



## IMPACT OF LIBERALIZATION ON THE TAXI MARKET IN THE REPUBLIC OF CROATIA

Marko Slavulj, Davor Brčić, Matija Sikirić, Božo Radulović

*University of Zagreb, Faculty of Transport and Traffic Sciences, Croatia*

### Abstract

Market liberalization is an important objective of the European Union. It is a process of removing government restrictions and opening up markets for private companies. Road Transport Act which entered into force on 12 May 2018, enabled a completely free market for taxi services on the territory of the Republic of Croatia. Local self-government units, by this Law, are obliged to enable the provision of taxi services in their administrative area to all business entities that are eligible for taxi transportation. The paper will present a cross-section of the impact of liberalization on the taxi market in the cities of the European Union, as well as analyse specific features in the legal regulations of individual EU member states. The analysis will be made in order to better understand the new situation in the Republic of Croatia. The purpose of this paper is to determine the effects of liberalization of the taxi service market, and to what extent auto-taxi transportation contributes to the congestion of urban roads in Croatian cities. The aim of the paper is to analyse the structure of traffic flow, the share of taxi vehicles in traffic flow, and to draw guidelines and conclusions based on the analysis.

*Keywords: liberalization, taxi transport, congestion, urban area, traffic flow*

### 1 Introduction

Urban mobility is a global problem for cities and is one of the key themes of the transport sector in the 21st century. In its transport strategy, the European Union prioritizes urban mobility in the context of a sustainable transport system. Cities in the Republic of Croatia also face the issue of transport system sustainability. This is especially pronounced in Adriatic cities, where the growing number of tourists and seasonal visits during the year result in a high traffic loads on the transport network. The harmonization of the Law on Road Transport with EU regulations has resulted, among other provisions, in the liberalization of taxi transport [1]. The monograph “Uber-Brave New Service or Unfair Competition” analyses the issue of market liberalization in the Republic of Croatia. The authors state that “the legislator justified the introduction of full liberalization with several grounds, such as inadequate regulation of certain services (namely, taxi service and rent-a-car services), appearance of new business model in the market, and, issues with regard the supply-demand nexus during the tourist season (particularly in the coastal areas)” [2].

Gwilliam in his paper “Regulation of Taxi Markets in Developing Countries” presents the three most common approaches to the regulation of the taxi market, and they are: quantity of supply (specified in terms of the number of operators or number of vehicles); quality of supply (including the quality of the vehicle, the financial capability of the operator, the competence and trustworthiness of the driver, and sometimes the efficiency of the dispatching arrangements); and fares (either in terms of fixed or maximum tariff schedules) [3].

Rainstra et al., in the paper “International comparison of taxi regulations and Uber” presents the Dutch approach to the liberalization of the taxi market. Liberalization has allowed taxi drivers to operate freely in the whole country. However, as a regulatory measure, local administrative units have been enabled to implement separate models that ensure the desired quality of service [4].

Barrett in his paper “Regulatory capture, property rights and taxi deregulation: A case study” compares the process of gradual liberalization and deregulation of the market. It was concluded that gradual liberalization schemes are much less radical in terms of new market entry, compared to deregulation. However, according to the experience in Ireland, they state that there should be full and immediate deregulation rather than a measure of liberalization of taxi markets. Large reductions in passenger waiting times have made deregulation popular among the public. The authors also find that the new regulation did not result in a reduction in either driver or vehicle standards [5].

## 2 An overview of the impact of taxi market liberalization in EU members

This chapter is based on the data presented in the “Study on passenger transport by taxi, hire car with driver and ridesharing in the EU” [6], presented in 2016 in Brussels, by the European Commission. The study provides a detailed overview of regulatory policies implemented in EU member states, following the introduction of liberalization of the taxi services market.

In all EU Member States, access to taxi services is subject to licensing. The term “license” also includes the terms “authorizations”, “concessions” and “permits” used in different Member States. All these conditions refer to the administrative approval for performing the activities of a taxi service. The conditions for obtaining such licenses vary from country to country. In most EU Member States, license requirements are set at national level while local authorities set their own requirements and control access to their local markets.

Restrictions on market entry are usually motivated by the oversupply of relatively unskilled workers available to the taxi industry, especially in times of economic coercion and the need to maintain public order by limiting the number of vehicles circling and / or parking on the streets. With the exception of Austria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, the Netherlands, Poland, Slovenia, Slovakia and Sweden (and the cities of Berlin, Hamburg, Sofia and London), other EU Member States have introduced quantitative restrictions based on socio-economic criteria such as population, number of tourists and business travellers. The taxi market is also geographically fragmented because licenses are usually valid only for the area of the municipalities that issue them, while in the Netherlands, Sweden, Slovakia and Luxembourg it is the practice that a valid license allows taxi services to be provided throughout the country [6]. Regarding the approach to the restriction of taxi activity, two groups have been created in the Member States [6]:

- Member States with quantitative restrictions;
- Member States without quantitative restrictions.

In the first group, the number of taxi licenses has remained stable or decreased over the last few years, with the exception of Germany, where the number of licenses decreased between 2008 and 2012, but the number of taxi vehicles increased. In Belgium, the total number of licenses decreased between 2014 and 2016, as well as in Spain during the period 2010-2015, while in Cyprus, Italy, Luxembourg and Malta the total number remained stable [6].

A small increase was recorded in France between 2003 and 2015, where the number of taxi licenses increased by 2065. In England, the number of taxi licenses increased by 1.5 % between 2013 and 2015, but the number of taxi drivers decreased by 0.9 % [6].

In the second group, Austria and Poland recorded a constant annual increase. In Sweden, indirect barriers (i.e. a particularly high level of financial standing) could contribute to maintaining supply at a certain level without too much change. According to available information, the number of permits has increased since the introduction of liberalization but has remained constant over the years. In the Netherlands, the number of taxi companies (business licenses) decreased in 2015, while the number of drivers (individual licenses) increased from 2014 to 2015. In Ireland, liberalization has resulted in a reduction in vehicles and drivers, and remains second only to Sweden in the ratio of taxi drivers to population [6]:

- 75 drivers per 10,000 inhabitants in Sweden;
- 59 drivers per 10,000 inhabitants in Ireland;
- 40 drivers per 10,000 inhabitants in Romania.

While this ratio is quite low in [6]:

- 4.7 drivers per 10,000 inhabitants in Italy;
- 2.3 drivers per 10,000 inhabitants in France;
- 2.0 drivers per 10,000 inhabitants in Hungary.

Most EU Member States give local authorities the power to regulate the number of licenses issued, except for countries such as Slovakia, Sweden and Luxembourg (after July 2016) where the Ministry of Transport issues taxi licenses at the national level. Local authorities limit the number of licenses to various formulas according to the effective needs of cities / municipalities. In general, various criteria are taken into account, such as the number of inhabitants, the existence of an airport and the number of passengers to / from railway stations. In some Member States, a person may have more than one license. In Belgium, each of the three autonomous regions sets the maximum number of taxis at regional level [6]. Among the Member States that limit the number of permits, some capitals or major cities (Sofia, Berlin, London) do not impose a maximum ceiling [6]. Quantitative restrictions have not been set in Austria, Hungary, Ireland, Lithuania, the Netherlands, Poland, Slovenia, Slovakia and Sweden [6].

### **3 Research on the impact of liberalization in urban areas of the Republic of Croatia**

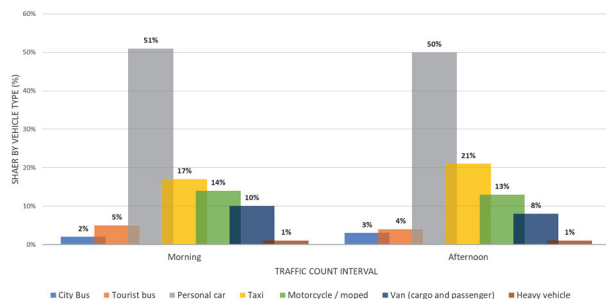
Two cities, Split and Dubrovnik, were selected for the purpose of researching the impact of taxi market liberalization on the territory of the Republic of Croatia. Both cities are tourist centres, and they are considered to have a much more pronounced impact of liberalization, with the exception of the capital Zagreb.

#### **3.1 Traffic flow analysis**

In the study of traffic flow structure, the method of counting was used. Counting is a methodological procedure that determines the number of elements or members of a set. In this case the elements or members of a set are defined groups of vehicles. [1]

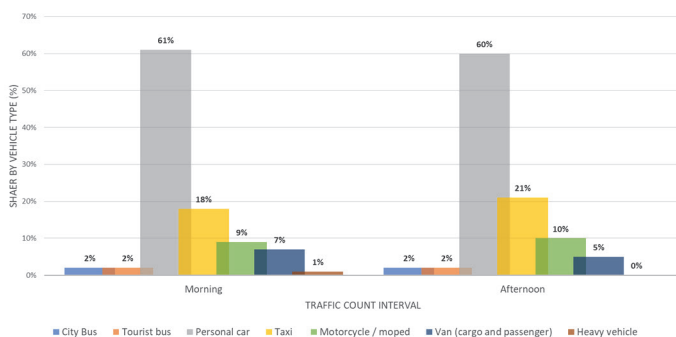
Consequently, the traffic flow structure is divided into seven groups of vehicles, namely: City bus – public transport; Tourist bus; Passenger car; Taxi; Motorcycle / moped; Van (cargo and passenger); Heavy vehicle.. [1] [7] [8].

The counting was done manually at the cross sections of selected roads. In total, ten counting locations were selected, six in the city of Split, and four locations in Dubrovnik. Counting was done in the morning and afternoon peak periods. Complete data can be accessed in studies [1] [7] [8]. Traffic counting was conducted in two periods of the day, the morning and afternoon peak periods. Figure 1 and Figure 2 show the share of each vehicle type in the total traffic flow for the city of Dubrovnik and Split during the observation period.



**Figure 1** Share of vehicles by type, City of Dubrovnik [1] [7]

According to data obtained from a field research in the City of Dubrovnik (Figure 1), passenger cars account for the largest share of vehicles in traffic, with a share of 51 % in the morning and 50 % in the afternoon periods. This is followed by the share of taxi vehicles with 17 % in the morning, and 21 % in the afternoon periods. Of other vehicles, motorcycles / mopeds have a higher share in the total traffic flow with a share of 14 % in the morning and 13 % in the afternoon, and vans with a share of 10 % of the total traffic flow in the morning and 8 % in the afternoon periods.



**Figure 2** Share of vehicles by type, City of Split [1] [8]

According to data obtained from a field research in the City of Split (Figure 2), passenger cars account for the largest share of vehicles in traffic, with a share of 61 % in the morning and 60 % in the afternoon periods. This is followed by the share of taxi vehicles with 18 % in the morning, and 21 % in the afternoon periods. Of other vehicles, motorcycles / mopeds have a higher share in the total traffic flow with a share of 9 % in the morning and 10 % in the afternoon, and vans with a share of 7 % of the total traffic flow in the morning and 5 % in the afternoon periods.

The data presented in this paper show the average results of all observed locations, and there are considerable discrepancies for certain locations. There are locations where the traffic flow with large differences in proportions when it comes to taxis is recorded, thus highlighting the location of “Ulica Domovinskog rata” in Split, where at peak time the share of taxi vehicles was as high as 40 %, thus becoming the primary form of traffic in the city. There are also similar locations in Dubrovnik, an example of which is the “Pile” location, where the share of taxi vehicles in the peak hour reaches 34 % of the total traffic flow.

## 3.2 Analysis of auto-taxi operators

According to the National Register of Road Carriers [9] on December 6, 2019, there were a total of 4858 registered taxi drivers performing the activity of taxi transport in the territory of the Republic of Croatia. Out of that, 795 taxi carriers were registered in the Dubrovačko-neretvanska County, which represents 16.4 % of the total number of carriers. In the area of Split-sko-dalmatinska County, 867 taxi carriers are registered, which represents 17.8 % of the total number of carriers. In the City of Dubrovnik, the activity is performed by 349 carriers, which in relation to the county amounts to 43.9 %, and at the state level represents 7.2 %. In the City of Split, the activity is performed by 379 carriers, which in relation to the county amounts to 43.7 %, while at the state level it represents 7.8 %.

There are 211 taxi drivers operating in the City of Dubrovnik who obtained a license before the entry into force of the Road Transport Act [10] on 12 May 2018, which is 60.5 % of the total number of carriers in the City of Dubrovnik. These carriers have a total of 283 licensed vehicles, which is 58.5 % of the total number of licensed vehicles.

After the enactment of the cited Act [10] in the area of the City of Dubrovnik, by November 29, 2019, another 138 taxi carriers obtained a license, which is 39.5 % of the total number of carriers in the area of the City of Dubrovnik. These carriers have a total of 201 licensed vehicles, which is 41.5 % of the total number of licensed vehicles. Prior to the entry into force of the new Act [10], 169 taxi companies operated in the City of Split, which is 44.6 % of the total number of carriers in the City of Split. These carriers have a total of 309 licensed vehicles, which represents 51.3 % of the total number of licensed vehicles.

After the adoption of the cited Act [10] in the area of the City of Split, until November 29, 2019, another 210 taxi drivers obtained a license, which is 55.4 % of the total number of carriers in the area of the City of Split. These carriers have a total of 293 licensed vehicles, which represents 48.7 % of the total number of licensed vehicles.

According to the data obtained from the competent office, a total of 637 permits were issued (until 31.10.2019) in the City of Dubrovnik, and 759 in the City of Split. According to the collected data, it is possible to estimate the number of vehicles quite accurately, because according to the data of the competent ministry at the national level, the number of vehicles per carrier is 1.57. Approximately a similar ratio was obtained for both the City of Dubrovnik and the City of Split. In Dubrovnik, the ratio is 1.4, while in Split it is almost identical to the national average and is 1.6. It follows from the above that the estimated number of taxis in Dubrovnik is equal to 1000, while in Split 1192 vehicles.

## 4 Discussion

Guidelines for improving the management of transport demand in the area of local self-government units is a key factor in reducing the negative effects of the transport system. Reducing the negative effects together with increasing the benefits of the transport system of a area is the basis for achieving sustainable mobility [1]. The legislative and regulatory framework differs from one EU Member State to another due to different legal traditions and constitutional frameworks. In various Member States, taxi transport is considered to provide a service of public interest and is therefore part of integrated urban mobility. Traditionally, local governments have decided to regulate taxi services to ensure safe and predictable transportation services.

In terms of the overall legal approach, there are two different groups of Member States: on the one hand, those that have introduced entry restrictions, especially in terms of quantitative regulation, and on the other hand, those that have not introduced restrictions on the number of permits [6].

Analyses have demonstrated the need to reduce the use of personal motor vehicles and increase the use of sustainable modes of travel (walking, cycling and public transport). Taxi transport is considered one of the forms of public transport. Increasing the use of taxis reduces the number of passenger car journeys and reduces the required number of parking spaces. Taxi transport can have a positive impact on the transport system if it is an alternative to the use of personal vehicles, but it has a negative impact if it is an alternative to mass public passenger transport.

Transport policy in tourist centres can include various specific strategies to improve transport opportunities, integrate alternative transport for the purpose of tourist activities, and promote alternative modes of transport. These may include: improving transportation; organized tourist transport; taxi service improvement; improving the non-motorized way of traveling (walking and cycling); public bicycle system; bicycle parking infrastructure; parking policy management; traffic calming measures; measures to reduce car use in the city centre; promotion with a view to encouraging the use of alternative modes of transport; heavy cargo management; air traffic management [11].

## 5 Conclusion

In EU Member States, the legislative and regulatory framework differs due to different legal traditions and constitutional frameworks. Most Member States consider that taxi transport provides a service of public interest and is therefore part of integrated urban mobility.

In terms of the overall legal approach, there are two different groups of Member States: on the one hand, those that have introduced entry restrictions, especially in terms of quantitative regulation (license restrictions), and on the other hand, those that have not introduced a license limit. Analysing the approach of EU member states to the administrative regulation of taxi transport, it can be concluded that 12 out of 28 EU member states do not have quantitative limits on the number of taxi licenses.

The Road Transport Act, which was declared valid on 3 May 2018, enabled a completely free market for taxi transport in the Republic of Croatia. By this Act, local self-government units are obliged to enable the performance of taxi transport in their administrative area to all business entities that meet the conditions for performing taxi transport and have requested a permit.

Providing all eligible businesses that have requested a taxi license has created a demand-driven taxi system. Such a situation has led to an increase in business entities performing taxi transport, an increase in registered M1 category motor vehicles, and an increase in employees as motor vehicle drivers for taxi transport. The summer season has a significant impact when the demand for transport is high, taxi operators send their vehicles to other destinations (cities), in order to respond to increased demand, i.e. as soon as the demand for the service decreases, operators move vehicles to continental cities where demand is higher.

It can be stated that the average share of taxis in the traffic flow is significant, especially considering that the city centres of the analysed cities have previously had an unfavourable volume / capacity ratio, which contributes to traffic congestion in the centres of Split and Dubrovnik.

Future research should annually monitor the structure of traffic flow and the volume / capacity of the road, as one of the most important indicators of the traffic load on the city's transport network. Only on the basis of an in-depth analysis of the traffic network of a certain city can one conclude about the condition of the existing network, and about improvement measures, i.e. define strategies for the future traffic volume and the desired condition of the transport network.

## References

- [1] Studijska analiza gradskog prometa u gradovima Splitu i Dubrovniku s osvrtom na taksi prijevoz, University of Zagreb, Faculty of Transport and Traffic Sciences, Zagreb, Croatia, 2019.
- [2] Marin, J., Petrović, S., Mudrić, M., Lisičar, H.: Uber-Brave New Service or Unfair Competition, *Ius Gentium: Comparative Perspectives on Law and Justice*, 76 (2019), Springer, Zagreb, Croatia
- [3] Gwilliam, K.M.: Regulation of Taxi Markets in Developing Countries: Issues and Options, *Transport Notes: Urban Transport Thematic Group*, The World Bank, Washington, DC, 2005.
- [4] Rienstra, S., Bakker, P., Visser J.: International comparison of taxi regulations and Uber, *KiM Netherlands Institute for Transport Policy Analysis*, Ministry of Infrastructure and the Environment, The Hague, Netherlands, 2015.
- [5] Barrett, S.D.: Regulatory capture, property rights and taxi deregulation: A case study, *Institute of Economic Affairs*, Blackwell Publishing, Oxford, England, 2003.
- [6] CERTeT Università Luigi Bocconi: Study on passenger transport by taxi, hire car with driver and ridesharing in the EU, *European Commission*, Brussels, Belgium, 2016.
- [7] Istraživanje gradskog prometa u Gradu Dubrovniku, University of Zagreb, Faculty of Transport and Traffic Sciences, Zagreb, Croatia, 2019.
- [8] Istraživanje gradskog prometa u Gradu Splitu, University of Zagreb, Faculty of Transport and Traffic Sciences, Zagreb, Croatia, 2019.
- [9] Ministry of the Sea, Transport and Infrastructure: <https://nrcp.mmpi.hr/apex/f?p=100:LOGIN:7196384065312>, 16.12.2019.
- [10] Zakon o prijevozu u cestovnom prometu, NN 41/18, 98/19, *Narodne Novine*, Official Gazette of the Republic of Croatia, Croatia, 2019.
- [11] Victoria Transport Policy Institute, Tourist Transport Management, <https://www.vtpi.org/tdm/tdm46.htm>, 10.04.2020.