



## COMPONENTS AND INFLUENCING FACTORS OF TRANSPORT COSTS IN LOGISTICS

**Alexandru BURDA**

“Dimitrie Cantemir” Christian University, E-mail: [alex.burda@mail.com](mailto:alex.burda@mail.com)

**Abstract** *Transport systems face the need to increase the capacity of moving materials and goods, while reducing the costs generated in this process. Also transport is an essential function for the operation of any business. However it can be very costly one, if not optimized. To reduce transport costs, knowledge of and action on the factors influencing the transport costs, is needed.*

**Key words:**

Transport, cost, factors,  
shipment, market,  
merchandise

**JEL Codes:**

M21

### Introduction

Transport systems face the need to increase the capacity of moving materials and goods, while reducing the costs generated in this process. As a result, users of transport systems must negotiate conditions for the transfer of goods, information and capital (and sometimes work force), as the costs of suppliers, distribution systems, duties, salaries, sites, marketing techniques and fuel are not constant. There are also costs related to the collection of information, negotiation, conclusion of contracts and transactions.

Transport costs can be analyzed from an external or internal perspective. From *internal perspective*, corresponding with the functioning of transport systems, the expenses generated by this process are analyzed as transport costs.

### 1. Components of transport costs

Firms often have to take decisions on transport solutions and routes. This decision has become very important due to the production of high-value and less bulky goods, like electronics. Situations where the cost of transport has a 20% share of the total cost of implementation and distribution of goods frequently arises. As a result, the choice of transport solution from the point of origin to the one of destination is very important and depends on the nature of the goods, available infrastructure, the point of origin and the destination, technology needed and distance traveled. These elements define transport costs.

Transport costs are the costs of operations, services and resources necessary to carry out transport

activities (Cătăneț, *Transportul mărfurilor 2013*, 17) and are usually classified depending on how they vary over time, in (I) fixed costs respectively (II) variable costs.

*Fixed transport costs* (I) are those that in a given time do not vary depending on the workload. These costs are fixed in the short term and should be considered in the periods in which the company does not operate. For companies specialized in transport activities are considering fixed costs expenses arising from possession and utilization vehicles, terminals, access roads, flight paths, information systems, support equipment, etc.

*Variable transport costs* (II) are those that change depending on the volume of activity within a period of time. This category includes direct costs related to each load carrier, expressed in terms of distance or according to the quantity transported. They are generally represented by fuel consumption, payroll involved, and vehicle maintenance, handling, loading and unloading. Some of these costs can be reduced by not using the vehicles.

Transport costs may be associated with some business segments based on the separability criterion. According to this criterion can be distinguished (1) specific costs, (2) associated costs and (3) common costs.

*Specific transport costs* (1) are those that can easily be allocated to a certain product or service or a particular sender or recipient. In this category should be classified, for example, the cost of loading and unloading of a ship.

Associated transport costs (2) or "correlated", associated with the appropriate situations where a service offering involves providing another associated service. Basically, in such situations one product/service is considered as a secondary product/service for the other one. Supporting these transportation costs cannot be avoided because they occur once the decision was taken to provide a particular service.

Common transport costs (3) are those supported by all or some of the senders. They are called so because at first they appear "shared" and only later they are distributed according to certain criteria. The distribution is based on the elements of volume activity (e.g. number of expeditions).

## 2. Factors influencing the levels of transport costs

Size of transportation costs can be influenced (Cătăneț, Transportul mărfurilor 2013, 19-20) by the size of transactions, the way shipments are transported (means of transport, shipments frequency and scale economies obtained) and the shipment distance.

Distance traveled for transport is the most important factor influencing the size of transport costs and its influence can be (1) absent, (2) linear, (3) non-linear and (4) determined by the inter-modality of the shipment.

The situations where *distance does not affect the size of transport costs* (1) are rare and few economic activities fall into this situation. For example, telecommunications networks and energy distribution have such a cost structure. Telephone services, as well as postage, are also included in this category. All these activities generally have a fixed cost that does not reflect the distance, but rather a specific service area. When one moves to a new area, a new cost structure applies.

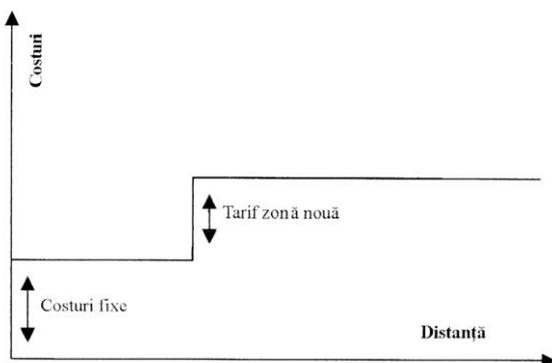


Figure 1. Transport costs evolution  
 intendant from distance

Source: Cătăneț, Transportul mărfurilor 2013, 19

A linear influence of distance (2) over the costs of transport determines their directly proportional variation with the distance traveled. The cost generated by fuel consumption is particularly affected in this way because fuel consumption is directly proportional to the distance traveled by the mean of transportation.

The nonlinear influence of distance (2) over the costs of transport increases their fluctuating depending on the distance traveled from the distribution center. It is also envisaged in this case that the means of

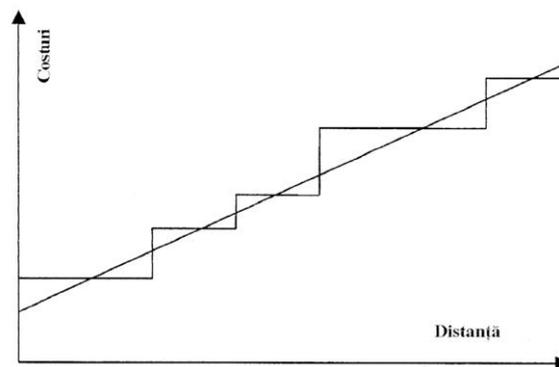


Figure 2. Linear influence of distance  
 over the costs of transport

Source: Cătăneț, Transportul mărfurilor 2013, 19

transportation are returning empty. Also, in terms of air transport, the fact that the intercontinental shipments are not much more expensive than intra-continental, must be taken into account.

In the case of inter-modal transport (3), requiring the use of several different means of transportation, transport costs include both travel expenses and those of transshipment terminals (e.g. ports and airports). The

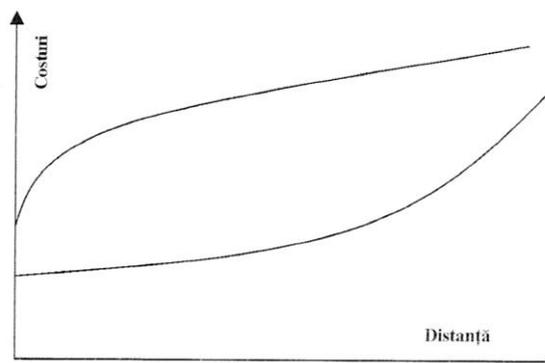


Figure 3. Nonlinear influence of distance  
 over the costs of transport

Source: Cătăneț, Transportul mărfurilor 2013, 20

latter are the result of the activities of loading and unloading and transport costs increases without involving a certain distance traveled.

### 3. Conclusions

Transport is an essential function for the operation of any business. However it can be very costly one, if

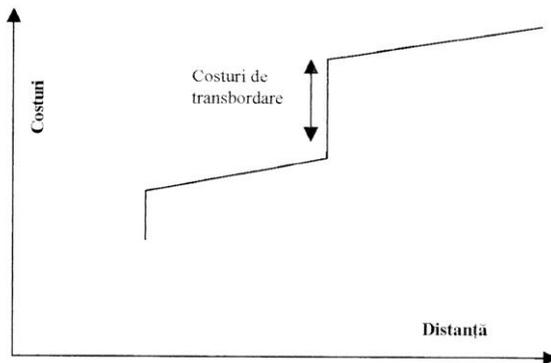


Figure 4. Inter-modality influence  
over the costs of transport

Source: Cătăneț, *Transportul mărfurilor* 2013, 20

not optimized. Therefore, reducing the cost of transport is a very important goal for company management and logistics specialists.

To reduce transport costs, action on its elements such as the cost of fuel, wages, labor cost, depreciation, maintenance costs, the cost of tires and spare parts costs involved in obtaining various permits, cost insurance and indirect costs is needed.

Also, actions needed to reduce transport costs require various statistical analyzes related to them. More specifically, costs required for every transport solution, every driver, every area served, production units, each deposit and client must be considered. These indicators can provide important information for discovering opportunities to reduce transport costs.

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