonomi Pertanian."
- Pertanian, Kementerian. 2025. "Perkembangan Tenaga Kerja Dan Produktivitasnya Pada Sektor Pertanian Indonesia Perkembangan Tenaga Kerja Dan Produktivitasnya Pada Sektor Pertanian Indonesia."
- Puspitasari. 2025. "Metode Penelitian Kualitatif." P. 44 In.
- Putra. 2012. "Pengaruh Nilai Investasi, Nilai Upah, Dan Nilai Produksi Terhadap Penyerapan Tenaga Kerja Pada Industri Mebel Di Kecamatan Pedurungan Kota Semarang." 1(2).

- Sembiring. 2023. (*Teori Dan Praktik*).
- Soleh. 2012. "Pengaruh Pengeluaran Pemerintah Terhadap Pertumbuhan Ekonomi Di Provinsi Bengkulu." 117-27.
- Sulaksono. 2012. "Pengaruh Investasi Dan Tenaga Kerja Terhadap Pdb Sektor Pertambangan Di Indonesia." 20(100):16-24.
- Sulistiyowati. 2024. *Ekonomi Produksi Pertanian*.
- Suryanto, Fajar. 2021. "Faktor-Faktor Yang Mempengaruhi Pertumbuhan Ekonomi Sektor Pertanian Di Kabupaten Karanganyar." (13):130-39.
- Tampubolon. 2025. *Dinamika Pertumbuhan Ekonomi*.
- Undang-Undang (Uu) Nomor 9 Tahun 2015 Tentang Perubahan Kedua Atas Undang-Undang Nomor 23 Tahun 2014 Tentang Pemerintahan Daerah
- Undang-Undang (Uu) Nomor 59 Tahun 2024 Tentang Rencana Pembangunan Jangka Panjang Nasional Tahun 2025-2045
- Undang-Undang Nomor 13 Tahun 2003 Tentang Ketenagakerjaan
- Wahyuni. 2018. "Strategi Alokasi Anggaran Sektor Pertanian Untuk Mempercepat Pembangunan Daerah Di Kabupaten Pandeglang Provinsi Banten." *Jurnal Manajemen Pembangunan Daerah* 10(April). Doi: 10.29244/Jurnal_Mpd.V10i-.22691.
- Wicaksana. 2022. "E - Issn Analisis Peran Sektor Pertanian Dalam Mendukung Pemulihan Ekonomi Masa Pandemi Covid 19 Di Kota Batu." 10(1).
- Widyandana. 2018. "Analisis Pengaruh Pengeluaran Pemerintah Untuk Sektor Pertanian Dan Penyerapan Tenaga Kerja Sektor Pertanian Terhadap Pdrb Sektor Pertanian Pada Kabupaten/Kota Di Provinsi Jawa Tengah."
- <https://nagekeokab.bps.go.id/publication/2025/12/24/50cb3fad1db461a8df062444/statistik-pertanian-kabupaten-nagekeo-2024.html>
- <https://nagekeokab.bps.go.id/publication/2025/12/24/a378ef5ce7d3371a2d14317f/indikator-ekonomi-kabupaten-nagekeo-2024.html>
- <https://nagekeokab.bps.go.id/publication/2024/12/16/b388ed8ef293f3e5fc2df2b4/statistik-pertanian-kabupaten-nagekeo-2023.html>
- <https://nagekeokab.bps.go.id/publication/2024/08/23/3b1d14a32dfa0f7a582e8542/hasil-pencacahan-lengkap-sensus-pertanian-2023-tahap-ii-usaha-pertanian-perorangan-utp-perikanan-kabupaten-nagekeo.html>