

The Effect of Production Costs and Sales Volume on the Net Profit

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ABSTRACT

Purpose: This study examines the effect of production costs and sales volume on the net profit of CV Sini Suka Berastagi.

Research Method: A quantitative approach was used, drawing on 36 monthly observations from January 2023 to December 2025 obtained from the company's internal records. Sampling was conducted using the saturation sampling method. The data were analyzed using multiple linear regression with IBM SPSS Statistics 29. Given the sequential nature of the observations, temporal patterns and stationarity were examined using monthly graphs and the Augmented Dickey–Fuller (ADF) test via EViews version 14, while residual dependence was assessed using the Durbin–Watson and Ljung–Box tests.

Results and Discussion: The overall regression model is statistically significant, indicating that production costs and sales volume jointly explain variation in net profit. However, this result does not indicate an interaction effect between the predictors, and the individual contributions of each variable remain distinct.

Implications: The findings suggest that sales volume had a stronger statistical contribution than production costs in explaining monthly net profit variation. Managerial implications should be considered within the context of the observed firm and period.

Originality: This study provides firm-level empirical evidence from a carrot-washing and distribution business in Berastagi, highlighting the greater role of sales volume than of production costs in determining net profit.

Keywords: production costs; sales volume; net profit; profitability; agroindustry service.

1. Introduction

The period 2023–2024 was a challenging phase for horticultural businesses, as changes in food prices and distribution costs affected business expenses. BPS information shows that the food, beverages, and tobacco group made an important contribution to inflation during that period (Badan Pusat Statistik Provinsi Sumatera Utara, 2024, 2025). Cost pressures in 2023 were driven by increases in fresh food prices, distribution costs, and fuel costs (Bank Indonesia, 2024), while in 2024, agricultural production conditions were also influenced by the El Niño phenomenon, which affected the climate and agricultural productivity (Badan Meteorologi, Klimatologi, dan Geofisika, 2024). The impact was felt across various vegetable commodities, including carrots, which are widely cultivated in Berastagi, North Sumatra. For business actors, these changes were not only related to raw material prices but also to wages, packaging, and transportation. CV Sini Suka Berastagi, which carries out carrot washing and distribution activities,



faced a similar situation, so the ability to control costs while maintaining sales became important for sustaining the company's profits.

In the context of a company, production costs represent the resources sacrificed to produce goods. At the same time, sales volume refers to the number of products successfully absorbed by the market within a certain period. Net profit is calculated after deducting various company expenses from revenue. Conceptually, an increase in costs that is not balanced by revenue management can reduce profit (Weremczuk & Malitka, 2022). Conversely, increased sales can enlarge revenue and, under certain conditions, create efficiency through economies of scale (Hoang *et al.*, 2021). The relationship between these three elements becomes increasingly relevant in agricultural businesses because costs and market demand tend to fluctuate (Gathala *et al.*, 2021). This condition is reflected in the operational activities of CV Sini Suka Berastagi, where changes in production costs and sales generation can be observed in the company's historical data.

Table 1. Sales Data of CV Sini Suka Berastagi

Year	Production Costs	Net Profit
2023	8.893.620.000	1.809.880.000
2024	7.500.970.000	2.466.030.000
2025	12.022.270.000	2.650.730.000

Source: Internal Data of CV Sini Suka Berastagi (Processed Data, 2026)

The data in Table 1 show that production costs do not always move in the same direction as changes in the net profit of CV Sini Suka Berastagi during 2023–2025. In 2023, production costs totaled Rp8.893.620.000, with a net profit of Rp1,809,880,000. One year later, production costs decreased to Rp7.500.970.000, while net profit increased to Rp2.466.030.000. In 2025, production costs increased significantly to Rp12.023.270.000 and net profit reached Rp2.650.730.000. The increase in profit last year was relatively small compared to the increase in production costs.

Mulyadi (2021) explained that controlling production costs is an important aspect of maintaining efficiency and supporting increased company profits. The company's data pattern provides an interesting context for this perspective. In 2024, the decrease in costs coincided with an increase in profit, whereas in 2025, a large increase in costs was followed by only limited profit growth. The differences in patterns across periods provide an empirical basis for statistically examining the extent to which production costs, together with sales volume, are related to the net profit of CV Sini Suka Berastagi. In addition to changes in production costs, the relationship between sales volume and profit should be monitored, as an increase in product sales does not always translate into a direct increase in profit.

Table 2. Sales Data of CV Sini Suka Berastagi

2025		
Month	Sales Volume	Net Profit
January	190.000	795.020,000
February	190.000	605.020,000
March	190.000	605.020,000
April	200.000	268.990,000
May	196.000	335.670,000

Source: Internal Data of CV Sini Suka Berastagi (Processed Data, 2026)

The monthly data for 2025 also show that sales growth does not automatically translate into increased profit in the same period. In March, a sales volume of 190,000 kg generated a net profit of Rp605.020.000. When sales volume increased to 200,000 kg in April, net profit decreased to Rp268.990.000. This pattern indicates that the relationship between sales and profit should be analyzed alongside changes in costs across the company's operations. Therefore, higher sales volume does not necessarily directly reflect higher profit if the cost structure in the relevant period also changes. Overall, the data for CV Sini Suka Berastagi show differences in patterns among production costs, sales, and net profit. An increase in profit accompanied the decrease in costs in 2024, whereas the increase in costs in 2025 was followed only by a relatively limited increase in profit. At the monthly level, April 2025 sales increased, while net profit decreased. This condition indicates that the amount of company profit cannot be adequately explained by observing changes in a single variable alone. Therefore, the relationship among production costs, sales volume, and net profit needs to be tested in a single model to more precisely assess the contribution of each factor.

Previous research findings also have not provided a completely consistent pattern. Putri *et al.*, (2023) found that production costs had a positive and significant effect on net profit in UMKM Jamu Dapoer Niswah. In contrast, Bilqis & Muhammad (2025) showed that high production costs were associated with a decrease in net profit in manufacturing companies. Meanwhile, Anggraini & Subakir (2025) found that production costs did not have a significant effect on net profit, indicating that cost changes can be absorbed through the management of other cost components or sales stability. The diversity of these findings indicates that the effect of production costs on profit is not always consistent but can be influenced by business characteristics, cost structures, and the company's ability to generate revenue. In addition, Lalitasari *et al.*, (2022) found that production costs and the number of products sold contributed to company profit. These findings suggest that examining cost- and sales-related factors within a single empirical model may provide a more balanced view of profit variation, particularly in businesses where operating conditions and sales fluctuate over time.

Based on the company's empirical phenomena and the inconsistency of previous research findings, this study focuses on the relative explanatory roles of production costs and sales volume in monthly net profit variation. The contribution is primarily empirical, providing firm-level evidence from a carrot-washing and distribution business using monthly observations over consecutive months. Rather than proposing a new theoretical mechanism, the study applies established cost-profit and sales-profit relationships to a specific agroindustry service context in which both costs and sales vary across periods. Therefore, this study aims to analyze the effects of production costs and sales volume on the net profit of CV Sini Suka Berastagi, using available operational data.

The remainder of this paper is organized as follows. Section 2 provides a literature review and hypothesis development. Section 3 presents the research method and design. Section 4 provides the results and discussion. Section 5 presents Concluding Remarks and Recommendations.

2. Literature Review and Hypothesis Development

2.1 Net Profit

Net profit represents the final result remaining after the company's revenue is deducted from the expenses borne by the company within a certain period. Kartikawati *et al.*, (2026) positioned net profit as the final reflection of financial performance after all expenses have been taken into account. Busnita

(2022) also views net profit as an important indicator of the company's ability to generate profit from its business activities, while Bilqis & Muhammad (2025) emphasize its relationship with the company's ability to generate revenue while controlling costs. Thus, net profit can be used to assess a company's effectiveness in managing revenue and expenses simultaneously.

Both the cost and revenue sides can influence changes in net profit. In this study, the two observed factors are production costs and sales volume. Mulyadi (2021) defines production costs as expenses incurred in converting raw materials into finished products. If cost increases do not keep pace with sales or revenue, the company's profit margin may decrease. The findings of Bilqis & Muhammad (2025) show that production costs are also related to the profit the company can obtain.

Sales volume provides another dimension to profit formation by showing the number of products successfully sold during a given period. Swastha (2018) associates an increase in sales volume with an increase in company revenue. However, the profit amount remains influenced by the expenses that must be borne. Kuswindi *et al.*, (2022) show that high operational expenses can reduce profit, while Lalitasari *et al.*, (2022) explain that sales growth is more effective at increasing profit when expenses are controllable. In line with this, Kasmir (2019) defines net profit as the remaining income after deducting all costs and expenses. In this study, the net profit of CV Sini Suka Berastagi is determined by deducting expenses from company revenue during the observation period.

$$\text{Net Profit} = \text{Revenue} - \text{Operational Expenses} - \text{Income Tax}$$

2.2 Production Costs

Production costs are expenses incurred during the production process until products are ready for sale. The amount of these costs is related to material requirements, labor, and other production activities, thus affecting the cost of goods and the company's profit margin. According to Mulyadi (2021), production costs include the resources sacrificed to process raw materials into finished products, such as materials, labor, and factory overhead. This approach is consistent with Damayanti *et al.*, (2024), who place raw material costs, labor costs, and overhead as important elements in the comprehensive calculation of production costs. The accuracy of calculating these cost components is also important because it can serve as a basis for determining selling prices and planning company profits.

Khairani (2024) positions production costs as the use of funds and resources to convert raw materials into marketable goods. In practice, controlling these cost components is necessary for companies to maintain the efficiency of the production process. Fadhilah & Daulay (2023) further show that optimizing raw material cost accounting can support operational efficiency by improving the management of resources used in business activities. Cost control efforts by identifying activities that do not add value have also been shown to improve company production efficiency (Nasution *et al.*, 2023). Similarly, Nararya *et al.*, (2024) demonstrate that systematic control of raw materials through Activity-Based Costing (ABC) and Economic Order Quantity (EOQ) can improve efficiency and reduce production-related costs. In addition, proper inventory management also contributes to cost control and improved operational efficiency (Sari *et al.*, 2020). Based on these perspectives, production costs in this study are understood as all expenses that directly or indirectly support the availability of products ready for sale.

The structure of production costs can be divided into three main groups. Mulyadi (2021) mentions raw material costs, direct labor costs, and factory overhead costs as the forming components. Raw material costs relate to the acquisition of the primary materials being processed, while direct labor

costs represent compensation for workers directly involved in production. Meanwhile, factory overhead costs include production expenses outside these two components, such as electricity, packaging, delivery, and the use of production equipment.

The measurement of production costs at CV Sini Suka Berastagi is carried out by accumulating expenditures used in the product generation process. Referring to the cost accounting theory used in this study (Hutauruk, 2023), production costs consist of raw materials, direct labor, and factory overhead. These three components form the operational basis for calculating total production costs for each observation period.

$$\text{Production Costs} = \text{Raw Material Costs} + \text{Labor Costs} + \text{Factory Overhead Costs}$$

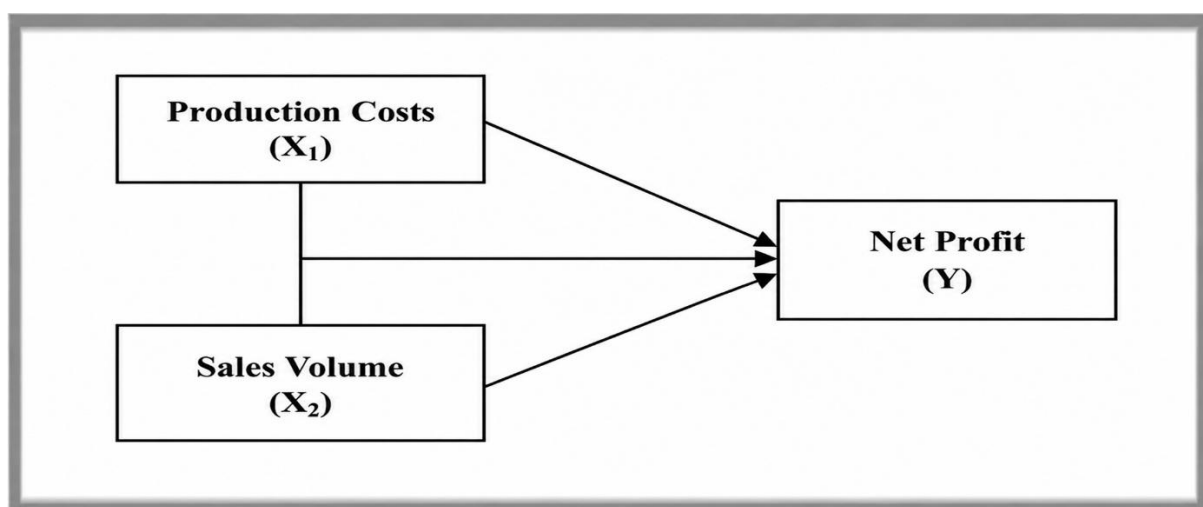
2.3 Sales Volume

Sales volume describes the quantity of products successfully sold by a company during a certain period. This metric provides an overview of the company's ability to meet market demand and generate revenue from sales. Swastha (2018) defines sales volume as the number of products or services sold within a given period. Its measurement can use units appropriate to the product's characteristics, such as units, kilograms, or tons. In the marketing context, the number of products sold is also related to the level of consumer acceptance of the company's products. Changes in sales volume not only reflect the company's ability to absorb market demand but also relate to its ability to generate revenue and profit. Therefore, sales volume analysis needs to consider its relationship with the cost structure and the company's profit contribution (Sembiring *et al.*, 2023). Sales volume refers to the quantity of products sold within a specific period. Although sales volume can generally be measured in different physical units depending on product characteristics, this study consistently measures it in kilograms (kg) of carrots sold by CV Sini Suka Berastagi each month. This quantity-based measurement allows changes in sales volume to be observed independently of changes in selling prices.

$$\text{Sales Volume} = \text{Number of Products Sold}$$

2.4 Conceptual Framework of the Study

Figure 1. Conceptual Framework



Source: Processed by Researcher, 2026

Based on the conceptual relationship between variables that has been explained, this study proposes the following hypotheses:

H1: *Production costs affect the Net profit of CV Sini Suka Berastagi.*

H2: *Sales volume affects the Net profit of CV Sini Suka Berastagi.*

H3: *Production costs and sales volume simultaneously affect the Net Profit of CV Sini Suka Berastagi.*

3. Research Method

This study uses a quantitative approach to assess the relationship between production costs, sales volume, and Net profit. According to Sugiyono (2023), the quantitative approach uses numerical data and statistical techniques to examine relationships among variables. The study uses secondary monthly data obtained from the internal records of CV Sini Suka Berastagi covering the period from January 2023 to December 2025. The research population comprises all monthly data on production costs, sales volume, and net profit for this period. Since all available data were used, saturated sampling or census was applied, resulting in 36 observations for analysis. Each observation represents the three research variables for the same monthly period. Production costs (X_1) were expressed in Indonesian rupiah (Rp) and comprised raw materials, labor, and factory overhead. Sales volume (X_2) was measured as the quantity of carrots sold in kilograms (kg). At the same time, net profit (Y) was expressed in Indonesian rupiah (Rp) based on the profit figure recorded for the corresponding month in the company data. Before analysis, the monthly records were arranged chronologically and checked for completeness, consistency in measurement units, and correspondence of observation periods across variables. Monetary values were retained as recorded in the company data for each respective month. Revenue information available in the source data was treated only as supporting information and was not used as the dependent variable; net profit was consistently used as the dependent variable in the regression model.

The data were analyzed using multiple linear regression to evaluate the partial and simultaneous effects of production costs and sales volume on net profit. Before estimating the regression model, classical assumption tests were conducted to assess whether the data met the requirements for regression analysis. Following Ghozali (2021), the assumption tests included residual normality, multicollinearity, heteroscedasticity, and autocorrelation. Because the study uses 36 consecutive monthly observations, the data's temporal characteristics were also considered. Monthly line plots were used to examine the temporal movement of production costs, sales volume, and net profit. In addition, the stationarity of each time-series variable was examined using the Augmented Dickey–Fuller (ADF) test through EViews version 14. Residual serial dependence was assessed using the Durbin–Watson statistic and supplemented by the Ljung–Box test up to 12 lags. The regression model was used to evaluate the partial effects of the independent variables using t-tests and their joint effect using the F-test. The multiple linear regression and classical assumption tests were performed using IBM SPSS Statistics version 29.

4. Results and Discussion

4.1 Analysis Results

4.1.1 Descriptive Test

A total of 36 observations are used in the descriptive analysis. Production costs range from Rp195.920.000 to Rp2.676.950,000, with a standard deviation of Rp574.899.631.82. Sales volume ranges from 50.000–280.000 kg; the average is 126.416.67 kg with a standard deviation of 61.722.13 kg. Net profit shows a wider range, from Rp-137.260,000 to Rp1.075.020.000, with an average of Rp192.406.666.67 and a standard deviation of Rp293.950.952.46. The wide distribution of net profit indicates that this variable exhibited greater fluctuations than production costs and sales volume throughout the research period.

Table 3. Descriptive Statistics of Monthly Research Variables (2023–2025)

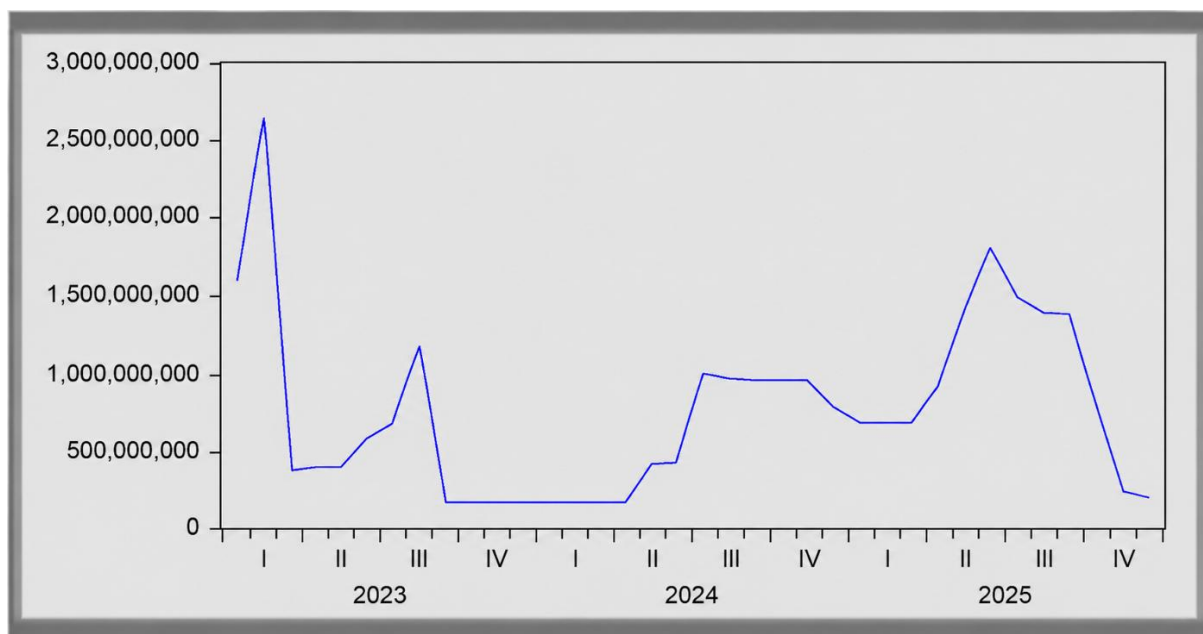
Variable	N	Minimum	Maximum	Mean	Std. Deviation
Production Costs (Rp)	36	195.920.000	2.676.950,000	789.385,000.00	574.899.631.82
Sales Volume (kg)	36	50.000	280.000	126.416.67	61.722.13
Net Profit (Rp)	36	-137.260.000	1.075.020.000	192.406.666.67	293.950.952.46

Note: The descriptive statistics are calculated from 36 consecutive monthly observations from January 2023 to December 2025.

Source: Processed research data, 2026

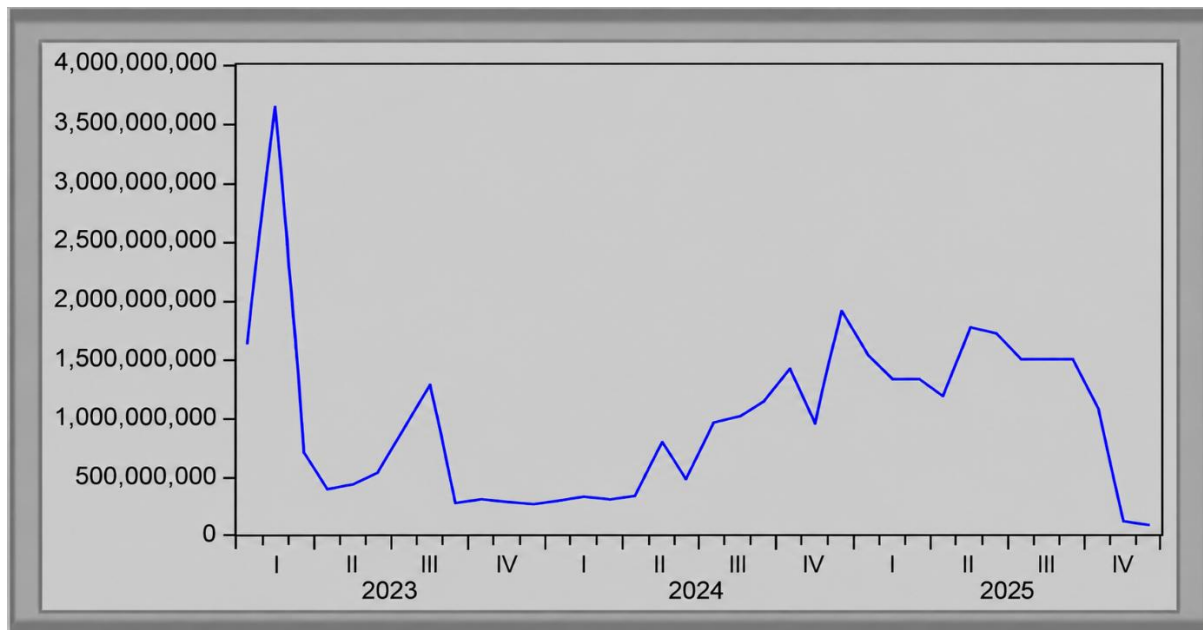
4.1.2 Temporal Pattern Analysis

Figure 2. Monthly Pattern of Production Costs



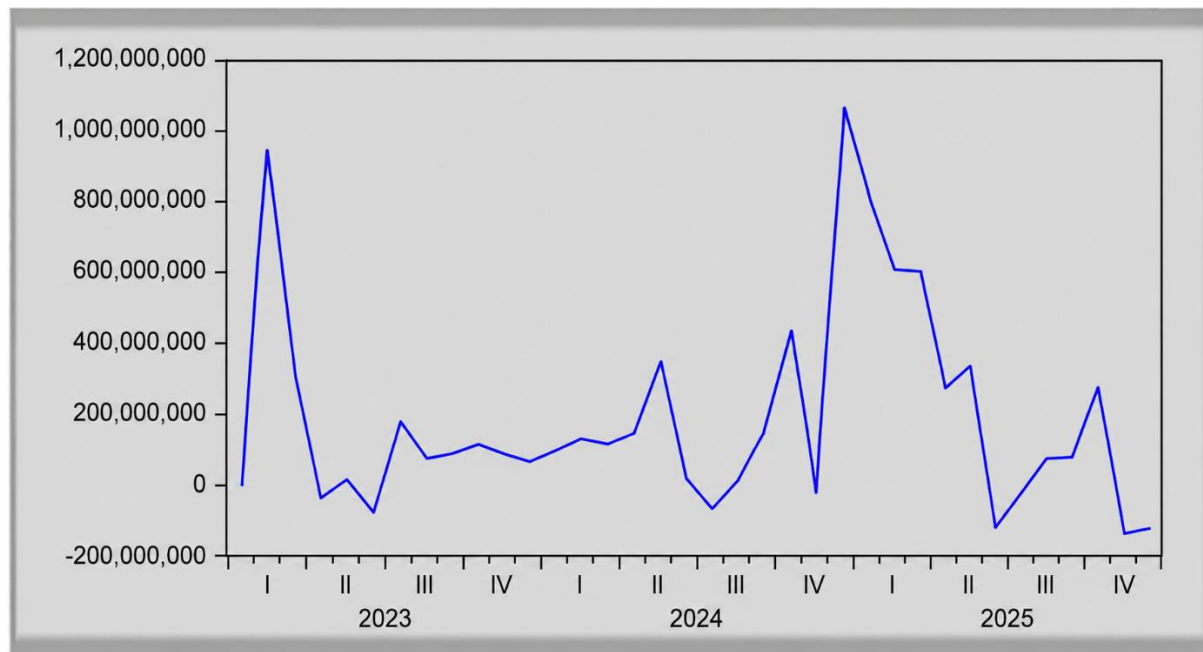
Source: Processed research data, 2026

Figure 3. Monthly Pattern of Sales Volume



Source: Processed research data, 2026

Figure 4. Monthly Pattern of Net Profit



Source: Processed research data, 2026

The monthly plots show considerable fluctuations in production costs, sales volume, and net profit during 2023–2025. Production costs and sales volume exhibit several periods of increase and decline, while net profit shows relatively sharper month-to-month fluctuations. Visual inspection does not indicate a simple continuous upward or downward trend across the entire observation period. However, the graphical analysis is treated as descriptive evidence and does not by itself establish stationarity or the absence of seasonality.

4.1.3 Stationarity Test

Table 4. Results of the Augmented Dickey–Fuller (ADF) Stationarity Test

Variable	ADF Statistic	Prob.	Conclusion
Production Costs (PRODCOST)	-3.944394	0.0046	Stationary
Sales Volume (SALESVOL)	-3.301795	0.0224	Stationary
Net Profit (PROFIT)	-4.007876	0.0038	Stationary

Source: Processed research data, 2026

The Augmented Dickey-Fuller (ADF) test was conducted to examine the stationarity properties of the monthly time-series variables. The results indicate that production costs, sales volume, and net profit are stationary at level, as all probability values are below the 5% significance level. These findings suggest that the variables exhibit stable statistical properties and are suitable for subsequent regression analysis

4.1.4 Classical Assumption Test

4.1.4.1 Normality Test

Table 5. Results of the Normality Test

Test	Statistic	p-value	Conclusion
Kolmogorov-Smirnov	0.117	0.241*	Residuals are normally distributed.

Note: Monte Carlo significance; Asymptotic Sig. = 0.200.

Source: Processed research data, 2026

Residual normality is evaluated through the One-Sample Kolmogorov-Smirnov Test. The output shows a Monte Carlo Sig. value of 0.241 and an Asymp. Sig. value of 0.200. Both probabilities are above the 0.05 threshold, indicating that the model residuals do not show deviations from a normal distribution. Based on these results, the normality assumption in the model examining the effects of production costs and sales volume on net profit appears satisfied.

4.1.4.2 Multicollinearity Test

Table 6. Results of the Multicollinearity Test

Variable	Tolerance	VIF	Conclusion
Production Costs	0.442	2.262	No multicollinearity
Sales Volume	0.442	2.262	No multicollinearity

Source: Processed research data, 2026

The multicollinearity examination focuses on the closeness of the effect between production costs and sales volume, both treated as independent variables. Each variable has a Tolerance value of 0.442 and a VIF value of 2.262. The Tolerance value above 0.10 and the VIF value below 10 indicate no multicollinearity that would disrupt the model. Therefore, both variables can be included simultaneously in the regression equation to explain variations in the net profit of CV Sini Suka Berastagi.

4.1.4.3 Heteroscedasticity Test

The Glejser test produces significance values of 0.219 for production costs and 0.746 for sales volume. Since both probabilities exceed 0.05, there is no statistical evidence of heteroscedasticity in the model.

This means that residual variations do not have a significant effect on either independent variable so that the model can proceed to the hypothesis-testing stage.

Table 7. Results of the Heteroscedasticity Test

Variable	t	p-value	Conclusion
Production Costs	1.261	0.219	No heteroscedasticity
Sales Volume	0.327	0.746	No heteroscedasticity

Source: Processed research data, 2026

4.1.4.4 Autocorrelation Test

Table 8. Results of the Autocorrelation Test

Test	Lag	Statistic	p-Value
Durbin-Watson	–	1.731	–
Ljung-Box	1	0.522	0.470
Ljung-Box	6	14.054	0.029
Ljung-Box	7	14.764	0.039
Ljung-Box	12	15.860	0.198

Source: Processed research data, 2026

The Durbin-Watson statistic was 1.731. Because the data consist of consecutive monthly observations, the autocorrelation assessment was supplemented by the Ljung-Box test. The results indicated significant residual serial dependence at lag 6 ($Q = 14.054$, $p = 0.029$) and lag 7 ($Q = 14.764$, $p = 0.039$), while the cumulative test up to lag 12 was not statistically significant ($Q = 15.860$, $p = 0.198$). Therefore, some residual dependence persists at specific intermediate lags, and the regression findings should be interpreted with caution given the data's temporal characteristics.

4.1.5 Multiple Linear Regression Analysis

Table 9. Results of Multiple Linear Regression Analysis

Predictor	B	Std. Error	Standardized Beta
Constant	-143.542.736.191	95.484.457.887	–
Production Costs	-0.172	0.109	-0.336
Sales Volume	3.731.233	1.018.101	0.783

Source: Processed research data, 2026

The multiple linear regression estimation produces the equation:

$$Y = -143.542.736.2 - 0.172X_1 + 3.731.233X_2 + e$$

The production cost coefficient is -0.172, indicating a negative effect on net profit after controlling for other variables. In the model, an increase in production costs of Rp1 is associated with a decrease in net profit of Rp0.172. Conversely, the sales volume coefficient of 3.731.233 indicates a positive direction; each additional 1 kg of sales is associated with an increase in net profit of Rp3.731.233, assuming other variables remain constant. The comparison of beta coefficients also shows that the contribution of sales volume to changes in net profit is stronger than production costs.

4.1.6 Hypothesis Testing

4.1.6.1 t-Test

Table 10. Results of the Partial Hypothesis Test (T-Test)

Predictor	B	Std. Error	Standardized Beta	t	p-value
Constant	-143.542.736.191	95.484.457.887	–	-1.503	0.142
Production Costs	-0.172	0.109	-0.336	-1.573	0.125
Sales Volume	3.731.233	1.018.101	0.783	3.665	<0.001

Source: Processed research data, 2026

The t-test results provide an initial overview that the two independent variables have different patterns of influence. Sales volume has a t-count of 3.665 with a significance of <0.001, while production costs have a t-count of -1.573 with a significance of 0.125. Therefore, statistical evidence of partial influence is found only in sales volume.

For the production cost variable, the t-statistic of -1.573 is smaller in absolute value than the t-table value of 2.035 at a 5% significance level with $df = 33$, and its p-value of 0.125 is greater than 0.05. These results indicate that H_0 cannot be rejected, meaning that production costs are not proven to have a significant effect on the net profit of CV Sini Suka Berastagi. Although the regression coefficient is -0.172, indicating a negative effect, the statistical evidence is insufficient to conclude that changes in production costs are the main determinant of net profit during the research period. This pattern allows for other operational factors, including sales revenue, efficiency, or pricing strategies, that may absorb changes in production costs.

For sales volume, the t-statistic of 3.665 exceeds the critical value of 2.035, and the significance value of <0.001 is below 0.05. These results support H_2 and indicate a positive and significant effect on net profit. The regression coefficient of 3.731.233 indicates that an increase of one unit in sales is associated with a 3.731.233-unit increase in net profit, holding other variables constant. The Standardized Beta value of 0.783 is also greater than the beta value of production costs, making sales volume the variable with the strongest relative contribution in the model. These findings emphasize the importance of increasing product sales to drive profit growth, provided operational expenses remain efficiently managed.

4.1.6.2 F-Test

Table 11. Results of the Simultaneous Hypothesis Test (F-Test)

Source	Sum of Squares	df	Mean Square	F	p-value
Regression	1.098E+16	2	5.498E+15	8.249	0.001
Residual	2.016E+16	33	6.110E+14	–	–
Total	3.023E+16	35	–	–	–

Source: Processed research data, 2026

The ANOVA table yields an F-statistic of 8.249 with a significance level of 0.001. Since the p-value is below 0.05, the overall regression model, which includes production costs and sales volume, is statistically significant in explaining the variation in the net profit of CV Sini Suka Berastagi. However, the overall model's significance does not imply that all predictors have significant individual effects. The partial tests show that production costs are not statistically significant, whereas sales volume has a positive and significant effect on the net profit of CV Sini Suka Berastagi. Therefore, the model's

explanatory power is primarily associated with sales volume rather than production costs. Because the regression model includes only the main effects of production costs and sales volume, the F-test does not provide evidence of an interaction effect between the predictors.

4.2 Discussion

4.2.1 The Effect of Production Costs on Net Profit

Partial testing shows that production costs have not been proven as a significant determinant of the net profit of CV Sini Suka Berastagi. The coefficient is indeed negative, but the significance level does not meet the specified statistical threshold. This finding is consistent with Anggraini & Subakir (2025), who also found that production costs did not significantly affect net profit. Within this framework, changes in production costs are not always directly reflected in profit because their impact may occur simultaneously with changes in revenue, other expenses, or the company's ability to maintain sales. In the context of CV Sini Suka Berastagi, these results indicate that the increase in production costs during the observation period was not independent of other factors. As production increases, the company can sell more carrots and generate greater revenue. In addition, profit is influenced by pricing decisions and control of operational expenses. Therefore, the effect of production costs may become less dominant when cost changes are balanced by increased revenue or efficiency in other components. This finding explains why the relationship between production costs and net profit is negative but not statistically significant.

4.2.2 The Effect of Sales Volume on Net Profit

Sales volume shows different results because it has been proven to have a positive and significant effect on net profit. Operationally, a higher quantity of products sold provides greater opportunity for the company to generate sales revenue. However, the resulting profit still depends on the costs incurred during the same period. The results of this study are consistent with Nofiana & Kuwatno (2024), who found that sales contribute to net profit, and with Fathurohmah *et al.*, (2026), who reported a positive relationship between increased sales and profit. The strength of the influence of sales volume is reflected in the regression coefficient of 3.731.233 and the Standardized Beta of 0.783, the highest beta in the model. For CV Sini Suka Berastagi, this result indicates that variation in the quantity of carrots sold is more strongly associated with changes in net profit than variation in production costs during the observation period. Nevertheless, the positive relationship should not be interpreted to mean that every increase in monthly sales automatically results in higher profit, because profit also reflects the cost conditions prevailing in the corresponding period. The practical implication is that the company needs to maintain sales growth through market expansion, product quality, marketing activities, and customer satisfaction while continuing to control operational costs.

4.2.3 The Effect of Production Costs and Sales Volume on Net Profit

The regression model that includes production costs and sales volume is statistically significant in explaining variation in the net profit of CV Sini Suka Berastagi. This model-level result indicates that considering cost and sales factors together provides useful information for understanding changes in profit, although their individual statistical contributions are not equal. The findings of this study are consistent with Marlina (2024), who reported the simultaneous effects of production costs, sales volume,

marketing costs, and distribution costs on net profit. The results of Noviyanti *et al.*, (2025) also show that production costs, operational costs, and sales volume simultaneously relate to company profit.

In the case of CV Sini Suka Berastagi, the significance of the overall model needs to be interpreted alongside the partial results. Production costs show a negative but statistically insignificant coefficient, whereas sales volume has a positive and significant coefficient and the larger standardized beta. Therefore, the results do not indicate that both predictors contribute equally to changes in net profit; rather, sales volume provides the stronger statistical contribution within the estimated model. Production costs remain relevant to the company's operating cost structure, but their independent effect is not statistically established during the observation period. Accordingly, the company's strategy should not focus exclusively on reducing production costs but should also support sales performance while maintaining appropriate cost control. The present analysis does not directly measure capacity utilization, fixed-cost allocation, or unit production costs; therefore, these mechanisms cannot be inferred from the regression results.

5. Concluding Remarks and Recommendation

Based on the empirical analysis, sales volume has a positive and statistically significant effect on the net profit of CV Sini Suka Berastagi. In contrast, production costs show a negative but not statistically significant effect. These findings indicate that, during the observation period, variation in sales volume was more strongly associated with changes in monthly net profit than with changes in production costs. The overall regression model is statistically significant, indicating that production costs and sales volume jointly explain variation in net profit. However, this result does not indicate an interaction effect between the predictors, and the individual contributions of each variable remain distinct. The stronger statistical contribution was observed for sales volume. This study provides firm-level empirical evidence from a carrot-washing and distribution business, based on 36 consecutive monthly observations. Because the analysis was conducted within a single company context, the findings should be interpreted in light of the characteristics of the observed business period. Although stationarity was examined using the Augmented Dickey–Fuller test, structural-break analysis was not conducted. In addition, residual serial dependence detected at certain lags suggests that future studies may consider time-series approaches that explicitly model temporal dependence.

Statement of Use of Generative AI

During the preparation of this work, the author used generative artificial intelligence tools to support the scientific writing process. Grammarly was used to check grammar, refine writing style, and improve clarity in scientific writing. All interpretations, analyses, and conclusions presented in this study are the sole responsibility of the author.

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