

RIDESHARING PLATFORMS AND THE LONG TAIL OF MOBILITY



BY ROSSI ABI-RAFEH¹ & EMIL PALIKOT²



¹ Toulouse School of Economics, University of Toulouse Capitole, Toulouse, France.

² Toulouse School of Economics, University of Toulouse Capitole, Toulouse, France.

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I. THE IMPACTS OF DIGITAL TECHNOLOGY ON RIDESHARING

A handful of tech companies have revolutionized transportation: today many urbanites who grew up considering hailing a cab a luxury order one within minutes of pressing a button on their smartphones. Indeed, these companies – Uber being the most prominent – became known as “ride-sharing” companies, and have disrupted the traditional taxi monopolies by offering new technology and enabling free entry by drivers.

Uber generated \$6.8 billion in consumer surplus in 2015 in the U.S. alone, according to a calculation by Peter Cohen, Robert Hahn, Jonathan Hall, Steven Levitt, and Robert Metcalfe, using data based on Uber’s “surge” pricing algorithm.³ This figure captures only short-term surplus; it neglects changes in car ownership habits and usage, which are substantial: Uber’s entry into Santiago, Chile, has significantly decreased the number of drunk-driving fatal accidents and fatalities, mainly during nighttime.⁴ On the other hand, the convenience offered by these platforms has also led to an increase in city traffic congestion and an overall increase in the total number of motor vehicle fatalities.⁵

So far, Uber has not fully monetized the value it creates; it has never been profitable, and the ride-hailing giant reported losing a whopping \$5.2 billion in the third quarter of 2019. Lyft, Uber’s main competitor, posted a loss of \$644 million.⁶ This isn’t a problem unique to ride-hailing services in the U.S.: none of the major ridesharing companies around the world – Didi in China, Ola in India, Grab in Southeast Asia – are profitable. Investors have so far eagerly funded this growth-at-any-price strategy, hoping to profit once network effects are in full swing. However, this strategy rests on the ability to expand the driver side of the market as well, which is challenging. On May 8, 2019, ride-hail drivers in cities across the U.S. protested their unfair pay and poor working conditions. The continued success, and profitability, of the ridesharing platforms rests on splitting the surplus that they generate in a way that keeps all parties involved on-board – drivers might be the bottleneck.⁷

3 Cohen et al., “Using Big Data To Estimate Consumer Surplus: The Case Of Uber,” available at <https://www.nber.org/papers/w22627.pdf>.

4 Lagos et al., “Gender-Specific Benefits from Ride-Hailing Apps: Evidence from Uber’s Entry in Chile,” available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3370411.

5 John Barios, Yael Hochberg & Livia Hanyi Yi show a 3.5 percent spike in fatalities following the entry of ridesharing to the city, which across the U.S. amounts to 987 extra deaths each year.

6 See <https://www.theverge.com/2019/8/8/20793793/uber-5-billion-quarter-loss-profit-lyft-traffic-2019>.

7 See <https://www.theverge.com/2019/5/8/18537194/uber-driver-strike-ipo-public-relations-nyc>.

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Uber, Lyft, and the like are frequently making the first pages of the press, but ridesharing is also transforming another market - city-to-city transportation. Here, with 70 million active users, the most prominent company is BlaBlaCar, it creates a dense network of cheap and flexible rides, which compete with trains and buses. The underlying technology is quite similar, namely online platforms that allow passengers to find drivers, either through search or algorithmic matching, yet the economics of intercity ridesharing are distinct. Probably the most striking feature of BlaBlaCar is the driver side of the market. Not only their sheer number, eight million active drivers (Uber has roughly three million drivers), raises attention, but also the fact that they are generally non-professional drivers, albeit many of them are frequent users. As a consequence, BlaBlaCar's challenge to incentivize participation of drivers, to guarantee further growth, is distinct to those of short-distance ride-hailing services.

II. INTERCITY RIDESHARING: A DIFFERENT LANDSCAPE

Online classified ads websites, like Craigslist in the U.S., originally brought ridesharing online: non-professional drivers (often university students) trying to fill up their cars on longer trips. However, when a trip lasts for several hours, finding a ride fast matters less than having ample information about the driver or the passenger. Such information ensures an effective matching process and a safe and enjoyable trip. Craigslist offered neither instantaneity nor any personal verification, so new companies emerged and took over the market.

In France, BlaBlaCar was founded in 2004 by Frederic Mazella and Nicolas Brusson: Mazella could not find a way to travel back home from Paris right before Christmas, as all trains were fully booked, while at the same time he noticed that most of the cars on the highway did not have a passenger. Thus, the idea of filling up the cars occurred to him. In 2010, the startup raised \$1.5 million in series A funding. By 2019, it had raised \$400 million over a total of 6 funding rounds. Today it is the largest intercity ridesharing platform: it operates in 22 countries, Russia being its largest market currently, and had a user base of 70 million as of 2019 (including both drivers and passengers).

In the U.S., Logan Green and John Zimmer, computer scientists from the University of California Santa Barbara, created Zimride in 2007. The initial idea was to add a layer of trust to Craigslist ads by providing drivers and passengers with personal information about their potential travel companions and equipping them with credible reputation signals. Despite similar starting points, the two companies have little in common today: Zimride pivoted into the ride-hailing service Lyft, and the intercity part of the business was bought by Enterprise rent-a-car, which operates it as a closed carpooling service for universities and companies. Meanwhile, BlaBlaCar remains a two-sided platform for longer trips, offered by non-professional drivers. That seems to have been working well, as the company reported profits in 2018 (for the first time since its founding date).

Despite being pooled with Uber and Lyft under the umbrella term “ridesharing,” the economics of intercity ridesharing are different from intra-city ride-hailing. The two markets are geographically distinct: intercity ridesharing serves a wider, but sparser transport network than intra-city ride-hailing – with more destinations and less frequent connections between them. In France, for instance, Uber was operating in 12 cities as of January 2018. In contrast, in most days of January 2018, rides were offered on Blablacar from Paris to more than 130 out of the largest 140 cities in France.⁸ In fact, only 15 percent of trips on BlaBlaCar cover routes between major cities. Instead, they connect cities and towns over underserved axes: while most car transport services take place within urban agglomerations or between major urban areas, platform ridesharing taps into the long tail of mobility, i.e. routes where the fixed cost of running trains or bus lines often do not make them economically efficient. By 2020, more than 1700 towns in France have created a designated ridesharing parking and waiting area, and a large share of these towns do not have a train station.

The market structure is different as well: ride-hailing platforms compete with local taxi companies and metropolitan public transport. Intercity ride-sharing platforms compete instead with buses, trains, and flights, and the competition is very different from one route to the next. From the perspective of a passenger searching for affordable and convenient transportation from Paris to Lyon, Blablacar competes with the railways (SNCF), flights, and buses (Flixbus, TransDev, etc.) By contrast, on a direct route from Limoges to Lyon, BlaBaCar operates as a monopoly: these two cities are not generally connected by a direct bus or train, but may be connected by a driver on BlaBlaCar. Both markets are concentrated: Uber has the largest market share both in the U.S. and Europe but competes with Lyft in the U.S. and other local competitors in European cities. BlaBlaCar is the largest global platform for intercity travel, and through a series of horizontal mergers it has expanded to new geographical markets. Competitors either lag severely behind in market shares (Klaxit in France, Tripda – closed in 2016), or are geographically distinct (Zimride, Kangaride, Poparide, Amigo Express in the U.S. and Canada).

⁸ Based on sampling data of Lambin & Palikot (2019), “The impact of online reputation on ethnic discrimination,” available at https://emilpalikot.files.wordpress.com/2019/12/reputation-and-entry_lambin_palikot_1412.pdf – lower bound.

The business model is also different: Uber, Lyft and other ride-hailing companies rely on a software application connecting passengers with independent contractors that provide rental of capital (their car), but primarily labor (their time), much like a taxi driver. Intercity travel platforms connect passengers with drivers who are already making the trip and are willing to take passengers with them. The physical and time cost of the trip is already sunk for the driver, and the platform need not compensate them for it or need to do so to a lesser degree because the driver has a private benefit from the trip. In economic terms, intercity travel platforms offer a marketplace for the rental of underutilized assets (the empty passenger seats), while inner-city travel platforms are based on the rental of labor of the drivers.

Both Uber and BlaBlaCar raised massive amounts of funding before being profitable (Uber still isn't). The rationale of investors was to fund the platforms at a loss until they reached the critical mass and network effects needed to render them profitable. There is a subtle difference in the underlying economies of scale between the two models: a larger number of available drivers on an inner-city ride-hailing platform reduces the wait time faced by passengers. By contrast, passengers on an intercity travel platform are generally less time-constrained: they are typically looking for rides to distant locations in the near future and are genuinely interested in drivers' characteristics like age, gender, or music preferences. Thus, a larger number of available (signed up) drivers increases the chances of a passenger finding the convenient start, endpoint, and time slot for their trip and a driver who is likely to be a pleasant travel companion. Furthermore, drivers on an intercity travel platform like BlaBlaCar are differentiated not only by destinations and their individual characteristics but also vary in terms of the frequency in which they use the platform. As a consequence, on the platform with unprofessional and occasional drivers, a new driver adds value in a distinct way: this new driver could potentially cover a new route, attracting passengers to the platform whose demand was previously completely unmet. The network effects of an intercity travel platform are thus potentially stronger than those of a ride-hailing app within a city.

The defining feature of BlaBlaCar is the length of a typical trip. A trip booked through the platform often involves hours-long interaction with co-travelers, exposing its users to people outside of their social circle. For the platform, it is, therefore, critical to ensure by design a necessary level of trust. Passengers surveyed for a report published by BlaBlaCar and NYU professor Arun Sundararajan report that the level of trust they have in the driver and other passengers is substantially higher than in their colleagues or neighbors, and almost as high as in their friends. Around half of the respondents say that using BlaBlaCar exposes them to more diverse people than their social circles, and it makes them more open to other cultures. The report also suggests that the experience of sharing a ride using BlaBlaCar encourages its users to engage in other online/collaborative activities: they are over 2.5 times more likely to start using peer-to-peer car rentals and 1.5 times more likely to rent a house on a peer-to-peer rental platform than before the first trip. Furthermore, they are almost twice as likely to invest in crowdfunding and 1.3 times more likely to buy or sell used goods.⁹

III. DRIVERS: PROFESSIONAL, REGULAR, OCCASIONAL

Both Uber and BlaBlaCar rely on a matching algorithm and a customer-facing software interface. BlaBlaCar lets passengers search through drivers going a similar route, whereas Uber connects passengers with self-employed contractors who lease their assets (time and car). This difference in the matching algorithm showcases the key distinction between the two markets: in the inter-city ridesharing service, passengers want to learn about the driver to ensure a pleasant ride; in this sense, it is a matching market. In contrast, passengers hailing a short ride in the city care for timely and flexible service, which would be hard to ensure with "non-professional" drivers. As a result, ride-hailing services are generally provided by professional drivers; this "professionalization" of the drivers' side of the market enables the platform to balance the supply and demand by incentivizing drivers to enter the market when demand is high. The professionalization of the workforce is part of a larger trend within e-commerce and sharing economy platforms: the share of professional sellers on eBay has been increasing, and it has affected the sales mechanism, whereby posted prices have replaced auctions to a large extent.¹⁰

The intercity ridesharing companies have mostly stayed clear from this trend: on the profile of drivers, BlaBlaCar indicates that they are "not a professional driver." The platform also provides pricing suggestions to the drivers based only on the distance covered and aimed at recouping the cost of the ride. Steering away from self-employed professional drivers won BlaBlaCar two things: it had a more credible case to stay out of the debate about regulating its workforce. Second, it reduced the drivers' compensation: in general, the driver is compensated neither for their time nor for capital, since most of them are making the trip regardless of the platform.

⁹ Report by BlaBlaCar, available at <https://blog.blablacar.com/wp-content/uploads/2018/01/BlaBlaCar-Bringing-People-Closer.pdf>.

¹⁰ Einav, Farronato, Levin & Sundaresan, "Auctions versus Posted Prices in Online Markets," *Journal of Political Economy*, 2018.

A “non-professional” workforce cannot be easily incentivized to provide service on demand and consequently becomes the bottleneck for a ridesharing platform’s business. Two observations suggest this: first, adoption – French survey data from 2015 indicates there is large adoption potential for intercity ridesharing: 70 percent of employed French residents commute to work by car, but less than 10 percent of households commuting by car to work offer to ride-share on a regular basis.¹¹ In 2019, the average occupancy rate of cars on French highways was of 1.6 during weekdays, and 2 during weekends.¹² From the firms’ perspective, this is untapped growth (or entry) potential; from a social welfare perspective, there is still room for driver and passenger surplus (and possibly additional welfare gains such as decreased congestion and CO2 reduction emissions from car transport).

The second observation is the high rate of drivers who try the platform once, only to leave it after their first experience. On BlaBlaCar, nearly 60 percent of first-time drivers who posted a listing during the last quarter of 2017 did not offer any new listing in 2018. While the reputation system makes an online marketplace for strangers renting or leasing passenger seats more efficient (by, for example, disciplining behavior of buyers and sellers or promoting high-quality sellers), it also creates a hindrance for occasional drivers or drivers who have just signed up. In new research,¹³ we show that passengers are sensitive to changes in reputation, both in terms of the average rating (on BlaBlaCar a rating is a number of stars from 1 to 5, left by previous passengers), but also the number of ratings. Moreover, the impact of the number of past reviews matters significantly more for passengers than the average review, or whether the driver is better than the average driver. New or occasional drivers, therefore, find themselves in a disadvantageous position when competing against experienced drivers.

IV. RETENTION OF THE LONG TAIL OF TRANSPORT

Frequent exits by new sellers is not a problem unique to ridesharing platforms, but a more systematic challenge in the sharing economy at large. A study by JP Morgan Chase Institute shows that 52 percent of people working for labor platforms quit within a year, and 56 percent of those on capital platforms vacate in the first 12 months.

On a sharing economy platform where the service is provided by “non-professional” sellers, the percentage of sellers who use the platform again in a unit of time, seller retention rate, is organically less than 100 percent: in the context of ridesharing, households differ in their rates of car usage and ownership, and thus in their potential use of the platform (as drivers). For instance, some households do not own cars, and are then only likely to sell seats on a ridesharing platform very occasionally (on holidays with a rental car if ever); whereas others own cars and regularly commute to work in a nearby town. However, a low retention rate may also be the sign of unsatisfactory outcomes of new drivers: for instance, new sellers can find it hard to make a sale without any reputation signal, and decide not to post any other listings. A ridesharing platform that relies mainly on non-professional drivers has to ensure that entrant or occasional drivers find it worthwhile to return to the platform and offer their subsequent rides as listings. If it fails in doing so, the observed driver retention rate decreases below the organic rate, dampening the network effects as new drivers (who potentially cover underserved routes) do not stay on the platform, leaving unmet demand in the long tail.

Ridesharing companies (and BlaBlaCar in particular) invest significant resources in incentivizing drivers to offer the service more frequently in particular in times of high demand, recognizing it is a significant bottleneck. These incentives can be either informational or in-kind (cash) subsidies and can either be incentives for first-time entrants, or incentives for recent entrants to use the platform more often. Informational subsidies take the form of higher positions in search results for drivers who are offering their first listing, or who have not yet accumulated enough reviews to attract passengers themselves. The presence of these subsidies is hard to directly establish, as most platforms run a proprietary ranking algorithm, or match passengers with drivers directly. BlaBlaCar, however, up to December 2017, showed listings for a route search ranked by the time of day or alternatively price. Starting January 2018, the platform created a promoted box where it shows specific promoted listings for a given route, some of them being new drivers. Other platforms engage in similar practices as well; for example, Airbnb mentions in its terms of service that new sellers also receive a search result boost without further details on the specifics.

Direct subsidies for entry take the form of in-kind rewards for successful first listings: for instance, BlaBlaCar offers an in-kind (gas) reward of 15 euros for drivers who sign up and get at least one booking of their first listing. Direct subsidies can also aim at encouraging repeated use of the platform: BlaBlaCar offers negotiated rates for drivers that have completed a certain number of rides on the platform. On the other

11 Bolusset & Rafrat “Sept salariés sur dix vont travailler en voiture,” INSEE FOCUS, No. 143 February 2019; and CGDD/SOeS, “Enquête sur les pratiques environnementales des ménages,” 2016.

12 Association des Sociétés Françaises d’Autoroutes, Rapport Chiffres-Clés 2019.

13 Abi-Rafeh & Palikot, “Price is Right! Information and dynamics in online marketplaces,” draft available upon request.

hand, BlaBlaCar does not set a market price and does not use surge pricing to incentivize drivers to enter the market when there is an under-supply of seats.

Subsidies for entrants may facilitate ride-sharing platforms to service the long-tail of transport demand by accommodating low-frequency car drivers, without resorting to contracting with self-employed professional drivers. These incentives are costly: like all subsidies to entrants, they distort the market equilibrium, on and off the platform. On the platform, informational subsidies reduce the incentives of new sellers to offer low introductory prices, and direct subsidies for entry can lure in the least “efficient” drivers, i.e. those whose cost of having a passenger for a long trip may be the highest. Subsidies can also backfire. Enticing drivers by guaranteeing a certain level of income was a large part of Uber’s initial marketing plan: drivers were offered higher rates than what taxi companies were offering. Uber is currently facing legal trouble for allegedly misrepresenting the benefits to drivers on the platform, many of whom contracted loans and bought cars counting on a steady stream of income from the company that later on lowered its payments to drivers.¹⁴ However, smaller direct or informational subsidies to a long-tail of drivers may prove economically sound.

V. CONCLUDING THOUGHTS

The entry of tech companies in the market of city-to-city ridesharing has increased occupancy of underutilized cars, allowing people to travel more, and spurring new social interactions. The size of this transportation sector begs a closer look at the broader implications of the platform technology on the market structure.

Intercity ridesharing increases the mobility of passengers: 45 percent of surveyed BlaBlaCar users reported that the availability of a ride-sharing platform allowed them to travel more often on weekend and holiday trips. As we argue in section III, on many routes, especially between smaller cities, BlaBlaCar operates as a virtual monopoly: This grants the platform a special status on these routes, and it is critical that the platform does not abuse it. So far, the growth of BlaBlaCar has been, to a substantial degree, driven by acquisitions, slowly eliminating potential competition. If competition from buses and trains on larger routes disciplines a ride-sharing monopolist on these routes, the concentration of ride-sharing can reduce competition on smaller routes with fewer alternatives. The sector has also recently seen a new form of consolidation with BlaBlaCar now owning OuiCar, a large bus company in Europe.

In ongoing research, we show that individual reputation is valuable for drivers on BlaBlaCar: they can command a higher price for their seats and attract passengers. The necessity of building up a reputation from scratch on an alternative platform might constitute a switching cost for drivers and, as a consequence, an entry barrier for a potential competitor service. As the company expands into inner-city daily commute with a new platform, BlaBlaLines, it transfers the drivers’ reputation from the inter-city platform to the new one, thus creating potential barriers-to-entry in this submarket as well. An architecture that allows the transferability of driver reputation data across competing platforms would be a step towards keeping the threat of competitive entry credible.

Ensuring efficient functioning of ridesharing markets is very important because the change they bring is likely to accelerate. In fact, the combination of autonomous cars and congestion pricing could well make ridesharing the standard mode of transportation of the near future. BlaBlaCar might be the best laboratory we have to understand its implications.

¹⁴ Horan, Hubert, Will the Growth of Uber Increase Economic Welfare? *Transportation Law Journal*, 2017, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2933177.

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