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The Effect of Cost Drivers, Activity Volume and Overhead Rates on Activity-Based Product Costing at CV. XYZ Food Sidoarjo

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Abstract

This study aims to examine and analyze the influence of cost drivers, activity volume, and overhead rates on activity-based product cost determination at CV. XYZ Food Sidoarjo. The research applies a quantitative explanatory approach, utilizing secondary data from financial statements and production activity reports over the period 2016–2024. Data analysis is conducted using multiple linear regression, preceded by classical assumption tests to ensure model validity. The results indicate that, partially, cost drivers and activity volume significantly affect product costs, while overhead rates do not show a significant effect. However, simultaneously, all three variables have a significant influence on product cost determination. These findings highlight the importance of accurately identifying cost drivers and managing activity volumes within the Activity-Based Costing (ABC) system to achieve cost efficiency and accurate product pricing. Recommendations for CV. XYZ Food include enhancing activity data collection systems, conducting regular evaluations of overhead rates, and integrating ABC methods into strategic decision-making processes. The managerial implication emphasizes the need for controlling cost-generating activities and improving production process efficiency as part of data-driven financial planning.

Keywords: *Cost Drivers, Activity Volume, Overhead Rate, Activity-Based Costing, Product Cost*

INTRODUCTION

In the era of globalization and increasingly competitive business competition, companies are required to be more efficient and effective in managing costs in order to maintain a competitive advantage. One modern approach that is considered capable of improving accuracy in determining product costs is Activity-Based Costing (ABC). The ABC approach offers a more accurate method of allocating overhead costs based on the activities consumed by the product, compared to traditional methods that tend to allocate costs equally or based on a single trigger such as direct labor hours (Kaplan & Anderson, 2007).

CV. XYZ Food Industry Sidoarjo, as a medium-scale manufacturing company engaged in the production of processed food, faces major challenges in managing complex overhead costs, requiring a costing system that can reflect resource consumption more accurately. The application of the ABC system provides an opportunity for companies to trace costs from activities to products proportionally based on relevant cost drivers (Horngren, 2021).

Cost drivers are a key element in the ABC system because they are the basis for allocating activity costs to products. The selection of the right cost driver greatly affects the accuracy of overhead cost calculation. Some commonly used cost drivers in ABC in the consumer manufacturing industry include the number of production batches, machine setup frequency, and customer order volume (Manurung et al., 2022). In addition to cost drivers, activity volume also plays a crucial role in activity-based product costing. Activity volume refers to the number of activities performed to produce a particular good or service. The higher the activity volume, the greater the cost that will be charged to the related product. Therefore, understanding the relationship between activity volume and total overhead costs is important in the ABC system (Drury, 2018). Overhead rate is the third element that affects the accuracy of the ABC system. This rate is calculated by dividing the total activity cost by the total number of cost drivers used. Errors in determining overhead rates will cause distortions in product pricing and managerial decision-making (Edward J. Blocher et al., 2019).

In the context of CV. XYZ Food Industry Sidoarjo, these three variables-cost drivers, activity volume, and overhead rates-interact with each other in the ABC system and determine the accuracy of overall product costs. If these three variables are not properly analyzed, the company will face the risk of making mistakes in strategic decisions such as pricing, operational efficiency, and resource allocation. Previous research has examined the application of ABC in various industrial sectors. For example, research by (Situngkir et al., 2024) and (Pusung, 2025), showed that the use of ABC can improve the accuracy of cost information in food and beverage companies. Meanwhile, (Rahmawati, 2019) found that relevant cost drivers have a significant effect on determining product costs in food and beverage companies.

Table 1.1 Production Cost Phenomenon Processed Food Production CV. XYZ Food Sidoarjo Year 2016 - 2024

No	Production Cost	
2016	Rp	738.300.000
2017	Rp	782.700.000
2018	Rp	825.400.000
2019	Rp	863.600.000
2020	Rp	705.600.000
2021	Rp	733.100.000
2022	Rp	825.100.000
2023	Rp	938.800.000
2024	Rp	1.003.500.000

Source: Secondary Data CV. XYZ Food Sidoarjo

Based on Table 1.1, the calculated production costs of processed food over an eight-year period indicate an upward trend, reflecting an increase in production activity volume.

Research Questions:

1. Does the cost driver have a positive and significant influence on activity-based product costing (ABC) at CV. XYZ Food Sidoarjo?
2. Does activity volume positively and significantly affect activity-based product costing (ABC) at CV. XYZ Food Sidoarjo?
3. Does the overhead rate exert a positive and significant influence on activity-based product costing (ABC) at CV. XYZ Food Sidoarjo?
4. Do cost drivers, activity volume, and overhead rates simultaneously have a positive and significant effect on activity-based product costing (ABC) at CV. XYZ Food Sidoarjo?

Research Objectives:

1. To determine the positive and significant influence of cost drivers on activity-based product costing (ABC) at CV. XYZ Food Sidoarjo.
2. To assess the positive and significant effect of activity volume on activity-based product costing (ABC) at CV. XYZ Food Sidoarjo.
3. To evaluate the positive and significant impact of overhead rates on activity-based product costing (ABC) at CV. XYZ Food Sidoarjo.
4. To examine the simultaneous positive and significant effects of cost drivers, activity volume, and overhead rates on activity-based product costing (ABC) at CV. XYZ Food Sidoarjo.

Practically, the findings of this study can serve as a reference for formulating more competitive and efficient pricing strategies, designing optimal production planning, and enhancing the efficiency of resource utilization. This is particularly relevant considering the intense competition among local producers in the processed food sector. Furthermore, this research aligns with the cost-efficiency policies consistently emphasized by the management of CV. XYZ Food Sidoarjo, as documented internally by the company during the 2016–2024 period, especially in controlling indirect costs to improve profit margins. Therefore, this study is expected to contribute meaningfully to the development of a more accurate and applicable Activity-Based Costing (ABC) system model and to support companies like CV. XYZ Food Sidoarjo in improving the effectiveness of cost-related decision-making and overall business strategy.

METHOD

Activity-Based Costing (ABC) Methodology

Activity-Based Costing (ABC) is a cost calculation system that traces costs to activities and subsequently allocates them to products based on the extent to which the products consume those activities. This concept was first developed by Kaplan and Cooper as a response to the limitations of traditional cost accounting systems (Kaplan & Anderson, 2007). Unlike conventional methods, ABC allocates indirect costs not evenly, but rather based on the activities that drive those costs.

According to (Horngren, 2021), the ABC system aims to provide a more realistic representation of resource consumption by each product, thereby enabling management to make more informed decisions regarding pricing, capacity planning, and cost control. The primary steps in implementing the ABC system include:

1. Identifying the key activities involved in the production process.
2. Assigning costs to each activity (cost pool).
3. Determining a cost driver for each activity.
4. Calculating the cost rate per cost driver.
5. Allocating activity costs to products based on their level of activity consumption.

The basic formula for calculating activity costs (COGS) in the ABC system:

$$\text{Harga Pokok Produksi (HPP)} = \text{Biaya Bahan Baku} + \text{Biaya Tenaga Kerja Langsung} + \text{Biaya Overhead Produksi}$$

Cost Drivers

Cost drivers are factors that cause activities to occur and, consequently, generate costs. The appropriate selection of cost drivers significantly influences the accuracy of product cost determination. For example, the number of production batches can serve as a cost driver for machine setup activities (Horngren, 2021). A cost driver is essentially a factor that triggers an activity, which in turn incurs costs. In the context of Activity-Based Costing (ABC), selecting the right cost driver is crucial to accurately reflect resource consumption.

Examples of common cost drivers include the number of machine setups, number of orders, direct labor hours, and production units (Edward J. Blocher et al., 2019). Cost drivers can be categorized into two types:

- **Unit-level cost drivers**, such as the number of units produced.
- **Batch-level cost drivers**, such as the number of machine setups or the number of orders processed.

By using appropriate cost drivers, overhead costs can be allocated more precisely to products or services, resulting in more accurate cost information (Drury, 2018). Furthermore, a study by (Azubike et al., 2017) emphasizes that complex cost drivers should be aligned with the specific characteristics of the industry.

Cost Allocation Formula Based on Cost Drivers:

$$\text{Tarif Pemicu Biaya} = \frac{\text{Total Biaya (Rp)}}{\text{Volume Aktivitas (Jam Mesin)}}$$

Activity Volume

Activity volume refers to how frequently a particular activity is performed within a given period. A higher volume of activity results in greater cost allocation to the associated product. Therefore, understanding the relationship between activity volume and total cost is essential (Drury, 2018). Activity volume denotes the level of activity carried out in the production process and is directly related to the cost drivers. It affects the amount of overhead cost allocated to a product—where higher activity volumes result in higher overhead costs assigned to that product (Edward J. Blocher et al., 2019). In an Activity-Based Costing (ABC) system, activity volume is typically measured using units that align with the cost driver, such as labour hours, number of transactions, or the frequency of machine setups. Hence, a thorough understanding of activity volume is crucial to prevent product under-costing or over-costing.

The basic formula for allocating activity costs to products in an ABC system is as follows:

$$\text{Volume Aktivitas (jam mesin)} = \frac{\text{Total Overhead (Rp)}}{\text{Tarif Overhead (Rp/jam)}}$$

In other words,

$$\text{Biaya Aktivitas untuk Produk} = \text{Tarif Biaya per Cost Driver} \times \text{Jumlah Cost Driver yang Digunakan oleh Produk}$$

This formula illustrates that activity costs are allocated to products based on the extent to which each product consumes the activity.

Overhead Rate

The overhead rate is derived by dividing the total cost of an activity by the total number of its cost drivers. Errors in calculating the overhead rate can lead directly to inaccuracies in the cost of goods manufactured (Edward J. Blocher et al., 2019). The overhead rate represents the rate used to allocate overhead costs to products based on the activities they consume. In the Activity-Based Costing (ABC) system, this rate is calculated by dividing the total cost incurred for a specific activity by the total quantity of the associated cost driver (Horngren, 2021).

Formula:

Overhead Rate = Total Activity Cost ÷ Total Cost Driver Units

This rate ensures that overhead costs are distributed more accurately across products, based on actual consumption of resources.

Conceptual Framework

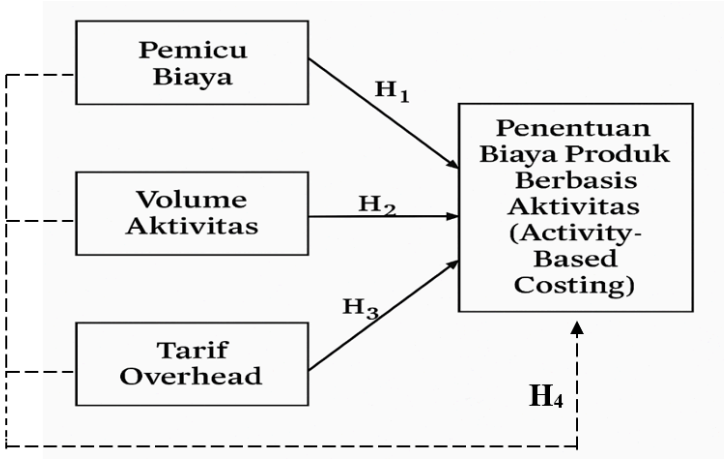


Figure 1.1 The Conceptual Framework

Based on the research questions and objectives, the hypotheses of this study are formulated as follows: **H**$_1$: There is a positive and significant influence of cost drivers on activity-based product costing (Activity-Based Costing). **H**$_2$: There is a positive and significant influence of activity volume on activity-based product costing (Activity-Based Costing). **H**$_3$: There is a positive and significant influence of the overhead rate on activity-based product costing (Activity-Based Costing). **H**$_4$: There is a simultaneous positive and significant influence of cost drivers, activity volume, and overhead rates on activity-based product costing (Activity-Based Costing).

This study adopts a quantitative approach with an explanatory research design, aimed at empirically testing the hypotheses concerning the relationships between independent and dependent variables (Creswell, 2018). The research is conducted at **CV. XYZ Food Sidoarjo** in East Java, focusing on financial statements and production activity data from 2016 to 2024, selected for data accessibility and the relevance of the food processing industry. The data used is secondary, consisting of audited annual reports, financial statements, and operational data obtained from the company's internal archives, official publications, and other sources. Data collection was performed through documentary study techniques, analyzing financial and production reports, complemented by a literature review on Activity-Based Costing and cost accounting (Fatihudin, 2020). The data were analyzed using multiple linear regression to assess the influence of independent variables—cost drivers, activity volume, and overhead rates—on the dependent variable, activity-based product cost. Prior to regression analysis, classical assumption tests for normality, multicollinearity, and heteroscedasticity were conducted to ensure model validity and reliability (Sahir, 2022). The study uses inclusion criteria such as the availability of audited financial reports and internal production data from 2016–2024. The independent variables include cost drivers (X_1), activity volume (X_2), and overhead rate (X_3), while the dependent variable is activity-based product cost (Y), with quantitative documentation serving as the measurement instrument.

Operational Definition of Variables

Table 1.2 Operational Definition of Variables

Variable	Operational Definition	Indicators	Data Scale	Calculation Formula
Cost Driver	Factors that cause activity-related costs and are used to allocate costs to products (Mulyani & Fitriyah, 2021).	Number of production units, machine hours, direct labor hours, production processes, material handling	Ratio	**Cost Driver Rate (Rp/hour)** = Total Cost (Rp) / Activity Volume (Machine Hours)
Activity Volume	The total amount of activity performed during the production process.	Production units, batch production, machine operation hours, direct labor hours	Ratio	**Activity Volume (hours)** = Total Overhead (Rp) / Overhead Rate (Rp/hour)
Overhead Rate	The cost per activity unit used to allocate overhead to products.	Overhead cost per activity, number of cost drivers	Ratio	**Overhead Rate** = Total Overhead (Rp) / Total Activity Volume (Machine Hours)
Activity-Based Product Costing (ABC)	Allocation of costs to products based on the activities consumed (Mulyani & Fitriyah, 2021).	Direct materials, direct labor costs, activity overhead costs	Ratio	**Product Cost** = Direct Material Costs + Direct Labor Costs + Production Overhead Costs

Data Source: Data processed by researchers, 2025

RESULTS AND DISCUSSION

Result

Descriptive Statistics

Table 1.3 Tabulation of Production Activity Data and Calculation of Production Costs

TAHUN	COST DRIVER (X1) (IDR)	ACTIVITY VOLUME (X2)	OVERHEAD RATE (X3) (IDR)	PRODUCTION COST OF ABC (Y) (IDR)
2016	1.845.750,00	400	250.000	738.300.000
2017	1.863.571,43	420	275.000	782.700.000
2018	1.875.909,09	440	290.000	825.400.000
2019	1.877.391,30	460	310.000	863.600.000
2020	1.501.276,60	470	330.000	705.600.000
2021	1.466.200,00	500	340.000	733.100.000
2022	1.586.730,77	520	355.000	825.100.000
2023	1.676.428,57	560	370.000	938.800.000
2024	1.730.172,41	580	380.000	1.003.500.000

Data Source: Data processed by researchers, 2025

Table 1.4 Descriptive Statistical Results

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PEMICU BIAYA	9	1466200	1877391	1713714.44	164759.819
VOLUME AKTIVITAS	9	400	580	483.33	61.644
TARIF OVERHEAD	9	250000	380000	322222.22	44307.950
BIAYA PRODUKSI	9	705600000	1003500000	824011111.11	98933164.870
Valid N (listwise)	9				

Data Source: Data processed by researchers, 2025

Table 1.4 presents the descriptive statistical results for the four research variables—Cost Drivers, Activity Volume, Overhead Rate, and Production Cost—based on nine years of observational data. The Cost Driver variable has a minimum value of Rp1,466,200 and a maximum of Rp1,877,391, with an average of Rp1,713,714.44 and a standard deviation of Rp164,759.82, indicating moderate variation. The Activity Volume variable has an average of 483.33 units and a standard deviation of 61.64 units, reflecting relatively low fluctuation. Meanwhile, the Overhead Rate ranges from Rp250,000 to Rp380,000, with an average of Rp322,222.22 and a standard deviation of Rp44,307.95, suggesting a stable rate across the observed periods. The Production Cost variable shows an average of Rp824,011,111.11 with a standard deviation of Rp98,933,164.87, indicating substantial variability throughout the observation period. These results provide an initial overview of the data characteristics and serve as a foundation for subsequent analyses.

Classical Assumption Test

Normality Test

Table 1.5 Kormogorov Smirnov Normality Test Results

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		9
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	2447117.18709142
Most Extreme Differences	Absolute	.149
	Positive	.138
	Negative	-.149
Test Statistic		.149
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.

The normality test is used to determine whether the residuals are normally distributed or not. Data distribution is normal if the significance (Sig) is greater (> 0.05). Based on table, it shows that the Kolmogorov-Smirnov value is significant at 0.200> 0.05, thus the data is normally distributed.

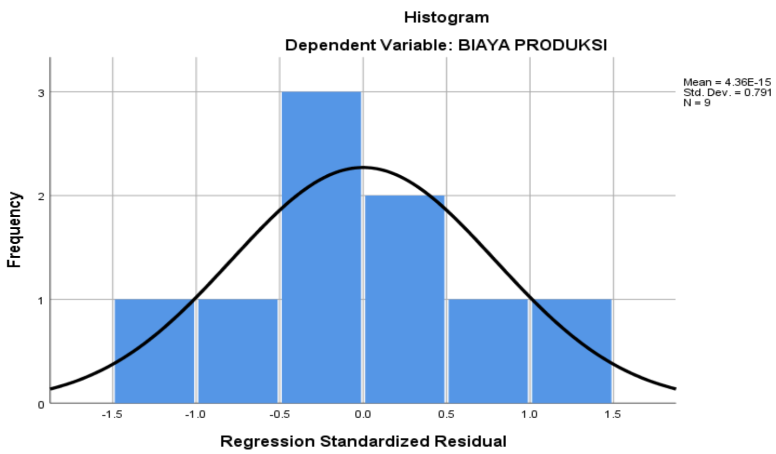


Figure 1.2 Histogram

From the histogram, it is known to form a bell-shaped curve that is symmetrical around the average, so it is concluded that the data is normally distributed.

Multicollinearity Test

Table 1.6 Multicollinearity Test Results

Coefficients[a]

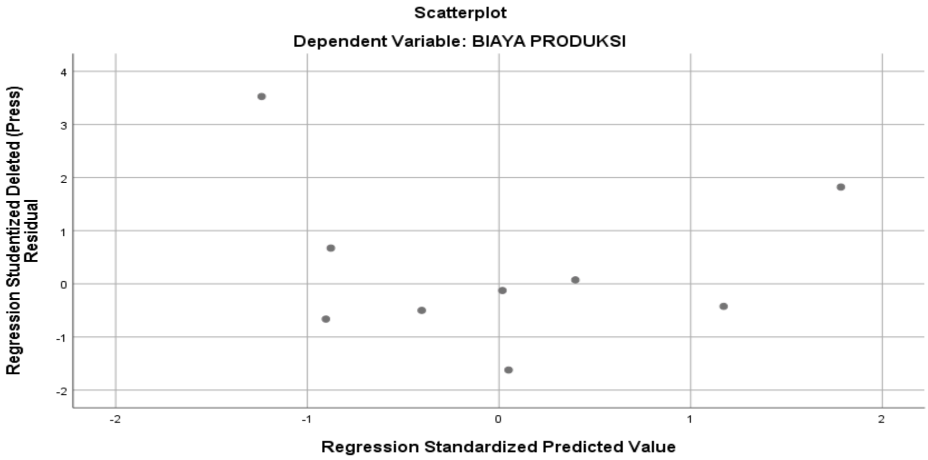
Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	860.380	244.586		-35.177	.000		
	PEMICU BIAYA	486.452	10.623	.810	45.791	.000	.391	2.558
	VOLUME AKTIVITAS	1587149.473	105276.925	.989	15.076	.000	.228	4.165
	TARIF OVERHEAD	259.541	160.755	.116	1.615	.167	.224	4.360

a. Dependent Variable: BIAYA PRODUKSI

Data Source: Data processed by researchers, 2025

Based on Table 1.6, the Tolerance value for variable X1 (Cost Driver) is 0.391 > 0.1 and the VIF value is 2.558 < 10.00. For variable X2 (Activity Volume), the Tolerance value is 0.228 > 0.1 and the VIF is 5.165 < 10.00. Meanwhile, for variable X3 (Overhead Rate), the Tolerance value is 0.224 > 0.1 and the VIF is 4.360 < 10.00. Therefore, it can be concluded that there is no multicollinearity present in the model.

Heteroscedasticity Test



Figur 1.3 Scatterplot

Data Source: Data processed by researchers, 2025

Based on the scatterplots image, the dots spread above and below the number 0 on the Y axis, it is concluded that heteroscedasticity does not occur, meaning that the regression model used for this study is feasible.

Multiple Linear Regression

Table 1.7 Multiple Linear Regression Test Results

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	860.380	244.586		-35.177	.000
	PEMICU BIAYA	486.452	10.623	.810	45.791	.000
	VOLUME AKTIVITAS	1587149.473	105276.925	.989	15.076	.000
	TARIF OVERHEAD	259.541	160.755	.116	1.615	.167

a. Dependent Variable: BIAYA PRODUKSI

Data Source: Data processed by researchers, 2025

PRODUCTION COST = 860,380 + 486,452(CD) + 1,587,159.473(AV) + 259,541(OR)

The explanation of the multiple linear regression equation is as follows:

a. **Intercept (Constant) = 860,380.** This indicates that when all independent variables (Cost Driver, Activity Volume, and Overhead Rate) are equal to zero, the estimated production cost is Rp 860,380. In practical terms, this can be interpreted as the minimum fixed cost incurred even in the absence of any production activity.
b. **Coefficient of Cost Driver (CD) = 486,452.** This means that for every 1-unit increase in the cost driver, the production cost (HPP) increases by Rp 486,452, assuming other variables remain constant (ceteris paribus).

c. **Coefficient of Activity Volume (AV) = 1,587,159.473.** This implies that each 1-unit increase in activity volume leads to an increase of Rp 1,587,159.47 in production cost, holding cost driver and overhead rate constant. This suggests that activity volume has the greatest impact on production cost among the three variables.
d. **Coefficient of Overhead Rate (OR) = 259,541.** This indicates that a 1-unit increase in the overhead rate results in an increase of Rp 259,541 in the production cost, assuming the other variables remain unchanged.

Partial Hypothesis Test (t Test)

Table 1.8 t Test Results

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	860.380	244.586		-35.177	.000
	PEMICU BIAYA	486.452	10.623	.810	45.791	.000
	VOLUME AKTIVITAS	1587149.473	105276.925	.989	15.076	.000
	TARIF OVERHEAD	259.541	160.755	.116	1.615	.167

a. Dependent Variable: BIAYA PRODUKSI

Data Source: Data processed by researchers, 2025

Decision-making is based on two criteria: first, by comparing the calculated t-value with the critical t-table value; and second, by referring to the significance level (α = 0.05). With a sample size (n) of 9 and three independent variables (k = 3), the degrees of freedom (df) are calculated as n – k – 1 = 5. According to the t-distribution, the critical t-table value at df = 5 and α = 0.05 is 2.571.

The partial influence of each independent variable on the dependent variable is as follows:

a) **Cost Driver (X1), Hypothesis 1**: The calculated t-value is 45.791, which is greater than the t-table value of 2.571, and the significance value is 0.000 < 0.05. This indicates that the Cost Driver has a statistically significant effect on Production Cost, and thus, the alternative hypothesis (Ha) is accepted.
b) **Activity Volume (X2), Hypothesis 2**: The calculated t-value is 15.076, which exceeds the t-table value of 2.571, with a significance value of 0.000 < 0.05. Therefore, it can be concluded that Activity Volume significantly influences Production Cost, supporting the acceptance of the alternative hypothesis (Ha).
c) **Overhead Rate (X3), Hypothesis 3**: The calculated t-value is 1.615, which is less than the t-table value of 2.571, and the significance value is 0.167 > 0.05. This implies that the Overhead

Rate does not have a statistically significant effect on Production Cost, and therefore, the alternative hypothesis (Ha) is rejected.

Simultaneous Hypothesis Test (F Test)

Table 1.9 F Test Results

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	78254261828670016.000	3	26084753942890004.000	2722.433	.000[b]
	Residual	47907060218864.690	5	9581412043772.938		
	Total	78302168888888880.000	8			

a. Dependent Variable: BIAYA PRODUKSI
b. Predictors: (Constant), TARIF OVERHEAD, PEMICU BIAYA, VOLUME AKTIVITAS

The basis for decision-making in this test is as follows: if the significance value (Sig.) is less than 0.05, the alternative hypothesis (H_a) is accepted, indicating that the regression model is statistically significant. Additionally, if the calculated F-value exceeds the F-table value, the model is considered significant. The output shows an F-value of 2722.433, while the critical F-table value at degrees of freedom df1 = 3 (number of independent variables) and df2 = 5 ($n – k – 1 = 9 – 3 – 1$) at $\alpha = 0.05$ is 5.41.

Since the calculated F-value of 2722.433 is greater than the F-table value of 5.41 and the significance level is $0.000 < 0.05$, it can be concluded that the independent variables—Cost Driver (X1), Activity Volume (X2), and Overhead Rate (X3)—simultaneously have a statistically significant effect on Production Cost (Y). Therefore, the alternative hypothesis (H_a) is accepted.

Test Coefficient of Determination (R2)

Table 1.10 Test Results of the Coefficient of Determination

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000[a]	.999	.999	30.605

a. Predictors: (Constant), TARIF OVERHEAD, PEMICU BIAYA, VOLUME AKTIVITAS
b. Dependent Variable: BIAYA PRODUKSI

Data Source: Data processed by researchers, 2025

The coefficient of determination (R^2) measures the proportion of the variability in the dependent variable (Production Cost) that can be explained by the independent variables (Cost Driver, Activity Volume, and Overhead Rate) in the regression model. The R^2 value obtained in this model is 0.999, indicating that 99.9% of the variation in Production Cost can be explained by the variables Cost Driver, Activity Volume, and Overhead Rate.

Discussion

1) The Influence of Cost Drivers on Activity-Based Costing (ABC) Product Costing

The t-test results show that the calculated t-value is 45.791, which exceeds the critical t-table value of 2.571, with a significance value of 0.000 < 0.05. This indicates that the Cost Driver variable has a positive and statistically significant effect on Production Cost. This suggests that an increase in cost drivers, such as machine hours or production units, significantly raises production costs. According to (Oktariansyah, 2021), cost drivers are factors that cause changes in activity costs. Accurate identification of cost drivers is essential in Activity-Based Costing (ABC) to ensure precise cost allocation. This result is consistent with the findings of (Puspita et al., 2022), who showed that cost drivers significantly influence production costs in manufacturing companies. Similarly, (Lalitasari et al., 2022) found that production volume, as one of the cost drivers, has a significant impact on net profit.

2) The Influence of Activity Volume on Activity-Based Costing (ABC) Product Costing

The t-test results reveal a t-value of 15.076, which is greater than the t-table value of 2.571, with a significance value of 0.000 < 0.05. This confirms that Activity Volume has a positive and statistically significant effect on Production Cost. Increases in activity volume, such as the number of units produced, significantly raise production costs. In Cost-Volume-Profit (CVP) analysis, activity volume is a primary factor affecting total costs and corporate profits. Variable costs change in response to variations in activity volume (Sholihah & Jailani, 2023). This is supported by (Putri & Suriyanti, 2021), who found that cost behaviour is influenced by changes in a company's activity level.

3) The Influence of Overhead Rates on Activity-Based Costing (ABC) Product Costing

The t-test result shows a t-value of 1.615, which is less than the t-table value of 2.571, with a significance level of 0.167 > 0.05. Therefore, the Overhead Rate variable does not have a statistically significant effect on Production Cost. This may be due to inaccuracies in overhead cost allocation or inconsistencies in overhead cost behaviour relative to changes in production costs. Factory overhead is an indirect cost that cannot be directly traced to specific products. As such, improper allocation of overhead costs can distort product costing (Astuti, 2018). (Lisnawati & Apip, 2018) also found that factory overhead costs have a negative effect on production cost efficiency, indicating suboptimal cost control and budget overruns. (Susanti et al., 2023) further noted that ineffective overhead allocation, due to cost variances between departments, impacts accurate product cost determination.

4) The Simultaneous Influence of Cost Drivers, Activity Volume, and Overhead Rates on Activity-Based Costing (ABC) Product Costing

The F-test results show that the F-statistic is 2722.433, which is greater than the F-table value of 5.41, and the significance value is 0.000 < 0.05. This indicates that, simultaneously, the variables Cost Driver (X_1), Activity Volume (X_2), and Overhead Rate (X_3) have a positive and significant effect on Production Cost (Y). Thus, the regression model is statistically valid and effectively explains the relationships among these variables. In the ABC system, production costs are determined based on the activities that consume resources. Cost drivers are the causal factors of costs, such as the number of products or machine hours. Activity volume reflects the production level, while overhead rates allocate indirect costs to products. Understanding and managing these three variables enhances cost accuracy and operational efficiency. This is supported by (Medianty, 2023), who found that factory overhead and direct labour costs jointly have a positive effect on cost of goods manufactured at PT. Azmindo Baja Cakrabuana.

CONCLUSION

This study concludes that:

1. Partially, the Cost Driver variable has a positive and significant effect on Production Costs at CV. XYZ Food Sidoarjo.
2. Partially, the Activity Volume variable also has a positive and significant effect on Production Costs at CV. XYZ Food Sidoarjo.
3. The Overhead Rate variable does not have a significant effect on Production Costs at CV. XYZ Food Sidoarjo.
4. Simultaneously, all three variables significantly influence the determination of Production Costs.

These findings emphasize the importance of using the Activity-Based Costing (ABC) system to allocate costs more accurately based on the consumption of activities. **Recommendations**: CV. XYZ Food Sidoarjo should improve the identification of key cost drivers such as machine hours and production units. Regular reviews of activity volume and overhead allocation methods are also recommended. **Managerial Implications**: Effective management of cost drivers and production volume through ABC can enhance operational efficiency, cost accuracy, and budget control. **Limitations**: This study is limited to a single company and uses secondary data, without considering external factors like raw material price fluctuations or macroeconomic policies. **Suggestions for Future Research:** Future studies should involve multiple companies in similar industries and consider incorporating qualitative methods to explore organizational and managerial aspects of ABC implementation.

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