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REGULATION AND COMPETITON IN THE HUNGARIAN PUBLIC TRANSPORT MARKET

Theses of PhD Dissertation

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University of Szeged

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Contents

1. Topic and significance of the research

In the dissertation, I examined the general economic characteristics of regional, suburban and country-wide public transport in Hungary, the possibilities of regulation and competition, as well as the structure of the domestic non-local scheduled public passenger transport market, the behavior of its actors, and their performance. The term ‘non-local’ refers to all public rail and bus services that are not within city limits, and as such ordered and financed by the ministry of transport as a competent authority. The operators of these public transport services receive approximately 800 billion Hungarian forints (EUR 2 bn) of public money annually, hence if there is only a few percent efficiency reserve, it is still a significant amount. The sector has been under continuous “reform” for decades. In 2023 and 2024, significant tariff changes took place, and a significant organizational transformation is also underway, merging the main bus and rail operators (VOLÁNBUSZ and MÁV-START, respectively) into one company. By 2024 the situation of the Hungarian state railways (MÁV) became severe

in technical terms, and entered to the focus of public attention. The date of market liberalization is also approaching. The related literature focuses primarily on railways, but in my dissertation I examined both rail and bus transport, which is a novel approach.

2. Objectives, hypotheses and structure of thesis

2.1. Objective of the thesis

The aim of the thesis is to explore, through the examination of regulatory theory phenomena, the interests of the actors in this market, to what extent they have been able to enforce these interests in recent years, and what impact this has on the development of the market situation, on financing and on the quality of service.

The research was conducted along the following questions:

1. What are the characteristics of public transport and how do these influence the behavior of the actors?

2. How does a change in the volume of supply affect the demand and the economic performance of the service?

3. How did the change in the structure of service providers (merger, centralization) affect their behavior and efficiency?

4. How can the operational efficiency of the system be improved?

2.2. Hypotheses

During the research, I formulated the following five hypotheses:

1. The attitude and behavior of the players in this market regarding the future vision of the service can be placed on a three-part scale, in the thrifty, sparing (minimalist), forward-looking (maximalist) and renaissance-believer (ultra-maximalist) sectors.

2. MÁV-group (the group of the state railways and the main bus company) are in a monopoly position and behave as such.

3. The ministry who determines the volume of public transport services, whose task is to provide the best possible service from a given financing framework, tends to adopt the quasi “bottom-up” forward-looking approach of the other actors in the market.

4. The market is characterized by phenomena typical of regulated markets, such as information asymmetry and regulatory capture.

5. On this market the passenger volume is primarily determined by the volume of timetable supply.

2.3. Structure of the dissertation

Chapter 1 (Introduction) contains the precise delimitation of the research area, the justification of the topic, its novelty and the research questions and hypotheses. Chapter 2 is a general discussion of the theoretical and practical operational and regulatory characteristics of the market, focusing on those areas that will also appear in practice in later chapters.

In the second section of the dissertation (chapters 3-4-5) contains the analysis of the structure of the domestic market, the behavior of market actors and its impact on their performance, the latter practically representing their public financing needs, based on the structure–conduct–performance (SCP) paradigm. In these three chapters, the focus is on the relationship between the ministry and the service providers (train and bus operators), their behavior and its consequences.

Finally, the 6th, summary chapter contains the drawing of conclusions, the acceptance/rejection of hypotheses, and based on these, suggestions on efficiency improvement and for further research.

3. Research methodology and sources

As a researcher involved in the practical planning and control of intercity timetable supply, and as a mediator in negotiations between service providers and the ministry, I examined from a practical perspective. There are well known general phenomena in economic regulation (Kiss 2007), such as regulatory

capture Stigler (1971), behavioral characteristics of large companies (Voszka 1988), especially in a monopoly position (Carlton-Perloff 2003), such as the “too big to fail” approach that gives excessive courage. I also discuss the system of bargaining between market actors on this market. I use theory of common goods (Hardin 1968), soft budget constraints (Kornai 1993), and examine the validity of Say's dogma, i.e. the extent to which the expansion of supply creates its own demand. I argue that the phenomenon that sectoral ministries are not only regulators but also advocates for the industries they belong to. I also quote the marketing mix of public transport (Kotler 1988) and the principal-agent theory (Jensen-Meckling 1976).

I conducted the market analysis based on the structure–conduct–performance paradigm, which is widely used model in competition regulation. The essence of the model developed by the Harvard school is that it represents a logical framework for investigation, but its disadvantage is that the model is rather static and does not prove causal relationships,

especially the impact of performance on behavior and structure. When examining the behavior of service providers, I took as a basis and further developed Erdősi's (2009) three-fold division, which he originally prepared regarding the future of railways, but I extended it to the entire public transport and examined its appearance in practice based on the events of the past 15 years.

4. Scientific results of the dissertation, usability

The main novelty of the dissertation is that I examine rail and bus transport simultaneously. The focus of my research was the behavior of transport service providers and the ministry, from the perspective of how they react to the structural challenges that each of them faces in the market, especially to reduced demand, and how their performance develops as a result.

4.1. Market structure and actors

Over the past decade and a half, the market structure in Hungary has been changing in the same direction:

continuous integration and merger of service providers, accompanied by the expansion of the railway service supply and the reduction of tariffs, not only in real terms but also in nominal terms. With the exception of GYSEV (a special local railway company) and the four small private bus companies, in 2024 all public service companies are members of the MÁV-group, and their integration into MÁV Személyszállítási Zrt. (MÁV Passenger Transport ltd.) has finished. Hence, we can talk about a single service provider. The entire market is increasingly moving towards monopolization, competition is decreasing, dominance of the main service provider, the MÁV-group, is becoming increasingly significant. It also extends to related services like sales system, timetable search engine, onboard services. Service providers fundamentally want to develop and remain in the market, especially railway companies operating their own infrastructure designed for larger traffic.

Another important actor in the market is the ministry, which is responsible for ordering and financing non-local scheduled public transport services. Its name is currently

ÉKM (Ministry for Construction and Transport), and it also the owner of MÁV-group. As a political public authority, the ministry is interested in the best possible service level, but it must achieve this with the lowest possible cost reimbursement, within the limits set by the Ministry of Finance.

An important player in the market is the passenger, who pays for the service by purchasing tickets, besides supporting the system also as a taxpayer. There are other stakeholders, such as local governments, employers, transport-related civil and green organizations, etc., who are interested in better quality public transport, but do not bear responsibility for its provision/management.

4.2. Behavior of market players

I placed the behavior of market actors on a three-point scale, depending on how they react to market failure: trying to survive by sparing (minimalist), or by developing by fleeing ahead (maximalist), or in the extreme case of this, with a belief in reversing the processes of market failure (ultra-maximalist). I identified the following behavioral approaches for individual transport companies:

- MÁV-START (the man train operating company) has a fundamentally maximalist, development-oriented behavior, which had contributed to preserving market positions that had been severely reduced during the recent decades. The company has typically expanded its timetable supply by one percent per year, and introduces many other new services, and has thus managed to curb the decline in passenger numbers in the long term. However, in the shorter term, year after year, no direct logical connection can be demonstrated between the extent of the network-level volume of timetable supply (train-kilometer) and passenger traffic (revenues, passenger numbers, and passenger kilometers). It is also clear that MÁV-START has overcommitted itself by 2023, and does not have sufficient resources (primarily vehicles) to maintain its increased timetable offer. However, the company continues to think in terms of running ahead, rather than rationalizing the offer, so in 2024 its management and the ministry officials are desperately searching for used rail vehicles in Western Europe. Another clearly visible consequence of running ahead is, on the one hand, the surge in MÁV-START's financing

needs in the years when it introduced significant timetable developments, and on the other hand, the stagnation of operating costs in the years characterized by an anti-development approach (2015-2018).

- In the case of VOLÁNBUSZ, which almost exclusively provides intercity bus transport, it is clear that the growth and stability felt until the turn of the millennium did not last anymore, and the strategy of timetable efficiency improvements was not enough to maintain a “positive zero” financial result anymore by the 2000s. From 2015, with the merger of the county-level Volán companies into so called Transport Centers (Közlekedési Központ), the number of passengers and revenue immediately began to decrease. From 2019, when the six Transport Centers merged into VOLÁNBUSZ, an innovative fleet rationalization process began, which focused on reducing the need for buses while maintaining the overall volume of the timetable supply. The impact of this on passenger numbers and revenues is difficult to demonstrate at the moment due to the coronavirus pandemic, as well as the integration into the MÁV Group

and the difficulties in settling integrated tariff products, but the effect of reducing the vehicle fleet is clearly visible in the slowdown in the growth rate of costs.

- MÁV-HÉV is the only major service provider whose output measured in train kilometers has decreased in the last 40 years, although its passenger traffic is still significant. Like Volán bus companies, MÁV-HÉV typically does its job quietly, transporting nearly half as many passengers on its barely 100-kilometer network and with 97 multiple-unit trains as MÁV-START on six thousand kilometers, with a vehicle fleet many times larger. HÉV has not purchased any vehicles in the past 40 years, so the technical conditions are increasingly critical. In terms of passenger numbers, the traffic of HÉVs is stable, and the statistical decrease in passenger numbers is more likely due to methodological and sales changes.

The detailed analysis by service provider and sub-sector shows that rail and bus service providers behave differently, even oppositely, in many respects. The financial failure of the market is largely caused by the fact that the more expensive service provider, MÁV-START, is

the example of development-oriented maximalist behavior, and the thrifty, self-destructive minimalist behavior is more typical of VOLÁNBUSZ and MÁV-HÉV, which operate with much lower costs and a higher level of coverage. If this were the other way around, it would be more economical from a financial perspective, however, in terms of social benefits, this depends on whether there is a substantial difference between that of the rail and bus services.

Although the MÁV-group is in a monopoly position in public services based on the market structure, individual transport is a strong competitor. Therefore, I considered it worthwhile to examine separately to what extent this key player behaves as a monopoly. The analysis showed that in the case of the MÁV-VOLÁN group, the basic economic theorems about monopolies are fulfilled, according to which this is a less efficient market structure, compared to perfect or even imperfect competition, where deadweight losses occur and a certain amount of supply is not provided. The service providers devote more resources to preserving their monopoly position and attracting state

subsidies than to the revenues that can be collected in the market or to improving their internal efficiency. Their important endeavor is to make the ministry decide so that are favorable to them, which they often have the opportunity to do. Since this is a highly regulated market and the main service providers are state-owned, the market structure changes along the decisions of the ministry. However, a significant part of these decisions are prepared or proposed by the regulated, the operators. The ministry does not have permanent access to the passenger traffic and technical data and operating conditions generated by the service providers, and there is no appropriate apparatus available to manage them, meaning there is information asymmetry. The ministry is thus forced to rely on the opinions and data provided by the service providers, which is the direct path to the phenomenon of regulatory capture, i.e. the service provider captures its regulator in order to enforce its own aspirations. The ministry does not necessarily resist capture, as it is not only the regulator, but often also the interest representative of the sector, and occasionally prefers to compete with other "spending" ministries for additional resources rather than come into

conflict with players in its own industries and markets. These are general phenomena in economic regulation, and my research proves that they exist in this market as well.

The ministry is able to modify the market structure in a way that leads to changes in the operating environment, and thus in the behavior and performance, of the service providers. One direction could be to strengthen competition, which requires balancing information asymmetry and creating a strong ordering organization capable of controlling the companies. However, in the past decade and a half, the other direction has dominated the Hungarian public transport market, which considers improving the efficiency of the transport system is an internal operational matter of the service provider. This logic has brought it into an organizational monopoly position. This is the ideology behind the integration of VOLÁNBUSZ and MÁV-HÉV into MÁV-START, under the name MÁV Személyszállítási Zrt. This process fits in with the government's general centralization efforts, with the assumptions that it can thus better control the processes. However, experience shows that strengthening a

monopoly position is a breeding ground for regulatory capture and ultimately increases the service provider's ability to assert its interests. In a market where competition is ultimately not for the revenues from consumers (passengers) but from the central budget due to the critically low level of coverage, integration can be considered rational – and monopolistic – behavior on the part of service providers.

4.3. Performance of market actors

I used the financial approach to analyze the performance of service providers, which strictly takes into account the cost of the service and the payments of passengers. Public transport and related projects are typically examined not only on the basis of financial, but also on the basis of social return. However, the methodology for this is constantly changing, and it is fundamentally a social and environmental policy issue how much a state, region or city wants and can spend on this public service. The passenger-side coverage level in the sector is so low (between 8-35%) that the level of passenger revenues is almost symbolic, so from a financial

perspective, timetable developments certainly do not pay off, but their social benefit can be significant. The examination of the performances showed that in rail transport, the increased service supply based on a maximalist approach does not necessarily increase passenger demand, but on the contrary, it contributes greatly to the increase in costs. At the same time, it is also clear that the lack of developments leads to a loss of passengers and revenue.

4.4. Theses

As a result of the research, I formulated the following theses.

Thesis 1: The attitude and behavior of the actors in the domestic passenger transport market regarding the future vision of the service can be clearly placed on a three-part scale, in the thrifty (minimalist), forward-looking (maximalist) and renaissance-believing (ultra-maximalist) sectors.

Thesis 2: The MÁV group has a monopoly position not in the whole domestic passenger transport market, but only in the market of public passenger service obligations, it

behaves as a monopolist and strives to preserve and strengthen its monopoly position.

Thesis 3: It is also typical in the domestic public passenger transport services market that the sectoral ministry is not only a regulator of the professional area under its jurisdiction, but also an interest representative, and thus contributes to creating the financing background of the sub-sector and curbing the decline in passenger numbers.

Thesis 4: In the market for domestic public passenger transport services, the MÁV group, by reinforcing and exploiting information asymmetry, tries to capture the ministry and enforce its maximalist, monopolistic approach, which the ministry does not necessarily oppose, since this way it can obtain additional resources for the field.

Thesis 5: In the domestic market for public passenger transport services, network-level demand (number of passengers, passenger kilometers, revenues) is not primarily determined by the volume of the timetable supply, because it is also significantly influenced by the tariff system, the quality of the service, and the behavior

of competitors and the actors of the broader passenger transport market.

Therefore, out of the 5 hypotheses, I accepted the first 4, but I did not find the fifth to be provable.

5. Future research directions

The rejection of hypothesis 5 leads to the following research question: to what extent do factors other than timetable supply influence travel demand? Researching this would require a longer time series, and relative stability within it. From 2020 and the economic and energy crisis related to the Russian-Ukrainian war from 2022 significantly affected the market. In 2023 and 2024, major tariff system changes took place, and the organizational integration of service providers is also underway, therefore the data series after 2019 are not always comparable with the previous ones, and the professional content of the data and their distribution between companies are also different and not always methodologically consistent. In the coming years, by clarifying the data, taking into account the distorting effects of the economic situation and energy prices, as well as the tariff system changes, it will be

possible to examine and compare the data in a meaningful way, and to outline the processes and trends.

The research followed the financial approach, but the existence and size of public transport system are justified by its social benefits. However, quantifying this is a complex sociological, environmental, technical and political issue that would be worth researching.

Research on the choice and preference of passengers' means is also lacking, and there are also few research results applicable to Hungary regarding the optimal size of the operators. It is possible to compile a scientifically based proposal based on social benefits, in addition to financial ones, for the optimal preferred size and internal structure of service providers, and service packages that can be tendered.

6. Public policy recommendation

In order to improve the operational efficiency of the market at the national level, it is advisable to reduce the regulated monopoly situation and balance the information asymmetry, for which the organizational and IT

strengthening of the ministry side is justified, even by establishing a transport organizer. It is also recommended to resolve the monopolization of the market in order to ensure that the competition for the market is multi-player and that there is a control group, thus reducing information asymmetry. Decentralization is also recommended on the regulatory side of domestic transport, with more financial responsibility. Involvement of local stakeholders is also recommended. Opening of the market is recommended in high-traffic segments that may be economically viable. (such as international transport). The inclusion of demand-driven, smaller-capacity vehicles in the (public) service on low-traffic lines is recommended.

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