

# Chapter 3

## Regulation of TNCs in Latin America: The Case of Uber Regulation in Mexico City and Bogota



**Maria Lorena Puche**

**Abstract** Over the past several years, the development of new information and communication technologies (ICTs), and the widespread increase of smartphone ownership, has enabled the creation of new transportation modes. Within these solutions, e-hailing services, facilitated by Transportation Network Companies (TNCs), have emerged to disrupt the taxi industry worldwide and pose major regulatory challenges for authorities and policymakers. Many specialists have addressed e-hailing regulation in cities across Europe and the USA. However, little research has been done focusing on Latin America. Therefore, this paper's objective is to explore how authorities are regulating e-hailing services in Latin American cities. Moreover, should these regulations be based on maintaining fair competition regarding traditional taxis? We attempt to answer these questions using of a conceptual framework based on taxi regulation, as this seems to be how authorities are considering regulating e-hailing services. We then develop a comparative case study of Uber regulations in Mexico City and Bogota. A discussion and analysis follow, regarding the Uber regulations approved in both cities. Finally, we conclude the paper with a summary of the findings, and suggestions for future studies.

**Keywords** Regulation · TNCs · E-hailing · Uber · Latin America

### 3.1 Introduction

Recent advances and widespread use of information and communication technologies (ICTs) have supported the creation of new mobility modes. These new solutions have exploited a breach created by low-quality public transportation services, including taxis. Additionally, young people's tendency to not drive nor own cars, together with their increased use of smartphones and the Internet, has also contributed to the increase in new modes of mobility (Cannon and Summers 2014).

---

M. L. Puche (✉)  
Independent Researcher, Miami, USA  
e-mail: marialorena.puche@gmail.com

© Springer Nature Switzerland AG 2019  
M. Finger and M. Audouin (eds.), *The Governance of Smart Transportation Systems*,  
The Urban Book Series, [https://doi.org/10.1007/978-3-319-96526-0\\_3](https://doi.org/10.1007/978-3-319-96526-0_3)

In particular, satellite-based dispatch systems for ride services (also known as electronic hailing systems, e-hailing, or ride-sourcing), provided by transportation network companies (TNCs) such as Uber and Lyft, have taken advantage of this by using smartphone applications and Internet connections (Yusoff et al. 2015). Uber and Lyft are revolutionizing the taxi market by allowing drivers to more easily find passengers, spend less time in transit between rides, and potentially maximize the number of passengers they carry per day (Geloso and Guénette 2014). They have also sparked the interest of customers for offering a better service at lower costs and with greater reliability. Silverstein (2014), compared Uber and taxi rates in 21 large US cities and concluded that Uber was cheaper than a taxi everywhere, except in New York and Philadelphia. Rayle et al. (2014) found that introducing Uber and Lyft apps in the San Francisco market considerably reduced waiting times and showed that customers prefer e-hailing services because of simplified payment and the ease of calling a car. Finally, Uber users can rate their drivers, encouraging superior service to boost reputational scores (Geradin 2015).

However, the rapid expansion of e-hailing in the taxi industry began to outpace the current regulations in countries where it operates. TNCs have faced criticism, as well as fundamental legal threats, for unfairly competing with taxi drivers by entering the market without following existing regulations. In major cities, such as New York, capping the number of taxis allowed on the road is a common regulatory tool. This practice has driven the price of medallions as high as US\$1.3 million per unit. However, the average price of New York City taxi medallions has suffered a 17% decline since a peak in 2013, due to Uber's entry into the market. In Boston and Chicago, medallion prices also have declined by 17 and 20%, respectively (Barro 2014). Uber has also faced criticism in terms of safety, such as the protection of private data and the lack of appropriate insurance (Hanks and Alexander 2014). In some places, suspension or outright bans are the first reaction of public authorities to the appearance of e-hailing services (Grand and Khosla 2015). In countries such as Spain, Thailand, Germany, Vietnam, Amsterdam, and the Netherlands, Uber has been banned for operating without the necessary licenses (Wall Street Journal 2014). On the other hand, TNCs usually respond by simply continuing operations, despite any ban or suspension issued by authorities. For example, Uber continued its operations in Paris, despite judicial and police interventions. Uber only suspended service in the city after the arrest of two Uber executives (Edelman 2015).

Consequently, many scholars have called for developing new regulatory frameworks (Cannon and Summers 2014; Harding et al. 2016). Edelman and Geradin (2015) support the idea of creating a level playing field. They think that policymakers should embrace the efficiency that technical platforms such as Uber provide and remove those requirements and protectionist rules that benefit taxi license owners more than customers. Moon (2015) presented e-hailing as an opportunity to retrofit taxi regulations into current markets. Others, such as Darbéra (2015), suggested developing regulations to avoid a monopoly in this new market. Strong (2015) suggested regulations as a means to reach environmental policy aims, while others suggested using regulation to mitigate social problems, such as

employment and discrimination in access to transportation (Rogers 2015). Other authors, such as Farren et al. (2016), investigated the benefits and costs of completely deregulating the taxi industry.

Most of the studies mentioned above have been done in cities across Europe and the USA. Little research has been done in Latin American cities concerning how Uber is regulated, as well as the future of e-hailing services in this region. With high urbanization rates that average 80%, lack of investment in transportation infrastructures, low-quality of taxi services, high levels of congestion, and growing use of the Internet at a rapid rate, the region appears to be the perfect ground for e-hailing services to develop (Audouin and Neves 2017; Harrington 2012). Indeed, Uber has been rapidly and aggressively expanding since 2013 in Latin America, totaling 45 million trips just during August 2016 (Newcomer 2016). Therefore, the e-hailing Latin American market must not be ignored (Audouin and Neves 2017), as it is currently Uber's fastest-growing region (Uber Estimate 2018).

This paper will explore how governments can regulate e-hailing services to maintain fair competition with traditional taxis. We attempt to fill this research gap by exploring how some major Latin American cities have dealt with the rise of e-hailing services to, identify the main challenges that policymakers should address to regulate e-hailing services in the region. For that objective, we adopted a comparative case study design, as it is best suited for when it is difficult to separate the phenomenon of interest from the context (Yin 2009). We chose to look at Bogota and Mexico City because both are major cities in Latin America. They were the first cities in the region where Uber launched its service in 2013. Additionally, Mexico City became the first Latin American city to regulate Uber in mid-2015. Uber became regulated in Bogota at the end of 2015. The result in each case was completely different. Unlike in Mexico City, Uber did not accept the regulatory framework proposed in Colombia and is still facing different forms of resistance from public authorities and legal threats. The cases were produced with documentation data and semi-structured interviews conducted with key stakeholders involved in the project. This approach is in line with case study research strategy, as it allows the researcher to use multiple sources of data (Yin 2009). The rest of the paper is constructed as follows: In Sect. 3.2, we present a conceptual framework for analyzing Uber regulation. In Sect. 3.3, we present the case studies. In Sect. 3.4, we analyze the cases, using our conceptual framework. We present a conclusion in Sect. 3.5 and ultimately propose some leads for further research linked to e-hailing regulation.

## 3.2 Conceptual Framework

The objective in this section is to propose a conceptual framework to analyze how Uber and similar companies are regulated. We begin with a look at pertinent literature about the taxi regulatory framework that has governed the industry for decades. Although Uber is seen as a digital platform for connecting people (Badger

2014), rather than as a taxi company, it provides a solution for people's transportation needs that, in the view of the individual transportation sector, is quite similar to the service offered by taxis. A recent decision by the European Court of Justice (ECJ) confirmed the need to regulate Uber as a taxi, and not as a technology company. This decision was made mostly on the basis that the services provided by companies like Uber are "*inherently linked to a transport service*" and must be classified in the field of transportation (Bowcott 2017). Therefore, we present a conceptual framework building on taxi regulation, as it seems to be how policy-makers are considering regulating Uber.

Taxis are intended to provide vehicles and driving services for passengers (Li 2016). They play an essential role within the context of urban transportation systems, as a necessary component for supplying a public transportation function in accordance with public demand (Aarhaug and Skollerud 2014). There are three major market segments: the taxi rank, in which places are designated for taxis to wait for passengers, and vice versa; the hailing segment, in which a cruising taxi on the street can be hailed; and the pre-booked segment, in which consumers call a dispatching center (Salanova et al. 2011). According to OECD (2016), taxi market shares are linked to household incomes, costs of car ownership, and the availability of alternatives modes of transportation.

There are several arguments used for and against taxi regulation (Aarhaug and Skollerud 2014). To the growing ranks of free-market economists in 1970, taxi regulations were an example of convoluted state regulation that stifled competition and innovation (Harding et al. 2016). On the other hand, authors such as Buckley (2015) stated that taxi regulations are necessary to correct market failures that have occurred over time. There are three taxi market failures: asymmetrical information; destructive competition, leading to low quality of service; and externalities, such as pollution and congestion (Cohen and Sundararajan 2015).

In most cities, taxis are regulated following a standard regulatory framework that has been in place since the early 1930s (Harding et al. 2016). Most regulations, with some degree of variation, usually include the following three elements: monopoly rights, entry conditions, and fare controls (Beesley 1973). Regarding the first element, monopoly rights, authorities granted exclusivity rights to the taxi companies. Beesley (1973) stated that such rights could be given through two mechanisms. The first mechanism would be an exclusive franchise to organize taxi services in a geographically limited area. According to OECD (2016), a franchise is granted for a set time period in most cases. When the time expires, they are up for rebidding. Franchise systems prevent other taxi operators from picking up passengers in the franchise zone but allow drop-offs, which lead to unbalanced trips for those entering the zone from outside. The second exclusivity mechanism grants rights to a particular mode of operation (rank, hail, or dispatching center). However, as Schaller (2007) shows, it is difficult for regulators to measure productivity and thereby grant exclusivity rights, since the usage of public space (such as bus lane) has not been measured as a competitive advantage. The conclusions are that the dominant industry will obtain the maximum benefit with a small fleet and high prices (Salanova et al. 2011).

The second element of entry conditions includes quality and quantity controls. Quality regulation consists of vehicle control (age, type, and appearance), as well as driver and operator standards, such as fit-and-proper-person tests, uniforms, and route knowledge. Although quality regulation seeks to ensure passenger safety and minimum service standards, they can also have anti-competitive effects if they are set at unduly high levels (OECD 2007). Quantity control refers to limiting the number of taxis in a specific jurisdiction, which is modified by analyzing latent and future demand, or local politics and vested interests (Harris 2002). Over time, entry regulations were managed by freezing the number of taxi licenses, without justifying why the current number of taxis was optimal. Most cities maintained the number of taxis at 1980 levels, while a few increased the number of licenses, according to GDP variations or other economic indicators. Both methods created an inefficient taxi market, with either more taxis, or fewer vehicles than needed (Salanova et al. 2011). Some arguments for limiting the entry into the taxi market include: preventing crowding at stands or in city centers; keeping profitability; protecting workers from longer trips and lower wages; and preventing overcharging (Nelson/Nygaard 2008). On the other hand, the main argument against entry conditions is that they create economic rent (Aarhaug and Skollerud 2014).

Following Beesley's (1973) classification, fare control is the last aspect of taxi regulation. The first type of fare control is based on controlling the overall level of fares charged, and the second type is based on setting a pricing structure that is often based on distance and time. Cairns and Liston-Heyes (1996) proposed a model of taxi service demonstrating that price regulation is necessary to have equilibrium between supply and demand. OECD (2016) noticed that fare regulation prevented gouging in the street hail market, due to the asymmetric information, notably concerning the available supply and the uncertainty potential competitor's fares. In a monopolist market without fare regulation, higher fares will satisfy lower demand with a smaller fleet, maximizing the benefit of the operator (Douglas 1972). On the other hand, the same market with regulated fares will operate with the same size fleet in that the marginal benefit is equal to the marginal cost (De Vany 1975).

Finally, Audouin and Neves (2017) used a similar approach to construct a framework building on taxi regulation focusing on quality, quantity, price regulation, and market-conduct regulation. Therefore, the approach adopted in this paper is not totally new and builds on something that has already been done. In the next section, we will review our two case studies.

### 3.3 Case Studies

The following case studies are intended to illustrate the first regulatory reactions of Latin American cities to the entry of Uber into the taxi market. We will first present the case of Mexico City; and then present the case of Bogota. Both cases will describe the existing taxi regulations, examine the regulatory landscape Uber faced, and look at the new regulatory framework adopted for e-hailing services.

### 3.3.1 Mexico City

Mexico City, the capital and the largest city in Mexico, had 21 million inhabitants in 2016 and is expected to have more than 23 million inhabitants by 2030 (United Nations 2014). The unmeasured growth in population during the twentieth century has resulted in an unprecedented urban sprawl, following an extensive car ridership pattern. The average time spent commuting between home and work is 40 min by subway or train; 50 min by bus; 27 min by taxi, and 35 min by car (CAF 2011). Urban sprawl, along with the lack of development of an efficient transportation network, has caused the rapid expansion of taxi services as the third most popular transportation option (Parametria 2013), with a growing vehicle fleet of 106,000 regular units and approximately 22,000 illegal units (Lopez 2012). Currently, the combination of a steadily growing economy, record-low inflation, and declining mobile prices are contributing to accelerating migration to mobile broadband services and increase in smartphone usage. By 2020, Internet subscribers in Mexico will have grown to 84% of the population (GSMA 2016) and the number of smartphone users is forecast to reach more than 67.49 million in 2020 (Statista 2018).

Taking advantage of this context, Uber started operating for first time in Mexico City in June 2013, resulting in unprecedented competition with the taxi industry and a challenge to the existing regulatory framework governing the taxi industry. In this metropolis, the federal government (state level) is in charge of granting concessions for providing transportation services. It also regulates fare policy decisions, public service supervision, route design, and other activities (Islas et al. 2011). In July 2014, the Mobility Law of 2002 was replaced by a new legal framework to regulate city transportation services. Since then, all drivers must have liability insurance. Additionally, drivers must approve training courses and assessments' processes established by the Secretary of Mobility (SEMOVI). Taxi regulations are based on exclusivity rights, quality, and price regulation. Regarding, exclusivity rights, providers offer a service under a concession awarded by the federal government and must meet the requirements set forth by transport authorities regarding operation territories, bases, concessions, and fees. Quality regulations include characteristics and requirements that the vehicle must satisfy (age, color, and identification), as well as those that drivers must meet, such as courses about driving, self-defense, and civility. Fares are also defined by the federal government, and all taxis must use a taximeter. It is important to highlight that the city government has not approved new taxi licenses, resulting in an uncertain market in which you can buy a concession for MEX\$40,000–MEX\$60,000 (USD\$2150–USD\$3200).

Once Uber entered into the Mexico City taxi market, as in many other cities worldwide, the taxi sector protested and lobbied the government to expel Uber. It was not until after two major demonstrations, in October 2014 and May 2015, in which the city's main roads and access to the International Airport were blocked, that the city government made this conflict a real priority in its agenda. On June 17, 2015, authorities organized working meetings, called Debate Digital CDMX, to discuss and regulate e-hailing services (García 2016). The primary purpose of

these meetings was to create proposals that would allow for innovation in services offered by taxis but under a scheme of fair competition. These meetings were set up with the participation of conventional taxi operators; representatives from Uber, EasyTaxi, and Cabify; experts in mobility and technology; and NGOs. All stakeholders gave recommendations aimed at improving the conditions under which taxi companies operate, allowing for the coexistence of different types of taxi services in México City. They defined the aspects that should be considered in the agreement, as well as improvement conditions for traditional taxis.

Simultaneously, a federal and a local government agency gave their opinions in favor of regulating Uber and similar companies. Based on the principle of economic competition, and the freedom of citizens to choose their way of moving around the city, they made the announcement in favor of Uber regulation on June 4 and 15, 2014, respectively (García 2016). In July 2015, the city government announced an administrative agreement to allow Uber and similar companies to legally operate in the capital. This special administrative agreement was published in the Mexico City District Gazette No. 133 Bis. July 15, 2015. Therefore, Mexico City became the first Latin American city to regulate e-hailing services. There were several aspects included with these regulations. App platforms must be registered with the Secretary of Mobility; and drivers must pay MEX\$1599 (almost USD\$100) for an annual permit on each vehicle used for this service. Furthermore, vehicles must have an original value of no less than MEX\$200,000 national currency (nearly USD \$11,000) and fulfill some requirements (four doors, air conditioning, air bags, and seat belts). Finally, e-hailing companies must pay 1.5% of each ride to the Taxi, Mobility and Pedestrian Fund, created by the city government for public work projects related to mobility. There are also a few restrictions, such as the prohibition on receiving cash or prepaid cards as a payment. Drivers are also not allowed to sublease their vehicles, nor can they have a set base or fixed site.

Uber has agreed with the proposed regulation and said that the new regulation “*makes Mexico a pioneer in recognizing in law that supply should respond directly to demand and the free choice of consumers.*” However, two years after this regulation was proposed, progress in its implementation has been quite slow and seems to be stuck. To date, the city has not completed registering the taxi apps’ fleet, which is needed to launch the fund. Furthermore, there is no time schedule for the fund’s creation (Torres 2016). Overall, TNCs are still operating with minimal conflicts against conventional taxis.

### **3.3.2 Bogota**

Bogota is the capital of Colombia and is expected to have more than 11.6 million inhabitants by 2030 (United Nations 2014). Urban growth is characterized by a growth in housing in surrounding areas (urban sprawl) that has not been adequately followed by a concurrent increase in urban transportation infrastructure. The average time spent commuting between home and work is 40.5 min by car; 34 min



by taxi; and 73 min by bus (CAF 2011). Commuting by bus takes almost twice as long as by taxi. Therefore, taxis play a significant role, not only within Bogotá's transportation integrated system as feeders, but also, in providing advantages to the riders regarding accessibility, time efficiency, and comfort (Ibañez 2012). By 2020, Internet penetration in Colombia is expected to be more than 52.9% of the population (eMarketer 2016). Mobile devices are at the core of Vive Digital Colombia, a program overseen by the Ministry of Technology to achieve its four-year goal of "*widespread adoption of internet and the development of a nationwide digital ecosystem*" (eMarketer 2015).

In Colombia, the Ministry of Transportation (nationwide level) heads the transportation sector, including the regulation of taxis (CAF 2011) in terms of defining policies, operations, and fares, among others things. Taxi regulation is quite limited and based on exclusivity rights, quantity, quality, and fare regulations. The local government establishes the rules and regulations governing mobility in the city and taxi vehicle circulation. Regarding exclusivity rights, the ministry regulates taxis by granting indefinite authorization to taxi companies, as long as they fulfill all the required conditions and criteria to provide a good service. Quality regulations cover a number of specific requirements for taxi companies (insurance and no criminal records), drivers (criminal background checks, a minimum amount of driving experience, and a behavior course), and vehicles (age limits, taximeter, and vehicle identification). Quantity controls are enforced by controlling the number of vehicles. Adding vehicles to the taxi fleet can be done incrementally or by replacement. The first scenario occurs when the taxi company experiences growth in the number of vehicles, while the second occurs when companies replace one of its already registered cars. Local authorities cannot authorize new cars in taxis services unless the need for the service is determined as a result of a technical study described in the Law-Decree 172 of 2001 (Ibañez 2012). To link a vehicle to the fleet of a taxi company, a contract must be formalized between the vehicle owner and the company, which is made official to the Ministry of Transport once the local transport authority issues an operation card, which authorizes the vehicle to provide taxi service. The national government establishes the general principles for fare calculations to control fares.

Since the early 1990s, Bogota has only allowed the entry of new vehicles into the taxi fleet by replacement, creating the right by replacement, also known as *cupo* (quota) (Decree Number 613-1993). This practice has created two issues. First, a black market has emerged to buy the *cupo*, the price of which depends on the market supply demand, because it can change without any type of regulation. Prices can fluctuate from COL\$81 million to COL\$95 million (about US\$28,000–US\$33,000). Second, the number of illegal taxis has been growing steadily throughout the years, due to the cost of the *cupo*. Additionally, the mayor of Bogota is responsible for calculating the rate of the taxi fare and other fees related to taxi operation (Decree No. 400, dated September 26, 2014).

Similar to Mexico City, Uber came into the Bogota taxi market in 2013, having conflicts with both taxi drivers and regulators. According to traditional taxi drivers, Uber is an unfair competitor. They state that Uber drivers and vehicles do not



comply with regulations established by authorities. Traditional taxi drivers also argue that Uber drivers do not pay taxes, receiving greater profit from a much lower investment (Sanchez et al. 2016).

After many disputes between taxi drivers and Uber drivers, as well as taxi drivers' threats of strikes and blockades, Colombian President, Juan Manuel Santos, delegated to the Ministry of Transportation, the creation of a decree to regulate the service provided by Uber and similar companies. In November 2015, Decree 1079 was created, which unified all regulations for the transportation sector. In this decree, the services provided by Uber and similar companies were regulated as a new mode of individual public transportation categorized as luxury taxis. Consequently, there are two kinds of taxi services in Colombia: basic taxi service, which is the same as the existing traditional taxi service; and luxury taxi service, which can only be booked through an app or digital platform. Vehicles must be a black four-door truck or sedan, and comply with the following specifications: a line on the side; have GPS; have a passenger cabin with capacity to accommodate a minimum of five people and space for baggage with capacity no less than 0.40 m<sup>3</sup>. Moreover, luxury taxis must be new or not more than seven years old. Finally, drivers cannot receive cash as a payment, and a minimum base fare must be established, that must be equal or lower than the one established for the basic taxi service.

However, Uber decided not to accept the regulations established by the national government and not to register itself as a luxury taxi company. Despite the Ministry of Transportation's many pronouncements regarding the illegality of Uber, and the fines that the local government imposed, Uber keeps operating and offering its services in Bogota. Although the number of citizens demanding Uber keeps increasing, conflicts between Uber and the traditional taxis keep arising. For instance, the traditional taxi sector has required the Ministry of Technology to block the Uber app in the country. However, the Minister has said that from a technological viewpoint, the app is perfectly legal.

The Bogota government, through the Secretary of Mobility, has been working to create new taxi companies that claim to offer the same quality of service as Uber but comply with the requirements established in the decree. In a recent interview, the Secretary of Mobility Juan Bocarejo announced that these new taxis companies would be operating in the upcoming months. Although they will work through a digital platform like Uber, the main difference is the fare system. Fares will be calculated using a base price established by the local government and depends on the time of day (higher during the rush hours) (Opina Bogota 2017).

### 3.4 Analysis

In the conceptual framework, we established the three elements that have been frequently used to regulate the taxi industry: exclusivity rights, entry conditions, and fare control. In both Mexico City and Bogotá, taxis have been governed

through schemes based on these three dimensions. In both cases, the scope of the regulation is limited and has sometimes been interpreted in different ways. Moreover, despite the fact that (as in most regulated industries) consumers can complain to the service regulator, this does not apply in the case of the taxi industry. In both cases, there are no mechanisms established by regulators by which taxi users can report their dissatisfaction in an efficient way. Therefore, taxis are not interested in providing a better service. Since there are few public transportation options, taxi users are forced to accept a poor-quality service with high fares. As a result, the industry has been dominated by the taxi guild and authorities who have lost control and supervision over the operation of this sector. This has led to a lack of accurate data concerning the reality of taxis operating in urban areas.

With the emergence of Uber in Mexico City and Bogota in 2013, the traditional taxi industry started to face increasing competition from this new type of transportation service. Uber threatened to eliminate the traditional taxi industry's stronghold. Since then, traditional taxis are facing more demands from their users in terms of quality, efficiency, comfort, and affordability. In both cities, the traditional taxi sector fought the emergence of Uber by lobbying at city government headquarters. At the same time, many users have shifted to Uber service due to lower fares, cleaner cars, and higher-quality service. Moreover, they lobbied in support of the company, playing an important role in pressuring local authorities to enact new regulations to govern Uber and other similar companies.

In Mexico City, Uber and similar companies were regulated as TNCs, under different requirements than those for traditional taxis. The main aspects of e-hailing regulation can be summarized as follows: App platforms and car operators must be registered with the Secretary of Mobility; the type of service should only be as TNCs; restrictions on the vehicle type (cost and environmental requirements); restrictions on payment method; and contribution of each ride to a mobility fund. Our analysis of the regulatory approach for e-hailing services in Mexico City found it to be based on exclusivity rights and entry conditions. As we saw, one way of granting exclusivity rights is based on a particular operation mode. In the regulatory framework of Mexico City, e-hailing companies must only offer the service through the use of apps. Therefore, there is a risk that the emerging market will turn into a monopoly. Once the company reaches a monopoly position in the market, there could be inefficiencies and threats to stakeholders. Moreover, as noted by the OECD (2007), a market under monopoly creates political pressure to maintain the protection under regulatory decisions. Therefore, regulators should promote a competitive market to push players to improve and adapt the quality of their service.

Entry conditions in Mexico City were addressed mainly through quality requirements, rather than a quantity regulation. Quality controls were introduced by setting requirements regarding vehicle characteristics, and operation permits for drivers. The practice of quantity regulations was not introduced in an obvious way. The number of cars was not limited, but the annual renewal of an operation permit and the hologram that vehicles must have are regulatory practices that are equivalent to an extreme form of control. As noted above, taxi markets usually experience regulatory capture under this framework. Mexico City did not apply fare

regulation or structure. However, it established a limitation in payment options and a 1.5% ride levy for a public mobility fund. It also banned e-hailing companies from receiving payment in cash or prepaid cards. At first, this restriction was not an issue for Uber because payments have only been made by credit card or other electronic payment methods. However, in a developing country, credit-card payment mechanisms may discriminate against the low-income people, who cannot afford this financial benefit. In fact, Uber appealed to a federal judge against this restriction in December 2017. After two years of the approved regulations, Uber realized that cash fares were crucial to conquer the Mexico City market and continue expanding in other Mexican cities. Finally, Uber will pay the 1.5% ride levy, but the fund has not yet been created.

Regarding e-hailing services regulation in Bogotá, the results for Uber and similar companies are not very encouraging. Regulators kept the framework governing traditional taxis and created a new luxury taxi service. Therefore, e-hailing companies must follow the same requirements as traditional taxis. As stated in the case description, taxi regulations are based on exclusivity rights, entry conditions, and economic controls. Similarly, the main aspects addressed in the regulatory framework for e-hailing services in Bogota can be summarized as follows: only available through the use of technological platforms; vehicle restrictions; and fare controls and payment methods restrictions. Regarding exclusivity rights, the government's decree established that vehicles must be enrolled in a taxi company. As mentioned above, the company should request an authorization from the competent authority to operate, meaning that traditional taxis companies are free to provide this new kind of service. Quality regulations were introduced by defining requirements regarding the vehicle age, color, type, and model. There must also be an official holographic band on the side of the vehicle. The decree also bans private vehicles from providing public transportation services. Drivers must meet licensing requirements and courses. There are quantity regulations, even though there are no limits on the number of cars that can be affiliated with a taxi company. As we saw in Colombia, taxi regulations have two mechanisms to incorporate a vehicle into a taxi fleet as a form of entry control. The approval of this decree led to many questions about how the vehicle fleet of this new market will be estimated or controlled, or if the same rules will apply for traditional taxis. Finally, fare controls were implemented in two ways: a fixed minimal fee, and a restriction in the payment method. Therefore, new luxury taxis can only receive payments by electronic means and should charge a legal minimum fee that should be equal to or higher than, traditional taxis.

Comparing the regulations for e-hailing services in Mexico City to those in Colombia, we can see that quite different regulatory approaches were adopted. In the case of Mexico City, regulation for e-hailing companies was as a result of a public participation process, so its effects have been mostly positive. Uber recognized itself as a transportation company and agreed to the parameters established in the regulatory framework. Furthermore, the city set a precedent looking forward to technological and organizational innovations for future challenges. Conversely, Colombia essentially approved the provision of a new taxi service through the use

**Table 3.1** Comparison of regulatory approaches for e-hailing services in Mexico City and Colombia

		Exclusivity rights	Entry conditions		Fare regulation
			Quality regulation	Quantity regulation	
Mexico City	Addressed?	–	±	–	–
	Impact	-Monopoly -Vested political in regulatory decisions -System inefficiencies	-Customer security and protection	-No control on environmental and congestion issues -Risk of regulatory capture	-Threat to customer access -Monopoly
Bogota	Addressed?	–	+	–	±
	Impact	-Monopoly -Vested political in regulatory decisions -System inefficiencies	-Customer security and protection -Competency driver, experience	-Risk of regulatory capture	-Equilibrium demand-supply -Prevent gouging by operators

of technological platforms or apps. The decree’s long list requirements for vehicles, as well as economic controls, were not a solution for Uber and similar companies, so they are still operating in a “gray zone” (see Table 3.1).

However, we can criticize the lack of consideration of the following points in the regulation approved for e-hailing services in Mexico City. The first point is about the exclusivity rights. According to OECD (2016), a progressive taxation of share market would be a better policy instrument than a fixed quota to prevent TNCs from getting dominant position in the market, as Mexico City did by introducing the 1.5% ride levy. The proportional market share taxation could lead to a cartel, in which the existing license holders could prevent new ones from entering the market. On the other hand, the progressive surcharge could reach punishing rates when the market share gets close to 40 or 45%. Although the 1.5% ride levy could be considered an innovative and fair rule in the taxi market at first glance, this extra amount will affect passengers, who will pay for it, instead of Uber. If we look at other foreign regulation approaches, the ride levy is very low but e-hailing companies must make annual payments to operate. For instance, Uber and similar companies must pay CAN\$70,000 a year to the city of Edmonton, Canada, to operate their service, while the ride levy is six cents per ride to finance the cost of implementing the regulation. No compensation has been offered to taxi drivers, despite the predictable reduction in the value of their licenses (Chassin and Msaid 2016).

Second, the quality regulations established should be stronger to address passenger safety and include mechanisms to protect passengers' private data such as names, address, and other relevant information. In cities where violent assault, rape and kidnappings by taxi drivers are still a concern, passenger safety somehow escapes city government control under this regulatory framework. For example, an Uber driver in India was arrested for the rape of a passenger; and others have been accused of stalking passengers (Hanks and Alexander 2014). When regulating e-hailing services, authorities should give priority to maintaining high-security standards and ensuring the safety of passengers.

Third, the absence of fare regulation for e-hailing services has caused anger among passengers. Due to high levels of pollution, Mexico City has established days on which the use of vehicles is restricted, increasing the demand for Uber service. However, because of its surging price patterns, the rates can reach five to nine times the average price. Uber has addressed this situation by limiting the fare to five times its regular price during these days and pushing UberPool services, saying passengers can save up to 40% per trip. However, regulators should be aware of the impact of these policies for taxi users, and establish a fare that allows the efficiencies that e-hailing companies seek to offer, but also guarantee users high-quality transportation services at affordable prices.

With regard to Colombia, regulatory authorities have not envisioned Uber's technology and its innovative business model. Despite the fact authorities have stated that the current regulations exist to protect users, the latter have not been involved in the decision-making process. The number of citizens demanding Uber service keeps increasing. Therefore, it is quite likely that Colombia will be forced to re-evaluate and re-design the approved regulation. As we saw in the introduction, in many cities, UBER kept operating regardless of public authorities regulatory response. This is also the case in Bogota, and conflicts keep arising with the traditional taxi sector and government authorities. Although we do not know with certainty the future of Uber in Colombia, it is hard to believe that a few thousand taxi drivers have more power than millions of users with smartphones and information who also have the right to demand better public service.

We recommend that regulators request e-hailing companies to share their data. Although it is well-known that Uber has refused to open its data, this might change if it becomes a requirement to get the right to operate in a given city. As an example of this, the Transport Authority of the Greater London (TfL 2017), which was the subject of much attention in Fall 2017, given their refusal to renew Uber licenses to operate in London, recently proposed that TNCs will only be granted licenses if they agree on opening their trip data (TfL 2018). When regulating e-hailing services, authorities should take advantage of the emerging technologies, understanding that open, accessible data will allow them to better understand mobility patterns in the city and improve inefficiencies of the public transportation.

Finally, regulators have developed e-hailing regulations based on the tools mentioned in our conceptual framework, but as we saw through the analysis, other considerations are needed to adopt better approaches to regulating e-hailing companies. For instance, the traditional quality regulations did not include protecting of

passengers' private data, which is nowadays a concern regarding the customer safety. Likewise, with the emergence of these technology platforms, access to data has become a key rationale for regulating e-hailing services; element that has not been addressed by traditional regulatory frameworks.

### 3.5 Conclusion

Uber emerged in Mexico City and Bogota, as a competitor for the traditional taxi sector, generating serious conflicts and implications for the regulatory framework that has governed taxi systems. Users have not hesitated to choose Uber rather than traditional taxis, and governments have understood that citizens demand a better service, because that is the characteristic of a competitive market. Regulators must consider how to tighten current regulations, not the other way around, as it unfortunately happened in Bogotá. Although it is still too early to define the future effects of Uber, regulators must think of how the regulatory framework that governs a city's taxi system should be transformed. The regulations should focus on ensuring the quality and efficiency of the offered services and empower the users over the taxi service. Uber has demonstrated its interest in proposing self-driving vehicles, and when this comes to reality (although not in the near future for Latin America), it will again consequently change the transportation landscape. Public authorities also must take this perspective into account when regulating Uber.

Innovation and technology represent an opportunity to improve the efficiency of transportation systems. Regulations should be developed in order to make sure new transport solutions serve the common interest of society. Public leaders must promote the coexistence of diverse, individual transportation systems within cities. Although they are one same industry, TNCs and taxis cannot function under the same rules. Leaders must allow innovation in the menu of transportation service options provided to inhabitants of a given city, under the rules of fair competition. They also should look toward reaching a level playing field, whereby each transportation service could operate efficiently. Likewise, improvements in addressing transportation issues require new models of governance through the participation of stakeholders. In addition, regulators and policymakers should take advantage of the work performed in other cities. These examples would provide authorities new structures that are being developed to achieve better regulations of e-hailing services.

Finally, we believe that more research is needed to clearly understand the impact of e-hailing on transportation cities. Recently, there has been an increasing amount of research trying to show the negative effects of Uber in traffic. For instance, e-hailing has been criticized for increasing congestion (Rayle et al. 2014). Additionally, it was showed that 34% of Uber vehicles on the road were empty of customers in California (SFCTA 2017, quoted in Currie 2018). Therefore, regulation of e-hailing services is not solely about technology, but also about

environmental and social effects. In this sense, the effect of Uber has been poorly analyzed. Is Uber an asset by offering new options of mobility, or does it generate more vehicular congestion? Ultimately, there is no city in the world that could improve mobility by adding more vehicular congestion to its streets.

## References

- Aarhaug J, Skollerud K (2014) Taxi: different solutions in different segments. *Transp Res Procedia* 14(1):276–283
- Audouin M, Neves C (2017) What regulations for ICT-based mobility services in urban transportation systems? The case of ride-booking regulation in Sao-Paulo and Rio de Janeiro. *WIT Trans Built Environ* 176:95–106
- Badger E (2014) Taxi medallions have been the best investment in America for years. Now Uber may be changing that. *The Washington Post*, 20 June
- Baro J (2014) Under pressure from Uber, taxi medallions prices are plummeting. *The New York Times*, 29 Nov
- Beesley ME (1973) Regulation of taxis. *Econ J* 83(329):150–172
- Bowcott O (2017) Uber to face stricter EU regulation after ECJ rules it is transport firm. <https://www.theguardian.com/technology/2017/dec/20/uber-european-court-of-justice-ruling-barcelona-taxi-drivers-ecj-eu>. Accessed 1 Mar 2018
- Buckley C (2015) An examination of taxi apps and public policy regulation. <http://clarebuckley.ca/pdf/Clare%20Buckley%20-%20public%20policy%20regulation.pdf>. Accessed 16 Nov 2017
- Cairns R, Liston-Heyes C (1996) Competition and regulation in the taxi industry. *J Public Econ* 59(1):1–15
- Cannon S, Summers L (2014) How Uber and the sharing economy can win over regulators. Harvard Business Review, Boston
- Chassin Y, Msaid Y (2016) Uber and taxis: Australia opens the door to reform. Montreal Economic Institute. [http://www.iedm.org/files/lepoint0216\\_en.pdf](http://www.iedm.org/files/lepoint0216_en.pdf). Accessed 13 Oct 2017
- Cohen M, Sundararajan A (2015) Self-regulation and innovation in the peer-to-peer sharing economy. *Univ Chic Law Rev Online* 82(1)
- Corporación Andina de Fomento (CAF) (2011) Desarrollo Urbano y Movilidad en América Latina. Banco de Desarrollo de América Latina, pp 175–188
- Currie G (2018) Lies, damned lies, AVs, shared mobility, and urban transit futures. *J Public Transp* 21(1):19–30
- Darbéra R (2015) Principles for the regulation of for-hire road passenger transportation services. Research report. OECD International Transport Forum 2015
- DeVany AS (1975) Capacity utilization under alternative regulatory restraints: an analysis of taxi markets. *J Polit Econ* 83(1):83–94
- Douglas GW (1972) Price regulations and optimal service standards. *J Transp Econ Policy* 6(2):116–127
- Edelman BG (2015) Whither Uber? Competitive dynamics in transportation networks. <http://www.benedelman.org/publications/competitive-dynamics-tncs-24nov2015.pdf>. Accessed 9 Jan 2018
- Edelman BG, Geradin D (2015) Efficiencies and regulatory shortcuts: how should we regulate companies like AirBnB and Uber? *Stanf Technol Law Rev* 19:293–328
- eMarketer (2015) Colombia set to reach 28.6 million internet users in 2015. Accessed 12 Feb 2018
- eMarketer (2016) Mobile Colombia 2016: updated forecasts and key growth trends. <https://www.emarketer.com/Report/Mobile-Colombia-2016-Updated-Forecasts-Key-GrowthTrends/2001863>. Accessed 12 Feb 2018
- Farren M, Koopman C, Mitchell M (2016) Rethinking taxi regulations: the case for fundamental reform. Mercatus Research, Mercatus Center at George Mason University, Arlington, VA



- García C (2016) La Regulación de Uber en la Ciudad de México, la ganancia de los consumidores y el problema público de la movilidad. *Lat Am Iberian J Law Econ* 2(2):39–63
- Geloso V, Guénette J (2014) Ride-sharing applications and the future of urban transportation. Montreal Economic Institute. [https://www.academia.edu/9787693/Ride-Sharing\\_Applications\\_and\\_the\\_Future\\_of\\_Urban\\_Transportation](https://www.academia.edu/9787693/Ride-Sharing_Applications_and_the_Future_of_Urban_Transportation). Accessed 20 Oct 2017
- Geradin D (2015) Should Uber be allowed to compete in Europe? And if so how? George Mason University, Law & Economics Research Paper Series No. 15–29
- Grand E, Khosla S (2015) Here's everywhere Uber is banned around the world. *Business Insider*. <http://www.businessinsider.com/heres-everywhere-uber-is-banned-around-the-world-2015-4>. Accessed 12 Feb 2018
- GSMA (2016) Country overview: Mexico. <https://www.gsmaintelligence.com/research/?file=44866ee04f5cc721e249569adb505f7&download>. Accessed 9 Jan 2018
- Hanks E, Alexander S (2014) Same industry, same rules? When rideshare comes to town. [https://casesimportal.newark.rutgers.edu/sites/default/files/files/703\\_Hanks\\_When%20rideshare%20comes%20to%20town.pdf](https://casesimportal.newark.rutgers.edu/sites/default/files/files/703_Hanks_When%20rideshare%20comes%20to%20town.pdf). Accessed 20 Nov 2017
- Harding S, Kandlikar M, Gulati S (2016) Taxi apps, regulation and the market for taxi journeys. *Transp Res Part A Policy Pract* 88:15–25
- Harrington D (2012) E-commerce in Latin-American: the success of MercadoLibre. [http://davidwarrenharrington.weebly.com/uploads/4/7/0/8/47082859/e-commerce\\_in\\_latina\\_mercadolibre.pdf](http://davidwarrenharrington.weebly.com/uploads/4/7/0/8/47082859/e-commerce_in_latina_mercadolibre.pdf). Accessed 23 Jan 2018
- Harris L (2002) Taxicab economics: the freedom to contract for a ride. *Georgetown J Law Public Policy* 1:195–222
- Ibañez M (2012) Viabilidad Técnica y Financiera del Sistema de Taxis en el Sistema Integrado de Transporte. <http://www.bdigital.unal.edu.co/8596/1/300457.2012.pdf>. Accessed 20 Nov 2017
- Islas V, Hernandez S, Arroyo J, Lelis M, Ruvalcaba JI (2011) Implementing sustainable urban travel policies in Mexico. *International Transport Forum Discussion Paper* No. 2011/2014
- Li HR (2016) Taxi positioning in the new age of internet and industrial development research. *Procedia Eng* 137:811–816
- Lopez M (2012) El Transporte de Pasajeros y el sistema vial EN la ciudad de México. *Biblioteca Jurídica Virtual del Instituto de Investigaciones Jurídicas de la UNAM, México*. <http://biblio.juridicas.unam.mx/libros/6/2735/12.pdf> Accessed 1 Dec 2017
- Moon Y (2015) Uber: changing the way the world moves. Harvard Business School, Case 101
- Nelson/Nygaard Consulting Associates (2008) Santa Monica taxi study—technical memorandum. <http://nelsonnygaard.com/wp-content/uploads/2008/03/SANTA-MONICA-Taxi-Study.pdf>. Accessed 20 Feb 2018
- Newcomer E (2016) Can Uber conquer Latin America? *Bloomberg*. <https://www.bloomberg.com/news/articles/2016-10-13/can-uber-conquer-latin-america>. Accessed 20 Nov 2017
- OECD (2007) Taxi services: competition and regulation 2007. <http://www.oecd.org/regreform/sectors/41472612.pdf>. Accessed 12 Feb 2018
- OECD (2016) App-based ride and taxi principles for regulation. <https://www.itf-oecd.org/sites/default/files/docs/app-ride-taxi-regulation.pdf>. Accessed 20 Feb 2018
- Opina Bogotá (2017) Uber vs Taxis: entrevista al Secretario de Movilidad de Bogotá. <https://www.youtube.com/watch?v=K8OwW6yO38>. Accessed 22 Nov 2017
- Parametria (2013) Movilidad y transporte en el Distrito Federal. *Investigación Estratégica Análisis de Opinión y Mercado*. <http://www.parametria.com.mx/DetalleEstudio.php?E=4539#.VwwcPVt4oqM.email>. Accessed 9 Nov 2017
- Rayle L, Shaheen S, Chan N, Dai D, Cervero R (2014) App-based, on-demand ride services: comparing taxi and ridesourcing trips and user characteristics in San Francisco. *University of California Transportation Center*. [https://www.its.dot.gov/itspac/Dec2014/RidesourcingWhitePaper\\_Nov2014.pdf](https://www.its.dot.gov/itspac/Dec2014/RidesourcingWhitePaper_Nov2014.pdf). Accessed 20 Nov 2017
- Rogers B (2015) The social costs of Uber. *Temple University Legal Studies Research Paper* No. 2015-28
- Salanova J, Estarda M, Aifadopoulou G, Mitsakis E (2011) A review of the modeling of taxi services. *Procedia Soc Behav Sci* 20:150–161

- Sanchez L, Avendaño S, Coronel Y, Castellanos L (2016) Uber an innovative deregulated business or an infringer of the free competition? <https://www.competitionpolicyinternational.com/uber-an-innovative-deregulated-business-or-an-infringer-of-the-free-competition/>. Accessed 10 Feb 2018
- Schaller B (2007) Entry controls in taxi regulations: implications of US and Canadian experience for taxi regulation and deregulation. *Transp Policy* 14(6):490–506
- SFCTA (2017) TNCs today: a profile of San Francisco transportation network company activity. [http://www.sfcta.org/sites/default/files/content/Planning/TNCs/TNCs\\_Today\\_112917.pdf](http://www.sfcta.org/sites/default/files/content/Planning/TNCs/TNCs_Today_112917.pdf). Accessed 4 Mar 2018
- Silverstein S (2014) These animated charts tell you everything about Uber prices in 21 cities. *Business Insider*. <http://www.businessinsider.com/uber-vs-taxi-pricing-by-city-2014-10>. Accessed 1 Mar 2018
- Statista (2018) Numbers of smartphone users in Mexico from 2015 to 2022 (in millions). <https://www.statista.com/statistics/270970/number-of-smartphone-users-mexico/>. Accessed 10 Feb 2018
- Strong C (2015) When apps pollute: regulating transportation network companies to maximize environmental benefits. *Univ Colo Law Rev* 86
- TfL (2017) Licensing decision on Uber London Limited. <https://tfl.gov.uk/info-for/media/press-releases/2017/september/licensing-decision-on-uber-london-limited>. Accessed 20 Feb 2018
- TfL (2018). London taxi and private hire. <http://content.tfl.gov.uk/private-hire-policy-statement.pdf>. Accessed 20 Feb 2018
- Torres N (2016) Nearly a year on, Mexico City Uber regulation stuck in neutral. <https://www.thepeninsulaqatar.com/article/17/06/2016/Nearly-a-year-on,-Mexico-City-Uber-regulation-stuck-in-neutral>. Accessed 3 Nov 2017
- Uber Estimate (2018) Uber cities. <https://uberestimator.com/cities> Accessed 22 Nov 2017
- United Nations (2014) The world's cities in 2016. [http://www.un.org/en/development/desa/population/publications/pdf/urbanization/the\\_worlds\\_cities\\_in\\_2016\\_data\\_booklet.pdf](http://www.un.org/en/development/desa/population/publications/pdf/urbanization/the_worlds_cities_in_2016_data_booklet.pdf). Accessed 10 Jan 2018
- WSJ (2014) Uber: the state of play. *The Wall Street Journal*, 15 Dec
- Yin RK (2009) Case study research: design and methods (4th edition). *Can J Action Res* 14(1): 69–71
- Yusoff RM, Karim NA, Daud A (2015) Impact of satellite-based dispatch systems for taxi services in the urban areas: a literature review. In: *Global Conference on Economics and Management Science* 2015

**Maria Lorena Puche** holds a Bachelor of Civil Engineering from UNEFA, Maracay (Venezuela), and a Master's Degree in Innovative Governance of Large Urban Systems (IGLUS) from EPFL, Switzerland. She has over seven years of experience in city management and public administration. Her research interests are based on her passion for the governance of transportation systems, new regulatory approaches, and governance models for emerging innovative solutions in the transport sector as well as innovative concepts such as Mobility-as-a-Service (MaaS).