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Determination analysis of production cost calculation through the full costing method

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ABSTRACT

Waani Furniture is a business that operates in the manufacturing sector, which produces various kinds of interiors, namely producing household furniture. This business has a problem in determining the production cost only using a simple method and not classified cost elements. This research aims to determine the calculation of the wardrobe production basic cost using the full costing calculation method. The research involved Waani Furniture located in Leilem Village, Sonder District, Minahasa as the research object. The method used to analyze this research is a qualitative approach of descriptive analysis with data collection through interviews, observation, and documentation. The results indicate that there is a significant difference in the production cost calculation because if the company uses the full costing method, the production cost is higher than the method determined by the company. The difference in cost price occurs due to different cost calculations as the company does not include all costs that should be used in determining the production cost. Therefore, companies need to classify cost components in the production cost. It is expected that companies can consider to calculate the production cost using the full costing method to produce more detailed and accurate data.

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INTRODUCTION

The increasing modernization era makes an old or traditional businesses increasingly threatened by the growth of new businesses (Marasabessy, 2022; Mir & Bhat, 2022; Pereyras, 2021; Phornlaphatrachakorn, 2017). The goal of every business is definitely to make a profit from every sale that is pursued for the future of the business. When a company is unable to compete with other companies that continue to grow, survival and the opportunity to develop the business will be threatened (El Menzhi, 2014; Khan, 2019; Yang & del Carmen Triana, 2019). Therefore, overcoming this threat requires a good strategy and understanding of the industry and target market (Helweg - Larsen & Helweg - Larsen, 2007; Nugraha et al., 2021; Widardi et al., 2019).

The current era of increasingly sophisticated technology has brought significant changes to the manufacturing industry (Okpala & Osanebi, 2020; Qiu et al., 2021; Zhou et al., 2007).

Today's consumers place greater importance on quality, sustainability, and the experience provided by products (Baraja & Yosya, 2019; Pamungkas et al., 2023; Saputra et al., 2018; Widhiastuti et al., 2020). Manufacturing companies must adapt to this demand by developing innovative, environmentally friendly products, and attractive product designs. In this situation, technological advances and globalization have changed the way manufacturing companies work with partners in their supply chains. Concepts of platform-based manufacturing, digital collaboration, and flexible supply chains have become key to success of this way. Companies must be able to adapt to rapid change and leverage technology to improve visibility and coordination in the supply chain (Kosztyán et al., 2020; Novia et al., 2014; Ogbeibu et al., 2021; Ozbolat, 2015; Ruslim & Muspyta, 2021).

In a manufacturing company, production activities determine how much costs are incurred during the production process, such as the use of raw materials, labor costs, and factory overhead costs, making the cost of production can be produced in accordance with all costs incurred in the activity of producing goods. Determining the cost of production is required in companies as a tool to measure the company's ability to increase profits, and it is important to manage company budget planning. By recognizing the correct production costs, companies can prepare realistic budgets for various production activities. It helps in allocating resources efficiently, controlling costs, and achieving profitability targets (Agusta & Hati, 2018; Fujianti & Satria, 2020; Okpala & Osanebi, 2020).

Waani Furniture is a business that operates in the manufacturing sector, which produces various kinds of interiors, such as producing household furniture of chairs, tables, and cupboards made of wood. Waani Furniture is located in Leilem Village, Sonder Subdistrict, Minahasa Regency. Based on the author's observations, the problem that often occurs in this business is business owner that always set the production cost only based on their own wishes or as simply as by determining the selling price based on existing prices in the market without charging and considering various costs that are underestimated, such as factory overhead costs that have not been recorded in detail, labor costs, and the calculation of the cost of goods manufactured using the full costing method.

The full costing method is a method that concers to the cost price as a whole, which includes all production costs related to the product, both variable costs and fixed costs. In the calculation of full costing, variable costs include costs that change in line with production or sales volume and variable overhead related to production.

By implementing the full costing method, it is expected that it will help the factory or business, especially Waani Furniture, in determining the production cost, especially for wardrobe products to function more optimally, effectively, and efficiently as well as determining the right and accurate selling price to achieve reasonable pricing. The use of full costing has certain advantages and disadvantages. It is important to consider the business context and the purpose of the expected information before choosing the right accounting approach. Based on this literature, this research aims to analyze the cost production calculation using the full costing method.

RESEARCH METHOD

This research used a type of descriptive qualitative research with a case study approach carried out by collecting data directly from relevant sources, such as through interviews, observations, and documentation, and then analyzed the data by identifying patterns and themes that emerge. In this case, the researcher looked at whether the full costing cost of goods sold calculation had been applied or not in Waani Furniture Leilem. The research was conducted at Waani Furniture Leilem Village, Sonder Subdistrict, Minahasa Regency. The research was conducted on 28 August 2023 – 8 September 2023. Data collection techniques involved observation and interviews as well as documentation to obtain data that support the research. The data analysis carried out in this

research was based on data observations obtained from Waani Furniture Leilem. The analysis process for calculating the full production costs involved collecting and determining the costs associated with the production of a product. This method allocated all production costs, including raw material, labor, and factory overhead, into the production costs.

RESULTS AND DISCUSSIONS

Waani Furniture Leilem was established on May 2 2020 by Mr. Jordan Waani located in Leilem Village, Sonder Subdistrct, Minahasa Regency. Waani Furniture Leilem is a small and medium-sized furniture business that produces various kinds of household interior equipment, such as tables, shelves, chairs, cupboards, and other interior equipment.

Table 1. Waani Furniture Leilem Wardrobe Production Results July 2023

No	Product Names	Amount Production	Price Unit	Amount	Percentage
1.	Wardrobe (Size 4m x 2.5m)	10	Rp. 8,750,000	Rp. 87,500,000	33%
2.	Wardrobe (Size 1.75m x1.10 m)	8	Rp. 2,500,000	Rp. 20,000,000	27%
3.	Wardrobe (Size 1.85 m x 2 m)	12	Rp. 4,300,000	Rp. 51,600,000	40%
	TOTAL PRODUCTION	30		Rp. 159,100,000	

Source: Waani Furniture Leilem, 2023

The calculation for the percentage above is explained as follows:

Wardrobe Size 4m x 2,5 m = $\frac{10}{30}$ x 100 % = 33 %

Wardrobe Size 1,75m x 1,10 m = $\frac{8}{30}$ x 100 % = 27 %

Wardrobe Size 1,85m x 2 m = $\frac{12}{30}$ x 100 % = 40 %

Goods production cost calculation using the company method at Waani Furniture Leilem in one month produces three types of wardrobes with various sizes, namely wardrobes size 4m x 2.5m, wardrobes size 1.75m x 1.10m, and wardrobes size 1.85m x 2m. In this cost calculating, the company only considers the cost of any materials that the company will use, only electricity costs without considering and classifying costs which should be important for the company to calculate in determining the production cost. The details are in the table as follows:

Table 2. Goods Production Cost Calculation according to Wardrobe Companies (Size 4m x 2.5m) July 2023

No	Information	Wardrobe (Size 4m x 2.5m)			Wardrobe (Size 1.75 m x 1.10 m)			Wardrobe (Size 1.85 m x 2 m)		
		Qt	Price (Rp)	Amount (Rp)	Qt	Price (Rp)	Amount (Rp)	Qt	Price (Rp)	Amount (Rp)
1	BlockBoard 18mm (122 cm x 244 cm)	8	250,000	2,000,000	2	250,000	500,000	4	250,000	1,000,000
2	HPL (122 cm x 244 cm)	8	225,000	1,800,000	2	225,000	450,000	4	225,000	900,000
3	Glass (180cm x 60cm)	-	-	-	-	-	-	1	125,000	125,000
4	Mirror (160cm x 60cm)	-	-	-	1	95,000	95,000	1	95,000	95,000
5	Spoon Hinge	7	28,000	196,000	4	28,000	112,000	6	28,000	168,000
6	Screw	1	50,000	50,000	½	25,000	25,000	½	25,000	25,000
7	Ehabon Glue	½	275,000	275,000	½	125,000	125,000	¼	125,000	125,000
8	Huben Key	2	25,000	50,000	4	25,000	100,000	4	25,000	100,000
9	Door Pull/Handle	8	25,000	200,000	1	25,000	25,000	3	25,000	75,000
10	Sliding Door Pull/Handle	-	-	-	-	-	-	2	30,000	60,000
11	Huben Drawer Rails	1	83,000	83,000	1	83,000	83,000	1	83,000	83,000
12	Pipe Bracket	2	45,000	90,000	1	45,000	45,000	1	45	45,000
13	Electricity cost	1	66,000	66,000	1	54,000	54,000	1	80	80,000
14	Transportation costs	1	165,000	165,000	1	165,000	165,000	1	200	200,000

AMOUNT	4,979,000	1,749,000	3,081,000
TOTAL OF PRODUCTION	10 units	8 units	12 units
	49,790,000	13,992,000	36,972,000

Source: Waani Furniture Leilem, 2023

Raw Material Costs

Table 3. Raw Material Costs for Waani Wardrobe Furniture Leilem July 2023

No	Information	Wardrobe (Size 4m x 2.5m)			Wardrobe (Size 1.75 m x 1.10 m)			Wardrobe (Size 1.85 m x 2 m)		
		Qt	Price (Rp)	Amount (Rp)	Qt	Price (Rp)	Amount (Rp)	Qt	Price (Rp)	Amount (Rp)
1	BlockBoard 18mm (122 cm x 244 cm)	8	250,000	2,000,000	2	250,000	500,000	4	250,000	1,000,000
2	HPL (122 cm x 244 cm)	8	225,000	1,800,000	2	225,000	450,000	4	225,000	900,000
3	Glass (180cm x 60cm)	-	-	-	-	-	-	1	125,000	125,000
4	Mirror (160cm x 60cm)	-	-	-	1	95,000	95,000	1	95,000	95,000
5	Spoon Hinge	7	28,000	196,000	4	28,000	112,000	6	28,000	168,000
6	Screw	1	50,000	50,000	½	25,000	25,000	½	25,000	25,000
7	Ehabon Glue	½	275,000	275,000	½	125,000	125,000	¼	125,000	125,000
8	Huben Key	2	25,000	50,000	4	25,000	100,000	4	25,000	100,000
9	Door Pull/Handle	8	25,000	200,000	1	25,000	25,000	3	25,000	75,000
10	Sliding Door Pull/Handle	-	-	-	-	-	-	2	30,000	60,000
11	Huben Drawer Rails	1	83,000	83,000	1	83,000	83,000	1	83,000	83,000
12	Pipe Bracket	2	45,000	90,000	1	45,000	45,000	1	45	45,000
AMOUNT				4,7440,000			1,560,000			2,806,000
NUMBER OF PRODUCTION				10 units			8 units			12 units
				47,440,000			12,840,000			33,672,000

Source: Processed Data, 2023

Direct Labor Costs

In producing wardrobes, the company requires direct labor of one person in the cutting department, two persons in the assembly department, and one person in the finishing department. The following are details of direct labor costs incurred by the company.

Table 4. Waani Furniture Leilem Direct Labor Costs July 2023

Information		Wardrobe (Size 4 m x 2.5 m)			Wardrobe (Size 1.75m x 1.10m)			Wardrobe (Size 1.75m x 1.10m)		
	Amount TKL	Working hours	Labor Wages/Hours	Total TKL Wages/ month (Rp)	Working hours	Labor Wages/ Hours	Total TKL Wages/ month (Rp)	Working hours	Labor Wages /Hours	Total TKL Wages/ month (Rp)
Cutting Section	1	68 Hours	20,000	1,360,000	56 Hours	20,000	1,160,000	84 Hours	20,000	1,680,000
Assembly Part	2	68 Hours	20,000	2,720,000	56 Hours	20,000	2,320,000	84 Hours	20,000	3,360,000
Finishing Section	1	68 Hours	20,000	1,360,000	56 Hours	20,000	1,160,000	84 Hours	20,000	1,680,000
TOTAL BTKL				5,440,000			4,640,000			6,720,000

Source: Processed data, 2023

Factory Overhead Costs Variable

a. Electricity cost

In producing wardrobes, companies need electricity to support the production process, for example when installing tools or machines electricity is needed as support. The following is a breakdown of the electricity costs required by the company to produce wardrobes.

Table 5. Electricity Costs for Wardrobes and Waani Furniture Leilem July 2023

No	Information	Wardrobe (Size 4m x 2.5m) Amount (Rp)	Wardrobe (Size 1.75m x 1.10m) Amount (Rp)	Wardrobe (Size 1.85m x 2 m) Amount (Rp)
1	Electricity cost	66,000	54,000	80,000
	TOTAL	66,000	54,000	80,000

Source: Processed Data, 2023

Table 5 shows the total electricity costs incurred by the company in producing wardrobes

b. Fixed Factory *Overhead* Costs

Fixed factory overhead costs are the costs that do not change with changes in production levels or company activity in the short term. It is important to manage and calculate fixed factory overhead costs carefully so that the company gets an estimate and controls production costs effectively and efficiently, as well as making the right business decisions.

Indirect Labor Costs

Table 6. Indirect Labor Costs for Wardrobes (Size 4m x 2.5 meters) Waani Furniture Leilem July 2023

Information	TKTL Amount	Wardrobe (Size 4 m x 2.5 m)			Wardrobe (Size 1.75m x 1.10m)			Wardrobe (Size 1.75m x 1.10m)		
		Working hours	Labor Wages/Hours	Total Wages / month (Rp)	Working hours	Labor Wages/ Hours	Total TKL Wages/ month (Rp)	Working hours	Labor Wages /Hours	Total TKL Wages/ month (Rp)
Administration & General Section	1	68 Hours	18,000	1,224,000	56 Hours	18,000	1,008,000	84 Hours	18,000	1,512,000
TOTAL BTKTL				1,224,000			1,008,000			1,512,000

Source: Processed data, 2023

c. Machine Depreciation Costs

The following is a detailed table of machine depreciation costs.

Table 7. Depreciation Costs for Wardrobe Machines (Size 4m x 2.5m) Waani Furniture Leilem July 2023

No	Information	Acquisition cost	Lifetime	Decreased Per Year (Rp)	Decreased Per month (Rp)
1.	Somi Machine	1,100,000	5 years	220,000	18,333
2.	Grinding Machine	350,000	5 years	70,000	5,833
3.	Profile Machine	550,000	5 years	110,000	9,167
4.	Scap Machine	750,000	5 years	150,000	12,500
5.	Machine Drill	300,000	5 years	60,000	5,000
6.	Drill Cars	1,500,000	5 years	300,000	25,000
Total machine depreciation costs/year				910,000	75,833
Total depreciation (33%) 75,833 x 33%					25,025

Source: Processed data, 2023

Table 8. Depreciation Costs for Wardrobe Machines (Size 1.75m x 1.10m) Waani Furniture Leilem July 2023

No	Information	Acquisition cost	Lifetime	Shrinkage Per Year (Rp)	Shrinkage Per month (Rp)
1.	Somi Machine	1,100,000	5 years	220,000	18,333
2.	Grinding Machine	350,000	5 years	70,000	5,833
3.	Profile Machine	550,000	5 years	110,000	9,167
4.	Scap Machine	750,000	5 years	150,000	12,500
5.	Machine Drill	300,000	5 years	60,000	5,000
6.	Drill Cars	1,500,000	5 years	300,000	25,000
Total machine depreciation costs/year				910,000	75,833
Total depreciation (27%) 75,833 x 27%					20,475

Source: Processed data, 2023

Table 9. Depreciation Costs for Wardrobe Machines (Size 1.85 m x 2 m) Waani Furniture Leilem July 2023

No	Information	Acquisition cost	Lifetime	Decreased Per Year (Rp)	Decreased Per month (Rp)
1.	Somi Machine	1,100,000	5 years	220,000	18,333
2.	Grinding Machine	350,000	5 years	70,000	5,833
3.	Profile Machine	550,000	5 years	110,000	9,167
4.	Scap Machine	750,000	5 years	150,000	12,500
5.	Machine Drill	300,000	5 years	60,000	5,000
6.	Drill Cars	1,500,000	5 years	300,000	25,000
Total machine depreciation costs/year				910,000	75,833
Total depreciation (40%) 75,833 x 40%					30,333

Source: Processed data, 2023

The table shows the machine depreciation costs incurred by the company in producing wardrobes.

Table 10. Vehicle Depreciation Costs Wardrobe (Size 4m x 2.5m) Waani Furniture Leilem July 2023

No	Information	Acquisition Cost	Lifetime	Decreased Per year (Rp)
1.	Pick up car Gran Max	188,400,000	10 years	1,570,000
Total Vehicle Depreciation Costs / Year				1,570,000
Total Vehicle Depreciation Costs / Month (12 months)				130,833
Percentage for wardrobe products (33%) 130,833 X 33%				43,175

Data Source: Processed data, 2023

Table 11. Vehicle Depreciation Costs Wardrobe (Size 1.75m x 1.10m) Waani Furniture Leilem July 2023

No	Information	Acquisition cost	Lifetime	Decreased Per year (Rp)
1.	Pick up car Gran Max	188,400,000	10 years	1,570,000
Total Vehicle Depreciation Costs / Year				1,570,000
Total Vehicle Depreciation Costs / Month (12 months)				130,833
Percentage for wardrobe products (27%) 130,833X 27%				35,325

Data Source: Processed data, 2023

Table 12. Vehicle Depreciation Costs Wardrobe (Size 1.85 m x 2 m) Waani Furniture Leilem July 2023

No	Information	Acquisition cost	Lifetime	Decreased Per year (Rp)
1.	Pick up car Gran Max	188,400,000	10 years	1,570,000
Total Vehicle Depreciation Costs / Year				1,570,000
Total Vehicle Depreciation Costs / Month (12 months)				130,833
Percentage for wardrobe products (40%) 130.833X 40%				52,333

Source: Processed data, 2023

The table is a breakdown of vehicle depreciation costs at Waani Furniture Leilem is a Pick-Up Car Gran Max with depreciation charges.

Table 13. Calculation of Cost of Goods Production Full Costing Method for Waani Furniture Leilem Wardrobe July 2023

Information	Wardrobe (Uk 4m x 2.5m)	Wardrobe (Uk 1.75m x 1.10m)	Wardrobe (Uk 1.85m x 2m)
Raw Material Costs	*47,440,000*	*12,860,000*	33,672,000
Direct labor costs	5,440,000	4,640,000	6,720,000
Factory Overhead Costs:			
Electricity cost	66,000	54,000	80,000
Factory Overhead Costs:			
Indirect Labor Costs	*1,224,000*	1,008,000	1,512,000
Machine Depreciation Costs	25,025	20,475	30,333
Vehicle Depreciation Costs	43,175	35,325	52,333
Total cost	54,238,200	18,617,800	42,066,666
Total Production/Month	10 units	8 units	12 units
Cost of goods sold	5,423,820	2,327,225	3,502,805

Source: Processed data, 2023

Comparison between the Company Method of Calculating the Goods Production Costs with the Full Costing Method

Based on the calculation method previously explained, the following is a comparative analysis of determining the calculation of the production cost according to the method used by the company and the method used full costing method.

Table 14. Comparison of Production Cost for Waani Furniture Leilem Wardrobes July 2023

No	Product name	Production Cost of 1 Unit According to Company Method (Rp)	Production Cost of 1 Unit According to Full Costing Method (Rp)	Difference (Rp)
1	Wardrobe (Size 4m x 2.5m)	4,979,000	5,423,820	444,820
2	Wardrobe (Size 1.75m x 1.10m)	1,749,000	2,327,225	578,225
3	Wardrobe (Size 1.85m x 2 m)	3,081,000	3,502,805	421,805

Source: Processed data, 2023

Based on Table 14, it can be seen that in determining the goods cost, there are differences between the company method and the full costing method. According to the company's method, in determining the production cost for 1 unit of wardrobe size 4m x 2.5m is Rp. 4,979,000, whereas if using the full costing method is Rp. 5,423,820. It indicates that there is a difference of Rp. 444,820. Furthermore, a wardrobe size 1.75m x 1.10m according to the method calculated by the company is Rp. 1,749,000 and the full costing method calculation is Rp. 2,327,225. These results show a significant difference with the production cost different of Rp. 578,225. Furthermore, for a wardrobe size 1.85 m x 2 m, the calculation of the production cost carried out by the company is Rp. 3,081,000, whereas if the full costing method is Rp. 3,502,805, so there is a difference of Rp. 421,805.

Waani Furniture Leilem is a small and medium-sized furniture business that produces various kinds of household interior equipment, such as tables, shelves, chairs, cupboards and other interior equipment (can request). This company has problems in classifying the costs that have been incurred in the production process because the budget recording is still simple without applying accounting knowledge properly and correctly. Poor record keeping can cause the hampered company's development or make it difficult to develop quickly.

The full costing method is one way to calculate the appropriate cost budget to use and is suitable for Waani Furniture Leilem. Based on the research conducted, the results show that calculations using the full costing method have a difference compared to the method calculated by the company. Companies may experience losses without realizing it because the costs that should be important to be concerned are not recorded and included as the production cost for a product.

Calculations using the full costing method are greater than those calculated by the company. This is because the company does not take into account costs that must be calculated. In calculating the productioncost, the company only charges the costs of raw materials, auxiliary materials, and electricity costs, whereas all costs incurred are recorded and calculated in the full costing method.

CONCLUSION

The calculation using full costing method is greater than the method calculated by the company. In determining the production cost, Waani Furniture Leilem, as the object in this research, still applies relatively simple calculations because various components have not been included, such as calculating and classifying costs of labor, factory overhead, and other important costs in detail. There are significant differences in the calculation of the production cost as if the company uses the full costing method, the production cost is higher than the method determined by the company. The main difference between company calculations using the full costing method is in detailed labor costs and factory overhead costs. For future researchers, it is expected that the full costing method can be utilized as a benchmark or reference for determining the production cost, especially the full costing method and can be further developed, such as adding new variables. This research is expected to contribute to the development of knowledge about company cost calculation methods. The implication of this research is that this research compares two methods for determining the cost of production, so that the most effective comparison is obtained in determining existing costs. The analytical tool used is the full costing method.

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