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## Effectiveness of Intersectoral Competition in Shaping the Transport Market

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**Abstract:**

**Purpose:** The aim of the paper is to identify basic factors influencing the level of effectiveness of actions taken in the intersectoral transport market. The research undertaken in this area is aimed at demonstrating the importance and impact of stimulants and obstacles in shaping a favorable model of intersectoral competition.

**Design/Methodology/Approach:** The research was based on the available literature, analyses of statistical data and original empirical research, supplemented by industry interviews. The structure of the study was based on the selection of three transport routes and the assessment of the effectiveness and efficiency of passenger service on them, under conditions of intersectoral competition among car, rail and air transport entities.

**Findings:** Results of empirical research showed that in the discussed market, the highest efficiency of competition was achieved in the provision of car, lower in rail and the lowest in airservices. In the resulting model of competition, a resource of basic stimulants and determinants were specified, the analysis and importance of which may be useful in improving this competition system.

**Practical Implications:** Growing intensity of intersectoral competition increases the interest of providers in the development of intermodal transport, the need to seek innovative solutions, and in some cases, to adapt to current market requirements. New solutions must consider the improvement of the quality and completeness of a consumer service, as well as increasing the price flexibility.

**Originality/Value:** Results of the conducted research indicate that enterprises, while providing substitute services on the intersectoral market, are entering increasingly difficult requirements of shaping the market advantage (EU). In this situation, there is an urgent need to activate demand preferences, mainly by improving the quality, availability, competence, timeliness, responsibility and security of service provision.

**Keywords:** Transport market, intersectoral competition, competitive strategy, type of transport.

**JEL codes:** R41, R42, N70, L90, L91, L92, L93.

**Paper type:** Research article.

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## **1. Introduction**

Even though competition and its effects are generally known, it is subject to constant modification as a process, resulting in a changeable impact in the dynamically developing market conditions and expectations regarding the qualitative requirements of customers. Taking this into account, there is a justified need to re-verify each service provision process at any time to obtain the up-to-date knowledge of the effects caused by the implementation of the assumed competition management model for service activities, especially on the intersectoral transport market.

An analysis of this issue, based on specific facts obtained as a result of research upon certain car, rail and air transport companies, constitutes the substantive content of this paper. Considering the volume requirements of the study, a limited selection of both entities and types of transport was made, while maintaining the criteria of a representativeness resulting from the universal service of most recipients, the nature of services provided and implementation of the national transport policy.

## **2. Position of a Transport Company in the Market Environment**

The issues discussed in this paper are mainly of pragmatic value because the analyses and assessments conducted are aimed at showing the motives and criteria for choosing a service, service provider and type of transport, which in the given conditions, determine the choice of the competition model. Choosing the right competitive strategy is neither simple nor easy. It requires not only creating the innovative competitive activities, but also considering the influence of determinants of market micro- and macro environments as well as the level of competitiveness. Taking this into account, it is necessary to present, although to a limited extent, the most important definitions that define the theoretical foundation, enabling a better understanding of the practical side of the discussed issues (Rosa, 2016).

By implementing such a convention, the studies first showed the key role of competitiveness, which determines the form, scope and intensity of competitive activities undertaken. Competitiveness is most simply defined as the ability of a company, sector or country to stand up to other competitors operating in the same market segment. Therefore, it is a certain potential, i.e. the state of resources, an arsenal of its own attributes and possibilities, due which the organization can undertake and conduct the most effective competitive fight under given conditions, enabling it to effectively counter the competitive pressure of other enterprises. Without precisely determining the level of competitiveness and diagnosing its potential, effective decisions about the ways of competition cannot be made.

This indicates that a company should not aggressively compete if it has low potential. It would also be a mistake to use low-intensity competition if the potential allows for a vast offensive. Insufficient use of this dependence in the preparation of the strategy results in limited effectiveness, or even errors in the decisions made because the

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strength of impact and the effectiveness of the assumptions implemented largely result from the level of the competitiveness potential (Hawlena, 2012).

Competitiveness understood in this way is a universal measure in the assessment of managerial skills of the staff and flexibility of enterprise management. Such an aspect is indicated by Malara (2006), according to whom “the universal measure of these skills is the flexibility of the company, enabling it to constantly react to changes taking place in the environment and inside the company, according to their pace and character. As a consequence, the enterprise obtains certainty of operation and relative stability in a changing environment” (Malara, 2006).

A detailed analysis of determinants of the micro and macroenvironment is of fundamental importance in the construction of competitive strategies. Establishing a hierarchy of the influence of individual environmental factors on the effectiveness and efficiency of competitive activities enables the correct identification of the position of a transport enterprise relating to competitors participating in the common market environment.

### **3. Searching for the Effectiveness of Competing in the Intersectoral Transport Market**

Relating this scope of activity to the Polish transport market, it should be stated that it is most closely associated with the EU. Without ignoring the competitive activities carried out on the global transport market, it should be acknowledged that the main effort to search for sources of improving the effectiveness of competition mostly concerns the strategy of searching for market advantages (Rosa, 2016). It is both a necessity and the right choice, as evidenced by the benefits resulting from the implementation of such a competitive strategy model.

The situation that arose after accession to the EU caused that most of the competitive activities were focused on searching for sources of cost advantage, diversification of offers, organization of management and, which was much more difficult, for improving the quality of services offered. Polish transport companies had to solve the problem, in which it was not enough to improve individual elements of supply, but most often the entire transport, forwarding and logistics chain, especially in the international dimension (Hawlena, 2012).

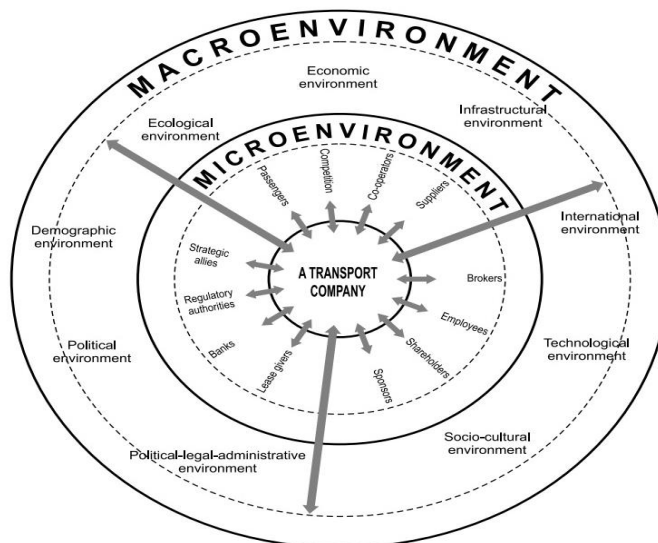
In this paper, these assumptions and the effectiveness of their implementation constitute the foundation of our considerations. Based on this concept of the study, the types of transport were selected and the effectiveness of competitive activities on the intersectoral market of car, rail and air transport was assessed. The area of analysis outlined in this way meets the condition of representativeness and correctness of the selection because these branches carry the most considerable number of passengers. In this situation, the greatest intensity of competition can be seen in road transport, where, as in other transport, the importance of transport time, price, availability,

comfort, directness and safety is increasing (Kaczmarczyk, 2016). The volatility of the value of these factors for the recipient may cause a re-evaluation in the positioning structure, not only of individual providers, but also of the modes of transport.

The result of the competition determines such scenarios. In general, it means the competition of several entities on the same market, while in the economic sense, it is a competition between persons or economic entities in the process of pursuing their interests, by presenting an offer that is more attractive than that presented by others (Burnewicz, 2009). In a general sense, it is a commonly known and understood concept, both in the field of economic and legal sciences.

In previous studies, scientists have more broadly analyzed the effectiveness of intrasectoral competition, especially between enterprises producing substitute goods and services. This method is correct, but not comprehensive (Rosa, 2016). The view on the structure of these company factors is presented in Figure 1.

**Figure 1.** Model of the environment of a transport company



**Source:** Hawlena, 2012.

Even a cursory analysis of the factors presented in the figure shows that those existing in the microenvironment sphere are more often analyzed than those existing in the macroenvironment. However, macroeconomic factors have a significant impact on the level of competition in the intersectoral transport market, which could be seen after Poland's accession to the EU structures. Opening of such a broad market and the need to meet convergence with experienced and prospering foreign enterprises created a new situation, both in intrasectoral and intersectoral terms, resulting in an increase in the intensity of structural, tool and spatial competition.

In this situation, Poland adopted a new transport orientation, in which shaping the transport market in terms of sustainable development was the priority direction (Teviana, 2017). The analysis of new solutions has led to the formulation of an important paradigm showing that it is profitable to apply greater intensity of competition on the EU market using the advantages of intermodal (combined) transport, the share of which in transport shows a growing tendency, but in absolute terms, it is still a limited segment of transport.

By focusing the considerations on the effectiveness of competition realized within the intersectoral transport market, passenger transport was considered. This scope of services has a significant social dimension. For this reason, the review, analysis and assessment of the effectiveness of competition in the implementation of this range of services is fully justified.

#### **4. Conditions and Attributes of Searching for a Market Advantage**

When assessing the sources of improving the effectiveness of competition, it should be noted that Polish car transport organizers correctly interpreted the conditions and needs of recipients of this range of services on the European transport market. The model of providing these services is undergoing a positive transformation. While price competition prevailed in the first period, modern organization and quality play an increasingly important role in the current intersectoral competition. Especially on the European transport market, Polish car services have gained the status of a significant brand, which mainly consists of: discipline, punctuality and safety of transporting people and goods. This assessment is also influenced by the perceived improvement in the quality and modernity of the rolling stock used, the level of staff training, including the expansion of foreign language skills. The increasingly sought-after availability of Polish service providers and lower costs of servicing this type of transport compared to foreign competitors are also important (Hoszman, 2019).

Similarly, in rail transport, there are visible initiatives aimed at improving the effectiveness of competition on the intersectoral transport market. However, the effects achieved in this area are less spectacular than those achieved in road transport. The main reason for this is the underinvestment of railways, both in terms of rolling stock and infrastructure. Despite significant progress, Polish railways are losing competition with foreign companies, mainly French and German, which for years have been allocating significant resources to launching modern rolling stock, high-speed railways, and to reduce the nuisance and improve customer travel comfort (Hawlena and Urbanek, 2012).

Competition in aviation is of a slightly different nature in the intersectoral transport market. In this case, an important role is played by the fact that, on shorter routes, road and rail transport gains an advantage over air transport. At these distances, the importance of greater availability and no loss of time for checking in prevails. On the other hand, the competitive advantage of air transport is definitely growing, making

it almost unrivaled in intercontinental relations due to the compression of time and space, unprecedented in other types of transport (Zhu, 2018).

## 5. Building a Customer Acquisition Strategy

The analysis and evaluation of the services of selected modes of transport shows the existence of both a specific package of similar activities in terms of the effectiveness and efficiency of competition, and a certain scope of autonomy resulting from the specific nature of these activities. In each of the discussed types of transport, providers try to attract a larger number of consumers through a flexible pricing policy, commissions and discounts, increasing accessibility, improving quality, strengthening loyalty ties and continuous improvement of the marketing model (Hwang, 2020).

Although companies offer the same or similar services, each of them applies a specific set of individual competition tools, the purpose of which is to distinguish the autonomous features of products aimed at gaining the market advantage and increasing the number of recipients (Huang, 2013). To present this specificity in a communicative way, an analysis of basic factors determining the size of demand in selected sectors and on specific transport routes was carried out (Table 1).

Data contained in Table 1 show that the distance of transport by train, coach and plane on the Kraków-Warsaw route does not show significant differences, while remarkable difference concerns the reduction of time of such travel by plane, amounting to about 1 hour as compared to the train (2.5 hours) and 4.5 hours to the coach. This difference is important for the recipient and in many cases, it determines the choice of the carrier. However, for a significant number of people, the choice of service is most often determined by price. In this case, the decision requires a specific calculation and a detailed assessment of the option, where it is important to identify the priority between travel time and price (the flight price is approximately 2.5 times higher than that of other modes of transport).

Similar proportions in the distance and the reasons for choosing the service can be observed on the Kraków-Szczecin route, while on the Kraków-Gdańsk destination, the plane gains an advantage due to time savings, including 8 hours (car), 5 hours (coach) and 9 hours (train).

**Table 1.** Distance, travel time and ticket price at selected destinations

Route	Means of transport	Distance [km]	Travel time [h]	Ticket price [PLN]	
Kraków Warsaw	Train*	293	2 h 21 min to 2 h 54 min	I class	II class
				78	68
	Coach	294	4-4.5 h	30-68	
	Car	292	3 h 51 min	fuel cost about PLN 105	

	Plane**	251	1 h	199			
Kraków - Szczecin	Train*	606	9 h 50 min	I class		II class	
				82		107	
				Sleeping compartment	3-person	2-person	1-person
					79	159	299
	Couchette	6-person		4-person			
		59		69			
Coach	652	9 h	46-220				
Car	746	7 h 28 min	the cost depends on the type of car; fuel cost about PLN 260				
Plane**	527	3 h 12 min with a change	460-964				
Kraków - Gdańsk	Train*	763	10 h 10 min	I class		II class	
				80		104	
				Sleeping compartment	3-person	2-person	1-person
					79	159	299
	Couchette	6-person		4-person			
		59		69			
Coach	594	6 h	148				
Car	575	9 h	the cost depends on the type of car; fuel cost about PLN 215				
Plane**	486	1 h 20 min	139-354				

**Note:** \* Advance ticket purchase: 30-20 days—30% off, 14-21 days—20% off, 7-13 days—10% off, \*\* The ticket price depends on the day of the week on which the purchase was made (the highest price on Sunday, the lowest price on Tuesday and Thursday).

**Source:** Based on own research.

Similar proportions in the distance and the reasons for choosing the service can be observed on the Kraków-Szczecin route, while on the Kraków-Gdańsk destination, the plane gains an advantage due to time savings, including 8 hours (car), 5 hours (coach) and 9 hours (train). The presented examples constitute a characteristic method of comparative analysis of the main determinants considered in the construction of the strategy in the competitive acquisition of consumer growth and gaining an advantage on the intersectoral market of substitute transport services supply (Rucińska, 2015).

## 6. Opportunities and Threats in the Implementation of the Undertaken Competition Strategy

Assuming that before undertaking the final form of competition in the enterprise, a comprehensive analysis and assessment of the entirety of the conditions and determinants of development was carried out, it should be noted that their impact and

importance will change, both in the favorable and destructive directions. In such a convention, the *ex post* competitiveness that exists at the moment should be considered a basis for searching for new sources of gaining the competitive intersectoral market advantage (Rose, 2005). This mainly concerns the possibility of a more effective functioning of entities in a given mode of transport, better use of differences in the resources of individual sectors and quick and harmonious adaptation to external norms and standards (e.g. EU).

In such conditions, it is also necessary to carefully monitor and correct the effectiveness of functioning, detailed instruments of competition, i.e. prices, service duration, directness of transport, service comfort, safety, staff competence, distribution effectiveness, professional service process, sales promotion and advertising system (Hawlena and Urbanek, 2012). Considering this range of factors, it should be stated that only obtaining a competitive level of results in these determinants can ensure further improvement of competitiveness. Such shaping of the process gives an opportunity for the effective implementation of the undertaken competitive strategy and improvement of the position of enterprises operating in a given sector.

Currently, constructed competitive strategies also include an ever wider range of threats. Contemporary customer requirements and expectations show an increasing demand for a high standard of quality and completeness of the service. Meeting these expectations requires a wide scope of research and a significant increase in investment. An increasing number of providers cannot meet these requirements, as the rapid increase in costs brings them to the limit of profitability. In addition, in the situation of more frequent global economic crises and pandemics, the risk of losing the market position, inability to maintain a cost advantage, a broader qualitative diversification of offers, and even more so to maintain quality leadership, which may lead to the collapse of the enterprise, increases significantly (Exboro, 2015).

## **7. Empirical Study of the Influence of Basic Determinants on the Choice of Carrier and Type of Transport**

The analysis of theoretical aspects and effects of the operation of intersectoral competition is necessary to establish the clarity of rules and principles of its implementation in the market. Based on such a foundation, empirical research was carried out on the impact of basic determinants on the choice of service and type of transport in the conditions of intersectoral competition on the supply substitution market. The essence of this research is to identify the model of customer behavior and motivations regarding the choice of travel between the same points by plane, rail, car or coach.

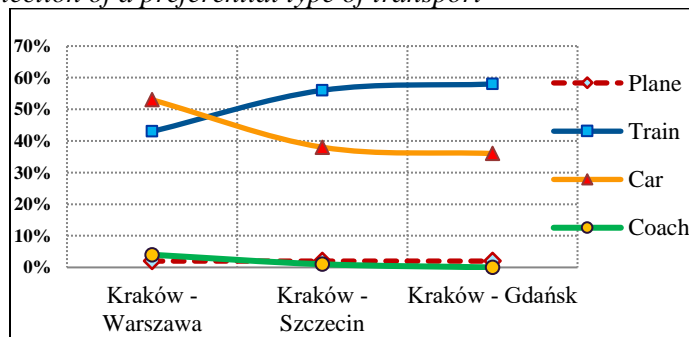
To achieve this goal, factors influencing the choice of the transport mode were diagnosed when departing from Kraków to Gdańsk, Szczecin and Warsaw. Locations at various distances from Kraków were selected for the study. In order to fully and



objectively identify these factors, the empirical material was collected using the diagnostic survey method applying the questionnaire technique and the Internet. The research was conducted in 2019.

After verification, a research sample of 311 people representing various geographic areas, education and social status was established, which meets the condition of a correct description of the problem and principle of the required representativeness. After verifying the respondents' indications, the results concerning the selection of the preferential type of transport on the selected routes were summarized. A graphic image of the results of these studies is presented in Figure 2.

**Figure 2.** Selection of a preferential type of transport



*Source:* Based on own research.

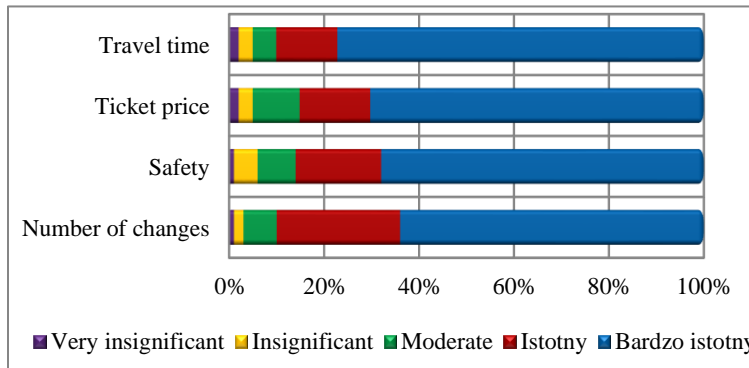
The substantive content of the issues presented in the figure relates to a situation, in which there are comparable conditions enabling a correct comparative analysis, especially due to the identical travel distance.

This way of conducting the research allows to verify the basic assumptions. Firstly, the importance of communicativeness of the absolute values of the obtained numerical values, constituting the source knowledge about the number of people and preferences for choosing the type of transport on a given transport route. The obtained results show that, in the existing conditions, rail and car transport have a significant competitive advantage among the group of selected modes of transport. In both modes of transport, there are attributes that make this type of transport more accessible, less burdensome (rail), allowing direct access to any chosen place in the field (car). In both types of transport, there are factors sought by a wider group of recipients, which include: almost unlimited possibility of adjusting the time of travel to the customer's needs, significant degree of comfort, expected punctuality of arrival and relatively free choice of destination, as well as competitive level of transport costs (railway uses numerous concessions, discounts and preferences, while the costs of full car transport are lower than traveling by plane and coach).

According to the respondents, the most important factors in choosing the means of transport are the total cost of the trip (i.e. the cost of transport from the place where

the journey begins to the destination point) and the total duration of the service. Security is also important, the high level of which is preferred by air transport and rail. On the other hand, the number of transfers was negatively assessed, causing a significant nuisance for those traveling with luggage, mainly seniors. The assessment of the importance of these criteria is presented in Figure 3.

**Figure 3:** Assessment of the validity of the criteria for selecting a means of transport



*Source:* Based on own research.

Another problem is identifying the importance and competitiveness of the primary modes of transport available in a specific geographic area and destination. This knowledge is necessary both for the providers of these services and the organizers of transport traffic in the administered area. Results of the research show that on the routes in question, air and coach communication is of low interest. In this situation, one should ask yourself whether the reason is the lack of interest of recipients or the defective management of a particular type of transport in this area.

Additional information obtained during interviews with representatives of these types of transport shows that the main cause of the loss of intersectoral competitiveness is the increasing operating costs. In addition, coaches and airplanes have a significant proportion of empty journeys resulting in lower revenues. The discomfort of traveling, a rigidly delimited route, the inability to make an individual stopover, and often the lack of access to a kiosk, Wi-Fi, and even a toilet, also discourage people from traveling by coach. The most important obstacles to travel by plane include: high ticket price, significant check-in time, the need to travel to an airport located far from the city center and the lack of certainty of parking a car in the airport car park, and limited availability of the provider. These obstacles discourage providers and the relevant administrations from giving preference to these modes of transport on the routes in question. It should be noted, however, that these factors are important in the implementation of short and medium-distance flights, while in long-distance travel, their role is diminished, whereas the safety factor significantly increases the competitiveness and preferences of choosing this type of transport.

Considering the magnitude of the obtained results, it can be concluded that in the discussed network of connections, the highest level of competition relating to other types of movement is demonstrated by road transport, which is slightly better than rail transport. On the other hand, air transport, which only to a small extent meets the requirement of the availability and selection of an individual take-off and landing point, is much less popular.

## 8. Conclusions

Both theoretical and empirical research made it possible to identify the specificity of shaping and using the principles and rules of the implementation process of the selected model of intersectoral competition. Due to this research, it was established how the system of competition of entities offering substitute services functions in a given geographical area and what effects it causes. By identifying the significance of determinants in shaping this process, the value of their impact on the level of efficiency of service supply by entities operating in the discussed modes of transport, was determined.

Although the research was conducted on a limited scale, it should be noted that the basic competitive relations show the correct proportions and the existing cause-and-effect relationship, which shows that if the research was extended to a larger number of modes of transport, transport companies and destinations, the proportionality of these relationships would not change much. The scope of research carried out in this study made it possible to present the sources, processes and effects of given conditions. It has also been shown that in the intersectoral competition, the shape of competitive relations is determined by the forms of actions taken, forced by the existence of appropriate conditions or innovative initiatives. Due to these activities, a simplified model for testing the effectiveness and efficiency of competition was obtained, that is useful in assessing the correctness of the research method selection, which can be used by various entities operating on the intersectoral transport services market.

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