

LOGISTICAL COSTS AND ACCOUNTING PROCESSES¹

Doç. Dr. H. Arif TUNÇEZ

Selçuk Üniversitesi, Akşehir İİBF, hatuncez@selcuk.edu.tr

Konya / Türkiye

ORCID: 0000-0001-5834-3450

Dr. Öğr. Üyesi Aytaç DEMİRAY

Selçuk Üniversitesi, Akşehir MYO, demiray@selcuk.edu.tr

Konya / Türkiye

ORCID: 0000-0003-3872-172X

ABSTRACT

Logistics was first used in military units in the early 19th century as a term. After World War II, it was used in civilian life, and entered the business literature in 1963. With the diversification of the supply chain and the increased technological advances thus far, it has also facilitated the integration of logistics activities. Logistics refers to all processes for the relevant product, from the original manufacturer to the end consumer, such as transportation, storage, customs, packaging, distribution, and so on. It is the planning, implementation and audit process for effectively and efficiently moving and storing all products from the point of origin to the point of destination for the customer's needs.

Logistical activities are enabling safe, economic and rapid delivery of products to customers across production and consumption points, capturing benefits such as businesses in different markets, and increasing market share. It is the establishment of an appropriate accounting information system which needs to be done for calculating logistical costs in a manner consistent with the needs of businesses when running their logistics business. The main building blocks of the accounting information system are the registration system. The objective of this study is to explain logistical costs, accounting classification of logistical costs, elements of logistical costs, and sample practices for accounting logistical costs.

Keywords: logistics, logistics costs, logistics cost accounting.

1. INTRODUCTION

Social and economic dynamics are changing rapidly due to the impact of globalization. The most important condition for a country's exchange and development is the healthy execution of that country's investment, trade and supply chain. It is possible to examine the levels of development and development of countries through economic indicators. Businesses need to deliver their goods and services to their customers at higher quality, faster and at lower costs in order to stay alive and running in a competitive environment driven by globalization.

¹ This study is an extended version of the paper which was presented at the International Conference On Global Practice Of Multidisciplinary Scientific Studies-IV held in Girne, Turkish Republic of Northern Cyprus on April 28-30, 2023.

Amid increased competition, logistics provides businesses with key advantages in time, speed and cost. The need to sell-to-buyer goods and services to international trade has increased demand for the logistics industry due to the proliferation of international trade.

It started with the defense sector in the Second World War as part of its historical development. With the diversification of the supply chain and the increased technological advances thus far, it has also facilitated the integration of logistics activities. Logistics refers to all processes for the relevant product, from the original manufacturer to the end consumer, such as transportation, storage, customs, packaging, distribution, and so on. It is the planning, implementation and audit process for effectively and efficiently moving and storing all products from the point of origin to the point of destination for the customer's needs.

As a result of the effectiveness of the logistics activities, logistical performance indicators are used to indicate the proportion of businesses approaching their goals. For businesses that want to keep their logistics costs optimal, measuring and controlling their logistics performance has become a requirement. It is critical for businesses to utilize optimal performance metrics to calculate logistics performance to achieve their stated goals. Increasingly, logistical costs add up to an increasing share of total costs, and increases the importance of accurate and healthy calculation of logistical costs and appropriately accounting for them.

2. LOGISTICS COSTS AND IMPORTANCE

Logistics covers a wide range of activities related to the flow of products or services through the channel, starting from the supply to the buyer. Management of logistics costs for businesses is of paramount importance in product profitability, pricing decisions, customer profitability and business profitability. Because it gives logistics businesses a competitive advantage by differentiating services and increasing profitability by reducing costs (Demir, 2006).

Supply chains compete with each other in today's global competition. They're in a state. For supply chain management to succeed, logistics services must be delivered quickly and efficiently at optimal cost (Tokay, 2012).

Logistic costs from product availability to customer delivery are costs for all jobs performed. The share of costs in total operating costs is increasing rapidly. Highest cost transport of total logistics costs is its activity. Maintain transport activities, total logistics costs and speed factor it directly affects you.

Cost advantage is one of the most important strategies for businesses to compete. The advances in the logistics sector and the start-up of the services offered together with the technology in recent years have given businesses the opportunity to secure cost benefits and are a driving force for many businesses to gain a larger share of international markets. While activity increases in business logistics and cost management, time management gains added importance, and planning creates an effective strategic approach. Response is generated by producing solutions and alternatives that will adapt to changing conditions of the evolving time, and technological investments provide rapid improvement (Hacıüstemoğlu ve Şakrak, 2002).

3. CLASSIFICATION OF LOGISTICS COSTS IN ACCOUNTING SYSTEMS

In a global competitive environment, the determination, classification, and reduction of costs after detection of these cost items can be beneficial to businesses and it is possible to maintain this benefit through effective logistical cost (Ceran and Alagoz, 2007).

Businesses are focusing on manufacturing, customer-centric cost management and sales in order to survive. However, intense competition in the markets, economic developments and technological advances have led to a shift in cost and competitive balance. For this reason, management of logistical costs has become mandatory for businesses seeking to ensure cost-effectiveness in the industry (Tokay, 2011).

We can classify logistics costs in five groups of accounting systematics (Ceran and Alagoz, 2007).

Classification of Logistics Costs by Variety

Cost considerations for businesses include acquisition, transport, and storage, demand forecasting, manufacturing planning, customer service, inventory management, order management, distribution, packaging, storage, and planning of location selection activities. That's the logistics of all of these activities, the total cost of these activities: the logistics cost. Lack of cost knowledge, understanding the impact of the decision on one of the cost items in the logistics process on the other cost elements at the beginning or end of the process, and the positive contributions that this decision makes to the total profits, is even more difficult to calculate. It is possible to achieve optimal efficiency and profitability in logistics by providing appropriate control over costs, acquiring reliable cost information, and creating alternative activities.

Classification of Logistics Costs in Accordance with Function

The most important benefit of classifying cost items according to the functionality of the business is that it allows the separation of costs from production costs to other costs. This distinction facilitates profit analysis (Savcı, 2010).

Because logistics data is often not available and available within the business, many logistics information is stored in documents or in other departments such as manufacturing, procurement, marketing, research development, financing, management (Demir, 2008).

Classification of Logistics Costs in Accordance with Controller

Expenses are divided into two expenses which can be controlled and controlled according to the specifications of a specific organization unit (Akogan, 2009).

a-Controllable Expenses: Expenses for activities that managers can interfere with within the responsibility center limits are controllable costs (Kaygusuz ve Dokur, 2009). Definite logistics costs for businesses are visible and controllable. That's why businesses care more about these costs. Cost management is important to ensure that cost can be controlled within the limits of the responsibility center.

b-Uncontrollable Expenses: Efforts are not made to determine logistical costs, as businesses are difficult to differentiate and measure from other costs. For this reason, often business executives do not know exactly what cost item is driving up logistics costs or how they relate to other costs and items. This can result in decision-makers making bad decisions.

Classification of Logistics Costs to Products

Cost calculation methods are each other's choices, but they are also complementary to each other. No matter which method businesses choose, examining cost items results in two types of costs. These are direct and indirect costs.

a-Direct Expenses: Expenses that can be uploaded directly to the production cost of a particular goods or service without using any distribution key. The most important characteristic of direct costs is that it can be calculated directly how much they are spent on a given production unit.

b-Indirect Expenses: Indirect costs in logistics are the costs that are necessarily necessary for the fulfillment of transportation, but are not directly linked to the flight.

Classification of Logistics Costs in Terms of Volume of Activity

The classification by volume of activities refers to the behavior of the charges against possible changes in volume of activity. Calculation of cost of goods is an important classification used in the planning, control, and decision making phases. Expenses based on volume of activities; variable, fixed, and mixed expenses are allocated to three (Kaygusuz ve Dokur, 2009).

a-Variable Expenses: Expenses rising or decreasing based on volume of activity. In other words, it's the expense that varies in the same direction and rate as the throughput.

In logistics businesses, fuel costs, loading and unloading costs, port service costs can be cited as examples of variable costs. Although variable costs are high in the transport activity, variable cost may remain low in the storage activity, provided the inventory cost is kept separate. Again, customs and insurance costs are variable character costs.

b-Fixed Expenses: Same remaining costs within a given time frame and activity volume, not affected by increases and decreases in activity volume. These costs are not affected by fluctuations in activity volume in the short term.

Fixed costs are found to be lower in developing countries. One of the main reasons is that labor costs are reduced in proportions. The other reason is that investment costs are lower.

c-Mixed Expenses: Expenses that feature a fixed expense up to a specific activity volume and are variable expense as the activity volume increases. It is also referred to as a semi-variable expense. In particular, even if the service is not utilized for outside benefits and services, the monthly payments are fixed expenses, the non-fixed payment portion of the increased billing cost as service becomes available is variable expense.

LOGISTICS COST ELEMENTS

Logistical cost elements are important when it comes to business decision making. Knowledge of the costs involved allows proper business decisions. These factors can be found in the form of customer service costs, stock ownership costs, transportation costs, storage costs, manufacturing planning costs, order process and information systems costs, unit quantity costs, insurance costs, and customs costs.

Customer Service Costs

A customer-centric service that provides an optimal level of customer service, cost and service, integrating and managing all of the factors that the customer encounters as a system (Keskin, 2011). Customer service represents logistics' role in fulfilling the marketing concept. The customer service activity is based on the customer's expectations as needed by the manufacturer and the logistics customer. This is called the truth of logistics. These are the right product, provided in the right amount, the right time, the right source, the right way and at the right price (Bowersox vs., 2002).

Stock-Keeping Costs

Inventory is the name of the business's raw materials, semi-finished and/or assets to use or sell in future periods. Inventory costs are the costs that are put up to these available now. Inventory management in a business covers all of the activities needed to plan, organize, and audit the supply-use balance of these inventory elements to meet the needs of the business for raw materials, operating materials, and finished inventory elements. Stock management is essential for healthy control of the stock owned by businesses.

Transportation Costs

Transportation is an activity in the supply chain that includes the movement of everything in the process from raw materials to products between different facilities. Transport activity refers to the physical movement of goods from the point of origin to the point of consumption. Shipment of raw materials and/or finished goods brought into the production process to the customer includes (Çevik & Gülcan, 2011).

Storage Costs

Storage plays an important role in helping customer needs be addressed at a minimum cost. Storage is the concept that shows all activities undertaken to store inventory during the logistics process. Stored operating material can be either semi-finished or finished as well as raw materials.

It supports production by distributing the product to multiple customers once it is acquired with multiple components. Business supply and sales policies are a key factor in determining storage costs. If the business has a full-time production policy, storage costs will be less within the total costs.

Production Planning Costs

Manufacturing management involves the realization, planning and development of an enterprise that will deliver the fastest production of a product at the minimum cost, with the minimum cost. Efficient use of business production resources is key to ensure quality reaches the desired level. It is also intended to ensure that products are shipped to customers or stocks in a way that meets previous business goals. For this, all activities in the production process are controlled in planning. Logistical costs make up a significant part of the total costs. Administrators should try to minimize total costs instead of minimizing costs individually incurred by logistical activity. Failure to do so may result in a high total cost.

Order Process and Information Systems Costs

The ordering process covers the process from beginning of the order to delivery to the customer, aiming at customer satisfaction. The ordering process is important for other business activities and logistics activities. Costs for order processing and information systems, the ordering process and other related operations, as well as the costs of the information system incorporated into the process.

Unit Quantity Costs

Unit quantity costs are a type of cost that varies depending on the quantity, size, and weight of the goods and services that will be delivered. This type of cost is a cost increased as the unit quantities of goods and services purchased, sold, or distributed (Ceran and Alagoz, 2007). The proportional relationship between unit quantities and unit costs has to be addressed during the deployment.

Insurance Costs

Insurance transactions, business facilities, and goods to be sold are treated in two ways. The first is the insurance costs of the operating facility, which varies depending on the value, location, and security of the facility. Another insurance costs the business must bear include goods to be sold within the facility. In particular, the insurance operations of the warehouses include goods and tools within them. Insurance costs of goods sold are calculated based on asset, gender, quantity, mode of transport, and means of transport.

Customs Costs

Customs costs are a significant cost to logistical costs. Customs costs differ depending on the import-export or transit trade of the transaction, the type, quantity, weight, or restricted status of the item belonging to the process.

ACCOUNTING FOR LOGISTICS COSTS

In order to be able to analyze logistics costs and use them in a number of decisions, it is necessary to use appropriate accounts for these costs. Logistics costs may relate to more than one main account, or they may arise in more than one cost center.

1-X Logistics enterprise purchased diesel oil for the vehicles used in its transportation activities for TL 200.000 (excluding 18% VAT) in cash.

.. / .. /

1	740 COST OF PRODUCTION OF SERVICES 740.10 Logistical Costs 740.10.01 Raw Materials and Supplies 191 DEDUCTIBLE VAT 100 CASH	200.000 36.000	236.000
---	---	-----------------------------------	---------

2-X Logistics enterprise purchased 5.000 TL (excluding 18% VAT) of additives by bank transfer in order to prevent the fuel of the vehicles from freezing in winter.

.. / .. /

2	150 RAW MATERIALS AND SUPPLIES 191 DEDUCTIBLE VAT 102 BANKS	5.000 900	5.900
---	---	--------------	-------

3-Purchased fuel additive 2.000 TL. used for vehicles.

.. / .. /

3	740 COST OF PRODUCTION OF SERVICES 740.10 Logistical Costs 740.10.01 Raw Materials and Supplies 150 RAW MATERIALS AND SUPPLIES	2.000	2.000
---	---	-------	-------

4- X Logistics enterprise has paid customs duties and taxes related to the goods transferred abroad amounting to TL 15.000 in cash.

.. / .. /

4	740 COST OF PRODUCTION OF SERVICES 740.10 Logistical Costs 740.10.02 Taxes, Duties, Fees 100 CASH	15.000	15.000
---	--	--------	--------

5- X Logistics enterprise has purchased a motor insurance policy of 30.000 TL for vehicles.

.. / .. /

5	740 COST OF PRODUCTION OF SERVICES 740.10 Logistical Costs 740.10.03 Other Expenses 100 CASH	30.000	30.000
---	---	--------	--------

6- X Logistics enterprise has paid 40.000 TL Motor Vehicles Tax for vehicles in cash.

.. / .. /

6	740 COST OF PRODUCTION OF SERVICES 740.10 Logistical Costs 740.10.04 Taxes, Duties, Fees 100 CASH	40.000	
			40.000

7- X Logistics enterprise has allocated 150.000 TL depreciation for its tangible fixed assets.

.. / .. /

7	740 COST OF PRODUCTION OF SERVICES 740.10 Logistical Costs 740.10.05 Amortisation and Depreciation 257 ACCUMULATED DEPRECIATION	150.000	
			150.000

RESULT

Amid the competition, the logistics process is now an important part of the supply chain and provides businesses with efficient, low-cost solutions. Today, the logistics concept covers many activities such as system approach and demand forecast, purchase, storage, inventory management, order processing, inspection, bar coding, packaging, transportation, and customer relationship management. Logistics activities help businesses deal with key operational considerations; save costs; and increase efficiency. So the logistics process and the outcomes from that process have a positive impact on business profitability and business value.

Logistics activities, businesses; brings with it the necessity of bearing some costs. These logistics costs consist of customer service costs, inventory holding costs, transportation costs, storage costs, production planning costs, order process and information systems costs, insurance costs and customs clearance costs. In measuring and calculating logistics costs, in other words, in costing logistics activities; Different methods and approaches are used.

Logistical activities are enabling safe, economic and rapid delivery of products to customers across production and consumption points, capturing benefits such as businesses in different markets, and increasing market share. Logistic activities directly affect the competitiveness of businesses. Logistics businesses must provide quality service with minimal shipping times and a cost-effective advantage, maximize technology utilization and minimize costs, thereby increasing industry competitiveness.

The study examines logistics activities in logistics businesses that involve storage and transportation, beginning with the supply process. Businesses need precise, precise information to determine their logistics costs.

References

- Akdoğan, N. (2009). Tek Düzen Hesap Sisteminde Maliyet Muhasebesi Uygulamaları. Gazi Kitabevi, Ankara.
- Bowersox, D. J., Closs, D. J., Cooper, M. B. (2002). Supply Chain Logistics Management. New York, McGraw-Hill.
- Ceran, Y., Alagöz, A. (2007). "Lojistik Maliyet Yönetimi: Lojistik Maliyetler ve Lojistik Maliyet Muhasebesi", Çanakkale Onsekiz Mart Üniversitesi Biga İktisadi Ve İdari Bilimler Fakültesi Yönetim Bilimleri Dergisi, 5(2): 9-159.

- Çevik, O., Gülcan, B. (2011). “Lojistik Faaliyetlerin Çevresel Sürdürülebilirliği ve Marco Polo Programı”, KMÜ Sosyal ve Ekonomik Araştırmalar Dergisi, 13(20), 37-38.
- Demir, V. (2006). “Lojistik Faaliyetler ve Maliyetleri”, Mali Çözüm Dergisi, 74: 117-119.
- Demir, V. (2008). Lojistik Yönetim Sisteminde Maliyet Hesaplaması. Ankara: Nobel Yayın Dağıtım.
- Hacırüstemoğlu, R., Şakrak, M. (2002). Maliyet Muhasebesinde Güncel Yaklaşımlar. Beta Basım, İstanbul.
- Kaygusuz, S. Y., Dokur, Ş. (2009). Maliyet Muhasebesi. Dora Yayın, Bursa.
- Keskin, H. (2011). Lojistik El Kitabı: Kavramlar, Prensipler, Uygulamalar Küresel Tedarik Zinciri Pratikleri. Gazi Kitapevi, İstanbul.
- Savcı, M. (2010). Maliyet Muhasebesi, Murathan Yayınevi, Trabzon.
- Tokay, S. H., Deran, A., Arslan, S. (2011). “Lojistik Maliyet Yönetiminde İzlenebilecek Stratejiler ve Muhasebe Eğitiminden Beklentiler”, Dumlupınar Üniversitesi Sosyal Bilimler Dergisi. 29: 226-228.
- Tokay, S. H., Deran, A., Ceran, Y., Demir, V. (2012). Lojistik Maliyetleri ve Raporlama-I. Eskişehir: Anadolu Üniversitesi Yayını.