

# What regulation for the taxi of the future?

Richard Darbéra

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# What regulation for the taxi of the future?<sup>1</sup>

# Final version August 25<sup>th</sup> 2017 Richard Darbéra <darbera.cnrs@free.fr>

Introduction	1
Regulation and technical change	2
Why regulate?	
What should be regulated?	
Enforcing compliance at a reasonable cost	
The driver	4
The vehicle	
The Commercial Transport Intermediary (CTI)	6
Specific issues	8
Drivers' employment status	
Workers protection	
Equity implications	10
The jurisdiction border issue	11
Planning	
Is there a need to keep a regulation that is specific to the st	
	11
References	

#### Introduction

- 1. Of all the variables that will shape the taxi of the future, the less predictable is regulation. The technology is with us already, we know the actors and have a good vision of their strategies but most of what will happen in the coming decades hinges upon the way regulators will define how all this will interplay.
- 2. Regulation always lags behind technology. Most of the features of the taxi service of today are framed by regulations issued decades and even centuries ago. And today regulators are still struggling to accommodate technologies that appeared almost a decade ago. For this reason, instead of discussing regulations addressing the driverless car or the flying taxi, we chose to focus on the near future i.e., catching up on the regulatory backlog without hampering the future development of unscheduled door-to-door passenger transport. As noted in the last *One Hundred Year Study on Artificial Intelligence Report* [Stanford, 2016, p.24], "although future cars will be smarter and drones will be available widely, it is unlikely that by 2030 we will have widely adopted transportation vehicles that look and function differently than the ones we have today."

<sup>&</sup>lt;sup>1</sup> Discussion paper commissioned by the International Road Union (IRU) for the Taxi of the Future Reflection Group together with two other papers: "Business-models for the taxi of the future" and "Travel-chains / mode choice & the taxi of the future"

# Regulation and technical change

- 3. As far back as we can look in the past, the core of taxi<sup>2</sup> regulation has always been based on economic principles. And each time this core regulation was adjusted, these adjustments were motivated by social or by technological revolutions.
- 4. The first taxicabs appeared in the 17<sup>th</sup> century when a sizable enough urban middle-class started to be able to afford renting the horse-drawn vehicles they could not afford to own.
- 5. Soon a clear distinction between two markets for these new services appeared: a "street market" on the one hand and a "contract" market on the other hand. This distinction came from the fact that taxis plying in the street market needed to be regulated in prices, in quality and in quantity, whereas there was no need for specific regulation in the contract market.
- 6. Prices in the street market needed to be regulated to avoid lengthy bargaining and haggling in the streets. Once the prices are set you need to define a quality standard. Since both prices and quality need to be enforced, to reduce the cost of enforcement, it was necessary to prevent too easy entry in and exit from the market, thus some form of capping was applied to introduce some viscosity in the access to the trade. Capping also permitted to mitigate congestion at some places of high demand.
- 7. The first technical revolution happened in the street market at the turn of the 20<sup>th</sup> century with the advent of the taximeter combining time and distance. Almost everywhere a new regulation replaced the three centuries old zone-to-zone or hourly pricing systems by metered fares systems.
- 8. The second technical revolution happened in the contract market in the 1970s when middle class households got access to the telephone and when simultaneously vehicles could be equipped with affordable radio-dispatch. This made instant contracting possible and blurred the distinction between the two markets. Regulators reacted very differently from one country or city to the other. At one extreme, New York City forbade the Yellow cabs to use radio dispatch that thus became a liveries' monopoly. At the other extreme, France prohibited the private hire vehicles (*Petite Remises*) from using radio dispatch and made it a monopoly of the street taxis.
- 9. The third technical revolution happened less than a decade ago when GPS became a common feature of mobile phones. It made it possible to e-hail a ride from the sidewalk, further blurring the distinction between street and contract markets. Most regulators were caught by surprise and are still struggling to cope with it. We think this is the issue that should be addressed by our reflexion group now.
- 10. A fourth technical revolution is under way with the driverless cars but we think it is definitely not a regulatory priority for the taxi trade.

<sup>&</sup>lt;sup>2</sup> Defined as unscheduled door-to-door passenger transport

### Why regulate?

- 11. Regulating unscheduled door-to-door passenger transport goes after several objectives. First comes safety, safety for the passengers of the vehicle, for the driver and for the other road users. A second objective is to ensure fair competition between the various providers of the taxi services. Fair competition is a prerequisite to get the best services at the least cost, but it also includes fair conditions for drivers. Then comes mitigating the externalities produced by road use, e.g. local and global pollution, noise, congestion, etc.
- 12. One role of government is to promote social inclusion. In our modern societies shaped by the automobile, transport has become a basic human need from which some people happen to be excluded. What first comes to mind in this regard is access to the vehicles and services for all, including persons with disabilities and the elderly. But inclusion also entails providing mobility when and where scheduled public transport is not available (e.g. at night, in low density areas, etc.). Here the taxis can play a major role. They can be brought in by regulation, but not necessarily. In some cases, fiscal incentives and subsidies may be more cost effective, as we will see later on.
- 13. At the heart of the technical revolution mentioned above is what has been dubbed "big data". Commercial Transport Intermediaries³ (CTI) collect huge amounts of data on their clients, on their drivers, on transport demand, on traffic conditions, etc. This is both a threat and an opportunity. The threat is a threat to privacy that needs to be regulated. The opportunity is that all this information could be very valuable for the government agencies in charge of mobility management and city planning. Here, regulation can compel the CTIs to make some of their data available to specific public agencies.

# What should be regulated?

- 14. From one country to another, from one city to another, the taxi industry can follow various business models. Drivers can be independent operators or work for taxi companies. Vehicles can belong to the drivers, or to taxi companies, or be rented by both from specialized firms. Taxi companies can manage their own dispatch centres or provide services to larger CTIs.
- 15. To regulate the taxi trade, regulators basically target at three components of the system: (i) the driver, (ii) the vehicle, and (iii) the Commercial Transport Intermediary.
- 16. The smartphone revolution compels regulators to revise existing regulations addressing drivers and vehicles and to design new ones for the app-based CTIs. The taxi trade economic and social issues requiring regulation are presented in Table 1 below, by objective and by target. These regulations should apply to the whole taxi trade. Specific cases

<sup>&</sup>lt;sup>3</sup> "Commercial Transport Intermediary" (CTI) are defined as follows "Digital intermediaries or marketplaces that canvass or solicit for a passenger to connect with a licensed professional driver, meeting the requirements of the relevant jurisdiction and operating a validly registered vehicle under the laws of the relevant jurisdiction."

(airport pickup areas, non bank card payment, etc.) will be discussed further below.

Table 1 — Taxi trade economic and social issues requiring regulation

Objectives	Driver	Vehicle	Commercial Transport Intermediary (CTI)
Safety	"Fit and proper" Overwork	Road worthiness Insurance	
Fair competition	Income tax evasion Social contributions (retirement, health)		Tax avoidance (Dutch sandwich) Natural monopoly Workers protection
Externalities		Clean vehicle	Congestion
Privacy		On-board camera	Customer protection
Access with no exclusion	Training	Accessible vehicles	Quota or subsidies?
Mobility (night, low density, poor, elderly, etc.)			Subsidies
Planning			Data

#### **Enforcing compliance at a reasonable cost**

- 17. Drafting sensible regulation to deal with the economic issues mentioned in the table above is a no-brainer. The problem is how to enforce compliance at a reasonable cost. It is our hypothesis that it can be quite easily done if Commercial Transport Intermediaries are required (as it is the case in New York City) to provide, for each trip booked, detailed data according to the following entries:
- The pickup and drop-off date and time
- The driver's license number
- The vehicle license plate
- The pickup and drop-off location names (i.e. postal address)
- The pickup and drop-off longitudes and latitudes
- 18. It could be noted that similar data are collected by the on-board computers that are required to equip all street and contract taxis in the Netherlands.
- 19. As we will see in the following sections, for most of the proposed regulations, enforcement would be much more efficient if the regulator has automatic access to these data.

#### The driver

- 20. The qualification requirements for the drivers are a very much debated and politically sensitive issue. One must be very careful to distinguish between what is useful for the riders' safety and what is more targeted to prevent newcomers to compete with the established taxis as exemplified in the French case.
- 21. The London regulation could be considered as a benchmark to this regard. As stated in its General Guidance for licensed private hire vehicle<sup>4</sup> (PHV) drivers [TfL, 2011], Transport for London (TfL) may refuse to grant a PHV driver's licence if the "applicant fails to satisfy TfL

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<sup>&</sup>lt;sup>4</sup> i.e. UK equivalent to contract only taxi

that: he is at least 21 years of age; he has held a full driving licence for at least 3 years, and; he is of good character and is fit to act as a PHV driver."

- 22. The criterion for "good character" is determined mainly on the applicant's conviction history (which is regarded as relevant to the application by the Licensing Authority) derived from the Enhanced Criminal Records Bureau report and other such reports, including police observations and entries made in his Driver and Vehicle Licensing Agency-issued driving licence. TfL also requires drivers to undergo periodic health checks.
- 23. In our opinion, it is important that this vetting should be carried out by government agencies with direct access to the Criminal Records Bureau reports, and not left to the PHV or CTI operators. Last April, over 8,000 Uber and Lyft drivers were removed from the road after being subjected to a state-conducted background check in Massachusetts [Boston Globe Apr 05, 2017].
- A research from the University or California Law School [Blasi & Leavitt, 2006] pointed out that Los Angeles taxi drivers were prone to work overtime: "an average 72 hours per week, sometimes putting in 18-20 hours per day driving in Los Angeles traffic". The link between drivers' fatigue and accidents is well established [Dalziel & Job, 1997]. An important safety issue is, thus, how to prevent drivers from working overtime.
- 25. This cannot be left to CTIs since drivers may work for several ones in the same day. Here, the only workable solution is for the regulator to centralize all the data transmitted by the various CTIs of its jurisdiction and automatically check drivers working time<sup>5</sup>. This is exactly what the New York Taxi and Limousine Commission (TLC) has imposed upon all CTIs operating in the city. The rule is intended to help the TLC track driver hours and fatigue, as well as complaints about reckless driving<sup>6</sup>.
- This data could also be used to check drivers' taxation compliance. This can be a very important feature of the regulation, especially in Europe where the welfare state is by and large financed by taxes on employment and on value added, and where consequently, incentives for tax evasion and undeclared work are substantial.
- 27. Do taxi drivers need a special training? Training requirements can be used as a very efficient barrier to entry in the profession, as exemplified by the century old London "Knowledge", or, more recently, the weird exam imposed on would-be VTC<sup>7</sup> drivers in France<sup>8</sup>. The only purpose of these exorbitant requirements is to protect the rents of the incumbents. In a competitive market where drivers are under the permanent scrutiny of grading apps, no need for this type of exam: it

8 An anthology of the strangest questions to be found at http://www.capital.fr/a-laune/quiz/d-artagnan-lorgnon-brexit-decouvrez-les-questions-absurdes-posees-a-lexamen-des-vtc-1176317

<sup>&</sup>lt;sup>5</sup> A costlier solution would be, like in the Netherlands, to equip all vehicles with an onboard computer activated by the driver's electronic ID card. The card would record all driving time and warn when working overtime.

<sup>6</sup> http://nyc.streetsblog.org/2017/02/02/tlc-votes-to-require-uber-and-lyft-todisclose-trip-data/

<sup>&</sup>lt;sup>7</sup> i.e. French equivalent to contract only taxi

falls upon the passengers to decide what skills should be expected from the drivers.

- 28. This, however, does not mean that all training is irrelevant. Recent information shows that in the USA many drivers have been lured into the profession by false income promises [FTC, 2017]. This was possible because most drivers were unaware of the actual investment and operating costs of providing the taxi service. To prevent that, some basic knowledge of accounting, of taxation and of social obligations could be required by regulation to make sure that candidates enter the profession knowingly.
- 29. Then comes the case of the drivers that may have to carry disabled persons, possibly with dedicated vehicles. They definitely need some training. This issue will be addressed later in our report, together with discussing the need to regulate subsidized services to specific populations.

#### The vehicle

- 30. The licensing authority must be satisfied that the vehicle is safe, and in a suitable mechanical condition. Any active or passive safety system designed to lessen the risk of injury or death in an accident, such as airbags, seatbelt tensioner etc., must be in good working order.
- 31. More importantly, the vehicle must be inspected periodically to ensure that it conforms to regulations governing safety and emissions standards. Since these vehicles generally are in constant use, these inspections should be more frequent than the ones imposed upon other vehicles, i.e. at least every year or even every 6 months.
- 32. The issue here is to make sure the vehicle used is actually the one that is registered. Here the Dutch on-board computer system is the most cost effective. Full data transmission from the CTIs is also helpful. In Sweden, a recent report [SOU 2016, pp. 219-221] has proposed a control system comparable to the Dutch one, that is effective and cheap both for the taxi industry and the authorities: the vehicle has a "control box" containing an electronic ID for the car and an app / wireless communication program, a GPS that detects where the vehicle is located at different times (including empty millage), fares, driver's ID and a memory that stores this control data. This ID can be read wirelessly by the driver's app or taxi company's operating system. The vehicle's control box must be securely attached to the vehicle in a suitable place and properly sealed, preferably electronically. The inspection information in the vehicle's control box is available to the Swedish Tax Agency upon request.
- 33. Finally, regulation must also make sure that liability in case of accident is correctly covered by insurance.

#### The Commercial Transport Intermediary (CTI)

34. To insure fair competition in the taxi market, it is important to prevent some CTIs from taking advantage of tax avoidance loopholes such as the famous Dutch sandwich. There is no easy solution to this problem, at least at the national level, but one possible option is to raise a specific tax on rides. For this, again, full data transmission from the CTIs is necessary.

- 35. App-based CTIs operate in what economists call a "two-sided market": they sell rides to passengers and, at the same time, sell passenger-rides to drivers. They maximize the total profit, i.e., the interlinked profits from both sides by adjusting its price levels, but more importantly by adopting a pricing structure that balances the relative demands of both sides. Since the seminal paper by Jean-Charles Rochet and Jean Tirole [2003] on platform competition with two-sided markets, we know that received antitrust doctrine does not apply to multi-sided markets: monopoly pricing and below cost pricing may be permanent features of a competitive environment. Proving predatory pricing at the courts might be very difficult [Evans, 2016].
- As we explained in the OECD-ITF discussion paper "Principles for the regulation of for-hire road passenger transportation services" [Darbéra, 2015] the CTI business is prone to natural monopoly at a global scale. To enter the market, developing a new app is the easy part. Many competitors are able to do that, so to be audible, one needs to invest a huge amount in communication, in marketing, in brand, to reach a critical size of customers and drivers. Investors believe this is a "winner takes all" market. This is the reason why global CTI have been able to raise funds and lose money for several years buying customers and drivers, with no short-term profitability constraints imposed upon them by investors. Moreover, even if they need to show profit to their investors, the fact that they are present in several cities in different countries allows them to subsidize both customers and drivers in one city where they want to dislodge competitors with the profits their draw from a monopoly position already gained in another city. In this case, it is impossible for the local regulator to prove predatory pricing unless the price paid by the customers is blatantly lower that the price paid to the driver.
- 37. The propensity for CTI to reach a natural monopoly position can locally be prevented by fixed quotas<sup>9</sup>, or by progressive taxation of market share. The first instrument is straightforward. It could however lead to a cartel where the incumbents could collude to prevent new contenders to enter the market; and, in any case, it will hamper competition. Progressive taxation of market share may be more flexible.
- 38. Mexico City is an example of proportional (not progressive) market share taxation. The city, in July 2015, became the first Latin American city to regulate ride-hailing apps, introducing a 1.5 per cent ride levy<sup>10</sup>. In New York City, to close a standoff with the municipality, Uber agreed that summer to discuss measures such as a surcharge on each fare to help fund the cash-strapped Metropolitan Transit Authority.
- 39. To prevent CTIs from getting a dominant position in the local market, the progressive surcharge on fares should reach punishing rates when the market share gets close to, say, 40% or 45%.
- 40. Congestion of urban streets caused by the rapid development of app-based taxi services is already a much debated issue in cities like New York, London or Amsterdam. Here is an opportunity to implement

7

<sup>&</sup>lt;sup>9</sup> As in Stockholm where no taxi CTI may operate more than 35% of the vehicle fleet. <sup>10</sup> At this date, Uber had 500,000 users and more than 10,000 drivers in Mexico City, with most using Uber X the equivalent of Uberpop in Europe.

finely tuned congestion charges based on actual use of public road by time of the day, e.g. as the one recommended by Glaister & Graham [2003 & 2006]. Here again, this requires full data transmission from the CTIs. A simplified version of this congestion pricing system is used in São Paulo [ITF-OECD, 2016, p. 34]. Just like in the early years of the 20th century the taxi industry has been used as a showcase for the automobile, it could now be used as a showcase and a training ground for elaborate congestion pricing to be later extended to all vehicles.

41. CTIs collect huge amounts of information about their customers worldwide. This is a privacy issue that might need to be regulated, as it is regulated in the E.U. with Regulation 2016/679 (the General Data Protection Regulation, or "GDPR") <sup>11</sup>. Recently, Janette Sadik-Khan, former New York City transportation commissioner published an article in the *New York Daily News* (February 2, 2017) where she said that if the TLC is denied access to Uber's data "There's also no way for planners to assess basic transportation equity and see if rides are being cancelled or declined based on people's destinations, physical ability, or race, colour or creed".

## **Specific issues**

#### **Drivers' employment status**

- 42. Should regulation consider people driving for a given CTI as independent contractors or as employees of this CTI? The issue at stake here goes much beyond the taxi trade and belongs to the so-called gig economy. It all depends upon the way the country's welfare system finances health care, unemployment benefits and retirement pensions. In some countries most of it comes from employers' contributions, and independent workers have to pay much more to get equivalent benefits.
- 43. This is a big issue in countries like France where regardless of the fact that they are employed or not people have access to most of the social benefits, benefits that are essentially financed by employers' contributions. For this reason, the Paris Urssaf (French Health Service) filed two lawsuits claiming from Uber the payment of the social contributions that would be due if the drivers, instead of self-employed, were employees of the CTI.
- 44. Likewise, in October 2016 a London employment court has declared that Uber drivers should be entitled to minimum wage, sick pay and holiday pay<sup>12</sup>.
- 45. In the USA, by treating workers as contractors, the CTIs can keep labour costs low, since they do not need to pay drivers' payroll taxes and are not subject to minimum-wage and overtime laws. Lyft agreed in 2016 to settle a class-action lawsuit brought in 2013 by Lyft drivers in California. The drivers had sought to be recognized as full-time employees who would be eligible for benefits from the company, rather than as independent contractors [New York Times January 27, 2016].

 $^{12}\,https://www.judiciary.gov.uk/wp-content/uploads/2016/10/aslam-and-farrar-v-uber-reasons-20161028.pdf$ 

 $<sup>^{11}\,</sup>https://www.whitecase.com/publications/article/unlocking-eu-general-data-protection-regulation-practical-handbook-eus-new-data$ 

However, under the settlement, Lyft drivers will continue to be classified as contractors. And in California and Massachusetts, Uber paid \$100,000 to settle a lawsuit claiming that drivers were entitled to expenses like gas and maintenance. In New York, drivers' access to employment rights depends on the State Labor Department, which takes on Uber drivers case by case. So far, only two have been granted unemployment payments.

46. The total flexibility of the gig economy services, appreciated by consumers, is based on the precariousness of the workers performing the service. Paid by the task, without visibility on their next day's income, they only have reduced social protection, not to mention access to housing or credit. The issue at stake here is how to open up new rights for precarious workers, and how to finance these schemes without increasing administrative complexity and discouraging employment?

#### **Workers protection**

- 47. Driving a car is a very low skilled occupation. As a result, the supply of potential drivers is almost limitless. Historically, this has always given the owners of taxi licences the possibility to pressure their drivers down to bare subsistence. Not surprisingly, almost everywhere, taxi drivers are recent migrant workers. With the advent of the CTI and the huge amount of data they can collect on their drivers, the relation is even more unbalanced<sup>13</sup>.
- 48. In a recent article in the *New York Times* (April 2, 2017) Noam Scheiber explained how Uber engaged in an extraordinary behind-thescenes experiment in behavioural science to manipulate its drivers. It uses psychological inducements and other tactics developed by the video game industry to influence when, where and how long drivers work, raising company revenue while lowering drivers' per-hour earnings.
- 49. More worryingly it also attracts new drivers with false promise of income. On Uber's webpage on how to become driver, one can read "Work that puts you first. Drive when you want, earn what you need."
- 50. In a recent order, the American Federal Trade Commission (FTC) has settled a lawsuit against Uber for \$20 million, as a result of a federal complaint that says the ride-hailing start-up inflated the amount of money potential drivers could make as drivers for the ride-hailing service<sup>14</sup>. According to the FTC complaint<sup>15</sup>, Uber presented as median hourly income for its drivers in 18 major cities, figures that were only reached by fewer than 10% of the drivers in 3 cities and fewer than 20% in 8 others. FTC also notes that multiple respectable news sources had disseminated Uber's false statement, including Businessinsider.com, CNBC.com, Forbes.com, and Slate.com.
- 51. Although this behaviour is reprehensible, there is no need for taxi specific regulation about it. General trade laws already prohibit unfair or deceptive acts or practices in or affecting commerce. The

 $<sup>^{13}</sup>$  As long as the driver is a professional, it is not personal privacy issue relevant of GDPR, but a labour law issue.

<sup>&</sup>lt;sup>14</sup> https://www.ftc.gov/system/files/documents/cases/uber\_final\_order.pdf

<sup>15</sup> https://www.ftc.gov/system/files/documents/cases/1523082ubercmplt.pdf

problem is that the various countries' Trade Commission must, first, be aware of these practices and, second, have access to the internal CTI's data to collect drivers' driving time (including empty millage) and the corresponding earnings. The task would be easier if, as a routine, CTIs were compelled by regulation to submit their trip data.

- 52. As noted earlier, the relation between the CTI and the driver is unbalanced. It is even more unbalanced if, at the local level, a CTI has reached a natural monopoly position or if a couple CTIs are acting as a cartel. In these case drivers confront a monopsony and have no information about their marginal productivity (i.e. their real value in the market).
- 53. Save from imposing that every driver should be salaried and protected by minimum wage regulations, the only way to control that is to prevent CTIs from reaching a monopsony position at the local level. This brings us back to the regulations we proposed earlier to prevent local natural monopolies.

#### **Equity implications**

- 54. In most countries of the rich world, scheduled public transport operators are subjects of regulations designed to ensure equitable accessibility for disabled, elderly or low-income residents. Sometimes, this extends to taxi vehicles.
- 55. The London Black Cabs have to be disabled friendly, which means the vehicles have to have wheelchair ramps, wide opening doorways, methods where the wheelchair is held in place safely in the vehicle in the event of an accident. This requires the use of specialist vehicles which are neither cheap to produce (due to low production runs) nor particularly up-to-date due to lack of investment on behalf of the manufacturers. The problem is that the cost of this is met by the increased fares charged to everybody, and this put them at a disadvantage vis-à-vis minicabs operating for CTIs. The situation is similar in New York City where by 2020; half of all yellow cabs must be wheelchair-accessible while the new livery services have no such mandate.
- 56. Making all buses, trains and subway stations accessible to wheelchair users can be very expensive. For this reason public transport agencies very often find it cheaper to contract with specialized transport operators and provide mobility for this public at a nominal fare but under specific conditions, e.g. number of weekly trips.
- 57. As mentioned earlier, the taxis can play a major role for providing mobility when and where scheduled public transport is not available and to the disabled and the elderly. The question is: how to subsidize it?
- 58. In the case of rural areas, several regions in Denmark, Sweden, and the Netherlands seem to have come up with different and innovative solutions to this problem [Cazemier *et al.*, 2012]. These services are subsidized but competitive bidding and centralized dispatch ensure they are provided at the least cost.
- 59. In urban areas, imposing operators' fleets to respect a given quota of accessible vehicles does not imply that CTIs will strive to make these vehicles available when and where needed. The cost will be borne

by all the taxi users, but most of it will be wasted. Since emerging mobility providers simply follow perceived market demand, a better approach is to make the demand from disabled persons attractive by subsidizing it, e.g. paying the CTI twice or thrice above the normal fare paid by the person.

60. Of course, this has a cost for the public purse. If it is politically easier to make all taxi users to pay for the disabled in place of the taxpayer, another way around is for the public agency to resort to some kind of marketable rights system. In this case, the agency has first to estimate what percentage of the taxi trips should be done by people in wheelchairs. Then it can require the various CTIs of the city to reach this percentage. The agency would then auction rights for not meeting the target. Under-performers would buy these rights from the agency or from over-performing CTIs.

#### The jurisdiction border issue

61. Some of the issues above could be regulated at the metropolitan level or at the regional level. There is a problem however when rides cross jurisdiction borders, e.g. when a vehicle registered in one city brings a passenger in another city and takes advantage of the fact that its CTI's platform is present in both cities to pick up passengers in the second city where regulation might be less lenient. This can be prevented by specific signage on the vehicle or by requiring the CTI to transmit their data to a national regulator.

#### **Planning**

- 62. In the sections above, we have seen the many instances where access to the CTIs' data would make it easier for the regulator to enforce compliance with the various regulations proposed.
- 63. The data generated, collected, and stored by CTIs also contain a treasure trove of insight into travel behaviours and preferences that can be harnessed for the public good. It could reveal districts underserved by transit and identify the neighbourhoods that should be connected with them, or show where cities should reorganize street networks or invest in new transportation infrastructure.
- 64. This is well explained in a recent report by TransitCenter [2016, p. 37] which, in addition gives an astonishing example: "Uber tracks phone accelerometer data that can detect bumps in the road during each rider's trip, creating the potential to map roadway quality in cities where the company operates."
- 65. As stated in the report: "private transportation companies rely on publicly funded road infrastructure to support their businesses. It is reasonable, then, for public agencies to expect something in return, especially if it would lead to improved transportation planning."

# Is there a need to keep a regulation that is specific to the street taxi?

66. At a time when e-hailing is a common option for most riders, one could discuss the need to keep a regulatory distinction between street taxis and contract taxis. This distinction may be useful for customers

- with no smartphone or to avoid congestion at the taxi ranks at airports and train stations. However, other options are available that do not require separated regulations.
- 67. The real issue is the one of sub-optimal regulation, e.g. if for some political or technical reason it is not possible to impose effective congestion pricing on all the taxi vehicles, it might then make sense to keep a special category for the vehicles allowed to ply for hire in the streets and at stations as an imperfect way to mitigate congestion.
- 68. In case the regulation confirms that there is no functional difference, the real issue here is probably how to compensate the street taxi licence owners for their vanished asset.

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