
Implementation Of The Full Costing Method In Determining Logistics Delivery Rates

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Abstract: *The company PT XYZ Ekspres operates in the field of delivery services for packages of goods and documents in small and large quantities. Because there are so many similar companies, a strategy is needed to survive in the current competitive situation. One of these strategies is in determining shipping rates. Determining competitive rates is done with more than estimates, but precise calculations are needed. The methods used include qualitative and quantitative approaches with data collection techniques in the form of documents and interviews. In determining shipping rates, PT XYZ Ekspres considers the shipment's distance and weight, which indirectly reflects cost considerations. The assumption is that the longer the distance and the heavier the goods sent, the higher the costs required. Determination of tariffs based on the Full Costing method uses costs as the basis for determining tariffs. In conclusion, costs are the basis for setting tariffs, so the determined selling price must be able to cover the costs incurred and obtain the desired profit, is correct. Tariff determination by PT Therefore, it is recommended that companies consider using the full costing method in the following years because this method places costs as the basis for setting rates so that the determined selling price can cover the costs incurred and obtain the desired profit.*

INTRODUCTION

Logistics has developed into an important field in the economy, playing a key role in various activities such as the production of goods by factories or companies, distribution, storage and overall product management. To achieve efficiency and effectiveness, good organization is needed, which is often referred to as integrated logistics management, to prevent imbalances in implementation (Julyanthry et al. 2020; Kusumastuti 2014; Syamil et al. 2023). The main goal of logistics is to deliver finished goods and various materials in the right quantities, at the specified time, in usable condition, and to the delivery destination. This logistics process supports industrial activities both domestically and internationally (Martono 2018).

Logistics companies use distribution networks to deliver their products to customers. This

network involves the flow of products from producers to consumers through various transfer points, distribution centres (warehouses), and one or two retailers. The role of the distribution network and its management are very important for companies to increase sales and profits (Arif 2018; Putro 2022).

Logistics services usually include domestic and international shipping via land, sea and air. Land shipping is divided into two types, namely via train and road. Container shipping by sea involves transporting goods across the ocean using ships. This method is the most commonly used and is considered the most effective. Air shipping is carried out by aeroplanes to speed up transporting goods worldwide, making it an ideal choice for fast delivery (Fatimah 2019; Soepriyadi 2021).

The growth of the logistics sector in Indonesia plays a very important role in meeting people's needs and the country's economic development. Thanks to increasingly easy transportation access, logistics companies in Indonesia make it easier to send goods and documents to all corners of the country (Yuhida 2011). Logistics activities require transportation equipment to carry out goods distribution activities. Logistics is closely related to transportation because transportation is the main driving element in logistics activities. The type of transportation used for each distribution of goods varies according to the logistics route. However, Indonesia's logistics sector still needs better transportation and warehousing standardization. This standardization includes the processes and technology used (Kadarisman, Yuliantini, and Majid 2016).

Logistics digitalization continues to grow along with the challenges of globalization, increasing customer demand, and the need to continue to develop technology and innovation. One of the main goals is to deliver products to customers as quickly as possible while educating workers to change their mindset to improve performance in logistics services. Innovation and tracking are very important to ensure customers are satisfied with the workers' performance, so all information must be provided by the supplier so that customers can see all the information related to the goods. A technology-based digitalization system must create an integrated and unified transportation system (Savitri 2019; Syamil et al. 2023)

However, several problems and obstacles often occur in logistics companies. One of the main obstacles is inadequate infrastructure, such as damaged roads, lack of docking ports for logistics ships, and lack of transportation tools for distributing goods. Another area for improvement is information and communication technology. Even though digital services have been used by shipping services, network service limitations often mean that customers need to learn the status of their goods. Hence, companies need to use a tracking system to make it easier to check each item (Darma 2019; Martono 2018). As an archipelagic country dominated by waters, maritime connectivity between islands also needs to overcome several logistics obstacles. Transporting goods between islands tends to use sea and air routes. Shipping via air offers higher speed but at a higher cost, while sea shipping offers more economical costs but requires a longer delivery time (Andriani 2018; Hariyani and Agustin 2020).

Logistics companies generally charge shipping costs to customers based on the destination location and weight of the goods. Several factors can influence the increase in the cost of transporting goods from the factory warehouse to the destination company's warehouse. First, fuel costs are one of the main factors influencing logistics operational costs; if fuel prices rise, travel costs will also increase. Second, shipping demand: When shipping space demand is high, the volume of products to be shipped increases, causing competition among users for limited space. As a result, cruise lines can sell the limited space at a higher price. Third, major events,

such as piracy, can significantly impact increasing shipping costs because the company is also affected. Lastly, changes in government regulations can cause freight costs to increase. For example, suppose the government enforces rules that limit maximum driving hours for truck drivers at certain periods of the year. In that case, cargo shipments will take longer to reach their destination, ultimately increasing shipping costs (Ahmad 2022; Syamil et al. 2023).

PT XYZ Ekspres provides delivery services for packages of goods and documents, both in small and large quantities. Considering the large number of similar companies, an effective strategy is needed to survive the tight competitive situation. One of the main strategies is to set competitive shipping rates. Setting competitive rates cannot only be based on estimates but must use accurate calculations. Therefore, this research aims to evaluate shipping rates using the full costing method.

METHOD

This research aims to provide new findings to increase understanding of the studied topic. The research method used in this research is a combination of qualitative and quantitative analysis. Qualitative analysis was carried out to obtain information in the form of descriptions from interviews with related parties in the company. Meanwhile, quantitative analysis is used to measure data that can be calculated directly, such as shipping costs and rates.

The data collection process involves various techniques, including interviews, documentation, and other data collection instruments. To obtain in-depth information related to the research topic, interviews were conducted with various internal parties in the company. Documentation is used to obtain data from books, archives, documents and reports that support research. Other data collection instruments, such as interview forms, are also used to collect the necessary information (Sugiyono 2018).

The collected data is then reduced to summarize the main points, focus on important information, and identify emerging themes or patterns. Data analysis is carried out by organizing data into categories, arranging them into patterns, and making conclusions based on the information found. According to research needs, data presentation can be done in the form of short descriptions, charts, or narratives.

RESULT AND DISCUSSION

1. Determining Shipping Rates

PT XYZ aims to achieve the desired profit by attracting customer interest in its services. This is done by paying attention to factors such as competitive costs, security of delivery of goods, and on-time delivery. The company hopes to continuously attract customer interest by carefully considering these factors.

PT XYZ follows a series of steps to determine shipping rates. First, the company considers the size and weight of the goods to be sent. Second, delivery distance is an important factor to take into account. Third, additional costs for shipping goods, such as using wooden packaging for electronic or breakable goods, are also considered. Next, the company determines the basic shipping price before setting a rate appropriate to these considerations.

Table 1. Shipping Rates

Period	Regular Rates Bekasi - Bandung 2022		Total (Rp)
	Weight (Kg)	Price (Rp)	
January	27,360	2,500	68,400,000

Period	Regular Rates Bekasi - Bandung 2022		Total (Rp)
	Weight (Kg)	Price (Rp)	
February	24,673	2,500	61,682,500
March	35,575	2,500	88,937,500
April	32,950	2,500	82,375,000
May	27,663	2,500	69,157,500
June	22,785	2,500	56,962,500
July	25,230	2,500	63,075,000
August	21,757	2,500	54,392,500
September	17,023	2,500	42,557,500
October	33,954	2,500	84,885,000
November	19,041	2,500	47,602,500
December	29,823	2,500	74,557,500
Total	317,834 kg	-	IDR 794,585,000

2. Evaluate Shipping Rate Determination Using The Full Costing Method

Evaluation of shipping rates using a full costing approach by including costs incurred during the process, namely non-production and production costs.

Table 2. Evaluation Of Shipping Rates

Period	Regular Rates Bekasi - Bandung 2022		Total (Rp)
	Weight (Kg)	Price (Rp)	
June	22,785	2,500	56,962,500
July	25,230	2,500	63,075,000
August	21,757	2,500	54,392,500

These shipping rates are based on the costs incurred and the company's expected profits. The fees used to set rates are based on the size and weight of the goods shipped. The costs borne by the company are non-production and production costs, which are charged to all shipments based on weight, in the case of non-production costs.

1. Maintenance cCost

PT. XYZ Ekspres incurs a maintenance fee of Rp. 25,701,000 for a year for shipping. The maintenance costs are used as follows:

- a. Maintenance of office inventory amounting to Rp. 10,314,000.
- b. Vehicle maintenance amounting to Rp. 14,762,000.
- c. Scale Maintenance Rp. 625,000.

2. Cost of Depreciation

PT. XYZ Ekspres incurs a maintenance fee of Rp. 62,619,750 for a year for shipping. The depreciation costs are used as follows:

- a. Depreciation of office inventory amounted to Rp. 15,431,000.
- b. Vehicle depreciation of Rp. 45,518,750.
- c. Depreciation of scales amounted to Rp. 1,670,000.

3. Electricity and Water Costs

PT. XYZ Ekspres incurs a maintenance fee of Rp. 17,334,000 for a year.

PT. XYZ Ekspres allocates these costs by dividing non-production costs by total shipments for 1 year, the cost allocation for 1 year is:

Table 3. Cost Allocation

No	Cost type (a)	Cost (Rp) (b)	Total shipments for 1 year (Kg) (c)	Cost per kilogram (Rp) (d = b : c)
1.	Office Inventory Maintenance	10,314,000	317,834	32.45
2.	Vehicle Maintenance	14,762,000	317,834	46.44
3.	Scale Maintenance	625,000	317,834	1.96
4.	Office Inventory Shrinkage	15,431,000	317,834	48.55
5.	Vehicle Depreciation	45,518,750	317,834	143.21
6.	Scale Shrinkage	1,670,000	317,834	5.25
7.	Electricity And Water Costs	17,334,000	317,834	54.53

After knowing the cost per kilogram, then look for the cost of each shipment which is outlined below.

Table 4. Fees Are Based On Weight

No	Cost type	June Weight 22,785 Kg	July Weight 25,230 Kg	August Weight 21,757 Kg
1.	Office Inventory Maintenance	Rp.739,373	Rp.818,713	Rp.706,014
2.	Vehicle Maintenance	Rp.1,058,135	Rp.1,171,681	Rp. 1,010,395
3.	Scale Maintenance	Rp.44,658	Rp.49,450	Rp.42,643
4.	Office Inventory Shrinkage	Rp.1,106,211	IDR 1,224,916	Rp.1,056,302
5.	Vehicle Depreciation	Rp.3,263,039	Rp.3,613,188	Rp.3,115,819
6.	Scale Shrinkage	Rp.119,621	Rp.132,457	Rp.114,224
7.	Electricity And Water Costs	IDR 1,242,466	Rp. 1,375,791	Rp.1,186,409

The main basis for determining tariffs based on the full costing approach is determining prices that must cover all full costs. The full costs are the sum of non-production and production costs to which the expected profit is added. For this reason, it is necessary to classify costs. Cost classification is systematically grouping all existing cost elements into more concise groups to provide more concise and important information. The cost grouping carried out is the grouping of non-production and production costs.

Table 5. Full Total Costs

Month	Shipping Weight (kg)	Total Non- Production Costs	Total Production Costs	Full Total Cost
June	22,785	IDR 7,627,503	IDR 36,053,000	Rp.43,680,503
July	25,230	Rp. 8,386,196	IDR 39,927,000	Rp.48,313,196
August	21,757	IDR 7,231,806	IDR 34,170,000	Rp.41,401,806

Once the total full cost is known, the % mark-up is then calculated. To calculate the % mark-up, use the formula:

$$\text{Mark - up} = \frac{\text{Non-Production Costs} + \text{Expected Profit} \times 100\%}{\text{Production Cost}}$$

The amount of profit expected by PT. XYZ Express is 30% of the Total full cost. The following will present the expected profit with total full costs.

Table 6. The Desired Profit

Month	Shipping Weight (kg)	Full Total Cost (Rupiah)	Expected profit (Rupiah)
June	22,785	Rp.43,680,503	Rp.13,104,150
July	25,230	Rp.48,313,196	Rp. 14,493,958
August	21,757	Rp.41,401,806	Rp.12,420,541

Based on the table above, the % mark-up for each shipment is as follows:

$$\text{June} = \frac{\text{Rp.7,627,503} + \text{Rp.13,104,150} \times 100\%}{\text{Rp.36,053,000}} = 57.50\%$$

$$\text{July} = \frac{\text{Rp. 8,386,196} + \text{Rp. 14,493,958} \times 100\%}{\text{Rp.39,927,000}} = 57.30\%$$

$$\text{August} = \frac{\text{IDR 7,231,806} + \text{Rp. Rp.12,420,541} \times 100\%}{\text{Rp.34,170,000}} = 57.51\%$$

After obtaining the % mark up, the mark up for each shipment will be presented below, where the mark up is the product of the production cost and the % mark up.

Table 7. Mark up

Month (a)	Shipping Weight (b)	Production cost (c)	% mark up (d)	Mark up (e) (e = cxd)
June	22,785	IDR 36,053,000	57.50%	Rp. 20,730,475
July	25,230	IDR 39,927,000	57.30%	Rp.22,878,171
August	21,757	IDR 34,170,000	57.51%	Rp. 19,651,167

After the mark up is obtained then calculate the shipping rate using the formula:

Selling Price Per Unit (Shipping Rate): Production Costs + Mark-Up Percentage

Table 8. Shipping Rates Are Based On A Full Costing Approach

Month (a)	Shipping Weight (b)	Production cost (c)	Mark up (d)	Shipping rates (e) (e = c + d)
June	22,785	IDR 36,053,000	Rp. 20,730,475	IDR 56,783,475
July	25,230	IDR 39,927,000	Rp.22,878,171	Rp.62,805,171

Month (a)	Shipping Weight (b)	Production cost (c)	Mark up (d)	Shipping rates (e) (e = c + d)
August	21,757	IDR 34,170,000	Rp. 19,651,167	Rp.53,821,167

After the shipping rates are obtained based on the full costing approach, it can be seen that there is a difference in rates between the company's rates and the full costing approach rates.

Table 9. Difference Between Company Shipping Rates And Full Costing Approach

Month	Corporate Rates (x_1)	Full costing rate (x_2)	Tariff Difference
June	IDR 56,962,500	IDR 56,783,475	Rp. 179,025
July	Rp.63,075,000	Rp.62,805,171	Rp.269,829
August	Rp.54,392,500	Rp.53,821,167	Rp.571,333

3. Discussion

PT XYZ considers various production and non-production costs in determining shipping rates, such as maintaining office inventory, vehicles and scales. Electricity, water, consumption and BTKL costs are also considered. Additional costs include forklift rental, gasoline, tolls, freight, and vehicle storage. All of these costs are important to determine shipping rates that are appropriate and profitable for the company.

Based on the research results, PT One problem is the limited number of fleets, where the 20 units available still need to be increased if delivery orders exceed fleet capacity. To overcome this, PT XYZ is advised to collaborate with vendors and consider adding fleets. Another problem identified was delays in delivering goods that did not comply with the specified schedule. To overcome this, efforts are needed to increase estimates of travel time by drivers, as well as considering all risks that might hinder the journey so that goods can arrive on time. By implementing these solutions, PT XYZ can improve its performance and customer satisfaction and ultimately impact positive business growth.

PT XYZ Express must overcome every problem by preparing the company's work and financial plans and evaluating operational results to achieve targets. Control and supervision are very important in company management to ensure the effectiveness and efficiency of cost use.

Control and supervision aims to analyze and evaluate problems, such as fleet shortages, which must be immediately addressed by increasing the number of fleets, even though vendors have been provided to help deliver goods. Delays in the delivery of goods are also a problem that must be overcome by ensuring drivers face all obstacles, such as loss of communication networks or fleet problems.

Companies can overcome problems well by implementing the right solution. The success of the company's activities depends on implementing existing rules and employees' ability to handle problems that arise. Control and supervision will facilitate the running of company activities.

CONCLUSION

PT XYZ Express considers distance and weight factors to determine shipping rates. This shows that cost is the main consideration, assuming that the longer the distance and the heavier the goods sent, the higher the costs required. Using the Full Costing method, the company places costs as the basis for setting rates, which must cover all costs incurred and simultaneously obtain the desired profit. Furthermore, although there is a tariff difference between PT XYZ Express's tariff setting and the tariff setting using the Full Costing method, which tends to be lower, this

difference is not significant every month. This can be a company consideration when setting rates for the following year.

Therefore, the steps taken by the company to determine shipping rates can be maintained, but the company should also consider using the full costing method in the following year. By prioritizing costs as the basis for determining rates, companies can ensure that the selling price set can cover all costs incurred and, at the same time, achieve profit targets. In addition, companies should consider increasing their transportation fleet to reduce vehicle rental costs and provide better facilities to make the delivery process easier.

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