ČEDOMIR IVAKOVIĆ, D.Sc.
Fakultet prometnih znanosti,
Vukelićeva 4, Zagreb
RATKO STANKOVIĆ, B.Eng.
Transadria, Zagreb
MARIO ŠAFRAN, B.Eng.
Fakultet prometnih znanosti
Vukelićeva 4, Zagreb

Traffic Business Administrator
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TRANSPORT EXCHANGE AS A FACTOR IN OPTIMISING INTERNATIONAL ROAD FREIGHT TRAFFIC

SUMMARY

Regarding characteristics of transportation exchange and the problems of subjects active in this market, the paper considers the possibility of qualitative improvement through organisation of business on the exchange principles. Since the level of business operation in the transportation exchange influences directly the development of the transportation, any improvement in this sense has its positive effects on the functioning of the traffic system as a whole.

1. INTRODUCTION

Regarding the main subjects of supply and demand of freight transportation services, the two basic interests are articulated, that is, expectations regarding the activities of the forwarding agents within the foreign trade and traffic system.

The role of forwarding agents, as seen by the forwarding agent's customers (importers, exporters), consists first of all in the organisation and realisation of the transportation in a safe, efficient and economic way. In the commercial sense, this means acquiring adequate transportation, i.e. storage-handling capacities at the best prices (the lowest prices that can really be achieved), and within the desired period of time.

The forwarding agent's suppliers (carriers, freight terminals) expect the forwarding agents to optimally engage the transportation, i.e. storage-handling capacities, which at the commercial and operative-exploitation level means full use of capacities through constant, uniform and pre-determined engagement at the best prices (the highest prices that can really be achieved).

The overlap area of these two interests is the well organised, regulated, managed and controlled constant exchange of the freight transportation capacities, which is at the same time the area of the forwarding agent's basic activities. The role of the forwarding agents, i.e. their efficiency in performing their functions in this area is very significant both for the consumers and suppliers, and for the international trade and functioning of the traffic system as a whole.

This paper concentrates on the relation between the supply and demand of freight transportation services, and the market dealing in this service. Due to the limited space, the issue of only one part of the market will be considered - the exchange of freight transportation capacities of road traffic.

Considering the fact that the transportation of goods in road traffic is at the lower organisational level compared to other means of transport (railway, air, maritime), and therefore leaves enough room for organisational improvements, this then presents a good choice.

The aim of this paper is to define the relevant characteristics of transport exchange, the profile and interests of the subjects involved in this exchange. It also tends to abstract the relevant problematic, and considering the previous experience and the current positive solutions from the similar areas, using self-acquired knowledge and judgements, to offer a vision of the possible conceptual plan, whose further development would lead to a model applicable in practice.

2. RELEVANT CHARACTERISTICS OF FREIGHT TRANSPORTATION MARKET WITHIN INTERNATIONAL ROAD TRAFFIC SYSTEM

The market of freight transportation capacities is according to the object of business the market of serv-

ices. The character of such market is determined by the following relevant features:

Physical conditions - results from the specific features of the transportation service production process which is related to overcoming certain physical distances, thus requiring organisation of market taking in consideration the main flows of goods.

International character - is reflected in different nationalities of single subjects on the market.

Regulation - the transportation is regulated by appropriate conventions, laws, rules and customs at the international, as well as national levels.

Liberalisation - is reflected in free pricing, unlimited competition among carriers regarding free access to all the transportation routes (this freedom is somewhat limited by the number of licences issued by certain countries to foreign carriers based on reciprocity), unlimited freedom offered to transportation users in selecting the carrier.

Fluctuation of demand - the demand depends on a number of factors, the most influential being the condition and the tendencies of movement at the level of international commodity exchange, as well as at the level of national economies.

Stability of supply - the supply depends on the overall quantitative and qualitative capacities in traffic, the categories in which dynamic changes are not immanent.

Replaceability of transaction objects - due to its specific characteristics transportation dictates the need for standardisation of the supra-structure, which allows making deals on the basis of the known type, in the physical absence of the vehicle itself, with the possibility of replacing every standard vehicle by another standard vehicle of the same type.

3. PROFILE AND INTERESTS OF SUBJECTS INVOLVED IN THE TRANSPORTATION MARKET

Regarding specific features of the place and role in the supply and demand system, three functional groups of factors may be defined:

1. transportation service producers;
2. transportation service users;
3. agents.

Resulting from this analysis, the market subjects and their single interests are identified:

a) Carriers

Carriers see their interest in the following basic elements: achieving maximum transportation prices, optimal use of capacities through constant and uniform engagement, safe payment and the possibility for protection in case of the fall in transportation prices. The carriers act in the market directly (mainly big carriers) or through agents (mainly minor carriers).

b) Carrier agents

Carrier agents tend to conclude as many transactions as possible on behalf and for account of the carrier, or, in other words, to activate the maximum quantities of goods for transportation by the carriers - their clients, at the highest possible prices.

c) Transportation users

The interest of transportation users (importers, exporters) is to insure the necessary capacities for the transportation of their goods within adequate time-limits and at the most favourable prices, as well as to protect themselves against rise in transportation prices.

d) Forwarding agents

Forwarding agents conclude the transportation capacities for account of their clients (importers, exporters). It is in their interest to conclude as many transactions as possible for account of their clients, or in other words, to provide adequate transportation capacities for the transport of their clients' goods at the most favourable prices.

4. PROBLEMS IN BUSINESS TRANSACTIONS ON THE MARKET OF TRANSPORTATION CAPACITIES

The main problems faced by the supply i.e. demand factors in realising their interests consist in the following:

a) Carriers

The carriers do not have the whole information about the condition of demand, that is, they do not know at a given moment all the locations of goods that are to be transported, which in practice results in the impossibility of optimal full usage of capacities, even in that vehicles have to pass certain sections of transportation routes in arrival or departure empty.

In looking for adequate freight, carriers often have to contact several different agents i.e. potential transportation users at various places, and sometimes they have to wait for several days in order to load return freight, which means non-productive delay of vehicles and additional expenditures.

Due to incomplete information regarding tendencies of demand, and the overall trend in prices, the carriers do not achieve the optimum in planning the engagement of their capacities and in pricing.

b) Transportation users

Transportation users do not have the whole information about the condition and tendencies in demand

i.e. price movement, which can in practice result in paying unrealistically high prices for transport, and sometimes even in not fulfilling the contractual obligations of delivery, i.e. accepting the goods within contractual deadlines, unless the appropriate transportation capacities are contracted on time.

Both the carriers and the transportation users run the risk of contracting the business with an unreliable partner. For the carrier this means unplanned delay of vehicles or problems with payment, and for the transportation service user a risk of damaging or losing goods, failure of delivery within the contracted time, unplanned expenditures related to transport.

5. TRANSPORTATION EXCHANGE - - COMMON INTEREST OF THE MARKET SUBJECTS

The definitions regarding profile and interests of the subjects involved in the transportation capacities market, as well as the analysis of the market and of the business problems, provide necessary elements for determining the assumptions for a higher level of realisation of single interests of all the subjects, within a more qualitative market organisation. These assumptions can be summarised as follows:

- concentration of supply and demand at one place;
- setting the norms and standardisation of the trading items;
- reliability of transactions;
- introduction of the formal-legislative and practical rules and regulations.

The mentioned assumptions could be realised by organising the marketing on the exchange principles. The purpose of the exchange is to put the transaction objects into circulation, without the need for their physical presence due to their characteristics (standardisation, fungibility). At the same time, modern information and telecommunication systems allow the supply and demand subjects trading without their physical presence, thus making the location of the exchange market irrelevant. The specific characteristic of the exchange market compared to other markets is the regularity and reliability of business, connections between the subjects of supply and demand, along with the most realistic pricing of transaction objects. Exchange markets are also economic subjects which are supposed to produce a return.

In accordance with the operation methodology described in the introductory part, a services exchange, more precisely the Baltic Exchange, can be used as the reference model, that is, the current practical example of market organisation which has implemented the previously mentioned assumptions.

5.1. The Baltic Exchange

The development of international trade with its increase in the demand for adequate transportation capacities has influenced also the development of transportation industry whose supply should meet this demand. Over time, the need arose to concentrate such increased supply and demand at certain locations, so that both the transportation users and carriers would know at any time where to find adequate capacities for transportation of their goods, i.e. adequate freight to make full use of their capacities.

The Baltic Exchange is the biggest and oldest exchange of transportation capacities. It provides trading in ship and air transportation capacities. The Exchange developed at the London "Virginia and Baltic" coffee house, a popular meeting place of traders and shippers at the beginning of the 18th century. The initial forms of formal exchange organisation started in 1823, when a group of permanent members formed a committee with the aim of setting certain standards and formulating rules in trading and eliminating the unreliable and often unscrupulous dealers. The task of this committee was to determine the conditions and rules of trading, as well as of admission of members. At the first meeting of the committee the decision was made to provide a special room within the coffee house for the market transactions, only accessible to affirmed members. From that time comes also the famous Baltic motto "Our Word Our Bond" which reflects the operation principle of the exchange market even today. Due to the increase in the number of members, as well as the development of the market and technology the headquarters had to be moved to a more appropriate location, and new technical and organisational solutions had to be introduced.

The Exchange has today about 1,500 members representing over 670 companies from 45 countries, covering almost the whole range of maritime transportation. The share of the exchange in the world maritime market amounts to almost 50% of tanker transportation and 30-40% of bulk freight transportation. Moreover, the Exchange provides trading in new and second-hand ships. The total value of these transactions amounts to 10 thousand million US dollars annually.

The significance of the Exchange for the world trade, regarding its share in the maritime market, clearly indicates the fact that 98% of the world trade, or 4.5 thousand million tons of freight are transported annually by sea. The greatest part consists in bulk freight, especially coal, iron ore and crude oil, then grain, rice, steel, wood, bauxite, phosphates and petroleum products.

The centre of the exchange consists of the shipping market involving the shippers' agents as supply repre-

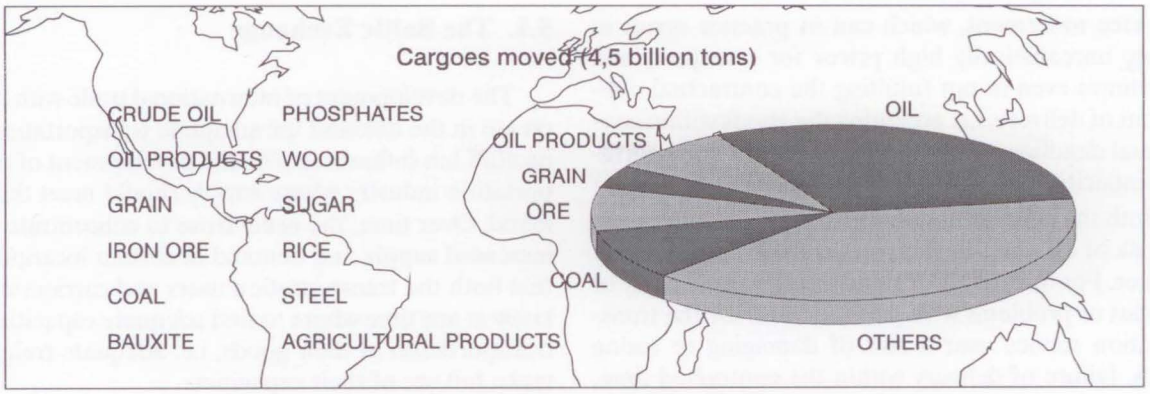


Figure 1 - The share of certain types of freight in sea transport

sentatives, transportation contractors' (users) agents as representatives of demand and independent brokers trading with both sides. Apart from concluding transactions, the Exchange members trade business information either in personal contacts on the Exchange Floor or using telecommunication means. The Exchange also gathers, processes and distributes relevant market information to its members. One of the most important is certainly the Baltic Freight Index (BFI), which represents a kind of the shipping price barometer for bulk freight. Apart from the freight index, a list of all the known shipping contracts concluded over the last 24 hours is published daily.

Apart from the prompt market of shipping capacities, the Baltic International Futures Exchange (BIFEX), a futures market, has also been organised at the Exchange, and it trades according to the same principles as the other two futures markets, providing the possibility for the application of the hedging mechanism, protecting both the shippers and transportation contractors (users) against the risk of transportation price changes.

The Baltic Air Charter Association, within which air brokers transact business, was founded at the Exchange in 1949, when the first aircraft market was organised. The trading is carried out in the same manner as in the shipping market, engaging the same classes of brokers representing the supply i.e. demand subjects.

Apart from the shipping and air market, commodity markets were also organised within the Exchange, as well as a number of accompanying facilities such as services of the average agents, ship value and repair estimators, ship purchase and sale brokers, specialists in arbitration settlements, etc.

The advantages of membership in the Exchange are numerous. Apart from commercial and operative advantages, a significant role lies in the exchange trading code, the Baltic Code, which represents the frame, i.e. a set of basic trading principles. The Exchange sets the highest standards both in its trading practice as well as regarding its membership, thus guaranteeing their members reliability of transactions and protection against unreliable partners. In the very rare occasions of code violation, the Exchange intervenes in favour of the damaged party. For this purpose the Exchange also publishes a list of companies whose business standard has fallen below the acceptable level. Due to all this, the membership in the Baltic Exchange represents a very significant reference in contracting business deals.

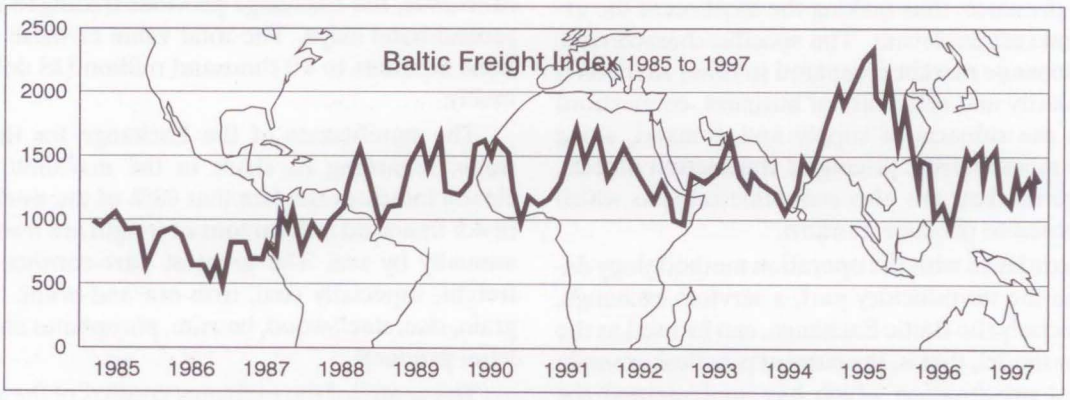


Figure 2 - The Baltic Freight Index

5.2. Freight Transportation Exchange in Road Traffic

Whereas railway is preferred in land transport of bulk goods and containerised freight, the industrial goods, food and other goods of higher value are mostly transported by road. Such structure of freight division results in the greater share of railway in the total mass of freight transported on land. However, with the flexibility and reduction of transportation costs, the transportation of goods using road traffic vehicles presents an increasingly serious competition to the railway, not only in transportation of more valuable goods, but also in transportation of the goods which were formerly "reserved" for the railway.

The increased share of road transportation of goods, as well as commercial effects thus achieved, justify the tendencies in this field to establish a higher functional trading level by introducing appropriate technological and organisational solutions.

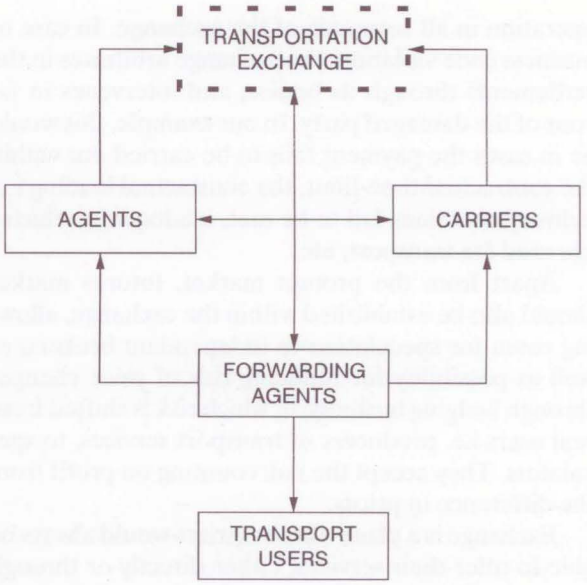
Based on the high level of similarity between the supply and demand, and the characteristics and principles of market functioning in the maritime free navigation system, the solving of problems in transportation market of road traffic can use certain solutions applied by the Baltic Exchange in the maritime market of free navigation as reference.

It is clear from the previously defined characteristics of market and transaction objects that the basic assumptions for business organisation have been met, according to the Exchange principles:

- standardisation of the transaction objects;
- replaceability (fungibility) of the transaction objects;
- formal and legal regulation of transactions.

In order to organise a market in the form of exchange, apart from the above mentioned assumptions, the potential founders and members have to have and show sufficient interest, and there have to be the appropriate formal and legal regulations. The level of interest for such a project may be determined in potential participators by adequate interrogation, and the legal framework could also be set without difficulties, using the already existing models in the countries of the developed marketing, some of which have already come into being in our country (Zagrebačka burza - the Zagreb stock market, Varaždinska burza - the Varaždin stock market, the initiative to found commodity markets within the commodity terminals).

The interactions of the participators in the exchange operations, i.e. among the transportation market subjects (identified in item 3), can be represented in the following diagram:



Carriers offer their transportation capacities at the exchange, i.e. they look for adequate freight that needs to be transported. They act directly or through their agents. In order to be admitted as a member, certain set rules have to be met and financial means (quite significant) deposited, so that probably only major carriers would be interested in subscribing, and minor carriers would participate through their agents - the exchange members. The transportation users have no interest in directly trading at the exchange, but this is done for their account by the forwarding agents. Apart from contracting transportation capacities for the account of their clients (transport users), which would be their primary task, the forwarding agents can appear at the exchange as independent brokers as well, i.e. they may shift from the role of supply broker to the role of demand broker.

The founder of the exchange might be a major forwarding organisation or several such organisations joined together. Some other financial organisations (banks) and insurance companies would probably also find their interest in founding the exchange, and in this case might act as co-founders. Regarding the property-rights relations such an exchange would be a private one, organised as a limited liability company or as a joint stock company. Also, the founder of the exchange might be a government organisation or agency, such as e.g. chamber of commerce. In that case, it would be a government exchange, which are also known in the world.

The exchange would be organised on the existing models (the Baltic Exchange) with certain modifications stipulated by the specific features of the trading items. The highest body would be the Parliament of the exchange members who elect the Management and Supervisory Board. The Management controls the business, sets business rules and regulations, allocates the income, makes final decisions about quotations, and nominates an adequate number of boards that have the task to insure regular and well-organised

operation in all segments of the exchange. In case of business code violation, the exchange arbitrates in the settlements through its bodies, and intervenes in favour of the damaged party. In our example, this would be in cases the payment fails to be carried out within the contractual time-limit, the contractual loading i.e. delivery deadlines fail to be met, inadequate vehicles are used for transport, etc.

Apart from the prompt market, futures market should also be established within the exchange, allowing room for speculation to independent brokers, as well as possibility for reducing risk of price changes through hedging business, in which risk is shifted from real users i.e. producers of transport services, to speculators. They accept the risk counting on profit from the difference in prices.

Exchange is a place where carriers would always be able to offer their services, either directly or through agents, i.e. find adequate freight for their transport capacities, and at the same time achieve a satisfactory (reasonable) price with insured payment.

On the other hand, the transport contractors (users) would always be able to find adequate transport capacities and using the exchange quotations could check whether they have been paying a reasonable price. At the same time, while contracting transport capacities, they would be able to know if they are doing business with a reliable partner, i.e. top-quality operator, whose business is at the level of the set exchange standard.

Forwarding agents and other agents, acting as brokers would make profit at the exchange in the form of commission based on transacting business for the account of their clients and, if involved in exchange speculations, as result of differences in transport prices (only if their estimation of price movements is right).

Further development of the organisational concept of the transport exchange market would exceed the scope of this paper, so that a more detailed analysis and suggestions for concrete solutions will not be dealt with here.

6. CONCLUSION

Considering the above mentioned data, characteristics of the transport market and trading objects in that market, as well as the description of the exchange market business principles, it can be concluded that precisely the transport exchange would present a quality solution to many issues regarding optimisation of road freight transport system.

The problems regarding operation of subjects involved in the transport market have been clearly presented here, the relevant market characteristics and trading objects described, and the idea presented, whose further development might lead to a model of market organisation feasible in practice.

SAŽETAK

BURZA PRIJEVOZNIH KAPACITETA U FUNKCIJI OPTIMIZACIJE SUSTAVA MEĐUNARODNOG CESTOVNOG TERETNOG PROMETA

S obzirom na značajke tržišta prijevoznih kapaciteta i problematiku poslovanja subjekata na tom tržištu, obrazložena je mogućnost kvalitativnog unaprijeđenja kroz organizaciju poslovanja na načelima burze. Budući da razina poslovanja na tržištu prijevoznih kapaciteta izravno utječe na razvoj djelatnosti prijevoza, svako unaprijeđenje u tom smislu ima svoje pozitivne učinke na funkcioniranje prometnog sustava u cjelini.

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