

Highlights

- The rise of Transportation Network Companies (TNCs) is reviewed.
- The rise and the economic impact of TNCs in Spain are reviewed and analyzed.
- The economic impact of TNCs on 416 Spanish traditional taxi companies is analyzed.
- TNCs have a negative impact on the profitability of firms in Madrid and Barcelona.
- Implications for managers, investors and policy makers are discussed.

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The Economic Impact of Transportation Network Companies on the Traditional Taxi Sector: An Empirical Study in Spain

Abstract

Transportation Network Companies (TNCs), also referred to as ride-sharing or app-based on-demand ride services, have gained momentum. The phenomenon has created debate in the media and faced heated reactions from the traditional taxi sector. Yet surprisingly, the phenomenon is still under-researched in the specialized scholarly literature on transport systems. There is a lack of empirical evidence about the real impact of these systems on the traditional taxi sector. This article aims to fill this gap in the literature by analyzing empirically the impact of TNCs on the traditional taxi sector in Spain, a specific country-case where the phenomenon has been fiercely opposed. With this aim, a comparative analysis of the economic and financial situation of 416 traditional Spanish taxi companies is conducted. The findings show that the new competitors have had a significant negative impact on the profitability of the traditional taxi companies in Madrid and Barcelona, but have not affected other indicators and areas analyzed in the initial stage of TNCs. Implications for a set of stakeholders, including managers in the traditional sector, investors and policymakers, are discussed, together with potential avenues for further research.

Key words: Transportation Network Companies, on-demand ride services, ride-sharing, taxis, urban transport system, Spain.

1. Introduction

The modern urban transport system has a complex task of satisfying demand for transportation and responding to constantly rising standards of mobility. The urban personalized passenger transport service has spread all over the world. It includes taxi services and hire-cars with drivers (also known as VTC). Recently this sector has faced a new challenge from competitors such as ride-sharing and app or smartphone-based taxi services (Anderson, 2014; Hosni *et al.*, 2014), also referred to as Transportation Network Companies (TNCs) in the scholarly literature (Zha *et al.*, 2016; Wang and Mu, 2018) and the media (Wikipedia, 2017a).

TNCs are providing unprecedented competition in the taxi industry (Cramer and Krueger, 2016). These flexible mobility systems are based on advances in communications technologies with the dissemination of smartphone-based ride-sharing applications (Harding *et al.*, 2016) and social networks (Djavadian and Chow, 2017). They are used by the most widespread brands like Uber, Cabify, Lyft, and Hailo (Harding *et al.*, 2016). In the media, a new term has been coined to describe this phenomenon: Uberization (Wikipedia, 2017b). This is a concept very closely to the collaborative (or sharing) economy (Sundararajan, 2016), collaborative consumption (Hamari *et al.*, 2016) and the on-demand economy (Montgomery *et al.*, 2015).

Although the impact of the sharing and on-demand economy on personalized public transport is widely discussed in the media (Manjoo, 2014; Marte, 2016), there is no empirical evidence of the real impact of the phenomenon in the scholarly literature on transportation. Taking into account this gap in the literature, this article analyzes the impact of Uberization on the traditional taxi sector in Spain, a sector that reacted with hostility to this new competition (Lospitao, 2017). Taking these aspects into consideration, this article contributes to the literature in two ways. It sheds light on the concept and reviews the field of urban transport systems, and it analyzes empirically the impact of the new ride-sharing or on-demand taxi services on the traditional taxi sector in Spain, where there has been a strong reaction.

The rest of this article is organized as follows. In the next section, the concept and the literature of the new phenomenon are reviewed with a focus on its relevance to the traditional taxi sector. In the third section, the methods for the empirical study conducted in Spain are described. In the

fourth section, the main findings of this research are summarized. Finally, in the fifth section, the main contributions, implications, and avenues for future studies are discussed.

2. Literature Review

As underlined by Hamari *et al.* (2016) information and communication technologies have enabled the rise of the peer-to-peer-based activity of sharing access to goods and services, coordinated through community-based, on-line services (Hamari *et al.*, 2016). The collaborative economy is an economic model where ownership and access are shared between corporations, startups, and people. These collaborations produce efficiencies in a set of markets that support new products, services, and business growth (Owyang *et al.*, 2013), but they have negative side-effects or externalities which should also be considered (Redman *et al.*, 2013).

The spread of smartphone applications that use GPS-based location services has led to the rapid growth of new startups offering smartphone-enabled dispatch service for taxicabs, limousines, and ride-sharing vehicles. This innovation in communication technology, together with the rise of online social networks, has resulted in the generation of new categories of car services. One of the most controversial new models of car service is for-profit ride-sharing, which combines the for-profit model of a taxi service with the overall traffic reduction goals of ride-sharing (Anderson, 2014). Drivers of limousines and private vehicles use the smartphone-apps to provide an on-demand service of a kind previously reserved for regulated taxicabs.

In the study of transport systems, the concepts applied to these services are many and various. Several scholars have proposed their own classification of these kinds of transport services (Nelson and Wright, 2016; Kent and Dowling, 2016). This lack of consensus is reasonable if the very fast and changeable emergence of the phenomenon is considered. Many terms and definitions are used, including transportation network companies (Wang, 2015; Zha *et al.*, 2016), ride-sharing services (Wallsten, 2015), e-hailing or E-Hailing Transportation Services (He and Shen, 2015; Aarhaug, 2016), tailored taxi (Zhang *et al.*, 2016), app-based third-party taxi service (Qian and Ukkusuri, 2017) and peer-to-peer car sharing (Owyang *et al.*, 2013), among others. The concept of on-demand taxi services may be combined with that of smartphone (or app)-based taxi services (for example, app-based on-demand ride services, as proposed by Rayle *et al.*, 2016) to describe better the complex functions carried out by these companies, but in this article the term “TNC” will be used, as it is widely used in the scholarly literature and in legislation (Ngo, 2015).

The characteristics of the service provided vary from company to company, and the main features of the transport service offered are shown in Table 1.

Insert Table 1

To date, a rather limited scholarly literature has analyzed the implications of these new entrants whose economic value has very quickly increased¹. Most contributions have focused on regulatory issues of TNCs (e.g. Harris, 2017), which have entered as competitors without many of the regulatory constraints that traditional taxi companies face. The new competitors have always described themselves as mere intermediaries, with neither a vehicle fleet nor drivers, to position themselves in the regulatory framework. As a result, TNCs emphasize that they should satisfy different rules from those established for the taxi industry. But after a long, elaborate process the European Union’s Advocate General had announced that Uber is primarily a transport company rather than an intermediary between passengers and drivers. The firm may be obliged by member states to hold the same licenses and permits as required of existing taxi service providers (Sanchez, 2017).

¹ For example, in the case of Uber, during the first two years of activity the market value of the company reached 44.5M USD, and four years later its market value was 62.5B USD, which means that it only took Uber five and a half years to surpass the valuation of such huge and ancient companies such as General Motors and Ford (Chen, 2015).

Other scholarly contributions have analyzed the socio-economic impact of TNCs on the traditional taxi sector. The impact of this new competition on the working conditions in the sector has been analyzed. Zickuhr (2016) found no evidence of a significant impact of TNCs on taxi employment in the metropolitan areas in which TNCs operate. The implications of new entrants for the competitive strategies of traditional taxis have been also analyzed. Zha *et al.* (2016) found that companies in the traditional taxis sector may not necessarily lower prices. They also found that competition could reduce social welfare when the matching technology is not efficient.

A few scholarly works have analyzed the impact of the new entrants on the economic and financial situation of the traditional taxi sector. Based on data from New York City and Chicago, Wallsten (2015) found that after TNCs appeared in the market of urban transport services, the demand for classical taxi services significantly decreased, but no specific evidence was presented regarding the real economic situation and evolution of the companies. Based on taxi service statistics from the Los Angeles Department of Transportation from 2009 to 2014, Waheed *et al.* (2015) reported a revenue drop of 9 percent for the traditional taxi industry. Ngo (2015) found that, in the USA and Canada, traditional taxi firms lost 10% to 40% of market share, with a significant loss in the value of taxi licenses. This author used only self-reported data from the traditional taxi industry and this information may be biased. More reliable data, such as the internal accounting information of the companies, should be used in this type of analysis.

Despite the heated debate in the media, a review of the scholarly literature shows that remarkably little is known about the real impact of the emergence of TNCs on the economic situation of the traditional taxi sector. Most of the limited information available is taken from North America and it would be interesting to compare this with other areas. Country-case exploratory studies needed in this early stage of development of the new competitors, as the different country/regional market regulations vary considerably (Aarhaug and Skollerud, 2014) and diverse social-cultural habits may present different obstacles to new entrants to the market. Considering this gap in the scholarly literature, the present study addresses the following general research question: *Have traditional taxi companies experienced a substantial economic downturn due to competition from TNCs?*

3. Material and methods

The case-study focuses on Spain because it is one of the member states of the EU where TNCs have faced serious opposition and resistance from traditional companies that provide taxi services (see Subsection 4.1). A detailed literature and media review of the topic, and a preliminary survey, were carried out from January to March 2017. Nearly 100 Spanish taxi companies and associations were contacted to gather information about the impact of the new competitors on economic indicators such as market-share, profitability and the value of their licenses.

The analysis of the impact of TNCs on the traditional taxi companies was based on accountancy information of Spanish companies belonging to the transport sector. The SABI (*Sistema Anual de Balances Ibéricos*) database, which is maintained by Bureau van Dijk and Informa, was used. It includes economic and financial information of more than two million Spanish companies. This information is reliable as the database compiles the accountancy information collected from the Spanish Central Mercantile Registry, where the Spanish companies have to deposit the information from their accounts.

In Table 2, the distribution of the 4,374 companies that have been active at least one year since the beginning of this century and belong to the Spanish sector "Ground transportation of passengers", with code CNAE (National Classification of Economic Activities of Spain) 493, is presented. Companies in this group are classified in SABI according to their sectoral activities in three groups: CNAE 4931 "Urban and suburban passenger land transport", CNAE 4932 "Transportation by taxi" and CNAE 4939 "Land passenger transport types not included in other categories".

Insert Table 2

In the database, there is information available for 1,995 companies with CNAE 4931, 416 with CNAE 4932 and 1,974 with CNAE 4939. The total data-set was analyzed to identify outliers and these were removed. CNAE 4931 and CNAE 4939 include passenger transportation companies with quite different characteristics in terms of size and ownership (public or private). As in previous work based on the SABI database (e.g. Heras-Saizarbitoria et al., 2011), these potential biases were controlled.

The analysis was carried out in stages, considering the diverse impact of the main TNCs in Spain (i.e. Uber and Cabify), as explained in the following section. For the economic and financial performance, several indicators were used. Emphasis was placed on profitability and the evolution of operating incomes. Profitability indicates the profit per unit of a company's assets and the evolution of operating income compares the sales in successive years (Griffen, 2015).

4. Results

4.1. General situation

Uber and Cabify are the two most widespread TNCs in Spain. They are part of multinational groups and they had an international structure before their entrance into the Spanish market. As can be seen in Table 3, Cabify started operating in Spain in 2011 and has increased its number of employees and operating income exponentially. Uber entered three years later in 2014. Since 2014, the influence of these companies in the market has been more noticeable.

Insert Table 3

From the first entrance of TNCs to Spain, and especially since 2014, there was serious opposition from traditional companies that provide personalized public transport services. For example, when Uber set up its operation in Madrid and Barcelona in 2014, the local taxi drivers' association applied to a commercial court in Barcelona to rule that Uber drivers (who offer transport services in their own vehicles) do not have the necessary authorization to operate as a taxi service. The Barcelona court asked the Court of Justice of the European Union (CJEU) to rule on these questions of EU law. In such cases, the final ruling is preceded by an advisory opinion from one of the CJEU's Advocates General (Sayer, 2017). In 2014 a Spanish judge ordered Uber to cease all its activities in Spain, and instructed telecommunications and electronic-payment firms to stop processing transactions for Uber in Spain, and desist from hosting its software and applications (Sanchez, 2017). Nevertheless, Uber found alternative ways to continue offering services (for example with Uber Eats and UberX). In recent years, social protests against TNCs have been really strong. For example, in 2016 there was a march of about 5,000 people in Madrid against liberalization plans in which taxi drivers from across Spain participated (Serato and Costantini, 2016). Many other demonstrations, strikes by traditional taxi-drivers, and even violent incidents (e.g. TNC vehicles torched or smashed up) have taken place.

There have been many claims from the representatives of traditional personalized public transport providers about their decrease in turnover and profitability. However, there is no independent evidence of the impact on the industry. It is not clear if TNCs really had an impact, or whether it was simply the reaction of companies that enjoyed a very regulated market, and the responses were guided by other economic considerations.

We have analyzed the geographical distribution of the companies with CNAE 493 and it has been evidenced that it varies considerably from region to region because the socio-economic characteristics of the regions vary greatly. Different regions of the country also differ in the way local authorities grant licenses issued. At the same time, the number of enterprises is not always a useful variable because enterprises do different amounts of work and differ in their efficiency.

The main TNCs that operates in Spain are Uber and Cabify. Uber only offer their services in the regions of Madrid and Barcelona and Cabify in Madrid, Barcelona, Coruña, Malaga, Valencia, Bizkaia, Araba, Tenerife and Seville. The present study focuses on the biggest Spanish cities,

Madrid and Barcelona. These are the only regions where both companies were operating. This point was considered for the analysis distinguishing these areas where at the end of 2015, there was a significantly higher proportion of companies that operate in the traditional taxi sector compared with the number of companies with CNAE 493 (Significance level of the difference in proportions based on Chi-squared unilateral independence contrast; $\alpha=0.01$). In Barcelona, 140 taxi companies operate, a third of all the taxi companies in Spain, and 29 percent of the companies in CNAE 493 in Barcelona.

Considering the distribution of the traditional taxi companies and the activity carried out by the TNCs in geographical terms, two kinds of analysis were performed to answer the research question:

- 1) An analysis of the evolution of the economic and financial indicators of companies belonging to the Spanish traditional taxi sector (CNAE 4932), compared to those in other related sectors (CNAE 4931 and CNAE 4939).
- 2) An analysis of the evolution of the economic and financial indicators of companies in CNAE 4932 belonging to three different groups of regions. In the first, Uber and Cabify have had a significant presence. In the second, only Cabify is present. And in the third TNCs do not offer their services.

4.2 Sector Perspective

The number of companies in CNAE 4932 in Spain is much smaller than the number of transport companies in CNAE 493 (Figure 1). In general, there has been a slight increase in the number of firms in both groups, except in 2007 and 2015 when there were slight decreases.

Insert Figure 1

As it is shown in Figure 2, except in 2001 and 2006, the average profitability of companies in CNAE 4932 was lower than that of other CNAE 493 companies. The situation has no worse, in this respect, after the entrance of TNCs to the market, and both groups more than covered their capital costs in 2014 and 2015, increasing their profitability. This situation was probably helped by the economic recovery in Spain in recent years, after a general economic downturn from 2008 to 2012.

In our analysis, we used Mann-Whitney U-test to compare the mean profitability of the two groups. In 2004, 2008, 2009, 2012 and 2013 this indicator was significantly lower for companies in CNAE 4932 ($\alpha=0.05$). But in 2004, 2008 and 2009 there could be no influence of TNCs, and in 2012 and 2013 the influence was not significant, so there may be some other influencing factor. Besides, the dispersions of profitability from their mean values are bigger for companies in CNAE 4932. Using the Levene test, we detected significant differences in 2001, 2011, 2012 and 2015 for an $\alpha=0.05$ and in 2000, 2002, 2003, 2004, 2010 and 2013 for $\alpha=0.01$.

Insert Figure 2

The second indicator is related to the differences in the evolution of the variations of the operating incomes. According to the evolution of mean values of variations in operating incomes measured in percentage, see Figure 3, using Mann Whitney U Test for $\alpha=0.05$, the differences between mean values were significant in 2004/2005, 2005/2006, 2009/2010, 2013/2014 and 2014/2015. The mean values of the variations in operating incomes of CNAE 4932 enterprises were significantly lower, not only before but also after the entrance of new participants to the market. Besides, applying Levenne test, it is concluded that companies with CNAE 4932 had got for $\alpha=0.05$ a significant variation in operating incomes standard deviations higher than the others with CNAE 493 with the exceptions of 2001/2002, 2010/2011 and 2012/2013.

Insert Figure 3

In 2013/2014 and 2014/2015, the variations in the operating incomes were lower in the group of traditional taxi companies. However, there were no significant differences in economic profitability during these years between these groups.

4.3 Geographical perspective

As mentioned before, TNCs operate in some specific regions. So we decided to compare companies in CNAE 4932 in regions where Uber and Cabify operate, where only Cabify operates and in other regions of Spain. The aim is to measure the impact of Uber and Cabify in the market. Figure 4 shows the evolution of the number of companies in CNAE 4932. Since 2008 to 2012 there was significant growth in the number of companies in CNAE 4932. This growth was greatest in Madrid and Barcelona where Uber and Cabify operate. The increase was 79 per cent, compared with 16.6 per cent where only Cabify operates and 37 per cent in other regions. However, in 2015 there was a slight decrease in the number of companies being: 9 per cent in Madrid and Barcelona, 3 per cent in the Cabify only regions, and 14 per cent in others.

Insert Figure 4

Regarding to the economic profitability, the means of companies in regions where Uber and Cabify operate were positive in only 5 of the 16 years, as it can be seen in Figure 5. Besides that, we can see that in those regions starting from 2012, when the TNCs really appeared on Spanish market (in 2011 the Cabify's operating incomes were only 1,656 euros), the means of economic profitability of companies remained negative, and even having growing trend, it has increased not so significantly as in other regions of Spain.

However, in only Cabify operating regions, the situation was substantially better because they have had negative economic profitability only for 4 years. Furthermore, companies from these regions have obtained an economic profitability means greater than the 8 percent in 2014 and 2015.

The last group, has obtained a negative economic profitability means in 6 of the 16 years, but in 2014 and 2015 it has maintained a positive values greater than 2 percent. Applying Kruskal-Wallis test, there are only significant differences in the economic profitability means in the periods 2014 for $\alpha=0.01$ and in 2015 for $\alpha=0.05$. In these periods, when the entrance of TNCs was more noticeable, in the regions where operates Uber and Cabify (Madrid and Barcelona) the companies' profitability means were lower than in the other two groups. Although the economic profitability of the regions where only operates Cabify were the greatest one.

Insert Figure 5

Additionally, applying Levene test, there is no significant differences between the standard deviations of the economic profitability for the three groups in any period.

Regarding to the evolution of the operating incomes (Figure 6), applying Kruskal-Wallis test, there were significant differences in the mean values in the periods 2009/2010 for $\alpha=0.01$ and in 2004/2005 and 2010/2011 for $\alpha=0.05$. In these periods, in the group of "other regions" the mean values of the variation in operating incomes were greater than in the other two groups. During 2014 and 2015, when the influence of the TNCs has been more important, there were no significant differences between the three groups.

In this case, applying Levene test, there were significant differences in the standard deviations in the periods 2004/2005, 2010/2011 and 2011/2012. However, after these periods there were not significant differences, so the entrance of the TNCs was not the reason.

Insert Figure 6

5. Discussion and conclusions

In the detailed analysis performed on the basis of reliable accounting data from 416 Spanish taxi companies, there is no indication of decreasing economic and financial figures of traditional taxi companies due to the entry of TNC competition. The only exception is the lower profitability in 2014 and 2015 in the regions of Madrid and Barcelona where the TNCs were more active. However, the most are the other regions where Cabify offers its services. The entrance of new competitors is rather recent and a longer period of time may be needed to see the real effect on the companies of the traditional taxi sector. Nevertheless, the conclusions are relevant as they shed light on an issue that has been under-researched in the scholarly literature and no empirical evidence has been presented in the media debate.

Another interesting evidence is related to the fact that the economic profitability of the companies providing traditional transportation by taxi is lower than the profitability of the other companies for passenger transportation (urban and suburban passenger land transport and others land passenger transport). This empirical evidence complements the idea underlined by Waheed *et al.* (2015) who ascertained that prior to the entry of TCNs into the traditional market, taxi driving was already a precarious job with drivers working long shifts and earning low wages. At least in the Spanish case, it should be added that the grade of attractiveness of the sector—in terms of economic profitability—was also relatively low if it's compared to the figures of the other companies belonging to other subsectors of passenger transportation. This issue should be considered by managers and shareholders of the companies already established in the sector and by other investors from the outside of the sector. Especially, on the recent speculative trends that have been evidenced—for example, unlike what has happened in USA and Canada (Ngo, 2015) with regards to the acquisition price of VTC license, in Spain they have recently experienced a huge increase due to the expectations established by the entry of TNCs (del Castillo, 2017).

Due to the new technological advances, the sector is changing rapidly and a need for further scholarly integration, depuration, and categorization of concepts within the field of transportations systems have been evidenced. The findings of this article have also implications for a practitioner and for policymakers. Taxies and hired-cars with drivers perform very relevant transportations functions alternative and complementary to mass public transport and private vehicles. The entry of TNCs should be analyzed with caution and with an integrative, open-minded and stakeholder perspective with a common strategy for all the elements in the system to achieve a synergetic effect. The relatively low profitability of the companies from the traditional taxi sector should be considered by policymakers, especially in very regulated taxi sectors, such as the Spanish ones, in which some of the public regulations (e.g. the purchasing price of the municipal licenses) are established with a basis of economic expectations that could be hardly fulfilled. Enterprises of this mode of transport (the traditional taxi service) do not receive financial subsidies from local authorities, but they have a certain level of protection from the entry of new entrants into the market. It is established by law and regulations that have established a set of rules for the game based on a set of requirements, compensations and expectations. As a result, public decisors have an inherent responsibility in this field that could not be neglected. As recently underlined by Docherty *et al.* (2017) effective governance is necessary to ensure that innovative mobility services generate public value.

The limitations of this article are inherent of an exploratory work focused on a limited geographical area and a limited time period. Many social, economic and technological uncontrolled variables might affect to the analyzed relations. For example, the degree of intensity of the economic crisis in the analyzed urban areas, the improvement of the intensity and/or quality of the public transportation or the increase of the rivalry of substitute products and services to the taxi sector due to technological and social changes such as the technology-based disruptions in urban transport (Riggs, 2018) and the shift from the traditional car-ownership model to new car-ownership models (Banister and Stead, 2018), among many other, may be factors that influence the analyzed relations. Some of the mentioned limitations of the article give guidance for potential

avenues for further research. As stated, the period of time of the analysis should be extended in the close future in order to analyze this effect more in depth. Similarly, this type of exploratory analysis could be extended to other geographical areas where the entry of the TNCs have been significant. Finally, as underlined in the literature review, there is a lack of an integrated conceptualization and categorization regarding to this topic, a gap that should be fulfilled with an integrative theoretical review of the literature, with the transdisciplinary contribution of scholars from different background such as the specialist of the field of transportation systems, the researchers specialized on the analysis of the social diffusion of technological innovations (e.g. the social dissemination of apps) and the scholars focused on the study of the collaborative and the on-demand-economy.

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Table 1: Comparative analysis of traditional taxi services and TNCs

<i>Features</i>	<i>Traditional taxis</i>	<i>TNCs</i>	<i>Remarks regarding the unique advantage of new entrants</i>
Hiring method	Flag/Call center/App/ Dedicated taxi	Smart phone App	
Payment	Cash/credit card	Cashless	
Driver / Passenger rating	Not available	Available	Co-evolution of mutual rating system
Pricing structure	Cost principle Structured	Premium principle Flexible Surge pricing	Customers pay for reliable, punctual, and comfortable service. Clear overview
Fare sharing	Limited to friends	Anyone	
Estimated time of arrival to destination	Not available	Available	Estimated time of arrival. Follow drivers on map
Estimated time of arrival of the ride	Available (Apps only)	Available	One-tap ride
Car	Rented from taxi company	Self	
Driver's perspectives	Rigid	Flexible and independent	Motivation for drivers to choose TNC
Law and regulation	Well defined	Gray area	
Value capture to company	Rental fee, Advertisement	Commission fee	91% earn more income; 87% to be my own boss; 85% flexible and balancing with better life

Source: Adapted from Watanabe *et al.*, 2016.

Table 2: Distribution of Spanish transport sector companies (CNAE 493)

Code	Activity category	Number of enterprises	%
4931	Urban and suburban passenger land transport	1,987	45.4
4932	Transportation by taxi	416	9.5
4939	Land passenger transport types not included in other parties	1,971	45.1
Total		4,374	100

Source: prepared by the authors.

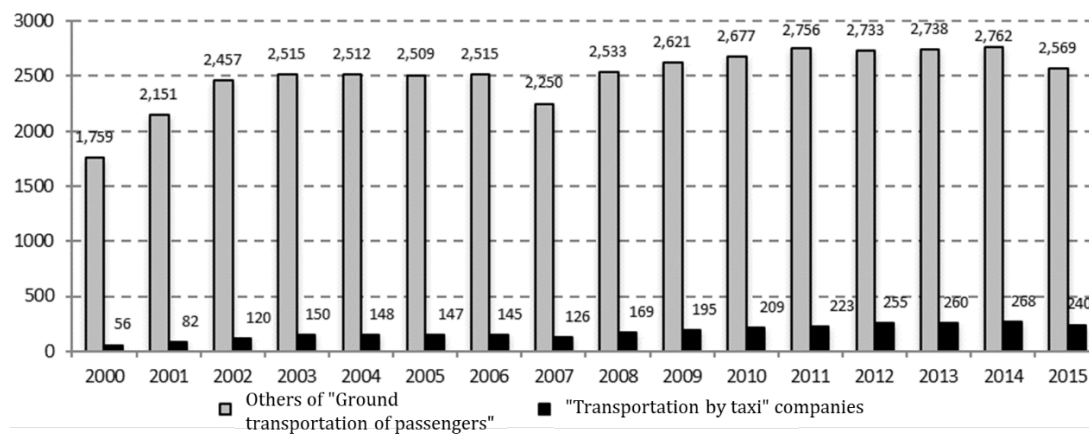
Table 3: Economic performance of the companies that provide mobile applications of Cabify and Uber

Year	Maxi Mobility Spain SLU			Uber Systems Spain SL.		
	Operating income, EUR	Economic profitability (%)	Number of employees	Operating income, EUR	Economic profitability (%)	Number of employees
2016	20,446,764	-30.34	109	1,428,545	16.75	8
2015	5,511,713	-40.38	38	1,268,657	37.19	4
2014	1,971,790	-42.32	22	515,864	6.12	4
2013	364,359	-224.11	10	-	-	-
2012	154,768	-127.94	7	-	-	-
2011	1,656	-70.853	1	-	-	-

Source: prepared by the authors.

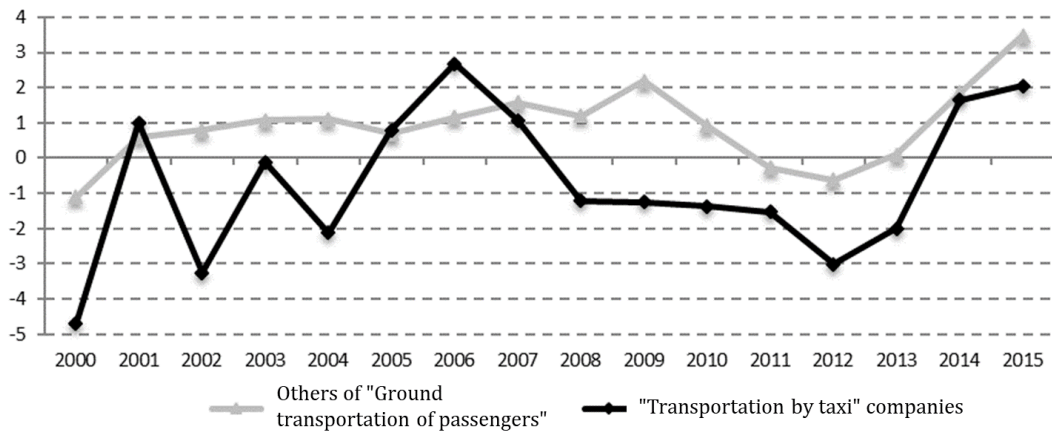
Note: In Spain Uber trades as «Uber Systems Spain SL.» and Cabify trades as «Maxi Mobility Spain SLU.».

Figure 1: Evolution of the number of "Transportation by taxi" sector companies and the others of "Ground transportation of passengers"



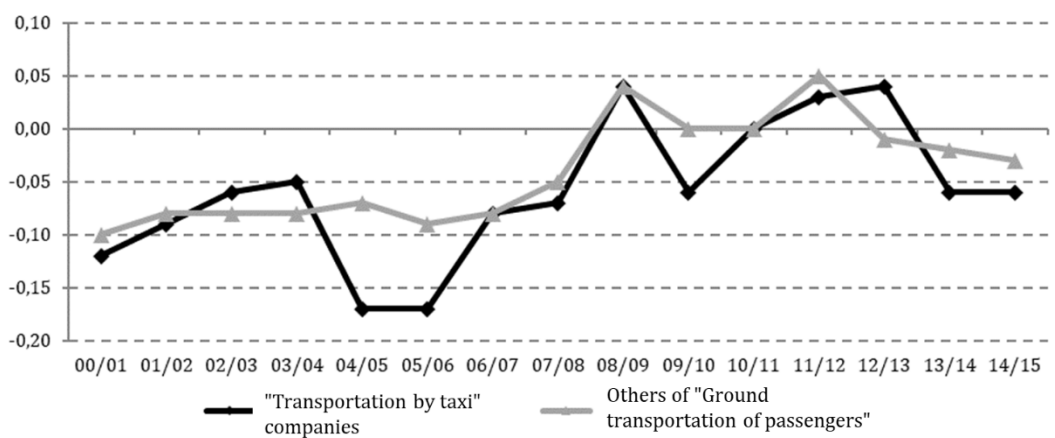
Source: prepared by the authors.

Figure 2: Evolution of mean profitability of "Transportation by taxi" sector companies and the others of "Ground transportation of passengers"



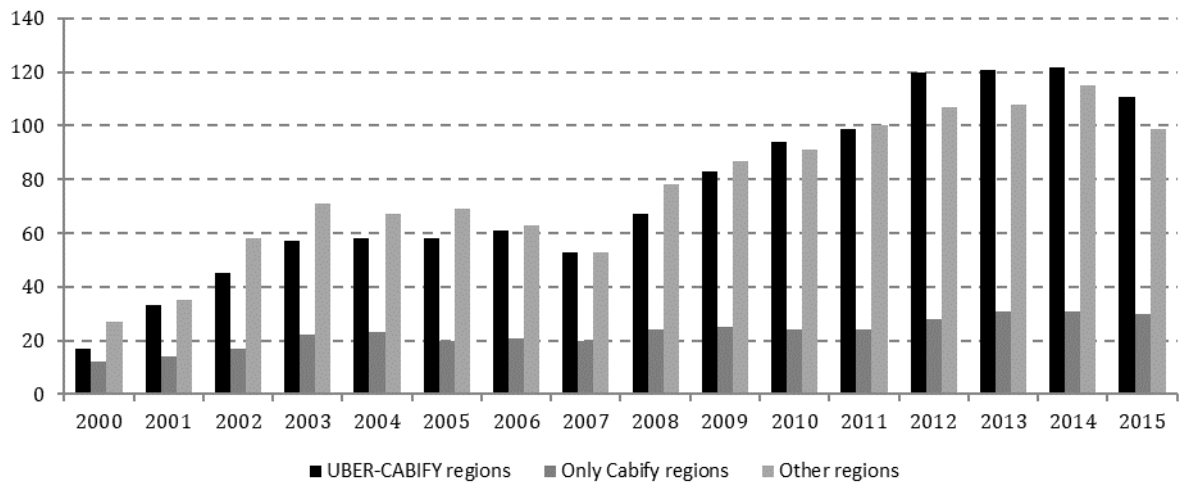
Source: prepared by the authors.

Figure 3: Evolution of the variation compared to the previous year of the mean values of operating incomes of "Transportation by taxi" sector companies and the others of "Ground transportation of passengers" compared to the previous year



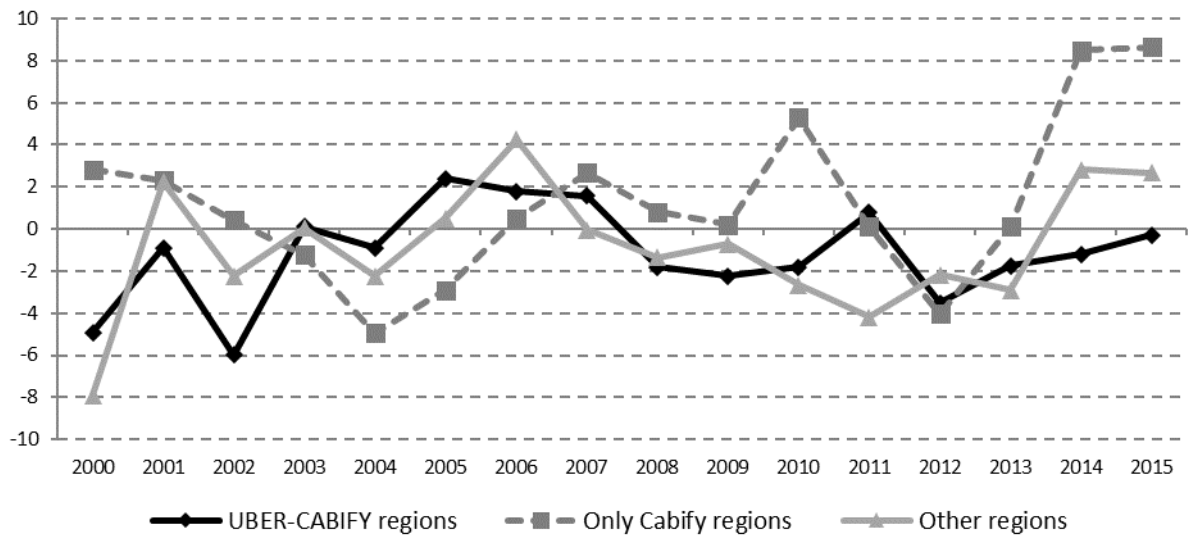
Source: prepared by the authors.

Figure 4: Evolution of the number of companies in “Transportation by taxi” sector companies in regions where Uber and Cabify operate, only Cabify, and others



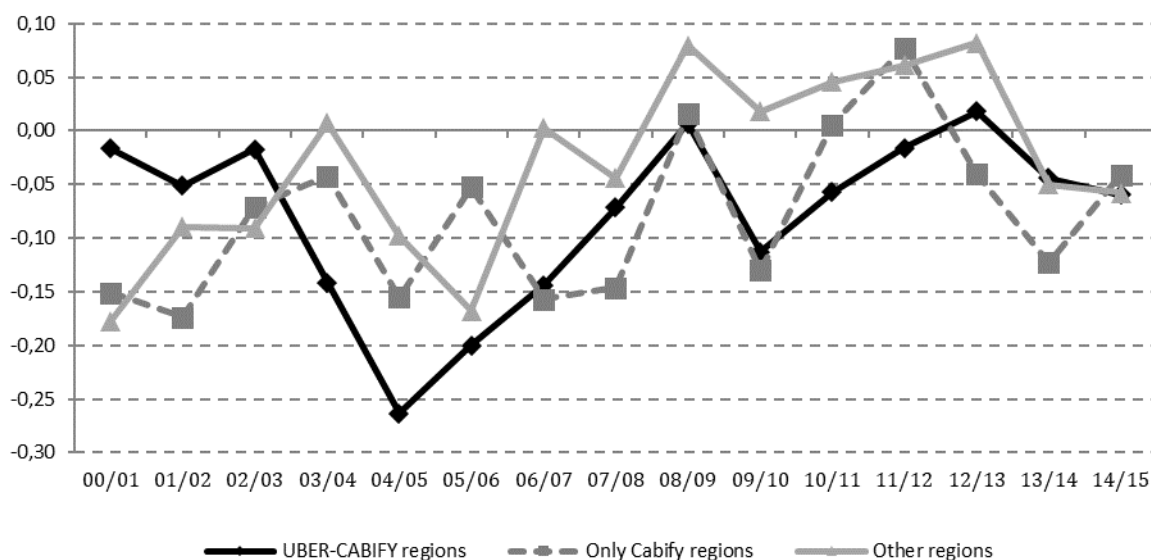
Source: prepared by the authors.

Figure 5. Evolution of the mean values of the economic profitability of “Transportation by taxi” sector companies in regions where operate Uber and Cabify, only Cabify and others



Source: prepared by the authors.

Figure 6. Evolution of the mean values of the variations compared to the previous year in operating incomes of “Transportation by taxi” sector companies in regions where operate Uber and Cabify, only Cabify and others



Source: prepared by the authors.